

# Town of Lincoln Community Resilience Building Workshop



## Summary of Findings April 5, 2019



## ACKNOWLEDGEMENTS

This project was conducted by the Metropolitan Area Planning Council (MAPC) with funding from the Executive Office of Energy and Environmental Affairs. Special thanks to Jennifer Burney for initiating and managing the project for the Town, to the Lincoln Schools for providing a meeting space for the workshop, to the Lincoln MVP Core Team, and to all the participants who enthusiastically and diligently worked to create a more resilient Lincoln. MAPC would also like to thank Jennie Cook from St. Anne's in-the-Fields Episcopal Church and Tom Gumbart, Lincoln Conservation Director for careful editing of this document.

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GIS/Data Analysis	Caitlin Spence
Supporting Materials	Elise Harmon
Workshop Facilitators	Anne Herbst, Darci Schofield, Heidi Stucker, and Ralph Wilmer

### LINCLON MVP CORE TEAM MEMBERS

Chris Bibbo	Director of Public Works
Carolyn Bottum	Council on Aging Director
Jennifer Burney	Director of Planning and Land Use, Project Lead
Steve Carter	Fire Chief
Tom Gumbart	Conservation Director
Michael Haines	Facilities Director
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# TABLE OF CONTENTS

Acknowledgements .....	1
Table of Contents .....	2
Overview .....	4
Top Hazards and Vulnerable Areas.....	5
Current Concerns and Challenges Presented By Hazards .....	5
Areas of Concern.....	6
Current Strengths and Assets .....	7
Top Recommendations to Improve Resilience .....	7
CRB Workshop Participants.....	12
CRB Workshop Project Team.....	13
Citation.....	13
Appendix A –Lincoln Workshop Action Prioritization.....	14
Appendix B –Lincoln Workshop Posters and Maps.....	20
Natural Resources Poster .....	21
Climate Change Poster .....	22
Social Vulnerability Poster .....	23
Lincoln Wall Map .....	24
Lincoln Table Map .....	25
Appendix C –Lincoln Workshop Powerpoint.....	26
Appendix D – Lincoln Workshop Table Matrix Results.....	44
Appendix E – Community Forum (Listening Session).....	58
Appendix F – Comments Received on the Draft MVP Summary Report) .....	64

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# Town of Lincoln

## Community Resilience Building Workshop

### Municipal Vulnerability Preparedness Program

#### Summary of Findings

#### OVERVIEW

Recent years have seen notable weather extremes in Lincoln. The record rainfall of April 2010 resulted in a disaster declaration across the Commonwealth of Massachusetts. The winter of 2015 brought record-breaking snow. The following year, the Town and the region was under a drought warning from July to December 2016, the most severe since the 1980s. The winter of 2018 once again brought severe winter storms, including nor'easters in January and March, also resulting in a state disaster declaration. Globally, the years 2014 through 2018 were the five hottest years on record.

In 2017, the Commonwealth of Massachusetts inaugurated the Municipal Vulnerability Preparedness (MVP) program to assist municipalities in planning for and implementing strategies to adapt to predicted changes in our warming climate. The predicted changes include both increased flooding from large rain events and a greater likelihood of drought, increased extreme heat days and heat waves, and increased flooding from sea level rise.

The Town of Lincoln, in continuing its proactive efforts to address future climate threats, applied for a state grant to complete the Community Resilience Building (CRB) Workshop under the MVP program. Upon completion of the MVP program, Lincoln will be eligible to apply for state grants to address identified climate risks.

The Town of Lincoln partnered with the Metropolitan Area Planning Council (MAPC) to complete the MVP program. The Town also designated an MVP Core Planning Team, which identified and recruited community stakeholders to participate in the CRB Workshop. Thirty-three people representing Lincoln Town staff, Town Boards and Commissions, Lincoln community organizations, and regional partners gathered for the workshop on February 25, 2019 (see Workshop Participants, page 11). The Workshop's central objectives were to:

- Understand extreme weather and climate related hazards
- Identify existing and future strengths and vulnerabilities
- Develop and prioritize opportunities to take action to reduce risk and build resilience

Materials provided for the Workshop included local and regional data for changes in temperature, precipitation, and sea level recorded to date, as well as future projections to the end of the century. Posters provided data and mapping specific to Lincoln's infrastructure, demographics, and natural resources (see Appendix A). The Workshop participants considered Lincoln's strengths and vulnerabilities, focusing on three categories: infrastructure, society, and the environment. Working in four small group and then together as a large group, they prioritized actions designed to increase Lincoln's resilience to future extreme weather events.

## TOP HAZARDS AND VULNERABLE AREAS

The Core Planning Team identified the top natural hazards for the Town. Based on the recent work on the Hazard Mitigation Plan and review of Workshop materials, the Team identified flooding, severe storms (wind, snow, ice), drought, and extreme heat as the climate hazards of greatest concern to Lincoln. As mentioned above, flooding, drought, and severe storms have all affected Lincoln in recent years. Considering Town demographics, the Team also included extreme heat as a top hazard.

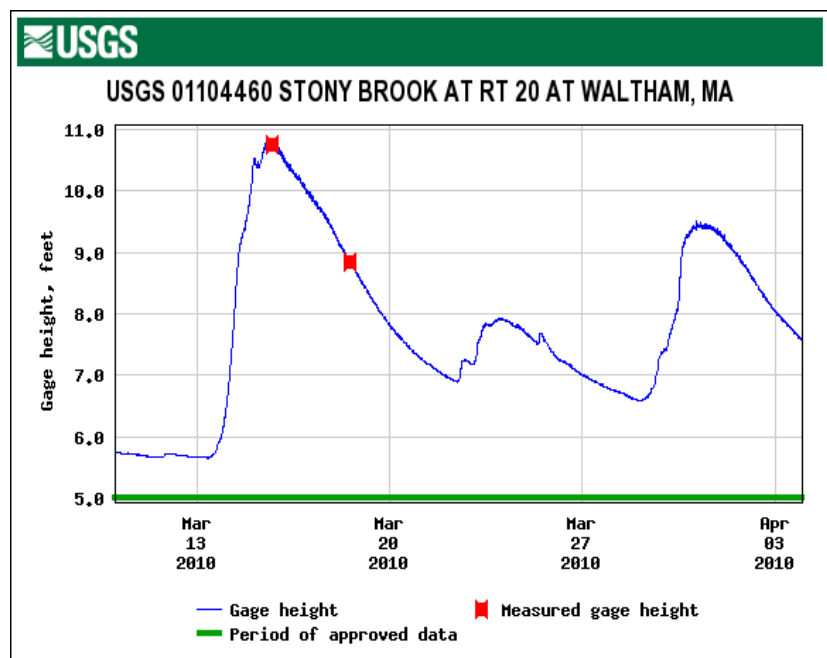
### Top Hazards

- Flooding
- Severe Storms (wind, snow, ice)
- Drought
- Extreme Heat

## CURRENT CONCERNS AND CHALLENGES PRESENTED BY HAZARDS

Participants and Town officials noted the increasing frequency and intensity of storms, including nor'easters that brought damaging winds and snowfall, heavy rain events, and the recent period of drought. The principal challenges of the nor'easters are the threat of power outages from falling trees and limbs, as well as travel restrictions due to heavy snow. Large rain events result in flooding in several locations when local streams exceed their banks, as well as when stormwater drainage capacity

is exceeded. The status and capacity of local dams is a concern during extreme rain events. Droughts are harmful to local aquatic resources and vegetation. Participants expressed concern for water quality and quantity as Lincoln relies on local surface and groundwater resources for all of its water supply. As these issues are not new, the Town of Lincoln has taken steps to prepare for extreme weather and prevent harm to people and property through its emergency management activities and hazard mitigation planning. Workshop participants shared concerns that climate projections will heighten current challenges and elevate new concerns, particularly power outages, water supply, and public health issues related to high heat.



## AREAS OF CONCERN

### Geographic:

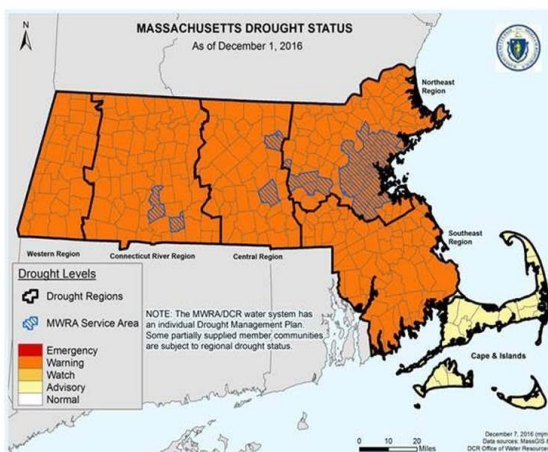
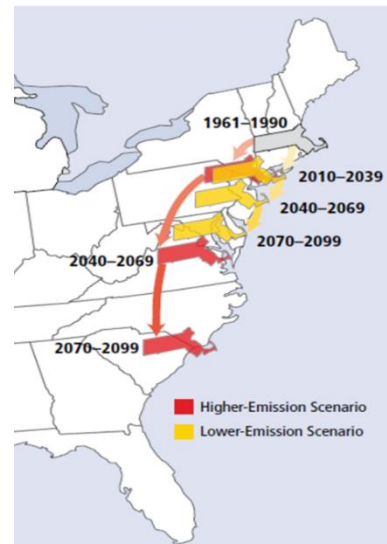
The Town of Lincoln straddles three watersheds: the Charles River, the Sudbury River, and the Shawsheen River. The Town's water supply sources are within the Charles River watershed, as is the Cambridge Reservoir. Compared to other nearby Towns, Lincoln has a relatively small number of floodplains, which have limited development due to the Town's regulations and large amount of protected open space (40% of Town). However, the Town identified several areas of concern for flooding roadways, the most significant of which is Route 117 crossing over the Sudbury River.

### Societal:

Vulnerable populations identified include: seniors, low-income residents, and people living alone. Many of these populations are more susceptible to extreme heat, which will likely occur more frequently due to climate change. While Lincoln's senior and emergency services, as well as local social services, were noted as Town strengths, participants were concerned about the need for more shelter facilities, as well as staffing of shelters and provision of supplies. The limited options for transportation of vulnerable populations to shelters, as well as communications and outreach systems to these people, were identified as needs.

### Environmental:

Among the Town's greatest strengths are its protected open space and wetlands, and its significant forest cover. A major concern is managing the Town's trees to reduce power outages, and mitigating the impacts of climate change on the health and composition of the Town's forests. Other priorities are managing the Town's water resources, including managing stormwater with LID approaches, and protecting the Town's local water supply and the Cambridge Reservoir. Vulnerability to droughts should be addressed with more robust water conservation requirements, which should also apply to private wells.



### Infrastructure:

Although severe flooding is not a Town-wide issue, flooding of several key roadways was identified, including Route 117 crossing the Sudbury River, Route 2A, and Mill Street at Lexington Road. Another significant concern – and challenge – is aging infrastructure, including the water system and natural gas lines. Participants called for coordination with the utility companies to address gas leaks and road openings. Another priority is the development of renewable energy resources, which should be promoted through zoning changes and public outreach.



## CURRENT STRENGTHS AND ASSETS

Workshop participants identified numerous Lincoln strengths and assets that will provide resilience to future climate impacts. As shown below, identified Town strengths include its protected natural resources (wetlands, forests, open space), local organizations (Council on Aging, The Commons, Mass Audubon, churches); local water supply (Flints Pond and Tower Road well), the Cambridge Reservoir; and local agriculture.

- Town Hall, Council on Aging (Bemis Hall), and schools have generators
- The Commons—Russell Building is shelter
- Wellness checks done by Council on Aging, churches
- Council on Aging: “Staying at Home” emergency housing project with the Commons; programs to promote aging in place
- Public nurse
- Hospice—new facility
- Churches have kitchens, large space; St. Anne’s, First Parish
- Trees: shade, air quality; wind/drought, impacts power, transport
- Protected wetlands provide habitat and flood storage when functioning well
- Water supply—Town has its own supply, protected; conservation restrictions
- Open space protection; Town is 40% permanently preserved open space
- Country drainage system, generally works
- Floodplains are undeveloped; flooding not a major issue Town-wide
- Good regulations to encourage natural resource protection
- Conservation Commission, buffer zone resource area protection
- Trails—alternate transportation, bikes
- Local farms:-food supply, CSA’s
- Cambridge Reservoir
- Low-salt policy
- Codman Farm community gardens
- The Food Project provides food to the needy
- Town pool for cooling on hot days
- Town has good relationship with cultural and environmental organizations
- Education: Mass Audubon provides youth education on climate and the environment; St. Anne’s Climate Justice Ministry provides educational films to the community
- Churches provide funding, food, and social services to vulnerable people across region

## TOP RECOMMENDATIONS TO IMPROVE RESILIENCE

Each of the four workshop groups identified vulnerabilities and suggested solutions (see Appendix B). The solutions were prioritized as High, Medium, or Low. Each group then identified their four highest priorities. The groups found there was considerable overlap in their top priorities, resulting in the 12 top priorities listed below. The participants then voted for their top four



personal priorities. The issues identified as highest priorities below are listed in order of the number of votes they received, shown in parentheses.

### Highest Priorities

1. **Trees and Forest Management:** To address power outages, implement a more aggressive tree trimming program; plan for known problem access areas such as cul-de-sacs; identify high-risk areas for underground utilities; manage forested land as a sustainable asset for the Town. (21)
2. **Address Aging Infrastructure:** prepare a water infrastructure plan, capital plan. Coordinate with National Grid on road openings, priorities. Educate citizens on infrastructure needs and lobby utility companies to fix power/radio/cell issues. St. Anne's could educate its Lincoln parishioners; host public seminars on power outages and old infrastructure issues. (18)
3. **Emergency Plans and Sheltering:** Create emergency shelters with staffing. Designate a Task Force to understand community needs for emergency response. Include all groups, Council on Aging, churches, neighborhood watch; ensure that plans cover vulnerable populations, including elderly, low-income, isolated, and disabled. Develop lists of people needing assistance and communications plan. St. Anne's to explore what State's shelter requirements are; work with LPD that has supplies of cots and blankets. Address needs for transportation to shelter, supplies at shelter, and generators. (16)
4. **Promote and Accelerate Renewable Energy Projects:** through zoning and public outreach. (12)
5. **Stormwater Management and Low Impact Development:** Study to assess stormwater infrastructure needs; adopt bylaws to implement Low Impact Development (LID), promote water collection on farms. (10)
6. **Enhance Social and Health Services:** Increase staff to implement needed Town social services; support the Lincoln Town nurse and Council on Aging, as well as non-Town facilities such as Care Dimensions, St. Vincent de Paul, and the Commons in providing health resources to residents. (9)
7. **Water Resource Management:** Protect water quality; assess capacity of water systems to increase resilience. Implement stronger water conservation regulations during droughts, particularly irrigation/landscaping; include private wells in conservation regulations. (9)
8. **Ecology:** Understand the future climate impacts to forests composition and health. (5)
9. **Climate Education:** Provide enhanced and comprehensive education on climate impacts to broad audiences (vulnerable populations, private property owners, service providers). (4)
10. **Mitigate Road and Bridge flooding:** Conduct a feasibility study to address flooding of Route 117 and other roads and bridges subject to flooding. Investigate streamflow data available from US Geological Survey upstream on the Sudbury River to provide indicator/warning of flooding in Lincoln. (3)
11. **Flush all Hydrants** in Town annually to ensure adequate water pressure and availability. (3)

**12. Community and Senior Center:** Develop a new community center in Town to serve residents and vulnerable populations. (2)

**High Priorities**

**INFRASTRUCTURE—HIGH**

- Water Treatment Facility vulnerability study
- Dry well system around Water Treatment Facility
- **Study and plan for water line replacements and test/flush hydrants**
- **Check Sudbury River stream gauge as indicator of Route 117 flooding**
- **Work with utility companies to make repairs and clean up rights-of-way; educate citizens**
- **Educate citizens—safety issue; need to provide more cell towers**
- More aggressive tree pruning program to mitigate power outages; removal as needed; plan for areas/types
- Emergency Operations Center supplies need to be in shelter—currently off-site; need plan
- Water infrastructure plan—capital plan related to road work; coordinate with National Grid, road openings
- Focus area for tree maintenance in cul-de-sacs
- Feasibility study for resilience improvements with road, bridge, wetlands
- Town-wide study on wastewater treatment systems near flood areas
- Identify high-risk areas and prioritize burying utilities; do a tree and forest management plan
- Town-wide study on stormwater infrastructure resilience, assessment of functionality, ability to hold more water
- Build a new community center and shelter—a better and safer place for seniors and the community
- Map drinking water pipes in or adjacent to wetlands; institute a Value Replacement Program
- Resilient buildings—low flow toilets, rainwater collection
- Storm drain maintenance and cleaning
- Public education on water systems/supply
- Improve stormwater capacity/redesign to control flow
- Cambridge Reservoir: pollution detection/monitoring
- Smart landscaping (swales, LID) in Cambridge Reservoir watershed
- Maintain Wastewater Treatment Plant to evolving standards
- Assess capacity of Wastewater Treatment Plant in light of projected future conditions
- Upkeep and maintenance of municipal buildings
- Work with utility companies to repair gas leaks

**SOCIETY—HIGH**

- Elderly living alone: staffing increases/better outreach—hire full time social worker
- **Emergency shelter: staffing and facilities—generator, supplies, etc.**
- **Identify reasons for vulnerability (Council on Aging has a list shared with the Department of Public Safety (however the list is not comprehensive, it only includes people who wish to be contacted, and is used in severe storms), churches may have list); sheltering needs, neighborhood buddy program**
- **Update solar bylaw; battery storage; focus on solar on Town facilities/transfer station; Net Zero strategies**
- **Create a task force to understand community needs during extended power outages**

- Create a system of community response during emergencies—emergency planning, churches, neighbors
- Ensure funding of service providers (Council on Aging, schools, Library, Recreation Department, Food Pantry, churches)
- Match services to needs of changing population, especially older adults
- Coordination and communication with service providers on the roles they play in climate resilience
- Master planning that identifies where affordable housing can go, including co-housing
- Proactive zoning change to allow more density, Transit Oriented Development
- Promote smart growth
- Enhanced education on climate related issues
- Support the Lincoln Town nurse and Council on Aging, as well as non-Town facilities such as St. Vincent de Paul, Care Dimensions, and the Commons

#### ENVIRONMENT—HIGH

- **Encourage water conservation, particularly landscape irrigation; volume restrictions, regulations**
- Water Commission to work with agriculture and construction community on agricultural water use and regulations
- Buy a generator for Codman Farm
- Tree and forest management that considers resilience and adaptation
- Conservation Commission enforcement to stop encroachment on wetlands
- **Implement new Stormwater Bylaw and Low Impact Development**
- **Understand climate impacts on forest and land**
- Comprehensive climate education and private practices—what can be done at home
- Noise and air pollution
- Continue pulling of invasive species
- Public education on ticks

#### Medium Priorities

#### INFRASTRUCTURE—MEDIUM

- Increase staff/contractors for snow removal
- Have alternate back-up water source; update drainage maintenance at Tower Road Well
- Water pump house: find out if generator is available
- Seek funding to meet Army Corps of Engineers standards for culverts; wildlife/habitat state stream crossing guidelines
- Road rebuilding program to coordinate with gas utilities on local and state rebuilds for gas infrastructure upgrades
- Lobby the State for transit service - ADA
- Roadway flooding: Trap beavers; Detours
- Roadway flooding: regrade/elevate roads
- Roadway flooding: erect flood barriers along flood areas
- Monitor changing needs for shelter supplies
- Monitor demand and supply of shelters

#### SOCIETY—MEDIUM

- Add charging stations; bike-friendly streets

- Coordination of service providers (Council On Aging, schools, library, Parks and Recreation Dept., Food Pantry, churches, National Park)
- Continued education and signage on vector-borne diseases
- Research biocontrol without pesticides for management
- Deer management
- Continue good relations and planning with local and regional EMS, especially for Town-wide emergencies
- Identify different shelter locations such as schools and identify socially vulnerable populations

#### ENVIRONMENT—MEDIUM

- Encourage State regulations; investigate Town strategies—Cape Cod examples
- Public education; youth education on climate
- Regulations that increase stormwater infiltration; update 10-year/24-hour storm standards, put in stormwater bylaw update
- Investigate implementing new well options
- Rainwater capture; water conservation for agriculture (see #3 above)

#### Low Priorities

#### INFRASTRUCTURE—LOW

- Homeowner education on septic systems and Town data review of systems
- Reverse 911 notification
- Lee's Bridge is State-controlled—recent bridge; coordinate with State for plan
- Solar panel canopies over parking lots and Low Impact Development bylaw
- Continue beaver control efforts
- Identify roads and required services neighborhoods with unpaved roads; investigate need for proper vehicles
- Water system needs assessment and replacement plan
- Explore more resilient communication systems; 911 direct to local

#### SOCIETY—LOW

- Oil-heated homes: alternate energy sources – gas or other

#### ENVIRONMENT—LOW

- Explore alternative de-icing products; St. Anne's using new eco-friendly low-salt product that is very effective-
- Community education on tick-borne diseases

#### No priority listed

#### INFRASTRUCTURE—UNPRIORITIZED

- Moving to a digital communication system (2 years)
- Maintenance of drainage systems (being done for catch basins)
- Reach out to include Hanscom in shelter inventory

#### SOCIETY—UNPRIORITIZED

- Old housing stock: fund air conditioners for low-income residents

## CRB WORKSHOP PARTICIPANTS

Abby Butt	Assistant Director, Council on Aging
Alexandra Vecchio	Mass Audubon
Andrew Consigli	Civico Development
Ann Risso	Green Energy Committee Member
Anthony Sudnick	Minuteman National Historic Park
Bijoy Misra	Housing Commission Member
Cecily Wardell	Birches School
Christine Dugan	Conservation Commissioner
Danielle Pedreira	Carroll School
David Kaplan	Cambridge Water Department
David Sequeira	Parks and Recreation Department
Gary Davis	Resident/Democratic Committee
Ginny Wells	
Holly Dineen	The Commons
Jacquelin Apsler	Library and Domestic Violence Service Network
Jennie Cook	St. Anne's in-the-Fields Episcopal Church
Jennie Morris	Green Energy Committee Member
Jennifer Burney	Director of Planning and Land Use
Jennifer Curtin	Lincoln Conservation Assistant
Jim Durkin	DPW Staff
Kathleen Shepard	Zoning Board of Appeals member
Kevin Kennedy	Police Chief
Kevin Kirmelewicz	
Larry Buell	Conservation Commissioner
Laurie Roberto	The Commons
Michael Haines	Facilities Director
Nancy Fleming	Codman Community Farm Board Member
Patrick McGear	
Paula Vaughn	Assistant Director of Planning and Land Use
Reynaldo LeBlanc	The Commons
Renata Pomponi	Mass Audubon, Drumlin Farm Director
Ruth Ann Hendrickson	Water Commission
Steve Carter	Fire Chief
Terry Perlmutter	
Tim Higgins	Town Administrator
Tom Gumbart	Conservation Director
Vicky Kury	Care Dimensions

## CRB WORKSHOP PROJECT TEAM

### Lincoln Core Team

Chris Bibbo	Director of Public Works
Carolyn Bottum	Council on Aging Director
Jennifer Burney	Director of Planning and Land Use, Project Lead
Steve Carter	Fire Chief
Tom Gumbart	Conservation Director
Michael Haines	Facilities Director
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MaryBeth Wiser	Water Department Superintendent

### Facilitation Team

Martin Pillsbury	Metropolitan Area Planning Council (Lead Facilitator)
Anne Herbst	Metropolitan Area Planning Council
Darci Schofield	Metropolitan Area Planning Council
Heidi Stucker	Metropolitan Area Planning Council
Ralph Wilmer	Metropolitan Area Planning Council

## CITATION

Metropolitan Area Planning Council. 2019. Town of Lincoln Municipal Vulnerability Preparedness Program. *Community Resilience Building Workshop: Summary of Findings*. Lincoln, Massachusetts

## APPENDIX A –ACTION PRIORITIZATION

HIGHEST PRIORITY ACTIONS FROM THE WORKSHOP	VOTES
1. <b>Trees and Forest Management:</b> To address power outages, Implement a more aggressive tree trimming program; plan for known problem access areas such as cul-de-sacs; identify high-risk areas for underground utilities; manage forested land as a sustainable asset for the Town.	21
2. <b>Address aging infrastructure:</b> prepare a water infrastructure plan, capital plan. Coordinate with National Grid on road openings, priorities. Educate citizens on infrastructure needs and lobby utility companies to fix power/radio/cell issues. St. Anne's could educate its Lincoln parishioners; host public seminars on power outages and old infrastructure issues.	18
3. <b>Emergency plans and sheltering:</b> Create emergency shelters with staffing. Designate a Task Force to understand community needs for emergency response. Include all groups, Council on Aging, churches, neighborhood watch; ensure that plans cover vulnerable populations, including elderly, low-income, isolated, and disabled. Develop lists of people needing assistance and communications plan. St. Anne's to explore what State's shelter requirements are; work with LPD that has supplies of cots and blankets. Address needs for transportation to shelter, supplies at shelter, and generators.	16
4. <b>Promote and Accelerate renewable energy projects</b> through zoning and public outreach.	12
5. <b>Stormwater Management and Low Impact Development:</b> study to assess stormwater infrastructure needs; adopt bylaws to implement Low Impact Development (LID), promote water collection on farms.	10
6. <b>Enhance Social and Health Services:</b> Increase staff to implement needed social services; support town nurse, Council on Aging, Care Dimensions in providing health resources to residents.	9



7. <b>Water Resource management:</b> protect water quality; assess capacity of water systems to increase resilience. Implement stronger water conservation regulations during droughts, particularly irrigation/landscaping; include private wells in conservation regulations.	9
8. <b>Ecology:</b> Understand the future climate impacts to forests composition and health.	5
9. <b>Climate Education:</b> Provide enhanced and comprehensive education on climate impacts to broad audiences (vulnerable populations, private property owners, service providers).	4
10. <b>Mitigate Road and Bridge flooding:</b> Conduct a feasibility study to address flooding of Route 117 and other roads and bridges subject to flooding. Investigate streamflow data available from US Geological Survey upstream on the Sudbury River to provide indicator/warning of flooding in Lincoln.	3
11. <b>Flush all Hydrants</b> in town annually to ensure adequate water pressure and availability.	3
12. <b>Community and Senior Center:</b> Develop a new Community and Senior Center in town to serve residents and vulnerable populations.	2

## Action Prioritization

### Highest Priority Actions from the Workshop

**Infrastructure** <sup>yellow</sup>  
Expand and continue tree-trimming efforts. (9)

More aggressive tree pruning program. Plan for problem access areas (cul de sacs) Donor issues.

Tree + Forest Management Plan (2) High Risk Areas to Burial Utilities

**Social:** <sup>yellow</sup>  
Continue to support town nurse, COA, Care Dimensions in providing health resources to residents. (9)

**INCREASE STAFF TO IMPLEMENT TOWN SOCIAL SERVICES** (9)

**Stormwater** study in Bra + Bylaws + LID (10) water collection - farms

Ensure emergency plans covers vulnerable peeps: (13)  
elderly, low-income, isolated, disabled - have communication + list of people  
- addresses transportation to shelters  
- supplies at shelter + generators

**CREATE EMERGENCY SHELTERS + STAFF + PLANNING**

Task Force (3)  
Understand Community needs during Power/Elec.  
all groups include COA, churches, neighborhoods

**Address aging infrastructure.** (10)  
have water infrastructure plan - capital plan, road opening plan  
gas - coordinate w/ National Grid - road openings, priorities

**EDUCATE CITIZENS + LOBBY UTILITIES TO FIX RADIO/CELL POWER ISSUES**

Water Supply  
- stronger conservation reqs during drought - particularly irrigation/landscaping priority needs  
- include private wells in conservation (9)

**Infrastructure:** <sup>yellow</sup>  
Promote water quality. Assess capacity + infrastructure of water systems + increase resilience.

Promote + Accelerate renewable energy projects (12) through zoning + outreach



## Action Prioritization

### Highest Priority Actions from the Workshop

yellow support  
COA,  
ns in  
th  
sidents.

STORMWATER  
study in Bra structure  
+ Bylaws  
+  
LID  
water collection - farms  
(10)

Water supply  
- stronger conservation reqs during  
drought - particularly irrigation/landscaping  
priorities needs  
- include private wells in  
conservation (9)

Infrastructure:  
Promote water  
quality. Assess  
capacity + infrastructure  
of water systems +  
increase resilience.

Promote +  
(12) Accelerate renewable  
energy projects  
through zoning + public  
outreach

ASK USGS  
RE: STREAM  
GAUGES ON  
SUDBURY RIVER

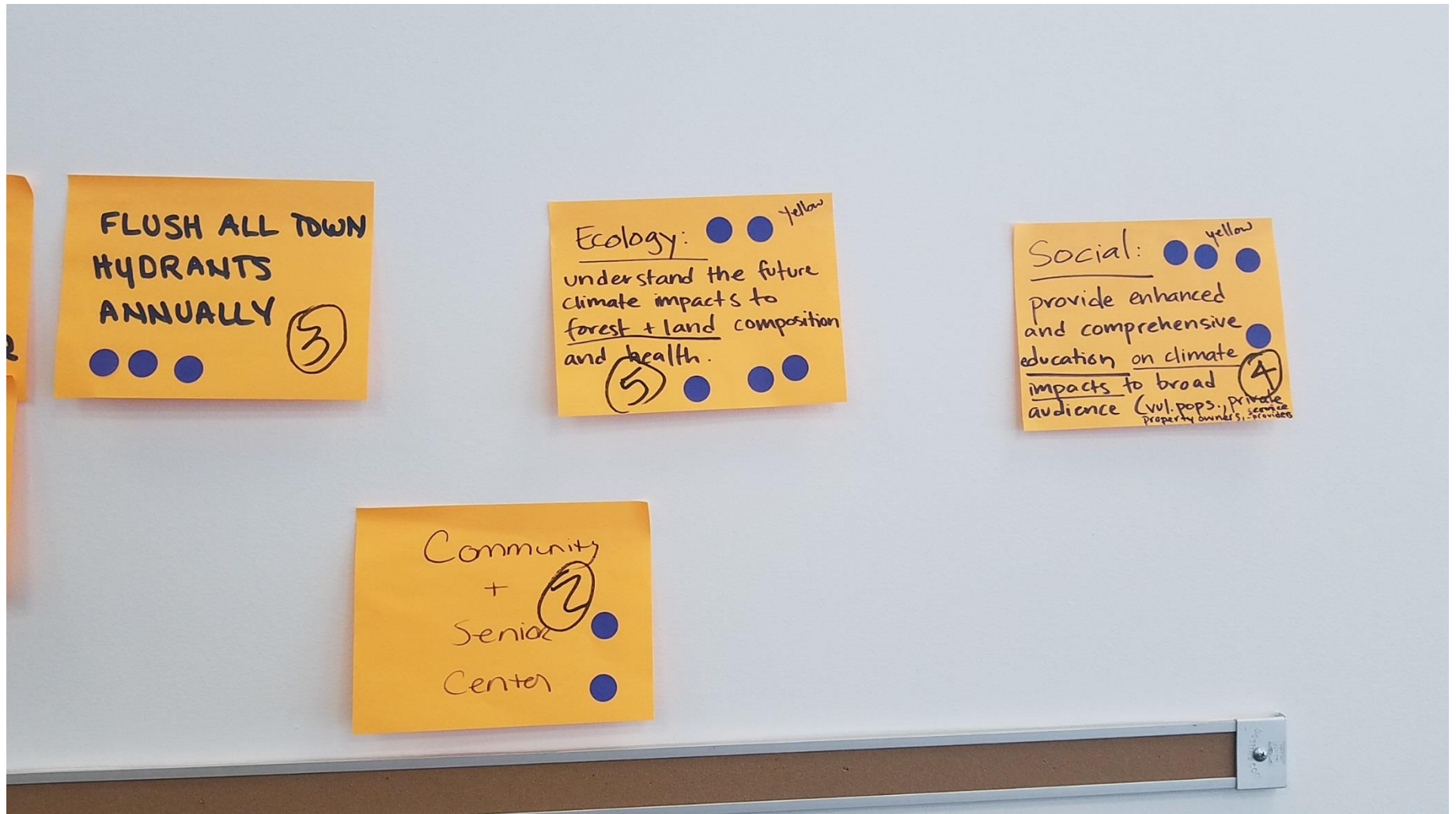
Feasibility Study of  
Road, bridges, wetlands  
Road, Bridge,  
Rte 117 (3)

FLUSH ALL TOWN  
HYDRANTS  
ANNUALLY (3)

C

## Action Prioritization

### Highest Priority Actions from the Workshop



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## **APPENDIX B –LINCOLN WORKSHOP POSTERS AND MAPS**

### **LINCOLN MVP WORKSHOP POSTERS AND MAPS**

**Natural Resources Poster**

**Climate Change Poster**

**Social Vulnerability Poster**

**Lincoln Wall Map**

**Lincoln Table Map**



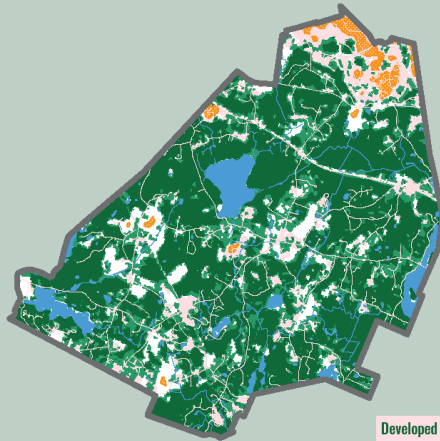
# Lincoln

## Natural Resources

Natural Resources lessen climate impacts by absorbing and storing carbon dioxide and by serving vital protective functions. Forests, open space, wetlands, rivers, and streams protect drinking water quality and quantity, provide flood control, and give relief from extreme heat. Healthy ecosystems are more resistant to stresses from a changing climate and better able to protect against heat and flooding.

### Trees

Trees are important in mitigating the impact of heat waves. According to the EPA, suburban areas with mature trees are 4-6 degrees cooler than new suburbs without trees. Shaded surfaces can be 25-40 degrees cooler than the peak temperatures of unshaded surfaces. Trees also absorb remarkable quantities of precipitation. Research has shown that a typical medium-sized tree can intercept as much as 2,380 gallons of rain per year (USDA Forest Service).



Risk	Impact
<b>Warming</b>	Expected to shift forest type from Maple/Birch/Beech forest to Oak/Hickory forest similar to New Jersey. New pests and diseases
<b>Flooding, Drought, Wildfire, Ice Storms</b>	Impaired waters, toxic exposure, contaminant leaching

Developed Land

51% – 75% Tree Cover

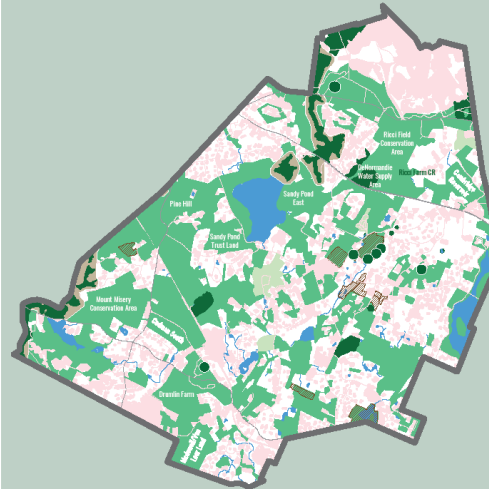
76% – 100% Tree Cover

Hot Spots

Water Bodies

### Open Space, Agriculture, & Habitat

Core Habitat and Critical Natural Landscapes are state-identified intact landscapes, or exemplary natural communities, that are better able to withstand climate stresses, and support the long-term survival of rare species and natural habitats.



Core Habitat

Permanently Protected Open Space

Water Bodies

Critical Natural Landscape

Other Open Space

Developed Land



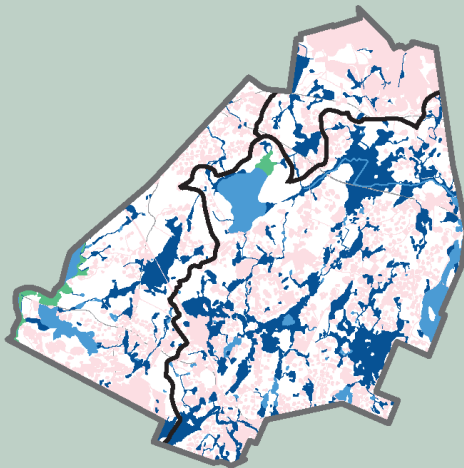
Existing Farms



Seasonal Wetlands (Vernal Pools)

### Freshwater Resources

Lincoln contains healthy, intact freshwater systems that sustain critical ecosystem functions in climate change. These ecological assets protect drinking water quality and quantity, provide flood control, and maintain overall ecosystem health for climate resilience.



Risk	Impact
<b>Drought/Warming</b>	Seasonal no-flow/ low-flow, reduced absorption capacity, diminished fish habitat, algal blooms, low dissolved oxygen, reduced drinking water supply
<b>Flooding</b>	Impaired waters, toxic exposure, contaminant leaching
<b>Extreme Precipitation</b>	Scouring, impaired waters, sewer overflows

River Basin Boundaries

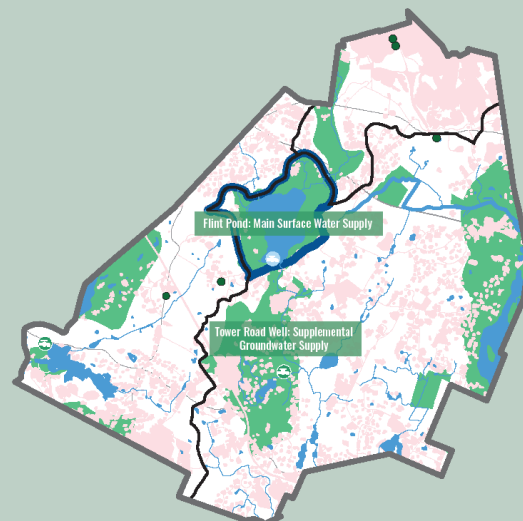
Water Bodies

Core Wetland Habitat

Wetlands

Developed Land

### Drinking Water Resources



Water Bodies

Protected for Surface or Groundwater Supply

Developed Land



River Basin Boundaries



Flint Pond Drainage Area



Activity Use Limititation (AUL) Sites



Surface Water Intake



Groundwater Pumping Station



Sources: MassGIS (Bureau of Geographic Information); BioMap2; Conserving the Biodiversity of Massachusetts in a Changing World; MassGIS (Bureau of Geographic Information); National Land Cover Database (NLCD); Massachusetts Department of Fish and Game; Massachusetts Department of Environmental Protection; Massachusetts Department of Transportation (MassDOT); Federal Emergency Management Agency (FEMA); Metropolitan Area Planning Council

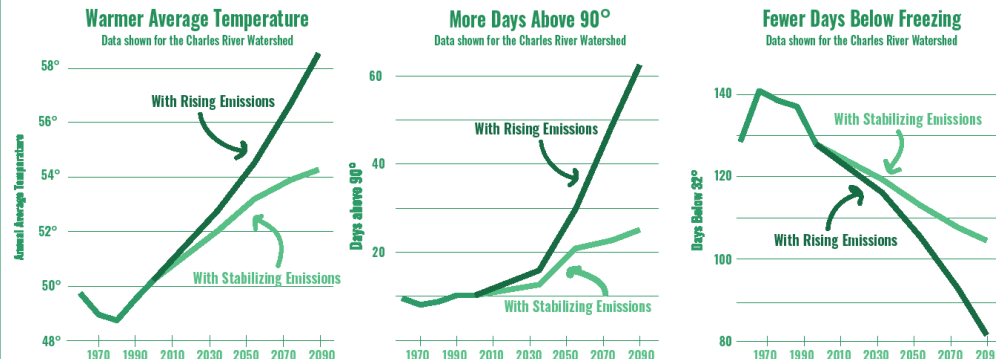


# Climate Change

Lincoln and the Charles River Watershed

Our climate is regulated by "greenhouse gases (GHGs)" that trap heat, including carbon dioxide, methane, and nitrous oxide. In the past century, the combustion of fossil fuels, our primary energy source in the age of industrialization, has increased the concentration of GHGs in the atmosphere, which has caused global temperatures to rise. If people stabilize GHG emissions, global temperatures may rise more slowly. If emissions continue increasing at the same rate, we can expect more extreme changes in the climate.

## Higher Temperatures



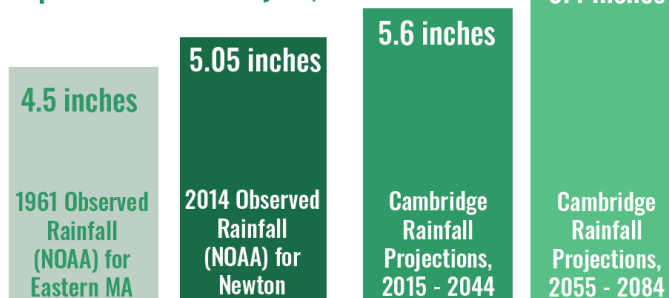
## As the climate changes, Lincoln can expect...

### More Large Storm Events

In addition to increasing annual precipitation, climate change will bring more large rain and snow events. This will lead to more stormwater flooding, as most stormwater drainage is not sized for larger rain events.

10-year, 24 hour storms refer to the 24-hour rainfall total for the biggest storm expected in a 10-year period.

#### Expected size of a 10-year, 24-hour storm



Storm drains built for 1961 standards will be inadequate as rainfall increases

### More Annual Precipitation

#### But less in the summer and fall...



While total annual rainfall and large rainfall events are projected to increase, summer and fall rain is projected to decrease slightly.

Due to the combined effects of earlier snowmelt, less rain, and higher temperatures, summer and fall droughts may become more frequent.

#### And more frequent droughts...

Due to the combined effects of earlier snowmelt, less rain, and higher temperatures, summer and fall droughts may become more frequent.



Sources:

Massachusetts Executive Office of Energy and Environmental Affairs; Northeast Climate Science Center; National Ocean and Atmospheric Administration TP 40; National Ocean and Atmospheric Administration Atlas 14; Cambridge CCVA as cited by Boston Research Advisory Group 2016; Massachusetts Office of Coastal Zone Management, "Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning 2013"

# Lincoln

## Social Vulnerability

Social vulnerability refers to social, economic, demographic, or health factors that may make groups of people less resilient to climate change impacts. Certain vulnerabilities tend to be correlated: for example, older adults are more likely to have a disability and live alone than younger adults.

Our strategies for adapting to a changing climate should protect these populations in addition to our natural and built environment.

## Who is most at risk from climate change impacts?

**People who may be more susceptible to negative health effects:** These can include older adults, young children, pregnant women, people with disabilities, and people with pre-existing health conditions, as they are more likely to be physically vulnerable to the health impacts of extreme heat and poor air quality caused by climate change. Individuals with physical mobility constraints, such as people with disabilities and seniors, may need additional assistance with emergency response.

**People who may have more difficulty adapting to, preparing for, or recovering from extreme weather events:** Socioeconomic characteristics such as income and race can influence vulnerability to climate change. Low-income people are often more susceptible to financial shocks, which can occur after extreme weather and which can impact financial security and the ability to secure safe shelter and meet medical needs. Social isolation can also influence vulnerability, as it limits access to critical information, municipal resources, and social support systems. People at the most risk for social isolation include those living alone and people with limited English language proficiency.

**People who live or work in vulnerable locations:** Historic or predicted floodplain, urban flooding locations, areas prone to wildfire, heat islands, neighborhoods prone to power outages. Outdoor workers, first responders, those working in hot indoor environments.

### Low Income Households

**26%  $\pm 6\%$**  of households in Lincoln are low-income

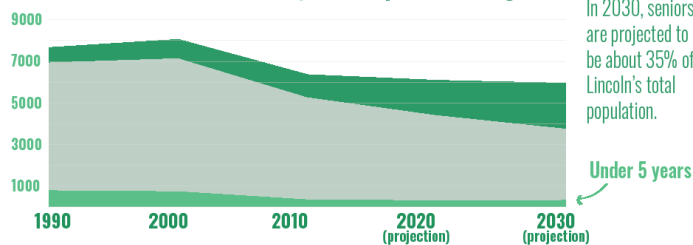
**4%  $\pm 2\%$**  of households in Lincoln are below poverty level

\*A four-person household earning less than \$78,150 is considered low-income; a four-person household earning less than \$24,563 is below poverty level

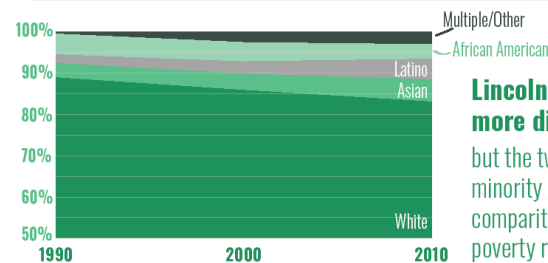
### Older Adults and Young Children

Adults over 65 and children under 5 are more likely to develop health problems on very hot days or during heat waves. Older adults are also more likely to have disabilities or mobility constraints and may need additional assistance during emergencies. They are also more likely to live alone than younger adults.

#### Lincoln Recent and Projected Population by Age



### Communities of Color



**Lincoln is becoming more diverse...** but the two biggest minority groups have comparatively high poverty rates.

**11.5%** of Latino households in Lincoln are below poverty level

**6.8%** of Asian households in Lincoln are below poverty level

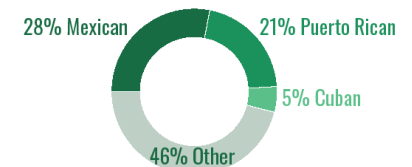
### People Living Alone



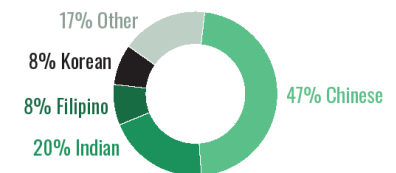
As of 2010, about 22% of Lincoln households consisted of someone living alone.

Over 40% of people living alone were over 65.

### Latino Populations in Lincoln



### Asian Populations in Lincoln



### People Who Work Outside

People who primarily work outside, such as parcel delivery people, construction workers, or farmers, may be at added risk from extra exposure to high heat and poor air quality.



Sources: American Community Survey (ACS) 2012-2016; United States Census 1990, 2000, 2010; MAPC Projections; Massachusetts Department of Public Health Asthma Data, 2008-2012

## Lincoln MVP Base Map

# LINCOLN

## Vulnerability Inventory

Increasing large rainfall events may subject roads, bridges, dams and buildings to more frequent or severe flooding. Areas that don't flood today may become vulnerable. FEMA flood zones reflect only current conditions, and do not generally capture stormwater flooding, or flooding that exceeds the capacity of current stormdrains and culverts. Power outages affecting infrastructure and communications may become more frequent as result of high energy demand during heat waves. Winter outages could be caused by ice storms if warming results in temperatures hovering around freezing. The potential for more intense hurricanes could cause outages due to falling trees. Finally, buildings, roadways, and railways can be stressed by extreme heat. Heat can cause damage to expansion joints on bridges and highways, and may cause roadways to deteriorate more rapidly.

### Type of Critical Facility Hazards

- School, Child Care, or Special Needs
  - Place of Assembly
  - Elder Care
  - Grocery, Hardware, or Veterinarian
  - Emergency Operations Center
  - Public Safety
  - Medical Facilities
  - Municipal
  - Water or Sewer Infrastructure
  - Communication Tower
  - Dam
  - Hazardous Material Site
  - Gas Distribution
  - Power Substation
  - Transportation Facility
- Hot Spots\*
  - At 1% Annual Chance of Flooding
  - At 0.2% Annual Chance of Flooding
  - Locally Identified Hazard Areas
  - Flooding

\*Hot Spots are areas identified by MAAP as the hottest 5% of land area in the MAAP region. Data from 2016.

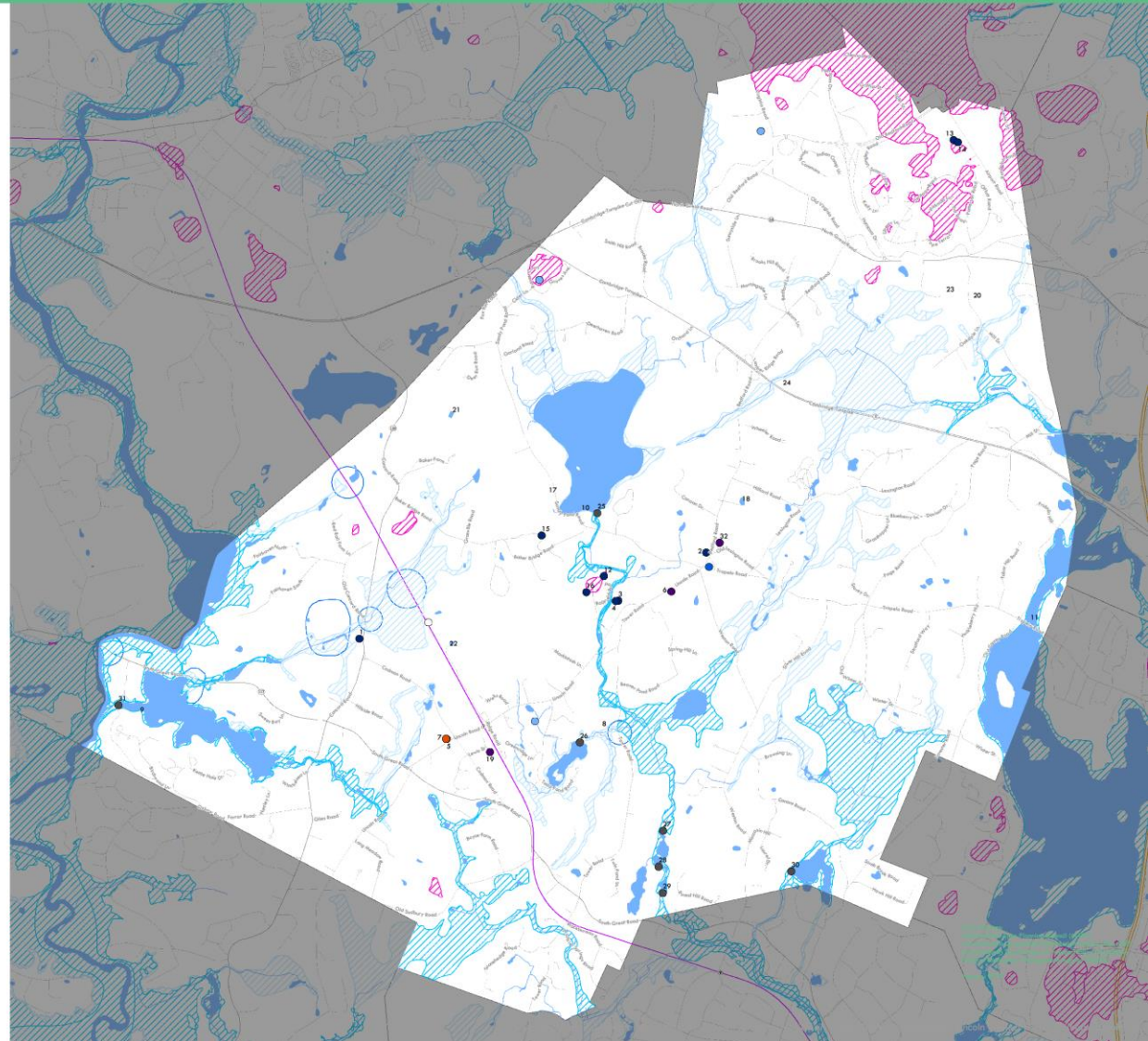
### Other Features

- Rivers and Streams
- Water Bodies
- Flood Insurance Claims

Label	Facility
1	Lincoln Country Day School
2	Lincoln Nursery Day School
3	Magie Garden, Inc
4	Lincoln Extended Activities Prog Inc.
5	Fire Station
6	Town Hall
7	Police Department
8	Tower Rd GP Well
9	Farrar Pond GP Well
10	Sandy Pond Pump Station
11	Hobbs Brook Reservoir
12	Brooks School
13	Hanscom Middle School
14	Hanscom Primary School
15	The Carroll School
16	Smith School
17	Water Treatment Plant
18	Bedford Road Underground Reservoir
19	DPW Garage
20	Lexington Council on Aging
21	Pine Hill Underground Reservoir
22	Lincoln Wood Wastewater Treatment
23	Lincoln Transfer Station
24	Tenneco Gas Manifold
25	Sandy Brook Road Dam
26	Todd Pond Dam
27	Stony Brook Dam 1
28	Stony Brook Dam 2
29	Stony Brook Dam 3
30	Valley Pond Dam
31	Farrar Pond Dam
32	Bemis Hall
33	Battle Field Road Condominiums
34	Lincoln Commuter Rail Station
35	The Commons
36	Care Dimensions
37	55 Old Bedford Rd/ Lincoln North
38	Wells Rd. Lincoln Woods
39	Ryan Estate
40	Minuteman Commons
41	Library



0 0.225 0.45 0.9 Miles













## Lincoln MVP Table Map

# LINCOLN

## Critical Infrastructure

### Type of Critical Facility

-  Dams
-  Fire Stations
-  Libraries
-  Assisted Living Facility
-  Nursing Home
-  Police Stations
-  Schools (PK - High School)
-  Town Halls

### Hazards

-  Hot Spots\*
-  A: 1% Annual Chance of Flooding
-  X: 0.2% Annual Chance of Flooding
-  Locally Identified Hazard Areas
-  Flooding

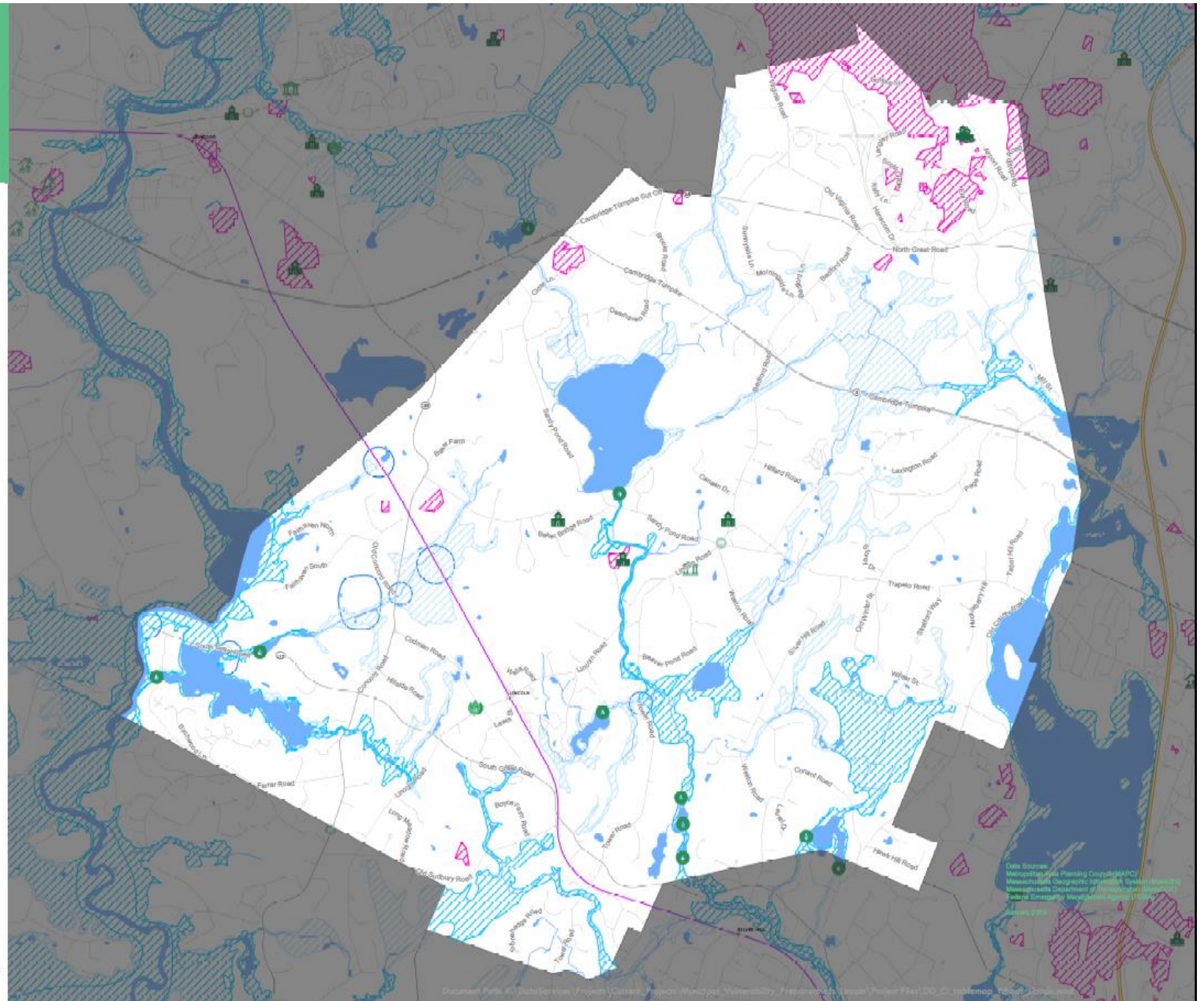
### Other Features

-  Rivers and Streams
-  Water Bodies

\*Hot Spots are areas identified by MAPCI as the highest 5% of land area in the MAPCI region. Data from 2015.



0 0.225 0.45 0.9 Miles





# **Municipal Vulnerability Preparedness Workshop**

## **Town of Lincoln**

### **February 25, 2019**





### Commonwealth of Massachusetts

Executive Office of Energy and Environmental Affairs

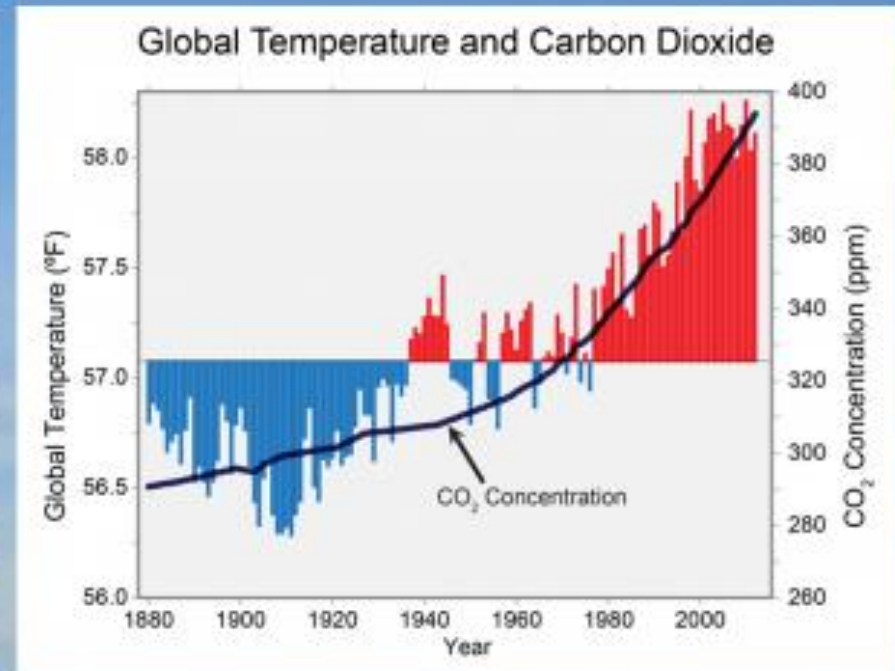
Municipal Vulnerability Preparedness Program  
State Service-Provide Training

#### Workshop Objectives

- Understand extreme weather and climate related hazards
- Identify existing and future vulnerabilities and strengths
- Develop and prioritize opportunities to take action to reduce risk and build resilience



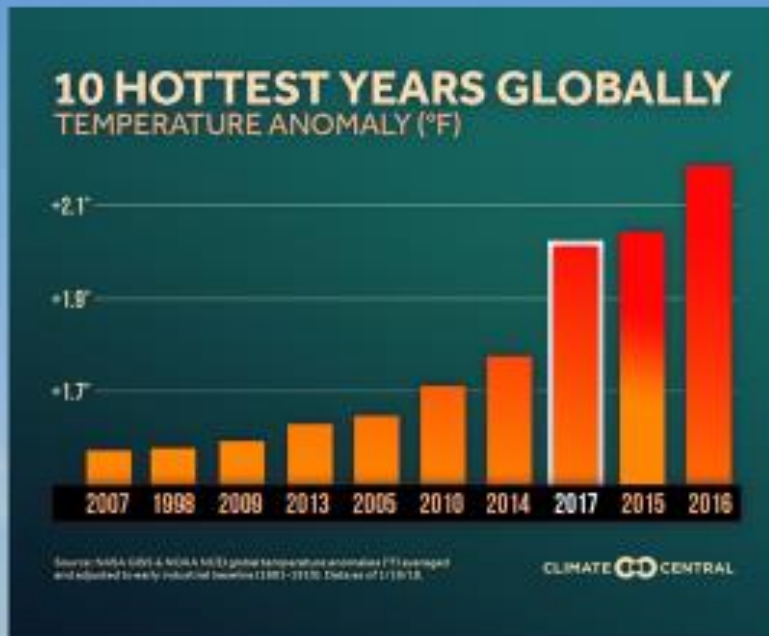
## Our Warming Planet



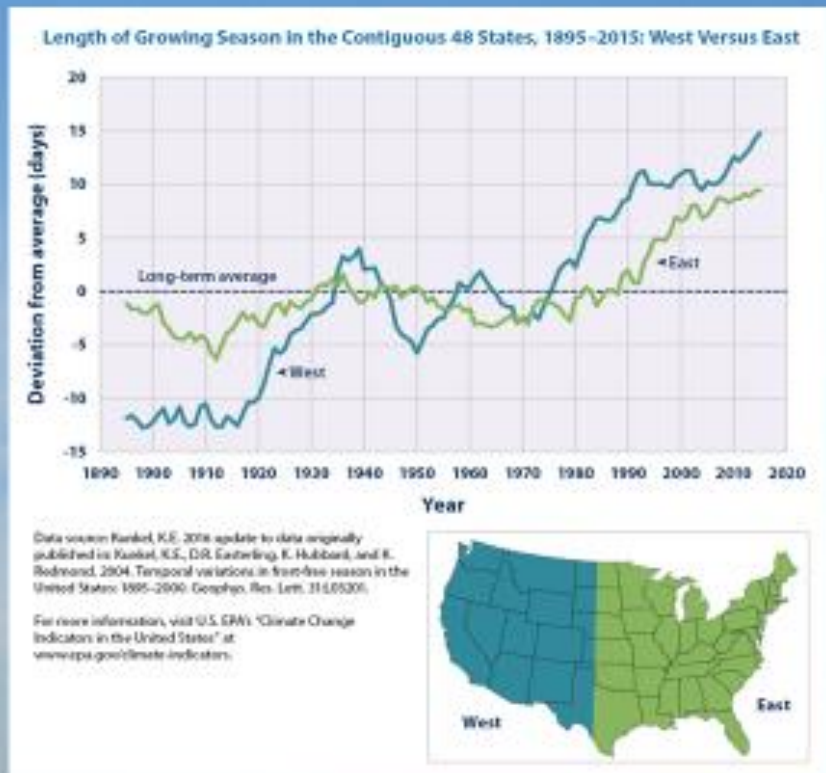
US National Climate Assessment 2018



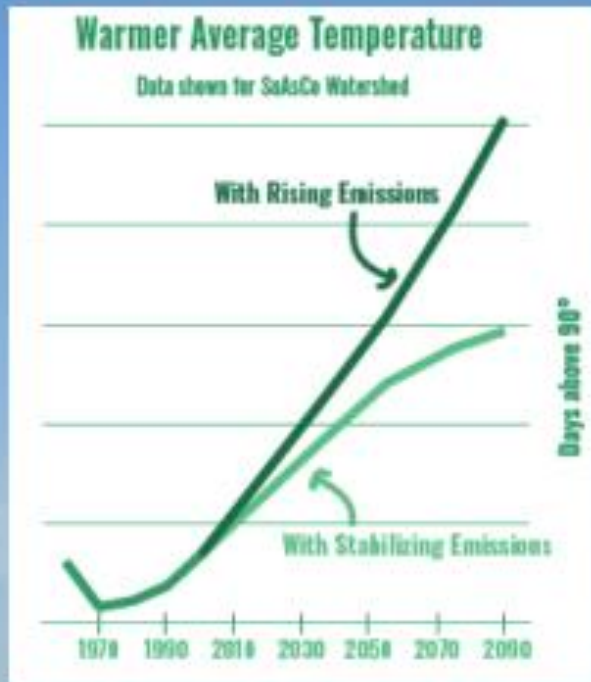
## Climate Change: Temperature Observed



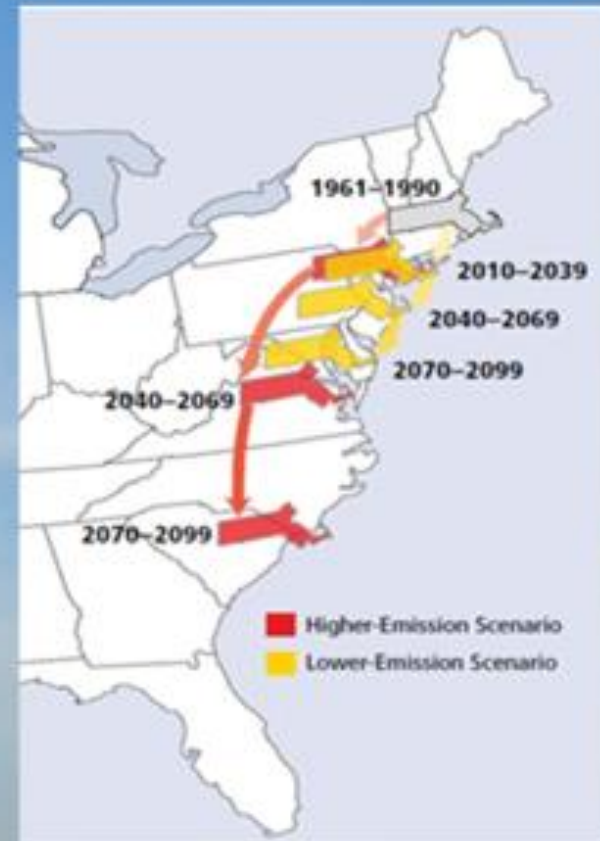
Source: Nasa GISS & NOAA NCEI global temperature anomalies adjust to early industrial baseline (1881-1910)



## Climate Change: Temperature Projected



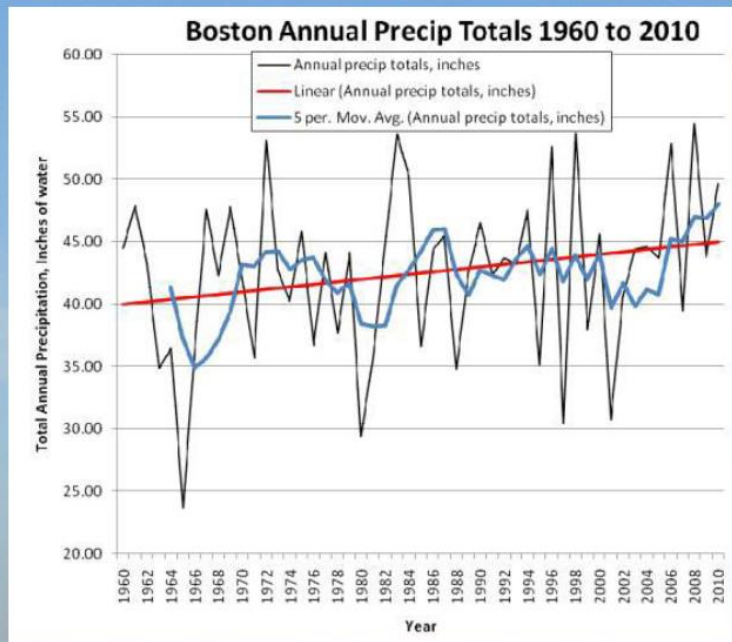
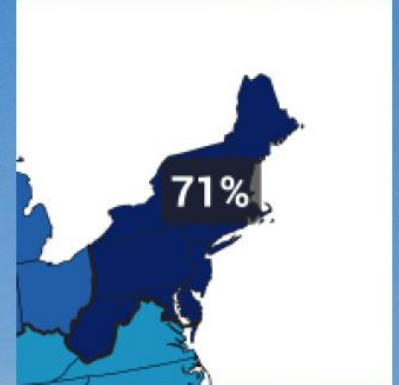
Nearly 39 days > 90 degrees by 2050  
Nearly 59 days > 90 degrees by 2090



# Precipitation change: observed

**For the Northeast United States: 71% increase in the amount of rain that falls in the top 1% events from 1958 – 2012.**

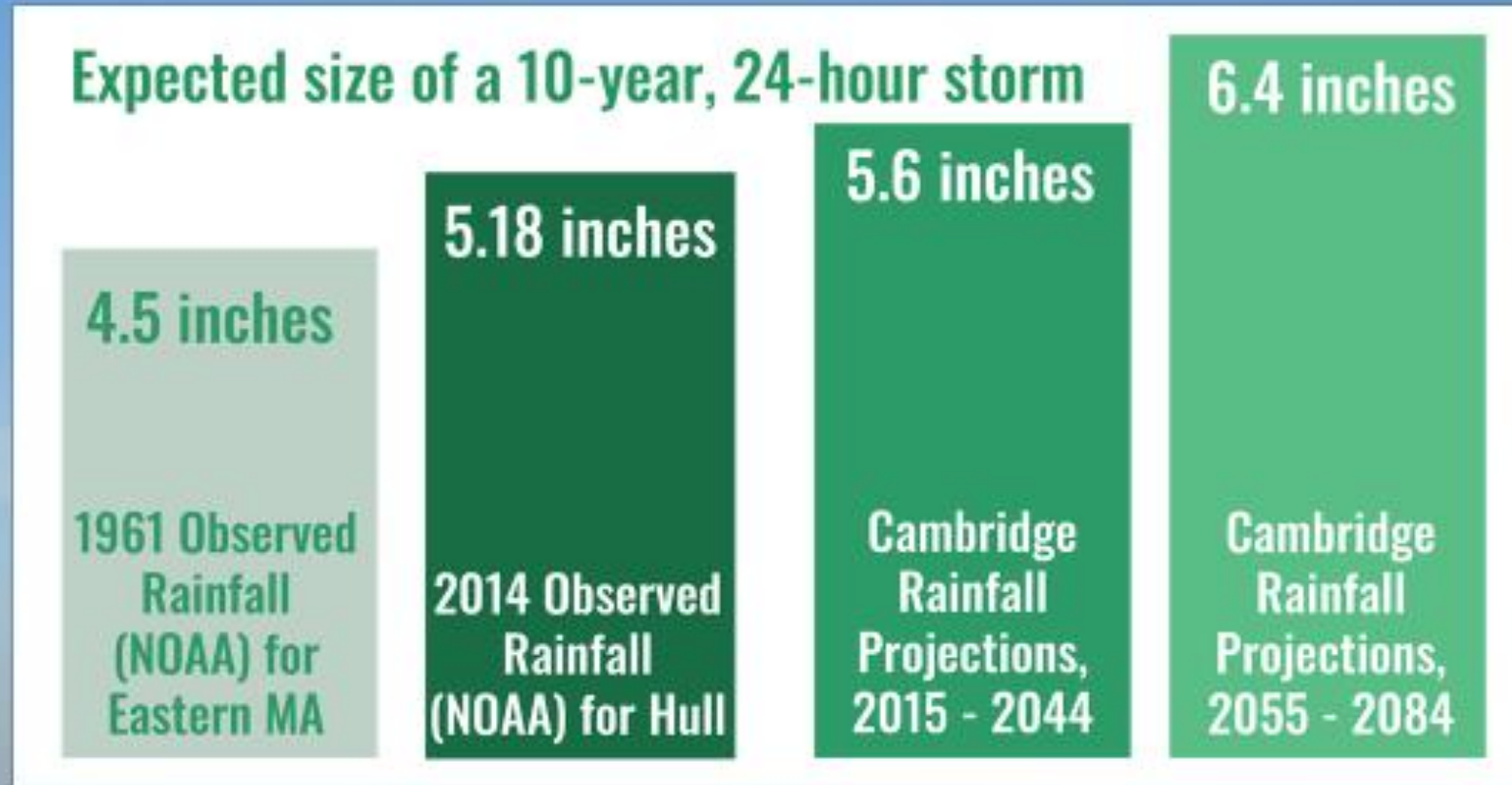
Source: US National Climate Assessment 2014



Source: MA Climate Change Adaptation Report 2011

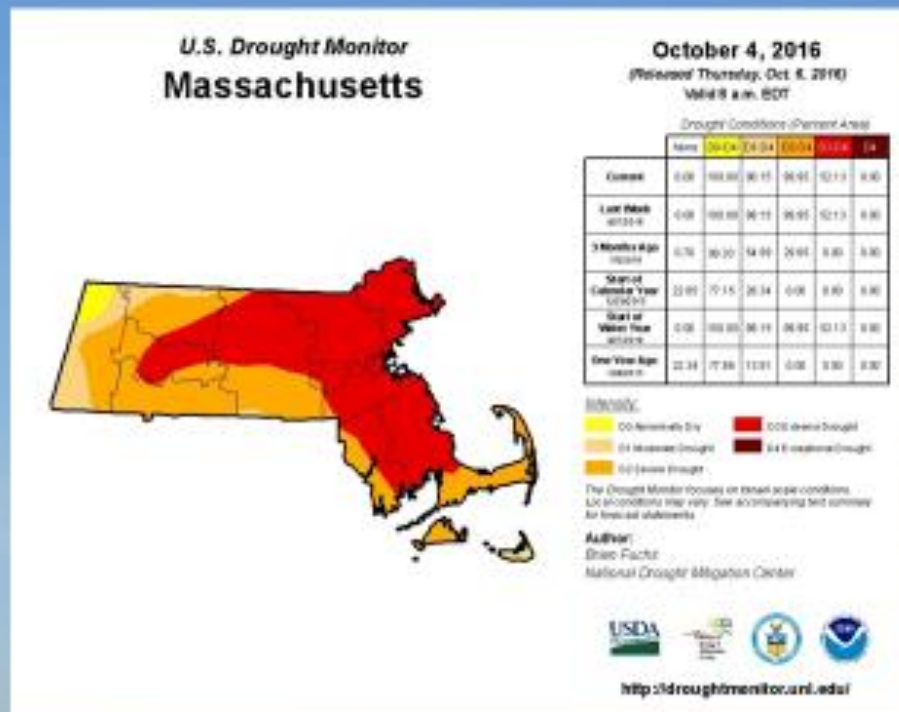
**For Boston area: 10% increase over the past 50 years**

## Precipitation change: projected



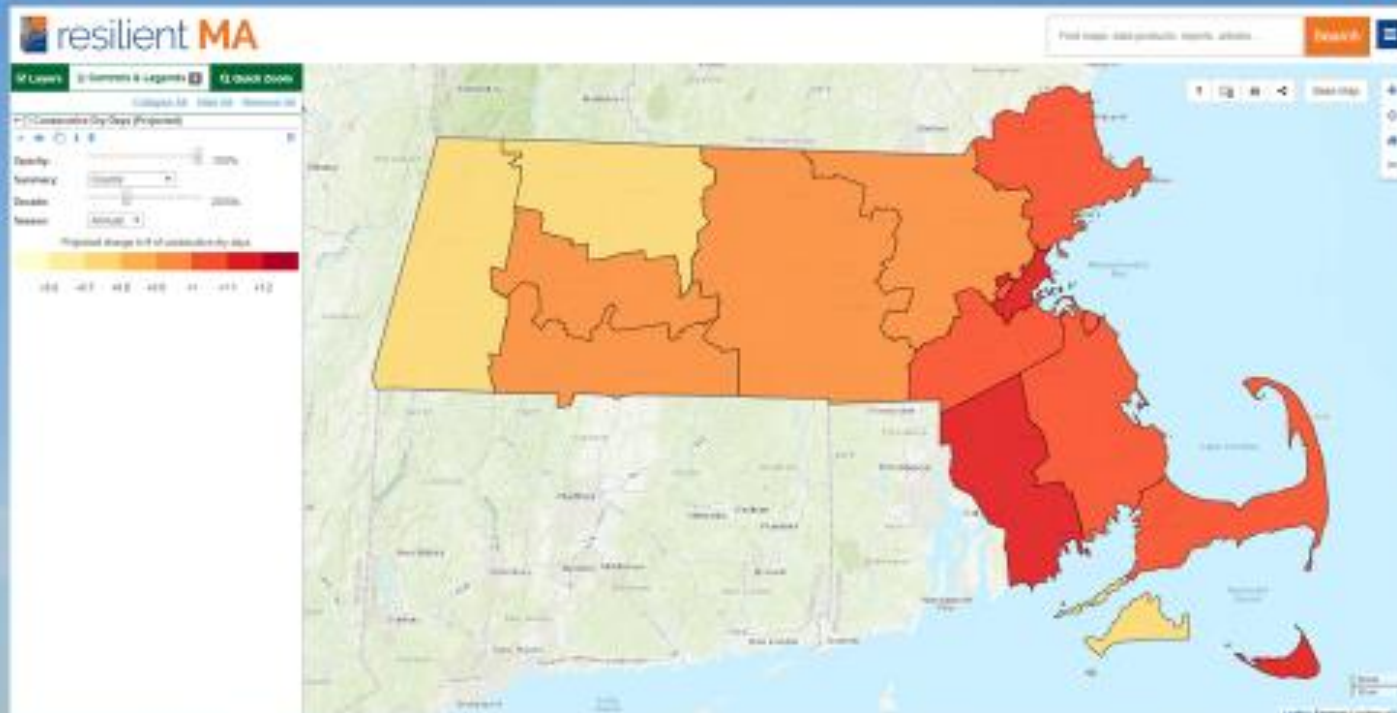


# Precipitation Change: Drought Observed



The drought of 2016 was the worst in 35 years.  
US Drought Monitor

## Precipitation Change: Projected Dry Days 2050

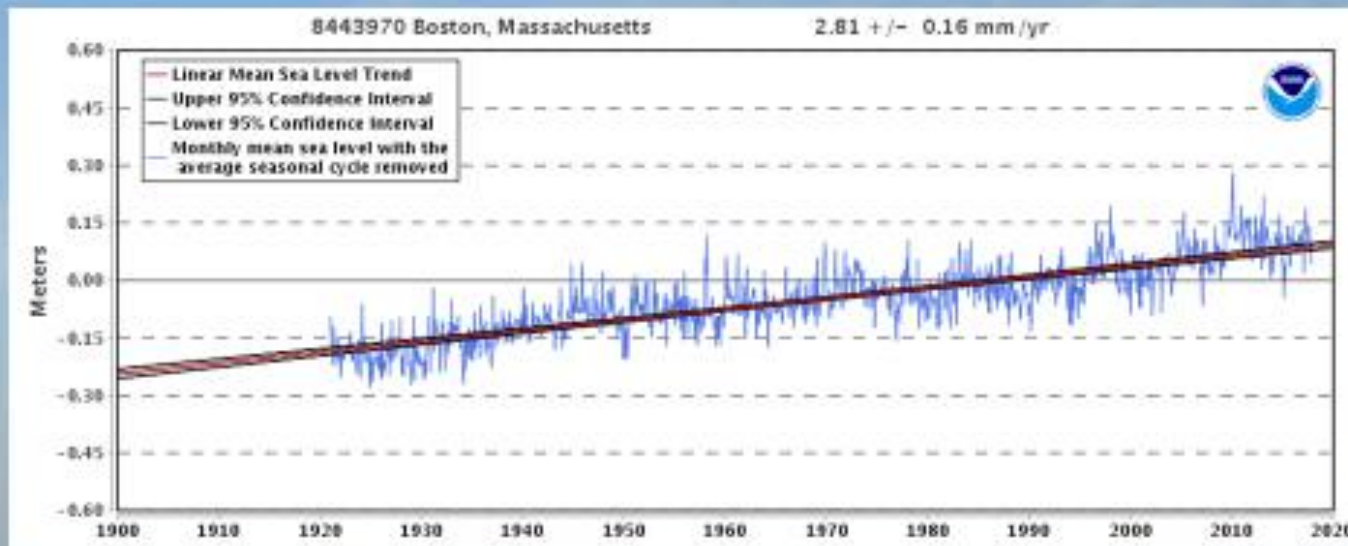


**Consecutive dry days increase from 17 days to 18 days annually by 2050.**

[www.resilientma.org/map](http://www.resilientma.org/map)

## Sea Level Rise: Observed

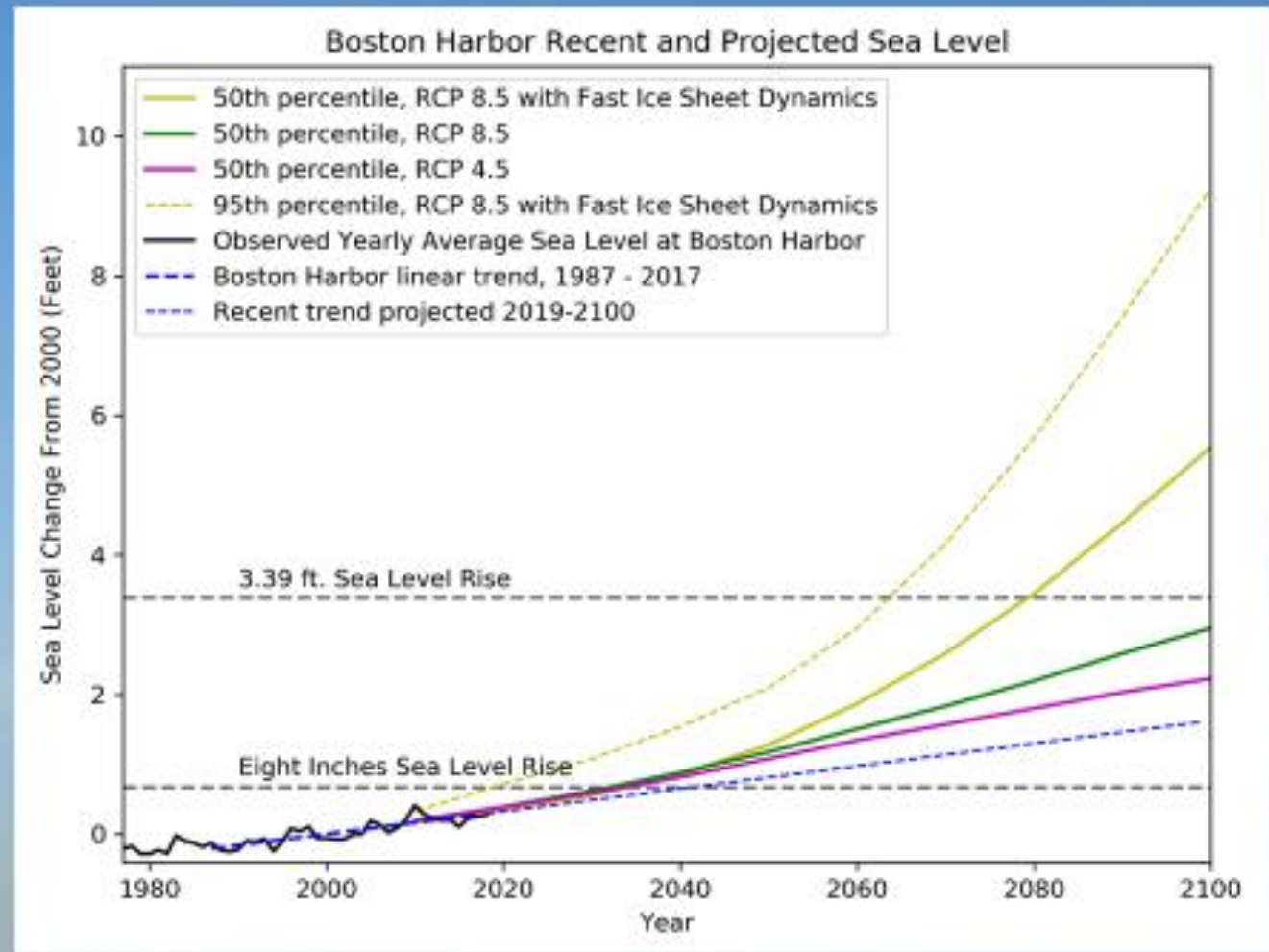
- Boston tide station
- Record from 1921-2016
- Equivalent to 11 inches in 100 years





# Sea level rise: Projected to 2100 for Boston Harbor

Source: Northeast Climate Adaptation  
Science Center and MAPC



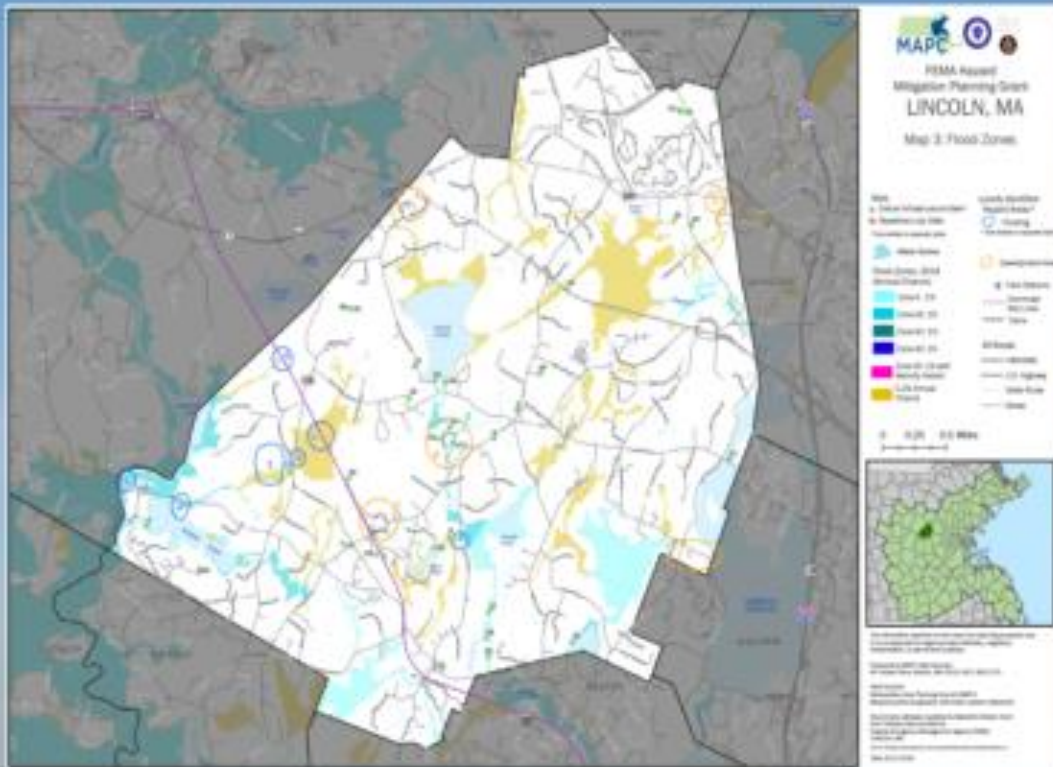
## Building on Recent Work: MAGIC Climate Resilience



1. **Designate Municipal Climate Leads** that serve as a network of stewards to sustain local climate resiliency efforts in and across the towns.
2. **Engage in Regional Green and Clean Infrastructure Action Plan** for the protection of natural resources and advancement of clean energy projects.
3. **Prioritize Active Transportation Investments** in order to reduce GHG emissions and create redundant mobility options
4. **Build and Bolster Community-Level Climate Resiliency** so that neighbors can act individually and collectively to address climate-driven changes in their communities.

## Building on Recent Work: Lincoln Hazard Mitigation Plan

## Flood Hazard Areas



- *Route 117/Sudbury River – Flooding*
- *Farrar Pond – Flooding/Beavers*
- *Near Old Concord Road – Flooding / Beavers*
- *Commuter Rail – Flooding (2 areas)*
- *Concord Road – Flooding/Beavers*
- *Town Well on Tower Road – Flooding*

## Critical Facilities

**42 sites identified including:**

- Disaster response sites  
(Fire and Police stations, DPW)
- Sites requiring assistance  
such as elderly housing
- Places of assembly
- Critical infrastructure  
(dams, pump stations)



## Building on Recent Work: Lincoln Hazard Mitigation Plan

### FLOODING

- A) Implement culvert and drainage upgrades.
- B) Open space protection.
- C) Regulatory revisions for stormwater and low-impact development.
- D) Long-term management plan for beaver activity.
- E) Upgrades to culverts along the Commuter Rail line.
- F) Public information on NFIP.

### DAM HAZARDS

- G) Reconstruct Flint's Pond dam.

### WIND HAZARDS

- H) Proactive tree pruning to reduce impacts of wind and power outages.
- I) Coordinate with utility companies to reduce vulnerability to wind damages.

## Workshop Exercises



# Step 1: Identify Community Vulnerabilities and Strengths

Lincoln Community Resilience Building  
Risk Matrix

V = Vulnerability S = Strength  
BL = BL = Low Priority for action

TABLE \_\_\_\_\_

				Top Priority Hazards				Priority
				Extreme Heat/ Heat Waves	Inland and Riverine Flooding	Extreme Cold/ Winter Storms/Snow	Drought/Fire	H. H. L.
Matrix 3: Environmental Features				ACTIONS - Edit below				
1								
2								
3								

## Identify Important Community Features on Left Four Columns

- What features in your community are most vulnerable to weather-related impacts?
- What features are your community's strengths relative to climate impacts?
- Note **Location** on map, **Ownership**, and **Vulnerability and/or Strength**
- 3 Separate Matrix Pages for:
  1. Infrastructure: e.g., buildings, roads, bridges, wells
  2. Society/people: e.g., elderly citizens living in flood zones
  3. Environment: e.g., wetlands, protected land in flood zonesbbb

## Step 2: Develop Actions & Prioritize Actions

Lincoln Community Resilience Building

Risk Matrix

V = Vulnerability S = Strength

H - M - L = Priority for action

TABLE \_\_\_\_\_

				Top Priority Hazards				Priority
				Extreme Heat/ Heat Waves	Inland and Riverine Flooding	Extreme Cold/ Winter Storms/Snow	Drought/Fire	H - M - L
<b>Matrix 3: Environmental Features</b>				ACTIONS - list below				
1								
2								
3								

### COMPLETE right side of matrix: Develop Actions & Priorities

1. Develop Actions – How to reduce vulnerability and/or reinforce strengths?
2. Prioritize – Are actions high, medium, or low priority?
3. Each table select your group's overall TOP 5 Actions (write on cards)

## MVP Guidelines

- Everyone has an equal opportunity to contribute.
- Everyone is an expert; respect others' points of view.
- Respect limited time.
- Please work to complete the worksheet. Your input is important!



**Thank you for your participation!**



## APPENDIX D – LINCOLN WORKSHOP TABLE MATRIX RESULTS

Participants were divided into four small groups identified as Blue, Green, Yellow, or Red. Concerns were categorized as Environmental, Infrastructure, or Society. Participants identified climate-related strengths and vulnerabilities for Lincoln in each of the three categories. Potential actions were proposed to address the vulnerabilities, and in some cases to augment a strength. Actions were then prioritized as High, Medium, or Low, and each table was asked to identify their top four priorities. The information was recorded in a matrix for each table and is reproduced in the chart below.

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>BLUE TABLE - INFRASTRUCTURE</b>					
1	Infrastructure	Water Treatment Facility (chemical spill)	V/S	<ul style="list-style-type: none"> <li>Water Treatment Facility vulnerability study.</li> <li>Dry well system around Water Treatment Facility.</li> </ul>	H H
2	Infrastructure	Water lines – age of lines (90% on public water)	V	<b>Study and plan for water line replacements and test/flush hydrants.</b>	<b>H</b>
3	Infrastructure	Septic Systems	V	Homeowner education on septic systems and Town data review.	L
4	Infrastructure	Flooding not a major issue Town-wide	S		
5	Infrastructure	Route 117 can flood—route to hospital; snow and accidents	V	<ul style="list-style-type: none"> <li>Reverse 911 notification.</li> <li><b>Check Sudbury River stream gage as indicator of Route 117 flooding.</b></li> </ul>	L H
6	Infrastructure	MBTA Commuter Rail station and 4 crossings	V		
7	Infrastructure	St. Anne's Church parking lot—could serve as an emergency transportation staging hub	S		
8	Infrastructure	No Council on Aging transit services	V	Provide funding for van and drivers for COA transportation services, work with The Commons.	M
9	Infrastructure	Power outages—trees; old infrastructure	V	<b>Work with utility companies to make repairs and clean up rights-of-way; educate citizens; St. Anne's could educate its Lincoln parishioners; host public seminars on power outages and old infrastructure issues.</b>	<b>H</b>

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>BLUE TABLE – INFRASTRUCTURE (CONTINUED)</b>					
10	Infrastructure	Cellular phone service	V	<b>Educate citizens—safety issue; need to provide more cell towers; St. Anne’s explore cell tower in its steeple.</b>	H
11	Infrastructure	Fire Department radios don’t always work	V	Moving to a digital communication system (2 years). Radio tower height was shortened per residents’ complaints; since then LFD and PFD radios do not always work. St. Anne’s explore radio tower in its steeple per proximity to LFD, PFD.	
12	Infrastructure	Country drainage system, generally works	V/S	Maintenance of drainage systems (being done for catch basins).	
13	Infrastructure	Roadways, clearing snow—contract help needed	V/S	Increase staff/contractors for snow removal.	M
14	Infrastructure	Gas lines/leaks – lack of Town control	V	Work with gas utilities on gas leaks.	H
<b>BLUE TABLE – SOCIETY</b>					
1	Society	Elderly single people—need to self-identify	V	Elderly living alone: staffing increases/better outreach—hire full time social worker; St. Anne’s can identify elderly single people; work with LCOA.	H
2	Society	Old housing stock	V	Old housing stock: fund air conditioners for low income residents.	
3	Society	Wellness checks done by Council on Aging, churches	S		
4	Society	Scale – small population is a challenge for resources	V		
5	Society	Churches (St. Anne’s)	S		
6	Society	Hanscom isolation	V		

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>BLUE TABLE – SOCIETY (CONTINUED)</b>					
7	Society	Lack of emergency shelters (only Commons)	V	<b>Emergency Shelter: Staffing and facilities—generator, supplies, etc. St. Anne’s to explore what State’s requirements are; work with LPD that has supplies of cots and blankets. St. Anne’s has in place CORI-checked staff and on-site Rector (other possible shelters are staffed by those who likely do not live in Lincoln).</b>	H
<b>BLUE TABLE - ENVIRONMENT</b>					
1	Environment	Trees – blowdowns / heat mitigation	S/V		
2	Environment	Low-salt policy	S/V	Explore other de-icing products; St. Anne’s using new eco-friendly product; will report to LCOA and Town Administrator on its effectiveness.	L
3	Environment	SuAsCo watershed system	S		
4	Environment	Wetlands (flood control)	S		
5	Environment	Tick-borne illnesses	V	Community Education on tick-borne diseases.	L
6	Environment	Beavers	V	Town dealing with beaver issues.	L
7	Environment	Cambridge Reservoir	S		
<b>GREEN TABLE - INFRASTRUCTURE</b>					
1	Infrastructure	Lee’s Bridge floods	V	Lee’s Bridge is State-controlled—recent bridge; coordinate with state for plan	L
2	Infrastructure	Roadways—trees and powerlines	V	<b>More aggressive tree pruning program; removal as needed; plan for areas/types.</b>	H
3	Infrastructure	Tower Road Well—flooding, tree damage	V	Have alternate backup water source; update drainage maintenance at Tower Road Well.	M

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>GREEN TABE -INFRASTRUCTURE (CONTINUED)</b>					
4	Infrastructure	Pump house—power issues, increased flow	V/S	Find out if generator is available.	M
5	Infrastructure	The Commons—Russell Building is shelter; no generators in cottages	V/S	The Commons—Consider generator—alternate arrangement.	L
6	Infrastructure	Town Hall and schools have generators	S	<b>EOC supplies need to be in shelter—currently off-site; need plan.</b>	H
7	Infrastructure	Culverts, Route 117, Weston Road, Tower Road	V	Seek funding to meet ACOE standards for culverts; wildlife /habitat state stream crossing guidelines.	M
8	Infrastructure	Lincoln mass transit	V/S		
9	Infrastructure	Battlefield Farm—flooding, high water table, high density, low income	V		
10	Infrastructure	Aging infrastructure, water and gas lines	V	<b>Water infrastructure plan—capital plan related to road work; coordinate with National Grid, road openings.</b>	H
11	Infrastructure	Cul-de-sacs—lack of egress	V	Focus area for tree maintenance in cul-de-sacs.	H
<b>GREEN TABLE - SOCIETY</b>					
1	Society	Vulnerable populations: Battleroad Farm, Lincoln Woods, Ryan Estates—high density, affordable housing	V	<b>Identify reasons for vulnerability (COA, Public Safety may have list); sheltering needs, neighborhood buddy program.</b>	H
2	Society	Aging population, especially living alone	V		
3	Society	Council on Aging: “Staying Home” emergency housing; age in place	S		
4	Society	The Commons: Memory Café; support partnership—Mass MAP network	S		

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>GREEN TABLE - SOCIETY (CONTINUED)</b>					
5	Society	Public nurse	S		
6	Society	Hospice—new facility	S/V		
7	Society	Snow storms—generators, transport to shelter	V	See vulnerable population actions, make sure this is covered by emergency plan.	H
8	Society	Lack of alternate energy resources	V	<b>Update solar bylaw; battery storage; focus on solar on Town facilities/transfer station; Net Zero strategies.</b>	<b>H</b>
9	Society	Capacity to transport students in emergency; no alternate egress	V		
10	Society	Shelters—need supplies on-site	V		
11	Society	Churches have kitchens, large space; First Parish, COA	S		
12	Society	Oil-heated homes need transportation access	V	Oil heated homes: Alternate energy sources – gas or other.	L
<b>GREEN TABLE - ENVIRONMENT</b>					
1	Environment	Trees: shade, air quality; wind/drought, impacts power, transport	S		
2	Environment	Protected wetlands, functioning properly	S		
3	Environment	Water Supply—Town has its own supply, protected; conservation restrictions	V/S	<b>Encourage water conservation, particularly landscape irrigation; volume restrictions, regulations.</b>	<b>H</b>
4	Environment	Private wells not subject to restrictions	V	Encourage state regulations; investigate Town strategies—Cape Cod examples.	M



Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>GREEN TABLE - ENVIRONMENT (CONTINUED)</b>					
5	Environment	Open space protection	S		
6	Environment	Tree cover	S		
7	Environment	Ticks/insects—Lyme Disease and others	V	Public education; youth education.	M
8	Environment	Floodplains are undeveloped	S		
9	Environment	Good regulations to encourage LID, natural resource protection, country drainage	S		
10	Environment	Conservation Commission, buffer protection	S		
11	Environment	Trails—alternate transportation, bikes	S		
12	Environment	Local Farms-food supply, CSA's	S		
13	Environment	Low flow of Sudbury River and Shawsheen River	V	Regulations that increase stormwater infiltration; update 10-year/24-hour storm standards, put in stormwater bylaw update.	M
<b>RED TABLE - INFRASTRUCTURE</b>					
1	Infrastructure	Route 117 floods in 100-year storm; limited options to fix; multi-Town problem	V	<b>Feasibility study for resilience improvements with road, bridge, wetlands collaboration.</b>	<b>H</b>
2	Infrastructure	Flooding impairs septic systems	V	Town-wide study on wastewater treatment systems near flood areas.	H
3	Infrastructure	Utility outages from downed trees—wind and snow/ice	V	<b>Identify high risk areas and prioritize burying utilities do a tree and forest management plan.</b>	<b>H</b>
4	Infrastructure	Stormwater infrastructure aging and overwhelmed by severe storms	V	Town-wide study on stormwater infrastructure resilience, assessment of functionality, ability to hold more water.	H

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>RED TABLE - INFRASTRUCTURE (CONTINUED)</b>					
4	Infrastructure	Gas leaks, danger of explosion	V	Road rebuilding program to coordinate with gas utilities on local and state rebuilds for gas infrastructure upgrades.	M
5	Infrastructure	Heat island in parking lots and large developments	V	Solar panel canopies over parking lots and Low Impact Development bylaw.	L
6	Infrastructure	Flooding Commuter Rail, undermining tracks	V	Continue beaver control efforts.	L
7	Infrastructure	Unpaved/dirt roads difficult access for Emergency Services	V	Identify roads and required services neighborhoods with unpaved roads; investigate need for proper vehicles.	L
8	Infrastructure	New Town Hall, Library, and School (soon)	S		
9	Infrastructure	Council on Aging at Bemis Hall in disrepair	V	<b>Build a new community center—a better and safer place for seniors and the community.</b>	<b>H</b>
10	Infrastructure	Aged drinking water infrastructure, susceptible to damage from freeze/thaw and flooding	V	Map drinking water pipes in or adjacent to wetlands; institute a Value Replacement Program.	H
11	Infrastructure	Concord Road vulnerable to flooding	V	Continue beaver monitoring and control.	L
<b>RED TABLE - SOCIETY</b>					
1	Society	With power outages, no power for wells, septic systems; public health impacts	V	<b>Create a Task Force to understand community needs during extended power outages.</b>	<b>H</b>
2	Society	Codman Farm community gardens	S		
3	Society	Wetlands breeding mosquitos—vector borne diseases	V	Continued education and signage on vector-borne diseases.	M
4	Society	Forest, open space means more deer, more ticks (vector borne disease)	V	Research biocontrol without pesticides for management.	M

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>RED TABLE – SOCIETY (CONTINUED)</b>					
5	Society	Warming, extended growing season means longer season for Lyme Disease	V	Deer management.	M
6	Society	The Commons—transportation of seniors in an emergency	V	Continue good relations and planning with local and regional EMS, especially for Town-wide emergencies.	L
7	Society	The Commons is a shelter	S	Identify different shelter locations such as schools and identify socially vulnerable populations.	M
8	Society	The Commons & seniors – evacuation plan and communication with Emergency Services	S		
9	Society	Town pool for cooling on hot days	S		
10	Society	New Senior/Community Center	S	Task Force (#1 above) to study needs of seniors in climate change.	H
11	Society	Low income residents disconnected from community services	V	Task Force (#1 above) to study needs of low income population in climate change.	H
12	Society	Town has good relationship with cultural and environmental organizations	S		
13	Society	Mass Audubon provides youth education on climate and the environment	S		
14	Society	Churches provide funding, food, and social services to vulnerable people across region	S	Create a system of community response during emergencies—emergency planning, churches, neighbors.	H
15	Society	The Food Project provides food to the needy	S		

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>RED TABLE - ENVIRONMENT</b>					
1	Environment	Beavers are altering wetlands and causing flooding	V	Continue to monitor and manage beavers.	L
2	Environment	Codman Farm provides food, ecosystem services	S		
3	Environment	Codman Farm risk of drought and flooding; farm animals' mortality	V	Water Commission to work with agriculture and construction community on agricultural water use and regulations.	M/H
4	Environment	Codman Farm has no backup generator	V	Buy a generator for Codman Farm.	H
R5ed	Environment	Trees help with clean water, clean air, stormwater, and cooling	S		
6	Environment		V	Tree and forest management that considers resilience and adaptation.	H
7	Environment	Wetlands impacted by development, salt on roads	V	New stormwater bylaw and Low Impact Development; Conservation Commission enforcement to stop encroachment on wetlands.	H
8	Environment	Wetlands provide habitat and flood storage when functioning well	S		
9	Environment	Town is 40% open space	S		
10	Environment	Climate stress on ecosystem in open space	V	<b>Implement new Stormwater Bylaw and Low Impact Development.</b>	<b>H</b>
11	Environment	Drinking water Supply	V	Water Conservation.	L
12	Environment	Drinking water quality, sodium, manganese	V	Investigate implementing new well options.	M

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>RED TABLE – ENVIRONMENT (CONTINUED)</b>					
13	Environment	The Food Project-agriculture vulnerable to drought	V	Rainwater capture; water conservation for agriculture (see #3 above).	M/H
<b>YELLOW TABLE - INFRASTRUCTURE</b>					
1	Infrastructure	Power lines, communications	V/S	<ul style="list-style-type: none"> <li>• Install power lines underground;</li> <li>• Tree trimming.</li> </ul>	L H
2	Infrastructure	Storm drain systems – in/out flows	V/S	<ul style="list-style-type: none"> <li>• Resilient buildings-low flow toilets, rainwater collection;</li> <li>• Storm drain maintenance and cleaning.</li> </ul>	H H
3	Infrastructure	Local water supply (surplus) Flint's Pond	V/S	<ul style="list-style-type: none"> <li>• Education on water systems/supply</li> <li>• Improve stormwater capacity/redesign to control flow.</li> </ul>	H H
4	Infrastructure	Cambridge water supply	V/S	<ul style="list-style-type: none"> <li>• Pollution detection/monitoring of reservoir</li> <li>• Smart landscaping (swales, LID).</li> </ul>	H H
5	Infrastructure	MBTA commuter rail line	V/S	Lobby the state for service – ADA.	M
6	Infrastructure	Wastewater Treatment Plant (Lincoln Woods and Lincoln Station)	V	<ul style="list-style-type: none"> <li>• Maintain WWTP to evolving standards.</li> <li>• Assess WWTP capacity in light of projected future conditions.</li> </ul>	H
7	Infrastructure	Wastewater Treatment facility–Wells Road	V		
8	Infrastructure	Wastewater Treatment Facility-Battle Road	V		
9	Infrastructure	Route 117 (on the Lincoln line by the Sudbury River)	V	<ul style="list-style-type: none"> <li>• Trap beaver</li> <li>• Detour</li> <li>• Re-grade/elevate roads</li> <li>• Erect flood barriers along flood areas.</li> </ul>	M
10	Infrastructure	Route 2A, Lexington Road	V		
11	Infrastructure	Mill Street by Lexington Road	V		
12	Infrastructure	Town Well on Tower Road	V/S		



Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>YELLOW TABLE – INFRASTRUCTURE (CONTINUED)</b>					
13	Infrastructure	Municipal buildings with backup generators	S	<ul style="list-style-type: none"> <li>Upkeep and maintenance of municipal buildings.</li> <li>Development of a community center, increase shelter capacity.</li> <li>Monitor demand and supply of shelters.</li> <li>Monitor changing needs for shelter supplies.</li> </ul>	H M M M
14	Infrastructure	Cooling and heating centers	S		
15	Infrastructure	Shelter at The Commons	S		
16	Infrastructure	Carroll School evacuation point	S		
17	Infrastructure	DeCordova Museum evacuation point	S		
18	Infrastructure	Churches	S		
19	Infrastructure	National Park parking lot	S		
20	Infrastructure	Gas line goes through wetlands	V	Work with utility companies to repair gas leaks.	H
21	Infrastructure	Emergency system infrastructure	S		
22	Infrastructure	Hanscom Air Force Base—shelter	S	Reach out to include Hanscom in shelter inventory.	
23	Infrastructure	Aging water system infrastructure	V	Water system needs assessment and replacement plan.	L
24	Infrastructure	Communications	V	Explore more resilient communication systems; 911 direct to local.	L
<b>YELLOW TABLE – SOCIETY</b>					
1	Society	Council on Aging	S	<ul style="list-style-type: none"> <li>Coordination/organization of service providers.</li> <li>Communicate to these entities the roles they play in climate resilience.</li> <li>Ensure funding.</li> <li>Match services to needs of changing population, especially older adults.</li> </ul>	M
2	Society	Library	S		
3	Society	Schools	S		H
4	Society	Churches	S		H
5	Society	Food Pantry (St. Vincent DePaul)	S		
6	Society	Lincoln Recreation Department	S		H

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>YELLOW TABLE – SOCIETY (CONTINUED)</b>					
7	Society	National Park Service	S		
8	Society	Affordable Housing	V	<ul style="list-style-type: none"> <li>Master planning that identifies where affordable housing can go, including co-housing.</li> <li>Proactive Zoning change to allow more density, Transit Oriented Development.</li> </ul>	H
9	Society	Limited affordable housing for older adults that want to live alone	V		H
10	Society	Lack of services locally	V		
11	Society	Dependent on cars	V	Promote Smart Growth.	H
12	Society	On-demand ride services for older adults	S	Add charging stations; bike-friendly streets.	M
13	Society	The Commons—socialization for residents	S		
14	Society	Care Dimensions—55+ services; clinical teams visit vulnerable populations	S		
15	Society	Farrington	S		
16	Society	Mass Audubon—Climate Change education	S	Enhanced education on climate related issues.	H
17	Society	No readily available health care	V	Support Town nurse, Council on Aging, Care Dimensions.	H
18	Society	Diversity of needs—age, socio-economic, race, etc.	V		
19	Society	Town economic strengths—tax base	S		
20	Society	Outdoor workers—OSHA or National Park Service policies	S		

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>YELLOW TABLE - ENVIRONMENT</b>					
1	Environment	Dead trees—power line impacts	V		
2	Environment	High percentage forest cover – carbon sequestration	S		
3	Environment	Forest and orchard composition change	V		
4	Environment	Conservation Land—Lincoln, MA Audubon, RLF, LLCT	S	<b>Understand climate impacts to forest and land.</b>	<b>H</b>
5	Environment	Flint Pond Reservoir	V		
6	Environment	Wildlife—deer management; food sources	V		
7	Environment	National Park – buffer to development	S		
8	Environment	Drumlin Farm, other farms, Food Project	S/V		
9	Environment	Education initiative, Drumlin Farm and Codman Farm	S	Comprehensive Climate education and private practices—what can be done at home.	H
10	Environment	Hanscom Airport	V	Noise and air pollution.	
11	Environment	Smaller animal species	V		
12	Environment	Invasive species; bittersweet, black swallow wort, burdock, ticks, poison ivy,	V	Continue pulling of invasive species.	H
13	Environment	Pierce Park Pond invasive species	V	Public education on ticks.	H
14	Environment	Pulling invasives by Conservation Commission	S		
15	Environment	Invasives management by National Park	S		
16	Environment	Field Management—National Park; mitigating drought/fire impacts	S/V		
17	Environment	National Park water quality monitoring	S		

Item#	Category	Strengths (S) & Vulnerabilities (V)	V/S	Solutions	Priority
<b>YELLOW TABLE – ENVIRONMENT (CONTINUED)</b>					
18	Environment	Board of Health and Water Dept. water quality monitoring	S		
19	Environment	Local water use regulations/bans	S		
20	Environment	Uncontrolled private well use	V		

## APPENDIX E –LINCOLN COMMUNITY FORUM (LISTENING SESSION)



# TOWN OF LINCOLN

MASSACHUSETTS

16 LINCOLN ROAD, LINCOLN, MA 01773

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### Press Release

### **Municipal Vulnerability Preparedness (MVP) Community Forum**

On April 1, the Town of Lincoln, in partnership with the Metropolitan Area Planning Council (MAPC) will host a Community Forum to discuss the impacts of climate change on Lincoln and actions the town can take to address them. The community forum will be held from 7:00 to 8:30 p.m. in the Donaldson Room of Lincoln Town Hall, First Floor, 16 Lincoln Road, Lincoln.

All Lincoln residents, businesses and civic organizations are invited and encouraged to participate.

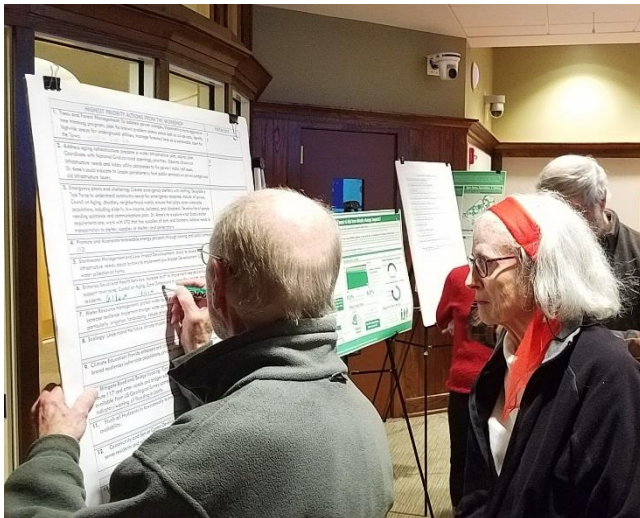
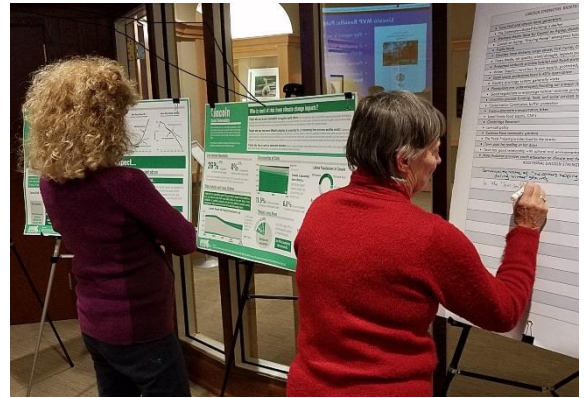
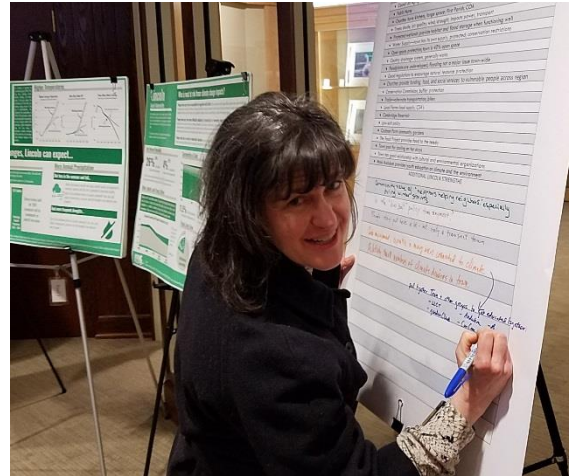
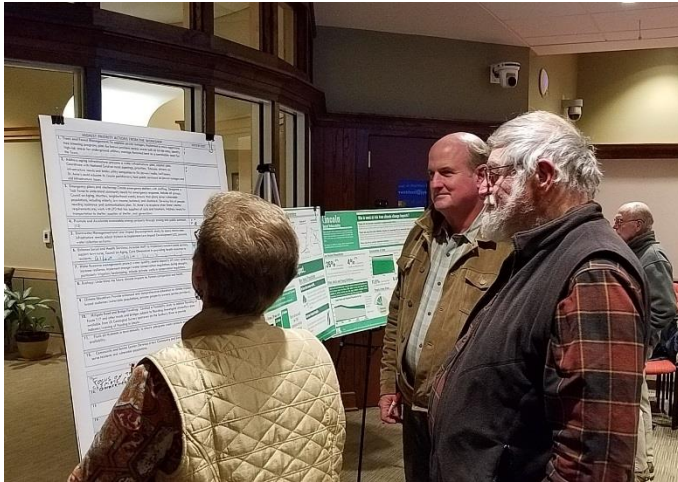
The community forum will present the results from a Municipal Vulnerability Preparedness Workshop that was held on February 25, 2019 by the Town of Lincoln with MAPC assistance. The MVP workshop brought together Town board and committee members, municipal staff, residents, local businesses, and nonprofit organizations who worked together to identify how Lincoln may be vulnerable to the impacts of climate change, the Town's strengths in responding to climate impacts, and actions the Town can take in order to increase preparedness and resilience.

After the findings of the MVP Workshop are presented at the Forum, a discussion will follow about how to best minimize and mitigate the effects of climate change in Lincoln. The discussion will yield recommended actions to protect public health and safety and minimize impacts on the Town's environment and economy.

Residents, businesses and civic organizations are invited to attend and provide their input as part of this ongoing effort to plan for Lincoln's future. For more information, contact Jennifer Burney, director of Planning and Land Use at 781-259-2610, ext. 8124 or at [burneyj@lincolntown.org](mailto:burneyj@lincolntown.org).



## Lincoln MVP Community Forum, April 1, 2019



HIGHEST PRIORITY ACTIONS FROM THE WORKSHOP		VOTE BY DOT
1. Trees and Forest Management: To address power outages, implement a more aggressive tree trimming program; plan for known problem access areas such as cul-de-sacs; identify high-risk areas for underground utilities; manage forested land as a sustainable asset for the town.		2
2. Address aging infrastructure: prepare a water infrastructure plan, capital plan. Coordinate with National Grid on road openings, priorities. Educate citizens on infrastructure needs and lobby utility companies to fix power/radio/cell issues. St. Anne's could educate its Lincoln parishioners; host public seminars on power outages and old infrastructure issues. <i>Explicit Goals</i>		5
3. Emergency plans and sheltering: Create emergency shelters with staffing. Designate a Task Force to understand community needs for emergency response. Include all groups, Council on Aging, churches, neighborhood watch; ensure that plans cover vulnerable populations, including elderly, low-income, isolated, and disabled. Develop lists of people needing assistance and communications plan. St. Anne's to explore what State's shelter requirements are; work with LPD that has supplies of coats and blankets. Address needs for transportation to shelter, supplies of shelter, and generators.		1
4. Promote and Accelerate renewable energy projects through zoning and public outreach. (12)		5
5. Stormwater Management and Low Impact Development: study to assess stormwater infrastructure needs; adopt bylaws to implement Low Impact Development (LID), promote water collection on farms. <i>order in the streets for vegetation management</i>		3
6. Enhance Social and Health Services: increase staff to implement needed social services; support town nurse, Council on Aging, Care Dimensions in providing health services to residents. <i>allow seniors to live in place</i>		2
7. Water Resource management: protect water quality; assess capacity of water systems to increase resilience. Implement stronger water conservation regulations during droughts, particularly irrigation/landscaping; include private wells in conservation regulations.		2
8. Ecology: Understand the future climate impacts to forests composition and health.		
9. Climate Education: Provide enhanced and comprehensive education on climate impacts to broad audiences (vulnerable populations, private property owners, service providers).		9
10. Mitigate Road and Bridge Flooding: Conduct a feasibility study to address flooding of Route 117 and other roads and bridges subject to flooding. Investigate streamflow data available from US Geological Survey upstream on the Sudbury River to provide indicator/warning of flooding in Lincoln.		1
11. Flush all Hydrants in town annually to ensure adequate water pressure and availability.		1
12. Community and Senior Center: Develop a new Community and Senior Center in town to serve residents and vulnerable populations.		1
NEW SUGGESTIONS FOR ACTION		
13. FOCUS ON THINGS THAT HELP PREVENT CLIMATE CHANGE, including the rising global awareness.		2
14. ADD WEATHER TO CTS		

HIGHEST PRIORITY ACTIONS FROM THE WORKSHOP ITEMS IN BOLD ALL CAPS ADDED AT THE LISTENING SESSION	VOTES
1. <b>Trees and Forest Management:</b> To address power outages, Implement a more aggressive tree trimming program; plan for known problem access areas such as cul-de-sacs; identify high-risk areas for underground utilities; manage forested land as a sustainable asset for the Town, <b>INCLUDING FOREST FIRES</b>	2
2. <b>Address aging infrastructure:</b> prepare a water infrastructure plan, capital plan. Coordinate with National Grid on road openings, priorities. Educate citizens on infrastructure needs and lobby utility companies to fix power/radio/cell issues. St. Anne's could educate its Lincoln parishioners; host public seminars on power outages and old infrastructure issues, <b>ESPECIALLY GAS LEAKS.</b>	5
3. <b>Emergency plans and sheltering:</b> Create emergency shelters with staffing. Designate a task force to understand community needs for emergency response. Include all groups, Council on Aging, churches, neighborhood watch; ensure that plans cover vulnerable populations, including elderly, low-income, isolated, and disabled. Develop lists of people needing assistance and communications plan. St. Anne's to explore State's shelter requirements, work with LPD that has supplies of cots and blankets. Address needs for transportation to shelter, supplies at shelter, and generators. 4.	1
5. <b>Promote and Accelerate renewable energy projects</b> through zoning and public outreach.	5
6. <b>Stormwater Management and Low Impact Development:</b> study to assess stormwater infrastructure needs; adopt bylaws to implement Low Impact Development (LID), promote water collection on farms. <b>CONSIDER CISTERNS FOR IRRIGATION DURING DROUGHTS</b>	3
7. <b>Enhance Social and Health Services:</b> Increase staff to implement needed social services; support town nurse, Council on Aging, Care Dimensions in providing health resources to residents. <b>ALLOW SMALLER HOUSES FOR SENIORS.</b>	2

8. <b>Water Resource management:</b> protect water quality; assess capacity of water systems to increase resilience. Implement stronger water conservation regulations during droughts, particularly irrigation/landscaping; include private wells in conservation regulations.	2
9. <b>Ecology:</b> Understand the future climate impacts to forests composition and health.	
10. <b>Climate Education:</b> Provide enhanced and comprehensive education on climate impacts to broad audiences (vulnerable populations, private property owners, service providers).	9
11. <b>Mitigate Road and Bridge flooding:</b> Conduct a feasibility study to address flooding of Route 117 and other roads and bridges subject to flooding. Investigate streamflow data available from US Geological Survey upstream on the Sudbury River to provide indicator/warning of flooding in Lincoln.	1
12. <b>Flush all Hydrants</b> in town annually to ensure adequate water pressure and availability.	
13. <b>Community and Senior Center:</b> Develop a new Community and Senior Center in town to serve residents and vulnerable populations.	1

ADDITIONAL ACTIONS FROM THE LISTENING SESSION	
14. <b>Prevention:</b> Focus on things that help prevent climate change, including raising public awareness.	1
15. <b>Green Infrastructure:</b> Promote adding wetlands to lots	2



## LINCOLN STRENGTHS FROM THE WORKSHOP AND THE LISTENING SESSION

LINCOLN STRENGTHS IDENTIFIED AT THE WORKSHOP	
• Town Hall and schools have generators	
• The Commons—Russell Building is shelter	
• Wellness checks done by Council on Aging, churches	
• Council on Aging: “Staying Home” emergency housing; age in place	
• Public Nurse	
• Churches have kitchens, large space; First Parish, COA	
• Trees: shade, air quality; wind/drought, impacts power, transport	
• Protected wetlands provide habitat and flood storage when functioning well	
• Water Supply—town has its own supply, protected; conservation restrictions	
• Open space protection; town is 40% open space	
• Country drainage system, generally works	
• Floodplains are undeveloped; flooding not a major issue town-wide	
• Good regulations to encourage natural resource protection	
• Churches provide funding, food, and social services to vulnerable people across region	
• Conservation Commission, buffer protection	
• Trails—alternate transportation, bikes	
• Local Farms-food supply, CSA’s	
• Cambridge Reservoir	
• Low-salt policy	
• Codman Farm community gardens	
• The Food Project provides food to the needy	
• Town pool for cooling on hot days	
• Town has good relationship with cultural and environmental organizations	
• Mass Audubon provides youth education on climate and the environment	

## ADDITIONAL LINCOLN STRENGTHS FROM THE LISTENING SESSION

- Community value of “neighbors helping neighbors,” especially during winter storms
- People stay put in Lincoln—not really a transient town
- Civic engagement; expertise in many areas connected to climate
- Pull together Town and other groups to get educated together: Lincoln Land Conservation Trust, Audubon, Garden Club, schools, Board of Selectmen, Conservation Commission; public-private funding
- Relatively small number of climate deniers in town
- Low Salt: Is the “Low Salt” policy true anymore?



## APPENDIX F –COMMENTS RECEIVED ON THE DRAFT MVP SUMMARY REPORT

### 1) **Chief A. Kevin Kennedy, Lincoln Police Department**

**Subject:** FW: Emergency Response Team/Committee

Hi Tim,

In checking with Kevin Kermelewicz, he stated that the Town's Comprehensive Emergency Management Plan needs to be updated as the State dumped the on-line data base 2 years ago. That being said, according to Lincoln's Local Emergency Planning Committee's "Community Emergency Preparedness & Response Guide" it mentions having Citizen Emergency Response Teams (CERT) for the following:

- Medical Response Corp,
- Emergency Shelter Team,
- Seniors and Special Needs Teams,
- Emergency Animal Rescue Teams, and
- General Support Teams.

As it relates to these CERT teams, Kevin K. stated (based on information he was told) they are no longer in place due to a lack of interest from residents.

As it relates to shelters, we have an agreement with the Commons (not sure it is formal or just verbal-I will check with Steve) that residents can seek shelter there. I know when this is a possibility, Steve has called to get an idea on the numbers the Commons are able to accommodate. The Commons have been used by residents more than a handful of times over the years without issue. There is nothing in the LEPC guide that identifies specific locations. Although the schools have been mentioned as a location due to its size and generator power, the issue has been being able to provide the appropriate level of staffing to run the shelter.

As it relates to the Seniors, Carolyn provides us with an updated list per storm and Dispatch will call and confirm they are safe. If no response, we call their designated emergency contact and if necessary there is a police response to conduct a well-being check.

I am meeting with Kevin K. on Friday to start putting together the Town's Comprehensive Emergency Management Plan. I was looking for a copy of the plan last week during our Police Accreditation review and was told by Kevin that it no longer exists and needs to be updated.

Chief A. Kevin Kennedy  
Lincoln Police Department  
169 Lincoln Road  
Lincoln, MA 01773  
Phone: 781-259-8113 Fax: 781-259-9289  
[kkennedy@lincolntown.org](mailto:kkennedy@lincolntown.org)

## 2) Carolyn Bottum, Council on Aging

**From:** Bottum, Carolyn  
**Sent:** Wednesday, April 03, 2019 11:33 AM  
**To:** Burney, Jennifer  
**Cc:** Higgins, Timothy S.  
**Subject:** RE: Emergency Response Team/Committee

We and Public Safety reach out to frail residents during extended (more than a day or two) power outages or severe storms to make sure they are ok. If we are not able to reach the senior or an emergency contact, we ask Public Safety to do a well being check. We have 16 people on the list currently. These are all people who have given us permission to contact them. There are other people in town who would probably benefit from calls but people don't always want to be checked on due to privacy and independence concerns. If we have a concern about someone else who isn't on the list, we will go ahead and call them.

Many seniors also have neighbors who regularly check on them during storms and other emergencies and will then call us if they have a concern. We note in our database if someone has a neighbor who checks on them. We encourage neighbors to connect with neighbors because this is frequently the best way to make sure people are ok, especially if there is a power outage and phones don't work.

## 3) Ruth Ann Hendrickson

**From:** Ruth Ann H [<mailto:ruthann747@earthlink.net>]  
**Sent:** Tuesday, March 26, 2019 3:29 PM  
**To:** Burney, Jennifer  
**Cc:** Wiser, MaryBeth  
**Subject:** Re: Reminder MVP Meeting Monday April 1 7-8:30pm Donaldson Room

Jennifer, I noticed these items that seem to refer to the drinking water facilities. I'd be more excited if money was being offered :-).

MaryBeth - this is FYI only; no action required.

### INFRASTRUCTURE-HIGH

- Water Treatment Facility vulnerability study = REFERS TO DRINKING WATER OR WASTE WATER?
- Dry well system around Water Treatment Facility - NO IDEA WHAT THIS REFERS TO
- Study and plan for water line replacements and test/flush hydrants - THE WD IS DOING THIS
- Water infrastructure plan—capital plan related to road work - WE HAVE THIS; coordinate with National Grid, road openings - WE CAN LOOK AT THIS
- Map drinking water pipes in or adjacent to wetlands; institute a Value Replacement Program - NEED MONEY TO DO THIS
- Public Education on water systems/supply - WE DO OUTREACH BUT NOT MANY PUBLIC AVENUES IN THIS TOWN. WE DO OUR WEB SITE, BILL STUFFERS, LINCOLN TALKS, LINCOLN JOURNAL, AND LINCOLN SQUIRREL.

**4) Carolyn Bottum and Abigail Butt, Council on Aging**

Hi Jennifer,

Here are some comments and corrections. We realize that some of these are just being reported directly from what was written down. We especially wonder if there is some confusion about the role of Care Dimensions, which seemed to be noted as a town social services provider rather than a hospice specifically for those with life-limiting diseases. We know you know that, but it seemed as if perhaps some of the participants who put them together with the COA and town nurse misunderstood who they are. Also, St. Vincent de Paul, which is among the biggest providers of services to vulnerable residents, wasn't mentioned in the strengths or priorities list.

In any case, if you have questions on any of our comments, please let us know!



Carolyn  
Abigail

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**5) Jennie Cook, St. Anne's in the Fields Episcopal Church**

**From:** Parish Office/Jennie Cook [parishoffice@stanneslincoln.org]

**Sent:** Thursday, April 04, 2019 10:50 AM

**To:** Burney, Jennifer; Higgins, Timothy S.

**Subject:** Letter from Wardens of St. Anne's in-the-Fields re: MVP Grant

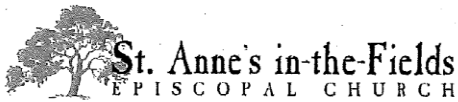
Hi Jennifer and Tim:

Hard copies of the attached are being mailed, but I wanted to email too so you received this immediately. Please let me know if you have any questions or would like to talk further about how St. Anne's can support the Town's MVP Action Grant.

Have a nice weekend, and many thanks!

Jennie Cook  
Parish Administrator  
St. Anne's in-the-Fields Episcopal Church  
PO Box 6  
147 Concord Road  
Lincoln, MA 01773  
781.259.8834  
[jennie@stanneslincoln.org](mailto:jennie@stanneslincoln.org)

*[See complete letter below]*



April 3, 2019

Jennifer Burney, Project Lead  
Town of Lincoln MVP Core Team  
16 Lincoln Road  
Lincoln, MA 01773

Dear Ms. Burney and MVP Core Team Members:

On behalf of St. Anne's in-the-Fields Episcopal Church, we write to offer the following services and assistance to the Town of Lincoln's Municipal Vulnerability Preparedness (MVP) Action Grant. Our Parish Administrator, Jennie Cook, attended the Workshop hosted by the Metropolitan Area Planning Council (MAPC) and presented its list of final objectives to our vestry. The following is how we envision our support of the Town's MVP Action Grant, and overall preparedness, based on those objectives:

1. **Wellness Checks:** In concert with service organizations like the Council on Aging (LCOA), we can leverage our email and phone lists to reach 151 Lincoln residents, 26 of whom could be considered "vulnerable" by virtue of age or disability. We can also mobilize parishioners to conduct wellness checks.
2. **Transportation Hub:** Our large parking lot allows us to be a central location for "transportation staging" to other locations, especially since it can be reached by several main roads.
3. **Direct Service to Needy:** We can expand our Outreach program to meet the needs of vulnerable Lincoln residents; for example, we could raise funds for window AC units for those without cooling in their homes.
4. **Eco-Friendly De-Icing Product:** We can offer our positive experience with HeatMiza, the eco-friendly de-icing product we used this winter, and introduce Msrs. Higgins and Bibbo to the supplier. We could also work with LCOA and other entities like the Girl Scouts to distribute small supplies to those residents who are elderly or infirm.
5. **Educational Assembly Space:** Because our sanctuary and meeting hall can each accommodate up to 200 people, we can offer this space for education programming for residents. For example, we can invite Mr. Higgins to present on the need to lobby utility companies to upgrade their infrastructure in Lincoln, or ask Mr. Bibbo to speak about the importance of trimming overhanging branches from roadways. Likewise, we can expand the reach of our own Climate Justice Ministry (CJM) to supplement its (very well-attended) monthly environmental movie screenings. For example, the CJM could host a "how-to" session showing how residents can address climate change mitigation at home, something we've committed to at the church with great results.
6. **Emergency Sheltering:** The combination of our large parking lot, ample assembly spaces, and commercial kitchen enables us to act as a Personal Care Site (PCS) as defined by the Massachusetts Emergency Management Agency (MEMA). We are ADA-accessible, have a

CORI-checked staff in place, and have separate spaces for sheltering pets. Further, our new rector (expected in July) will live on-site, so would be readily available to coordinate St. Anne's participation. As long as we have power, we can serve as a charging station, a cooling center, and a warming center.

In regard to offering emergency shelter, St. Anne's could also be considered a **Local-Initiated Overnight Shelter** (LIOS) per MEMA standards, despite not having on-site showering facilities or a generator/transfer switch. While we could accommodate sleeping for perhaps 300 displaced residents, due to our current facilities the LPD would have to manage the transport to showering facilities if the disaster was prolonged, and would need to supplement its current supply of cots and bedding. Further, without access to supplementary power, our elevator would not work, leaving us non-ADA compliant, which could preclude LIOS designation.

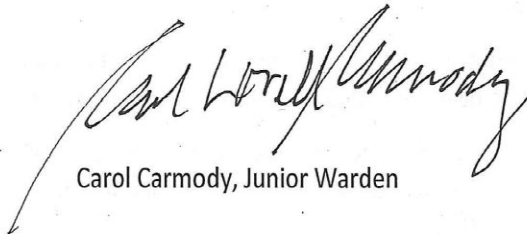
Therefore, should the MVP Core Team desire, a request for funding of St. Anne's-specific initiatives in the MVP Action Grant could be of great benefit for the Town's preparedness. The purchase of a natural gas-powered generator or the installation of a transfer switch on our building (to which LPD could attach its own or another generator) would insure that we could comfortably house people for extended periods time should power be lost across Lincoln. Likewise, funding for the installation of one or two showers at St. Anne's would enable us to offer longer emergency stays without burdening the LPD or Town with transportation.

We would be happy to talk with any member of the Team in more detail about how St. Anne's could be most helpful to both the application and the general preparedness plan for Lincoln. We consider our participation a gesture of our mission to do God's work, as well as a way to support and thank Town representatives like yourselves who have done so much for its citizens. Please do not hesitate to call on our Parish Administrator, Jennie Cook, at 781.259.8834 or [jennie@stanneslincoln.org](mailto:jennie@stanneslincoln.org).

Warmly,



Peter Caswell, Senior Warden



Carol Carmody, Junior Warden

cc: **Tim Higgins, Town Administrator**  
Chris Bibbo, Public Works Department  
Chief Kevin Kennedy, Lincoln Police Department  
Chief Steve Carter, Lincoln Fire Department  
Carolyn Bottum, Lincoln Council on Aging  
Tim Gumbart, Conservation Director  
Michael Haines, Facilities Director  
MaryBeth Wiser, Water Department  
Martin Pillsbury, MAPC