APPENDIX B

Community Resilience Building Workshop Materials

Community Resilience Building (CRB) Workshop
Wednesday, September 13, 2023 from 9 AM to 3 PM
Fellowship Hall (17 Little Mohawk Rd, Shelburne Falls, MA 01370)

9:00 Registration & Refreshments — 15 Minutes

9:15 - Welcome & Introductions — 20 Minutes

- Town Appointed Official
- MVP Regional Coordinator
- MVP Core Team
- Consulting Team
- Participant Introductions

9:35 - MVP Workshop Purpose & Overview — 50 Minutes

- Project Overview
- Recent Planning Efforts
- Overview of Data Being Used During Workshop
- Hazards
- Existing Climate Change
- Projected Climate Change

10:25 - Large Group Exercise #1 — 10 Minutes

- Review and Prioritize Top Four Hazards

10:35 - BREAK — 10 Minutes

10:45 - Presentation: Risk Matrix Overview — 20 Minutes

- Hazards
- Features
    - Infrastructure, Societal, Environmental
    - Vulnerability or Strength
    - Location
    - Ownership
- Overview of Maps Being Used During Workshop
- Overview of Community Actions

11:15 - Small Group Exercise #1 — 20 Minutes

- Infrastructure and Buildings Features
    - Vulnerability and/or Strength, Location, Ownership

11: 35 - Small Group Exercise #2 — 20 Minutes

- Societal Features
    - Vulnerability and/or Strength, Location, Ownership

11:55 - Small Group Exercise #3 — 20 Minutes

- Environmental Features
    - Vulnerability and/or Strength, Location, Ownership

12:15 – Report Out from Small Groups — 20 Minutes

- Combine output to make master matrix

12:25 – Lunch Break **15 Minutes**

12:40 - Presentation: MVP Community Actions/Strategies **20 Minutes**

- Participants can eat while project team presents

1:00 Small Group Exercise #4 **50 Minutes**

- Identify MVP Community Actions
- Prioritize Actions

1:50 - BREAK **10 Minutes**

2:00 – Report Out from Small Groups **30 Minutes**

2:30 - Large Group Exercise #2 **20 Minutes**

- Identify High Priority MVP Priority Actions

2:50 - Wrap-up and Closing Remarks **10 Minutes**

Town of Shelburne Community Resilience Building Workshop
Wednesday, September 13, 2023 9:00 am – 3:00 pm

Table Number	Name		Signature
1	Sylvia	Smith	
1	Mary Lou	Gallup	
1	Andrew	Randazzo	
1	Herbert	Guyette	
1	John	Wheeler	
1	Marianne	MacCullagh	
2	John	Taylor	
2	Carolyn	Wheeler	
2	Heather	Butler	
2	Matthew	Coe	
2	Liam	Cregan	
2	Laurie	Wheeler	
3	Will	Flanders	
3	Jay	Readinger	
3	Laurie	Benoit	Mary Lyon Foundation
3	Carmela	Lanza-Weil	
3	Ron	Ketter	
3	Michelle	Olanyk	
4	Tricia	Yacovone-Biagi	
4	Tom	Williams	
4	Jim	Perry	
4	Alison	Cornish	
4	Sheryl	Stanton	
4	John	Walsh	
4	Eric	Halloran	
2	Faith	Williams	

Don't see your name? Ask one of the facilitators where you should sit!

MVP Weston & Sampson

COMMUNITY RESILIENCE BUILDING WORKSHOP

Town of Shelburne, Massachusetts

September 13, 2023

Weston & Sampson℠

Photo: The Berkshire Edge

MEET THE CORE TEAM

Tricia Yacovone-Biagi
TOWN MVP LIASON
Town of Shelburne

John Taylor
FIRE CHIEF
Town of Shelburne

Will Flanders
TOWN OFFICIAL
Town of Shelburne

Sylvia Smith
FORMER TOWN MODERATOR
Town of Shelburne

Tom Williams
EMERGENCY MANAGEMENT DIRECTOR
Town of Shelburne

Jacqui Goodman
FORMER TEACHER
Town of Shelburne

MEET THE SUPPORT TEAM

INDRANI GHOSH, PhD
SENIOR PROJECT MANAGER
Weston & Sampson

DORIS JENKINS
RESILIENCY ENGINEER
Weston & Sampson

JOANNA NADEAU, AICP
RESILIENCY PLANNER
Weston & Sampson

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TELL US ABOUT YOURSELF

- What is your name?
- What is your relationship to Shelburne?
- What are you looking forward to accomplishing today?

GROUND RULES AND ETIQUETTE

- Help stay on schedule
- Be present/leave technology outside
- One speaker at a time
- Assume positive intent
- Be solution and project focused
- Be respectful
- Think big!

AGENDA

01 Large Group: Overview of Project, Data Resources & Science

02 Large Group: Prioritize Top Hazards

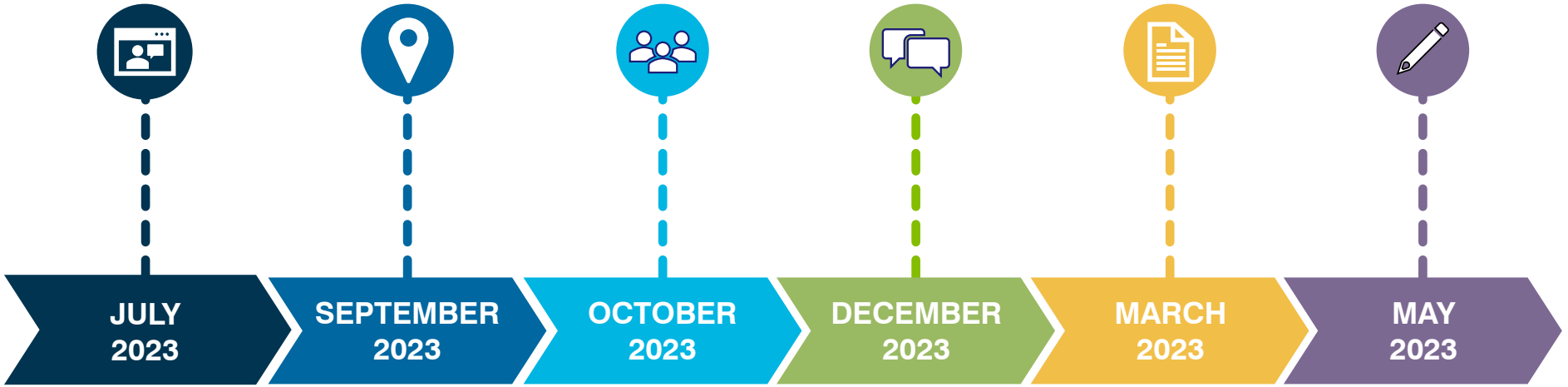
03 Small Group: Fill Out Risk Matrix

04 Lunch

05 Small Group Exercises: Identify & Prioritize Strategies

06 Large Group: Determine Overall Priority Actions

PROJECT SCHEDULE



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WHY WE'RE HERE

Climate change projections for end of century:

Changes in precipitation

- 18% increase in consecutive dry days
- 57% increase in days with > 1 in. rainfall
- 7.3 inches additional annual rainfall
- Increase in flooding

Rising temperatures

- 10.8°F increase in average annual ambient temperature
- 42% decrease in days/year with min. temperatures < 32° F
- 1,280% increase in 90-degree days/year

Winter weather

- Overall a decrease in annual snowfall
- Likely to have fewer events with a lot of snow
- Freeze –thaw cycle to change

Regional changes

- Increase in frequency and magnitude of hurricanes and nor'easters
- 4-10.5 feet of sea level rise

Source: State Hazard Mitigation and Climate Adaptation Plan, September 2018 / resilientma.org / Northeast Climate Adaptation Science Center

WHAT IS MVP?

OFFERED BY Governor Maura Healey and Lt. Governor Kim Driscoll | Executive Office of Energy and Environmental Affairs

PRESS RELEASE

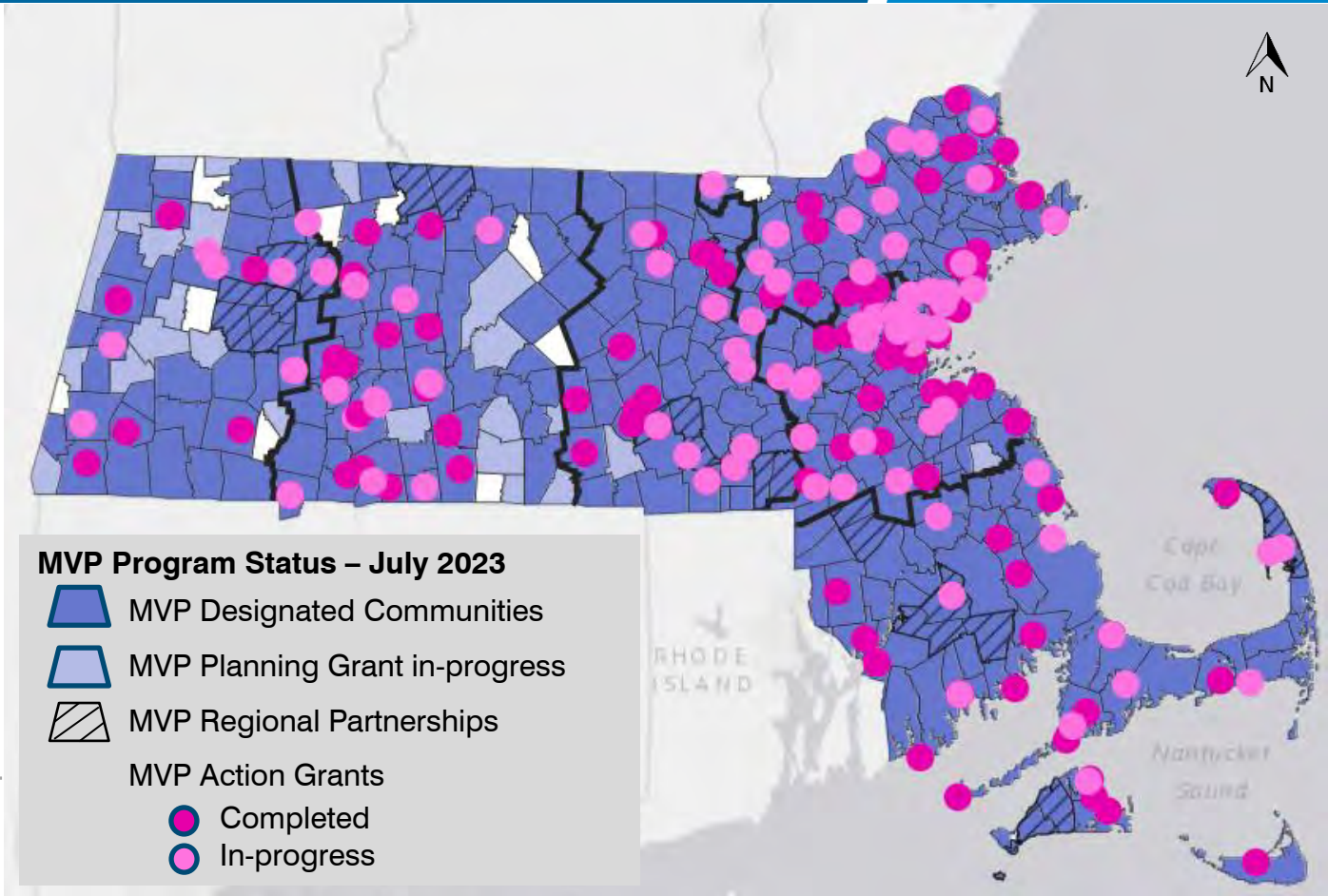
Healey-Driscoll Administration Awards $31.5 Million in Climate Resiliency Funding to Communities

- The Executive Office of Energy and Environmental Affairs' MVP grant and designation program, which builds on Governor Baker's Executive Order 569 as well as other administration-led state and local partnerships, provides communities with technical support, climate change data and planning tools to identify hazards and develop strategies to improve resilience.

- "Our Administration is committed to partnering with cities and towns to develop practical and cost-effective solutions to build the climate-resilient communities of tomorrow," said Lieutenant Governor Karyn Polito.

WHAT IS MVP?

- Improved resilience and preparedness
- Collaboration with stakeholders
- Increased education, planning, and implementation
- Funding for resilience-related actions



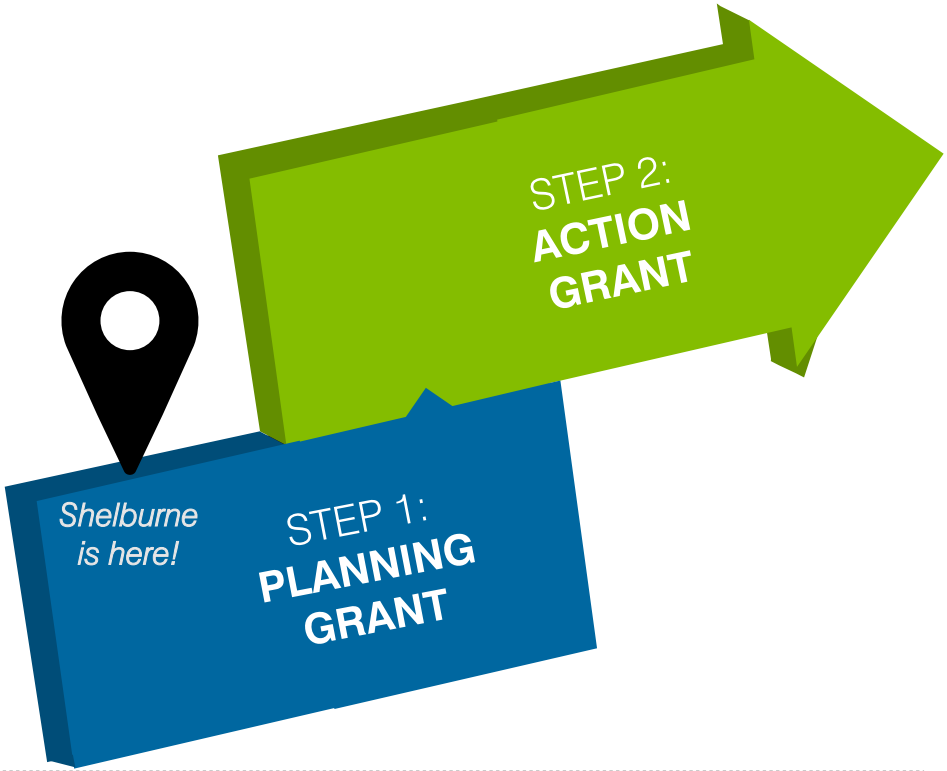
WHAT IS MVP?

1. MVP Planning Grant

- Define climate hazards
- Identify community vulnerabilities and strengths
- Develop and prioritize mitigation actions
- Receive MVP designation

2. MVP Action Grant

- Implement priority adaptation actions identified during the planning process



WHAT CAN THE MVP ACTION GRANT FUND?

Assessments

Outreach & Education

Management Measures

Redesign & Retrofit

Nature-Based Solutions

Ecological Restoration

Water Quality & Infiltration

Flood Protection

Extreme Heat Mitigation

Drought Mitigation

Energy Resilience

Chemical Safety

Land Acquisition

Housing

Mosquito Control

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AGENDA

01

Large Group: Overview of Project, Data Resources & Science

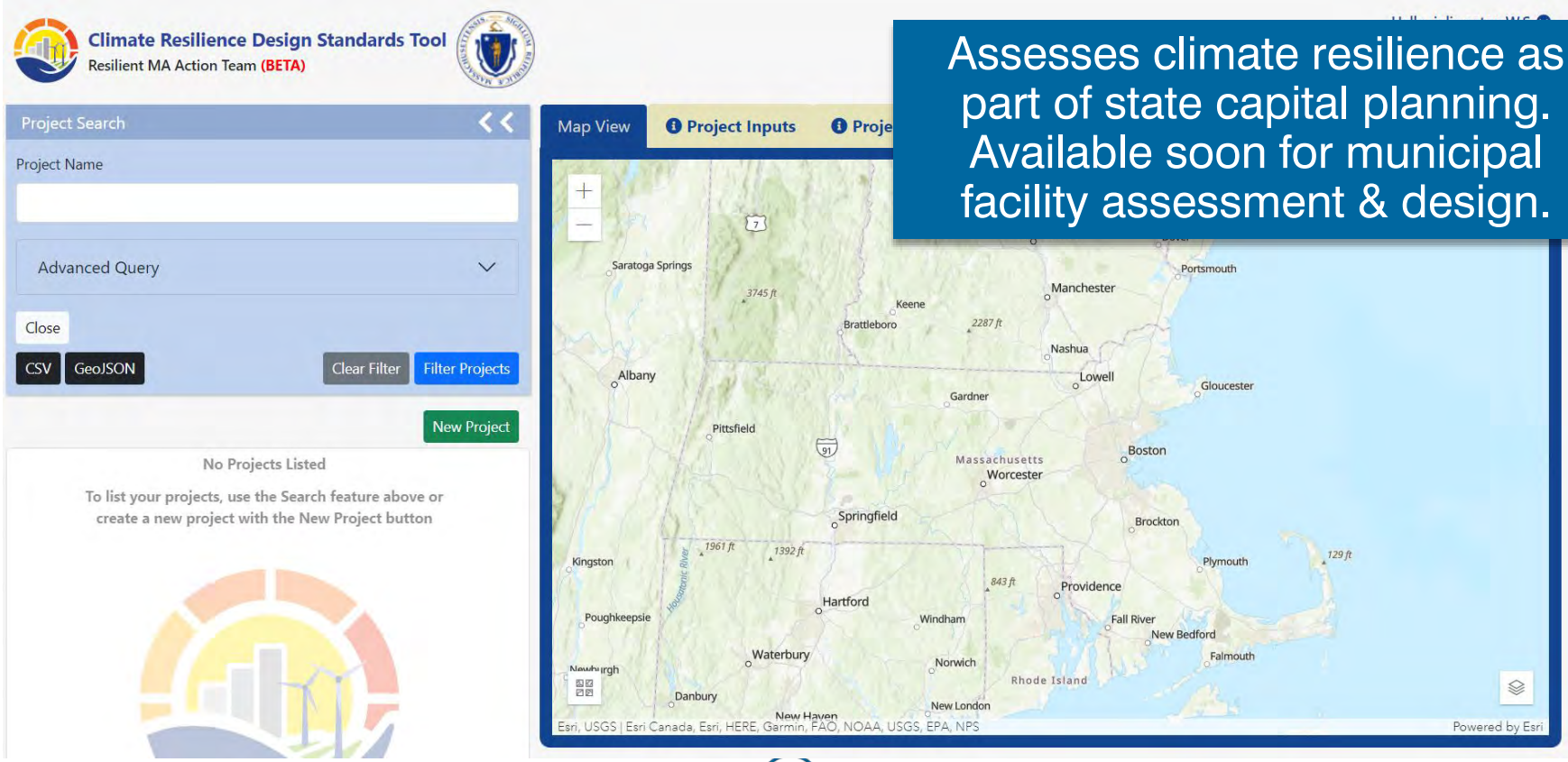
CLIMATE DATA

- Massachusetts Climate Change Projections (ResilientMA, 2022)
- Climate Change Assessment (MA EEOA, 2022)
- Climate Resilient Design Standards Tool (ResilientMA, 2022)
- Massachusetts Integrated State Hazard Mitigation and Climate Adaptation Plan (2018)
- Massachusetts Climate Change Adaptation Report (MA EEA, 2011)

APPLICABLE PLANS/INFO

- Town of Shelburne Hazard Mitigation Plan (FRCOG, 2021)
- Comprehensive Economic Development Strategy Performance Report (2023)
- Open Space and Recreation Plan (2014, update coming 2024)
- Town of Shelburne Capital Management Plan (FRCOG, 2017)

RMAT RESILIENT DESIGN STANDARDS



Assesses climate resilience as part of state capital planning. Available soon for municipal facility assessment & design.

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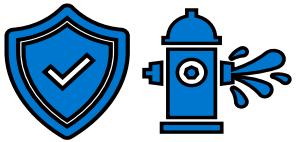
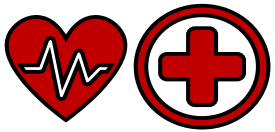
COMMUNITY AND CRITICAL FACILITIES



Safety & Security



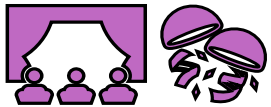
Health & Medical

Transportation

Food, Water, Shelter

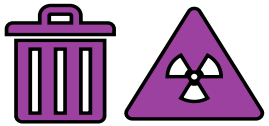
Parks & Greenspace

Communications



Cultural, Historic, & Events

Energy



Hazardous Material Management

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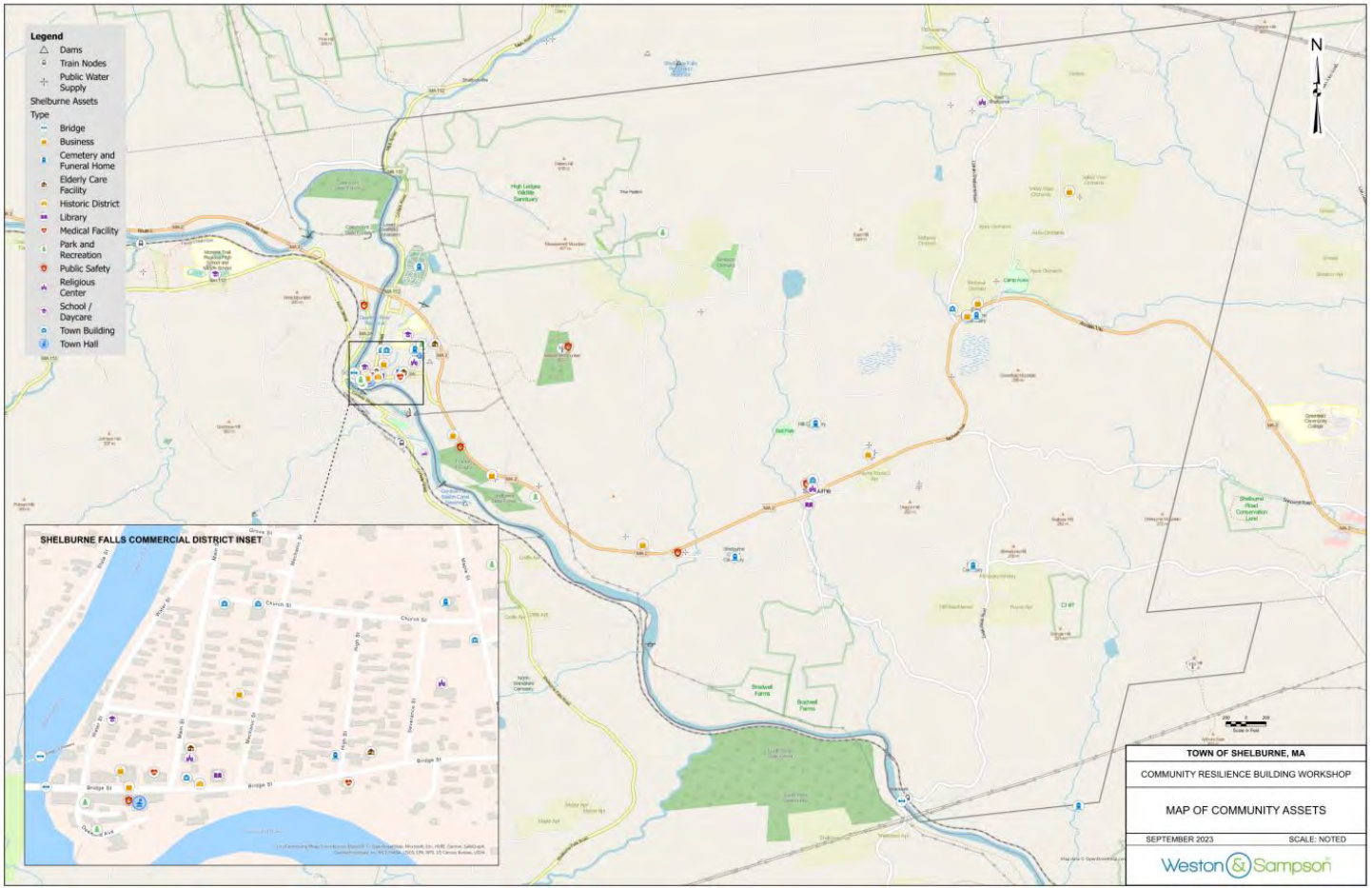
LIFELINES AND CRITICAL FACILITIES



NATURAL HAZARDS IMPACTING SHELBURNE

WIND EVENTS

INLAND FLOODING

EXTREME TEMPERATURES

SEVERE WINTER WEATHER / NOR'EASTERS

LANDSLIDES

DROUGHT

BRUSHFIRE

EARTHQUAKES

INVASIVE SPECIES

Tropical Storms: Maximum sustained wind speed 39 mph or higher
Hurricanes: Maximum sustained wind speed 74 mph or higher

2005: Tropical Storm Tammy

2011: Hurricane Irene

2012: Hurricane Sandy

2017: Hurricane Jose

2018: Hurricane Florence

2019: Hurricane Dorian

2020: Hurricane Isaias

2021: Hurricane Henri

Upward trend in North Atlantic hurricane activity since 1970

WIND EVENTS (HURRICANES, TORNADOES)

Extreme Wind: Damaging wind, often occurring during hurricanes and tropical storms, that can cause threat to life and property.

High Wind Threats:

Extreme	Sustained wind speeds greater than 58 mph
High	Sustained speeds of 40 to 57 mph
Moderate	Sustained speeds of 26 to 39 mph
Low	Sustained wind speeds of 21 to 25 mph
Very Low	Sustained wind speeds around 20 mph
Non-threatening	Breezy conditions

WIND EVENTS (HURRICANES, TORNADOES)

Tornados: A funnel-shaped vortex of violently rotating wind advancing beneath a large storm system.

TORNADO:	**TORNADO WATCH**	**TORNADO WARNING**
A violent, rotating column of air with winds ranging from 65 to over 200 mph	**CONDITIONS ARE *FAVORABLE* FOR TORNADOES TO DEVELOP**	**A TORNADO HAS FORMED AND IS *IMMINENT***

In the last two decades, five tornadoes have been reported in Franklin County.

No tornadoes have impacted Shelburne since 1964.

SEVERE WINTER WEATHER/NOR'EASTERS

Severe Winter Weather: heavy snow, ice accumulation, freezing temps & wind chill
Nor'easter: Storms or wind blowing from the northeast

2008 Ice Storm,

- **¾ of the Town out of power**

2011 Early Snowstorm

- **Wide spread power outages lasting over 1 week**

2016 Snowstorm

- **Highland Village elder housing lost power overnight**
- **Senior Center used as an unofficial warming center**

2017 Snowstorm

- **Route 2 closed for 1-2 days**

Nor'easters along the Atlantic coast are increasing in frequency and intensity

SEVERE WINTER WEATHER/NOR'EASTERS

More recently…

March 2, 2018: Winter Storm Riley

March 8, 2018: Winter Storm Quinn

March 13, 2018: Winter Storm Skylar

January 16, 2021: Winter Storm Uri

February 1, 2021: Winter Storm Orlena

January 29, 2022: North American Blizzard

March 13, 2023: Nor'easter

SEVERE WINTER WEATHER/NOREASTERS

- The blizzard of 2013 left nearly 400,000 Massachusetts residents without power.[1]
- "Heavy blizzards are among the most costly and disruptive weather events for Massachusetts communities."[2]
- Snowpack likely to decrease annually, but snowfall will occur with heavy intensity
- Extended power outages, cost of snow removal, repairing damages, and loss of business can have a severe economic impact.[3]
- The elderly and infirmed are populations of particular concern during these events

1. *Resilient MA Climate Change Clearinghouse for the Commonwealth. "Extreme Weather," 2019*
2. *"Massachusetts State Hazard Mitigation and Adaptation Plan." 2018. P4-226*

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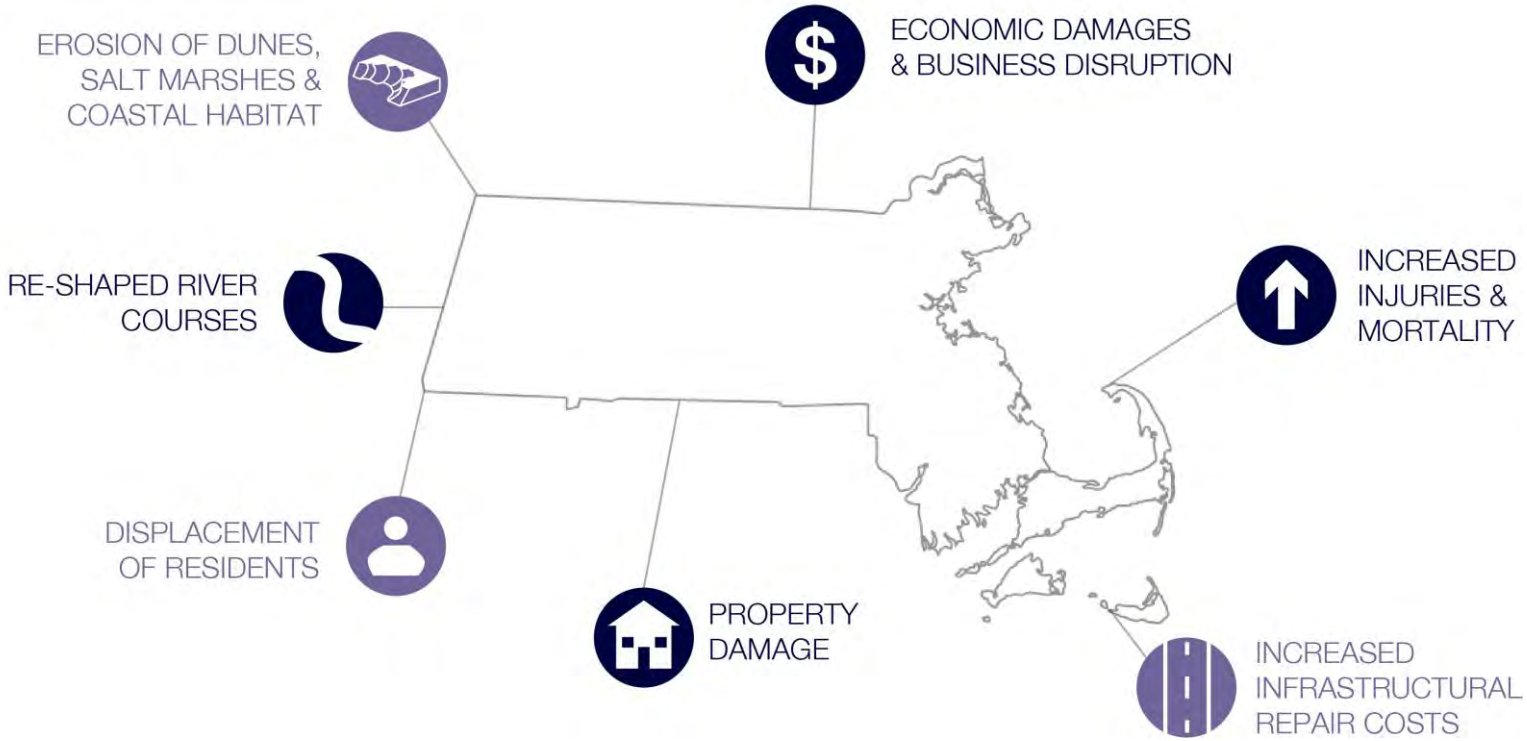
IMPACTS OF **EXTREME WEATHER**

STORMS ARE BECOMING MORE INTENSE AND DAMAGING



INLAND FLOODING

Inland Flooding: Non-coastal flooding, including riverine flooding and stormwater flooding.

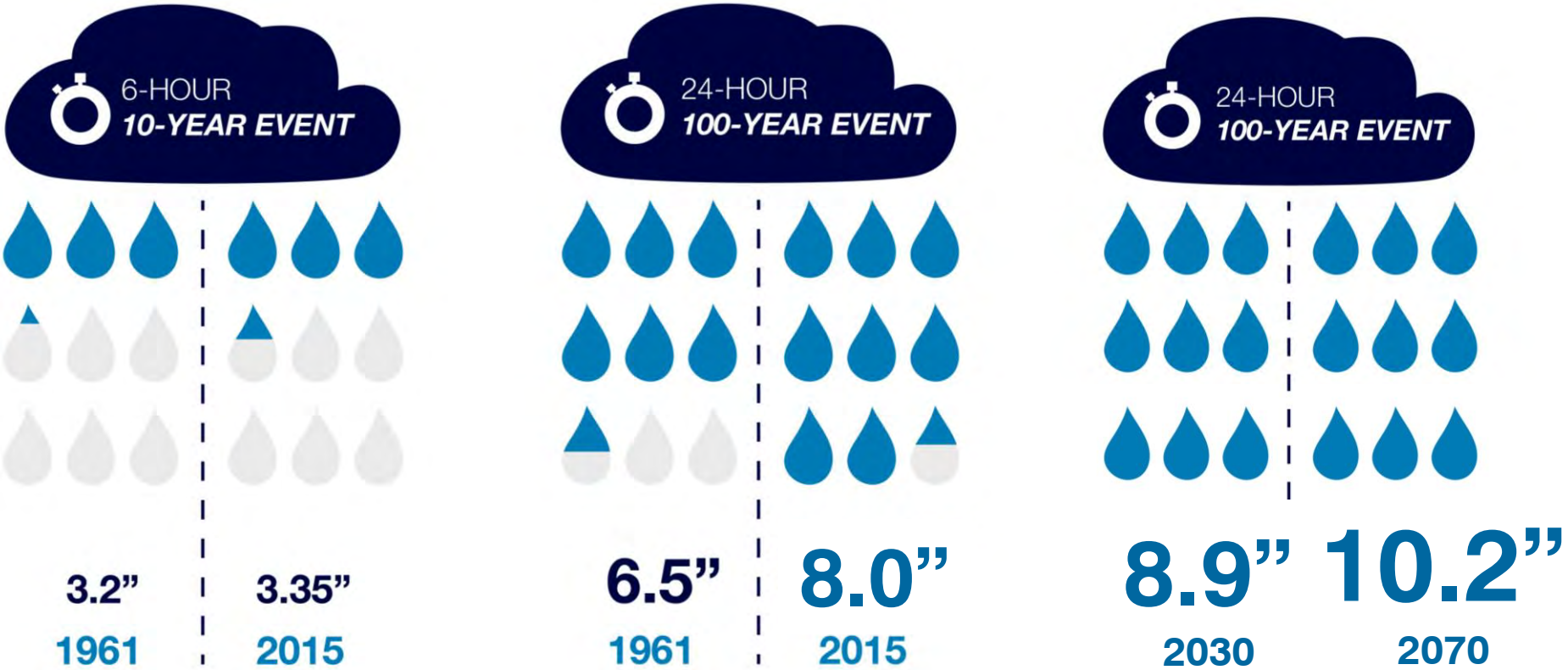
Stormwater Flooding:

- Poor drainage
- High amounts of impervious surface
- Undersized culverts

Riverine Flooding:

- Overtopping of banks along rivers and other waterbodies
- Can be caused by beaver activity

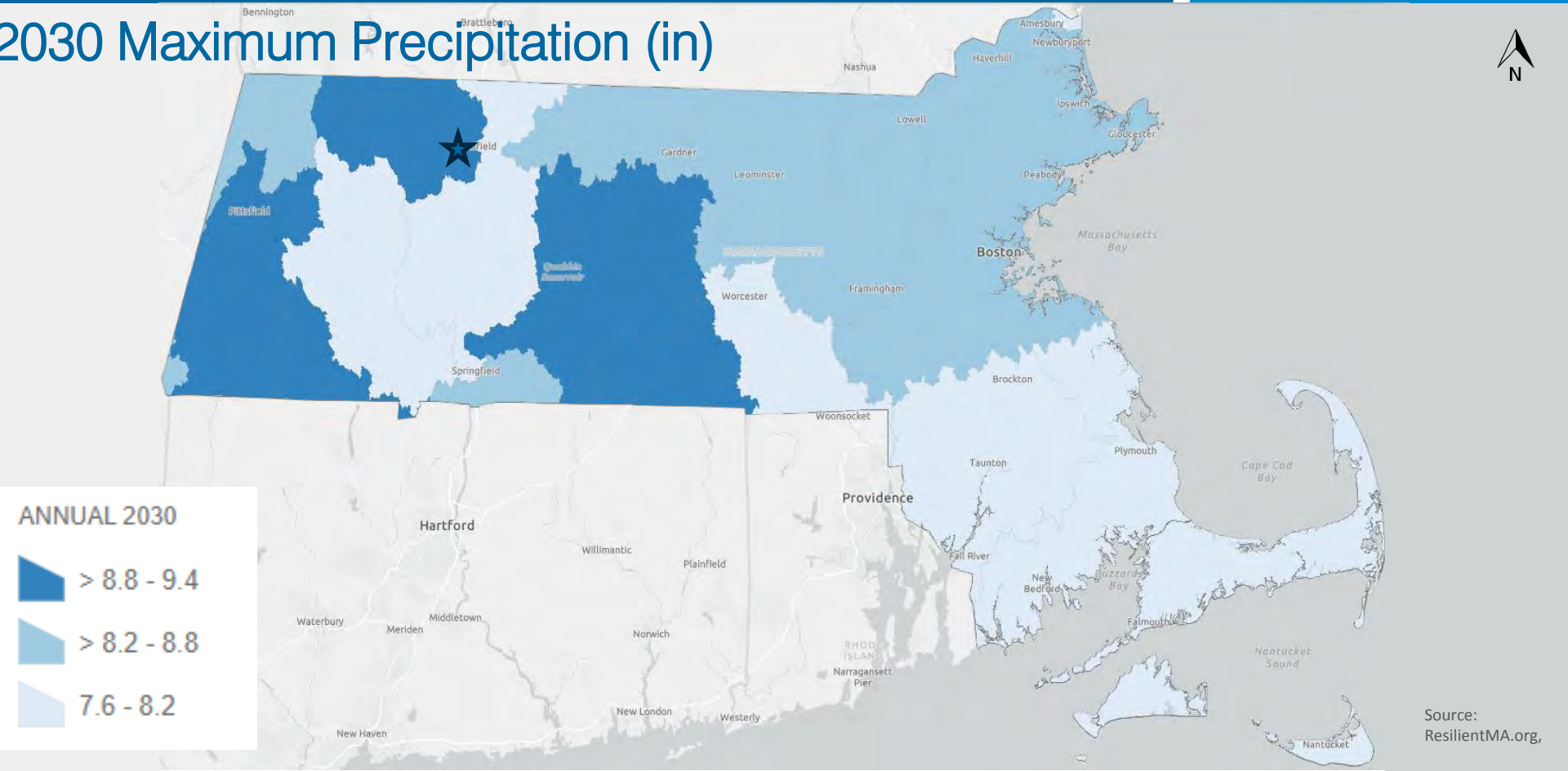
INLAND FLOODING



: NOAA TP-40 (1961) and NOAA Atlas Volume 10 (2015)

INLAND FLOODING

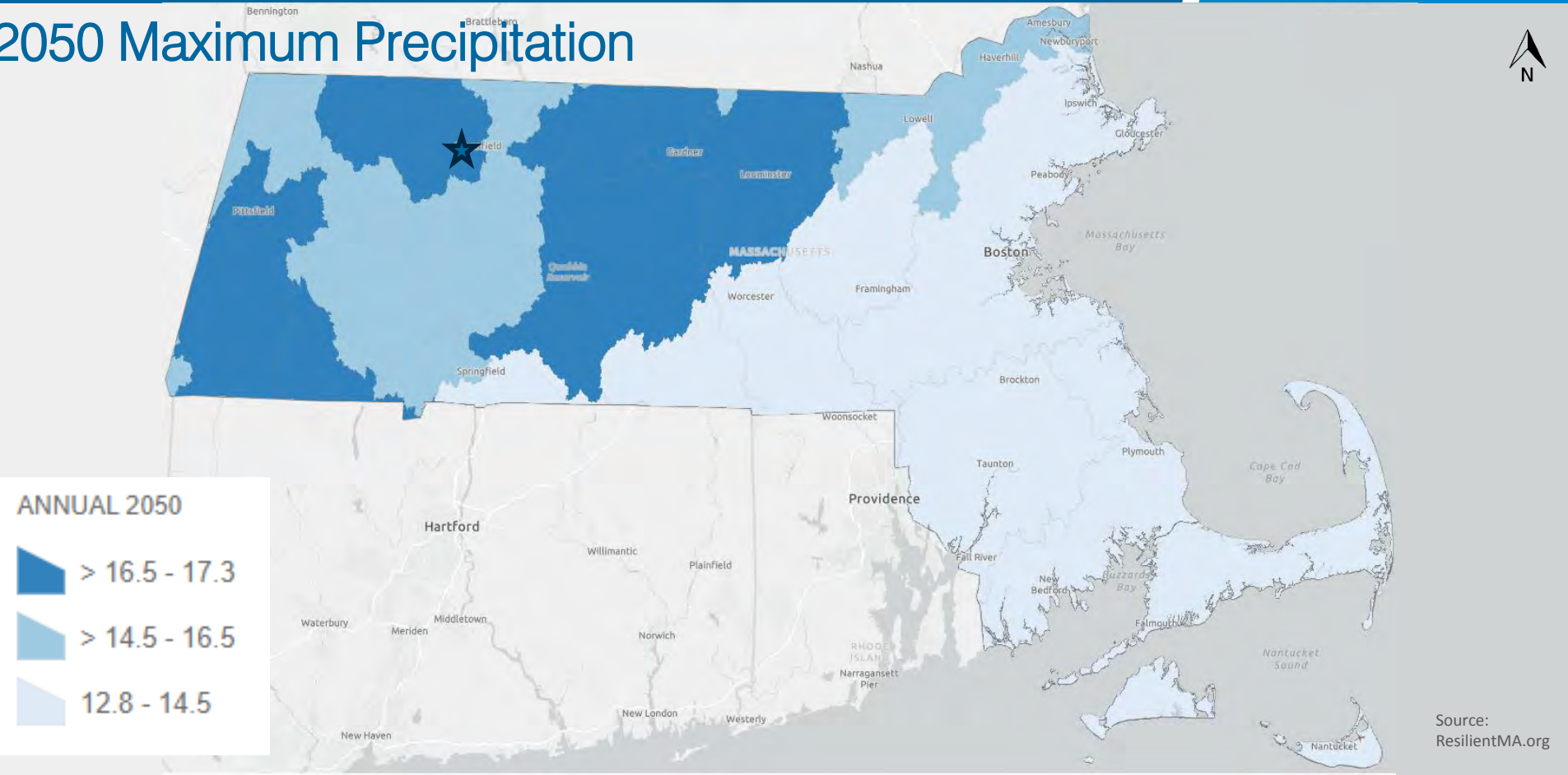
2030 Maximum Precipitation (in)



Source: ResilientMA.org,

INLAND FLOODING

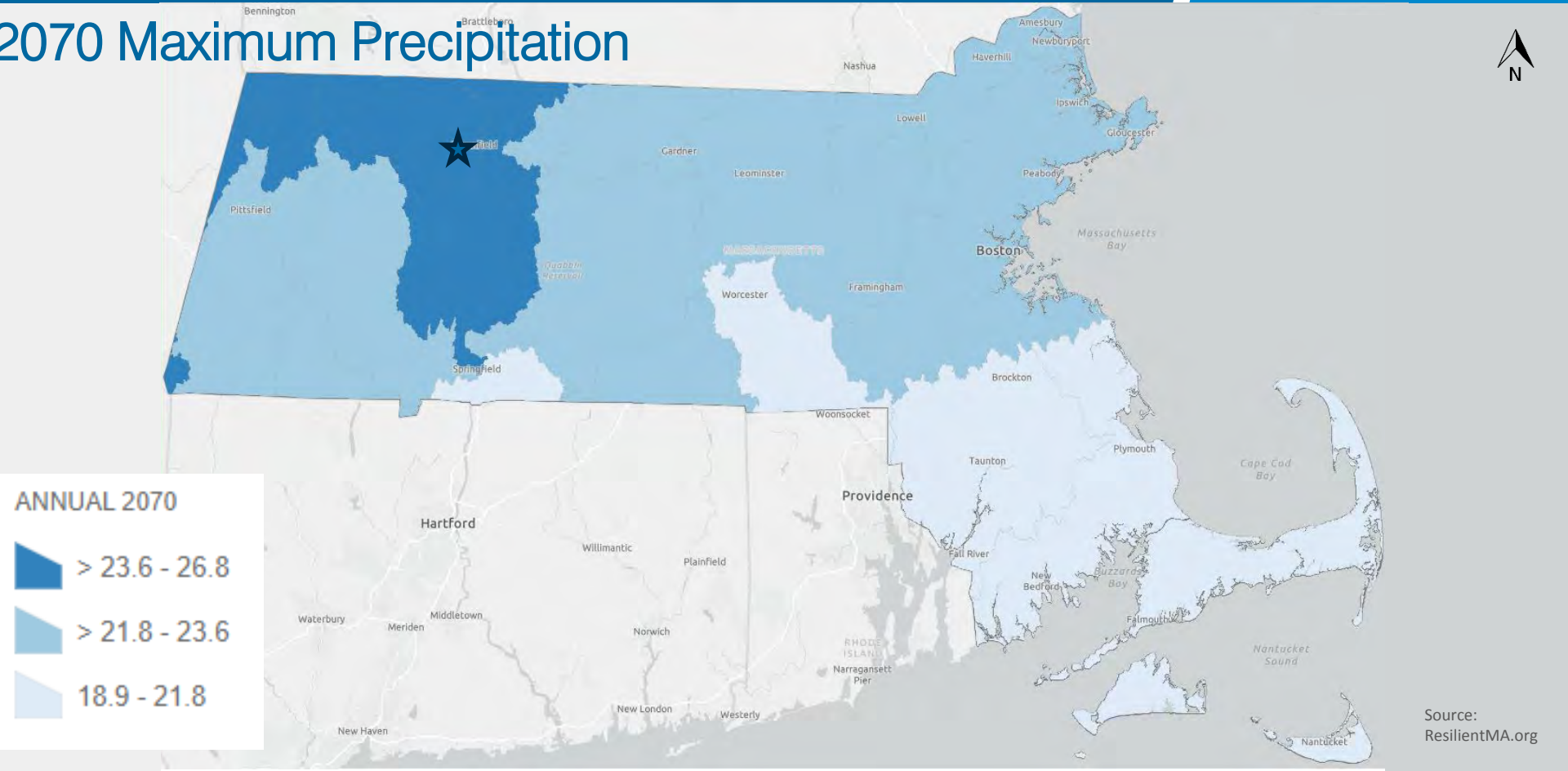
2050 Maximum Precipitation



Source: ResilientMA.org

INLAND FLOODING

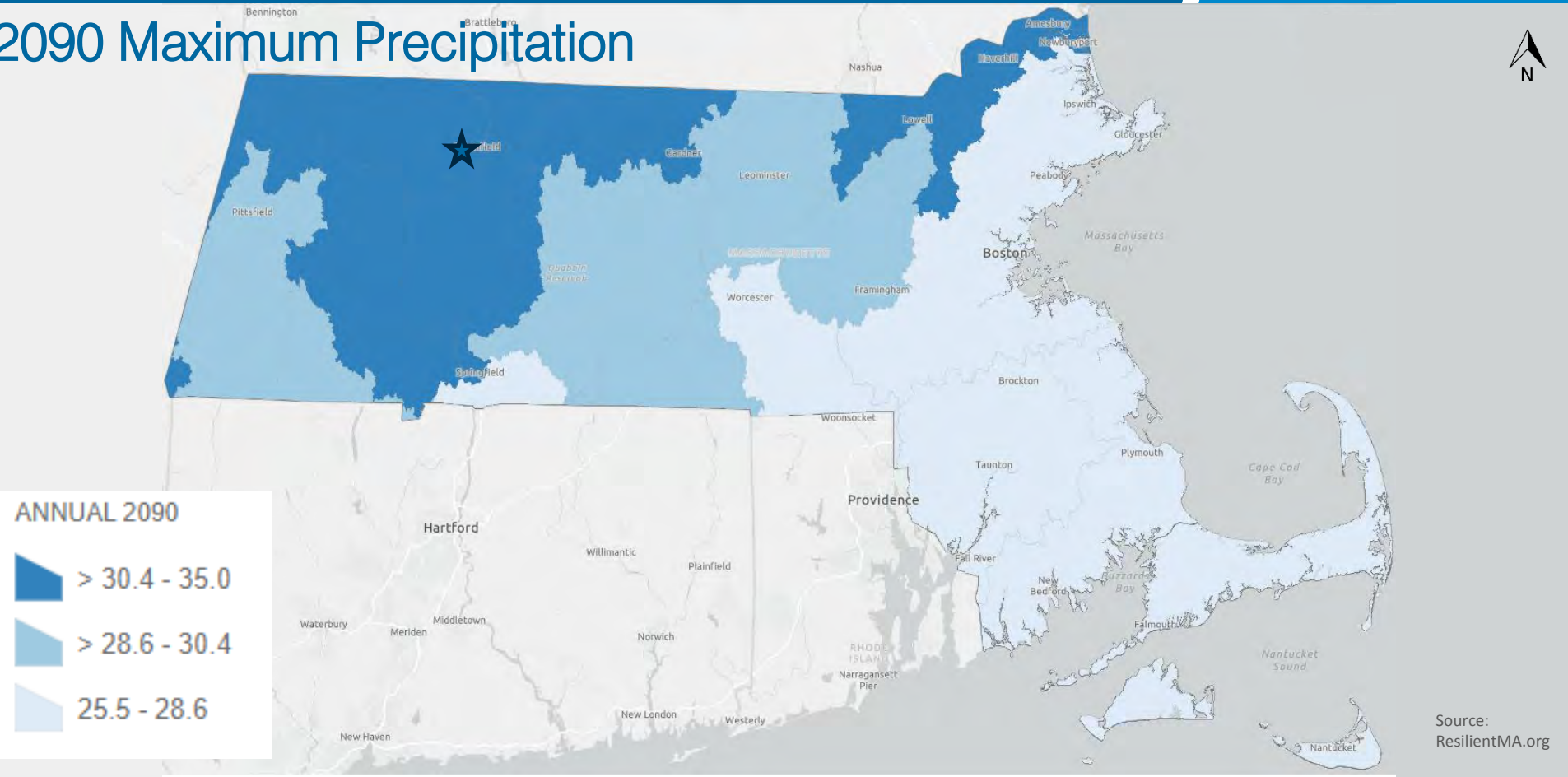
2070 Maximum Precipitation



Source: ResilientMA.org

INLAND FLOODING

2090 Maximum Precipitation



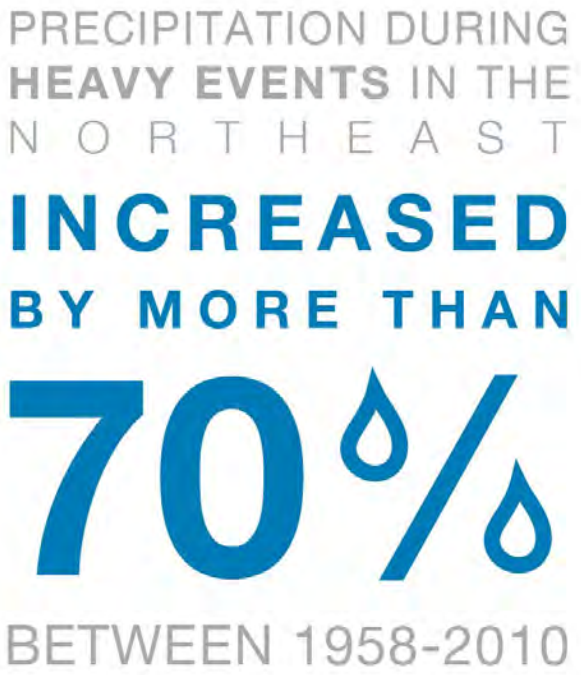
Source: ResilientMA.org

INLAND FLOODING

Key areas of concern in Shelburne

- Deerfield River
- Dragon Brook
- Hinsdale Brook
- Beaver Dams

In Shelburne, the 100-year floodplain covers about 333 acres, or approximately 2% of the town (1980)



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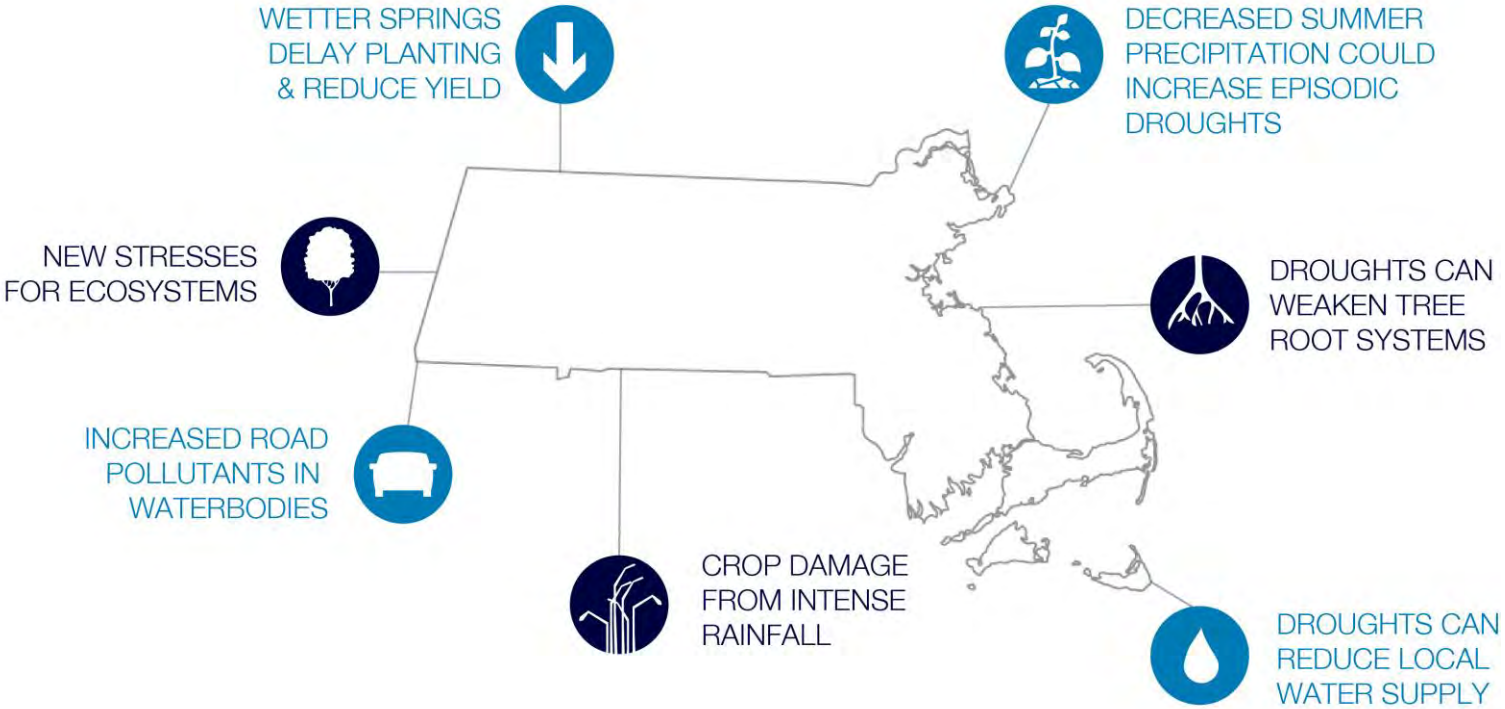
IMPACTS OF CHANGING **PRECIPITATION**

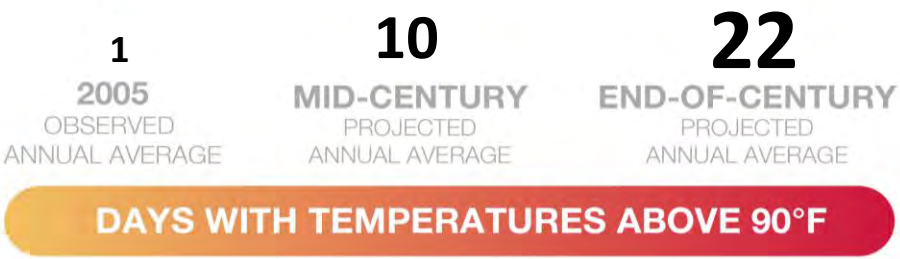
HIGHER AVERAGE ANNUAL PRECIPITATION

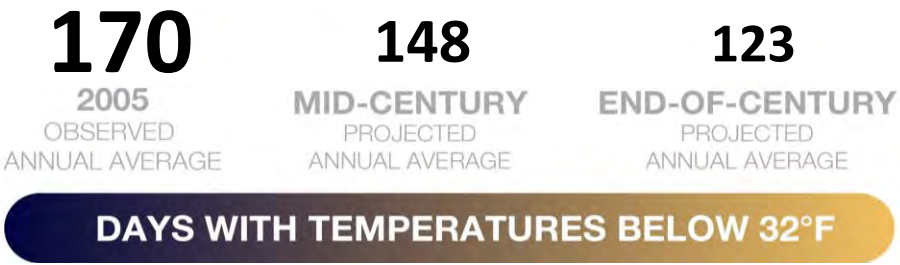
INCREASED BY ABOUT 10% IN THE NORTHEAST INTHE LAST 50 YEARS



EXTREME TEMPERATURES

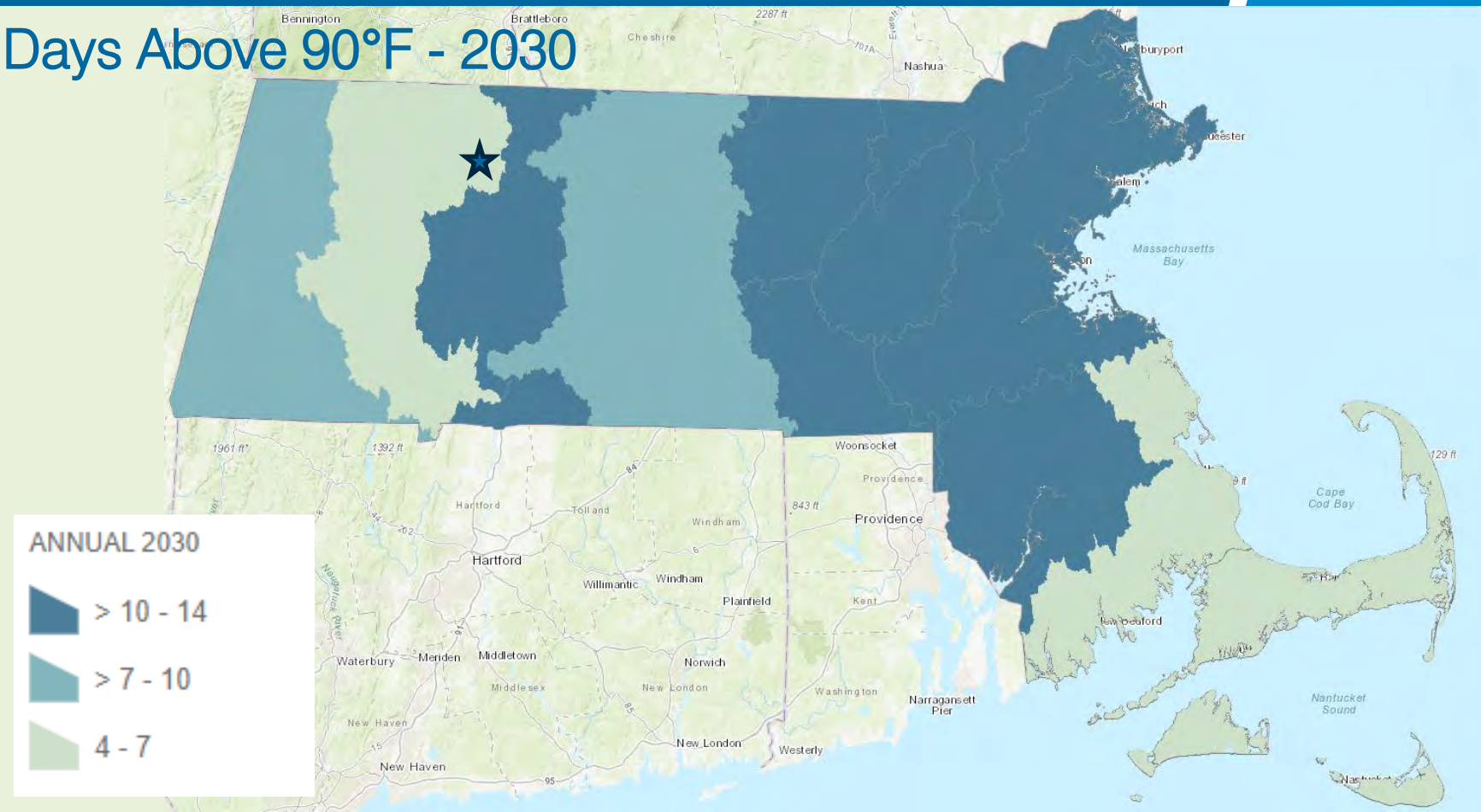
Extreme Temperatures: Very high or low temperatures that can affect human health and the natural and built environments.





EXTREME TEMPERATURES

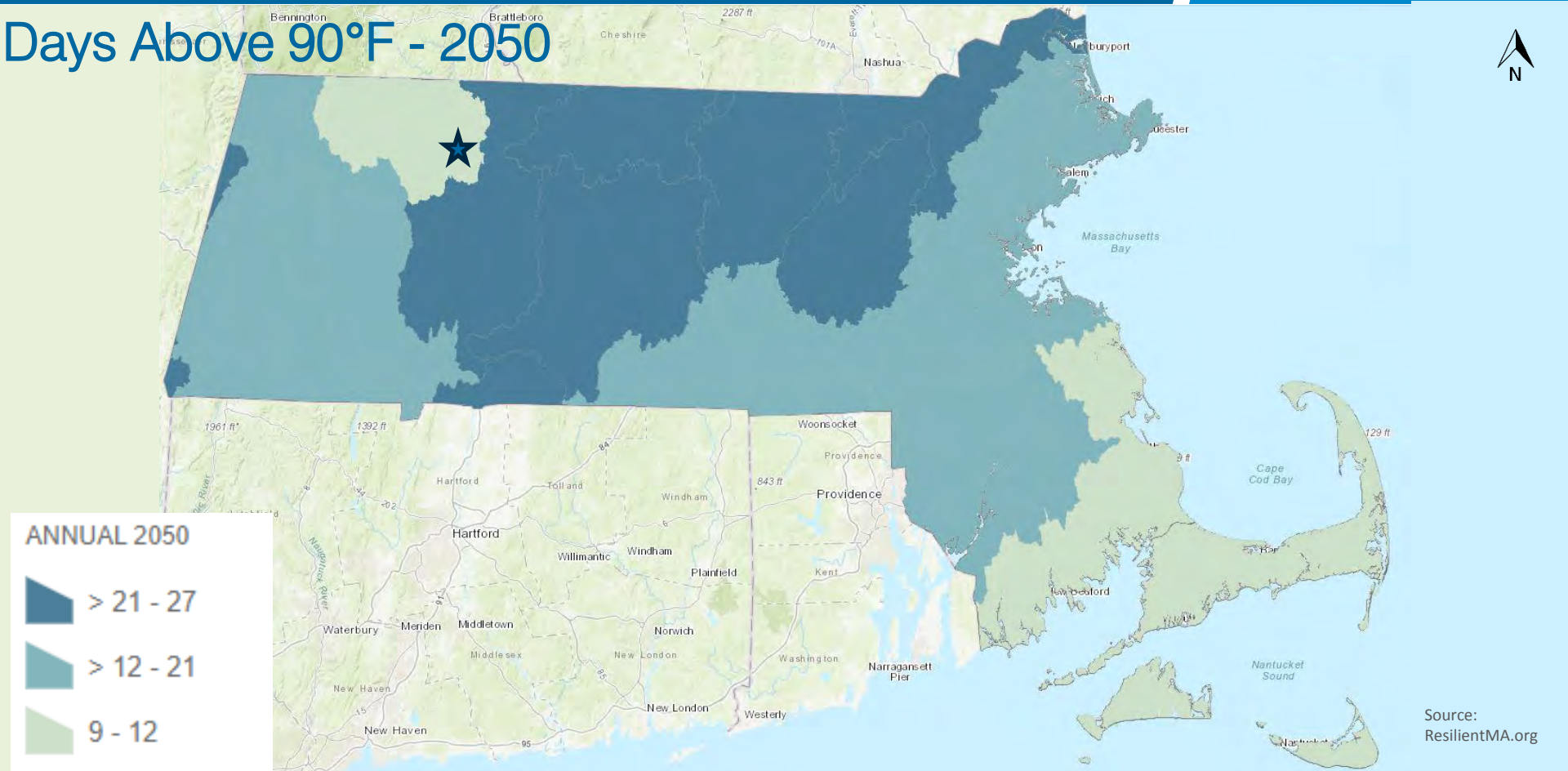
Days Above 90°F - 2030



Source: ResilientMA.org

EXTREME TEMPERATURES

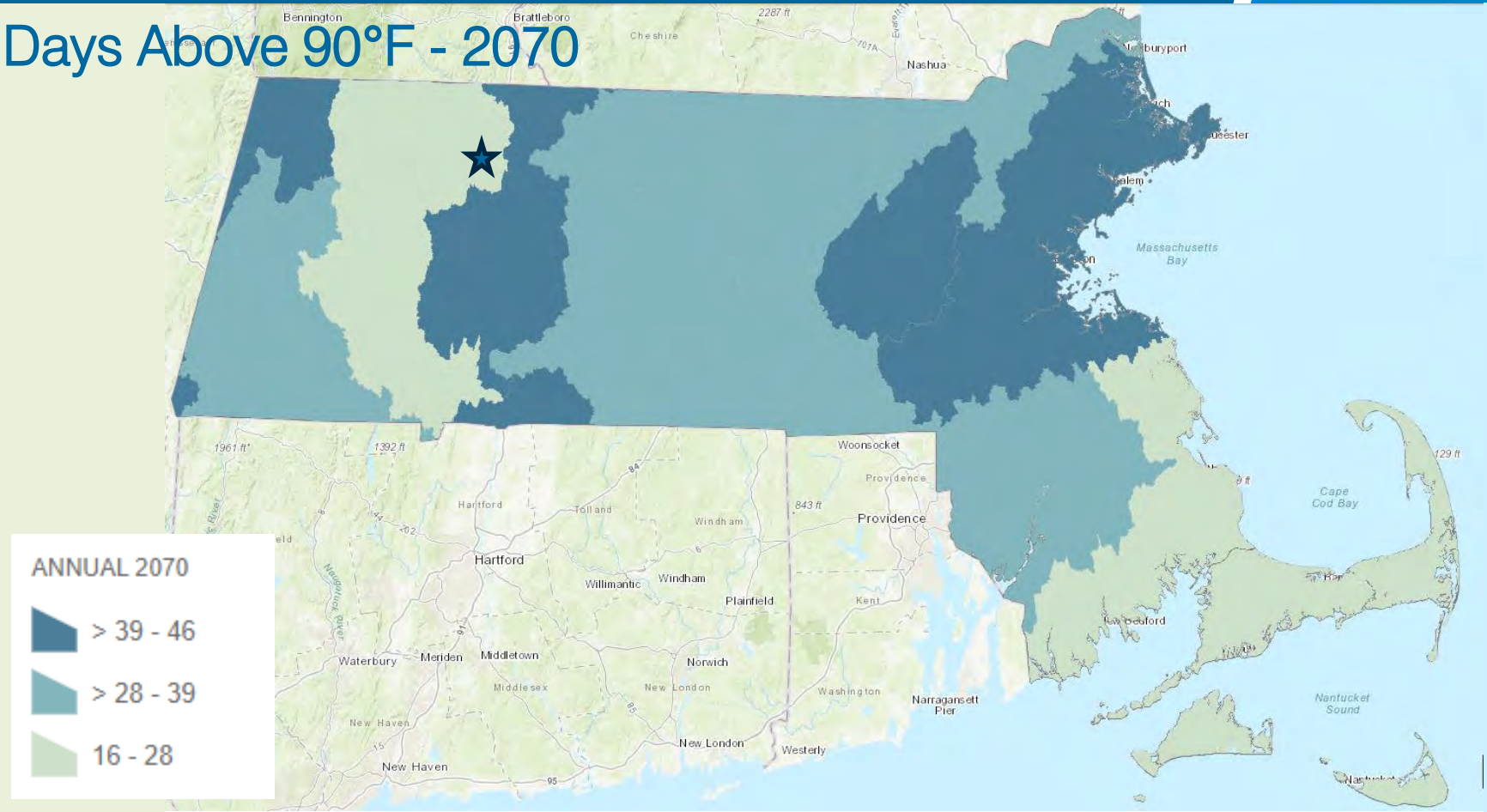
Days Above 90°F - 2050



Source: ResilientMA.org

EXTREME TEMPERATURES

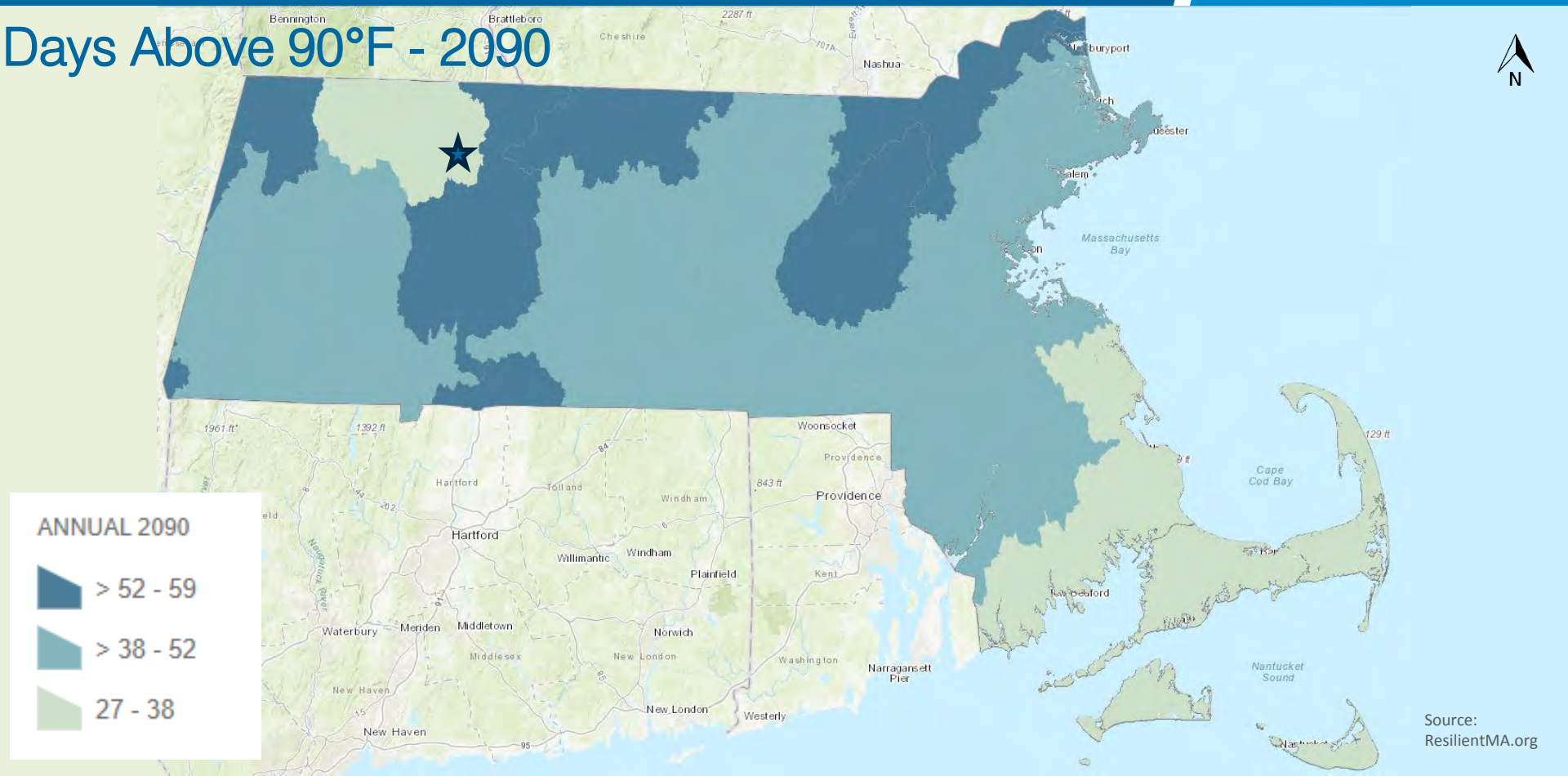
Days Above 90°F - 2070



Source: ResilientMA.org

EXTREME TEMPERATURES

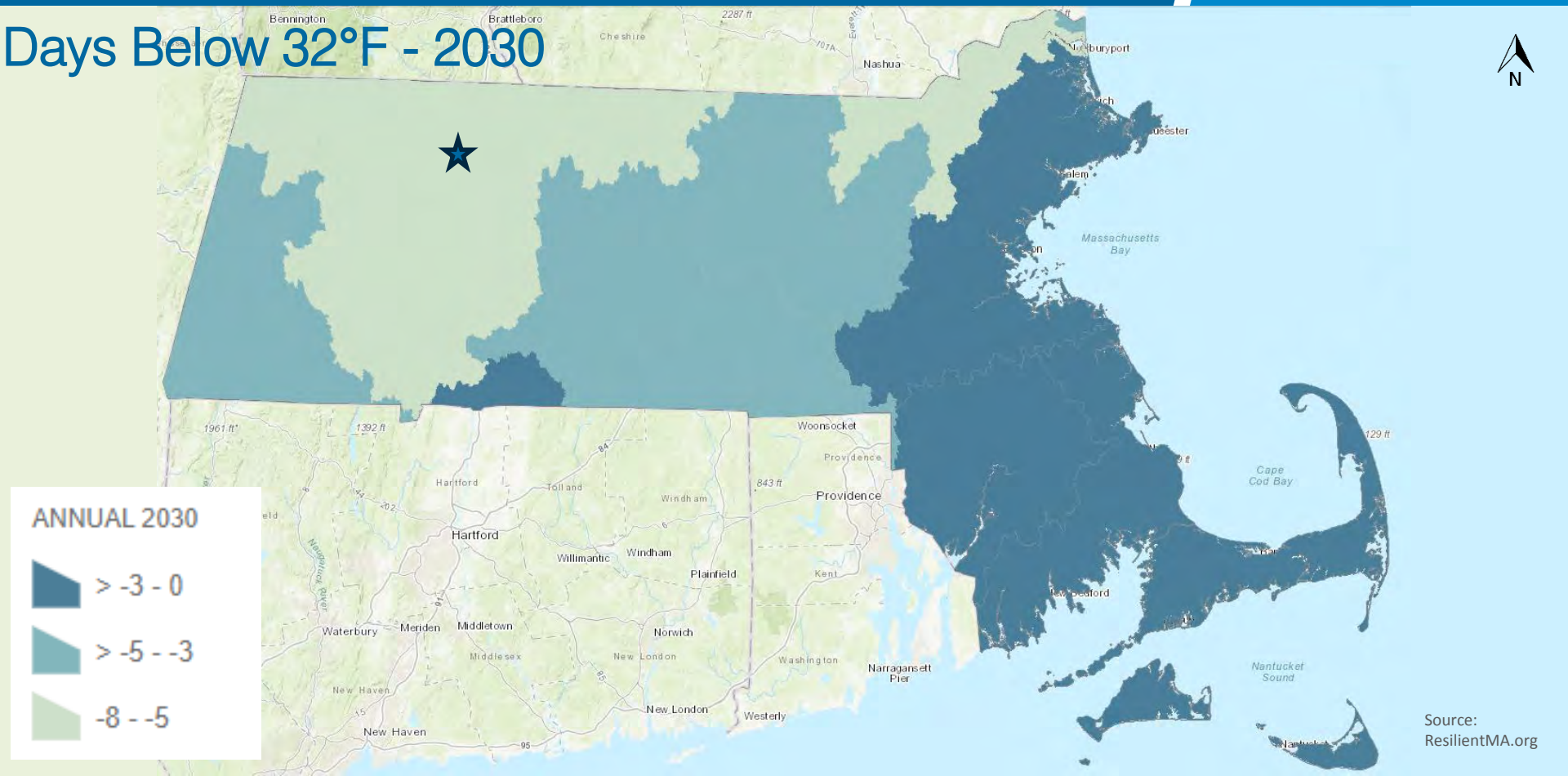
Days Above 90°F - 2090



Source: ResilientMA.org

EXTREME TEMPERATURES

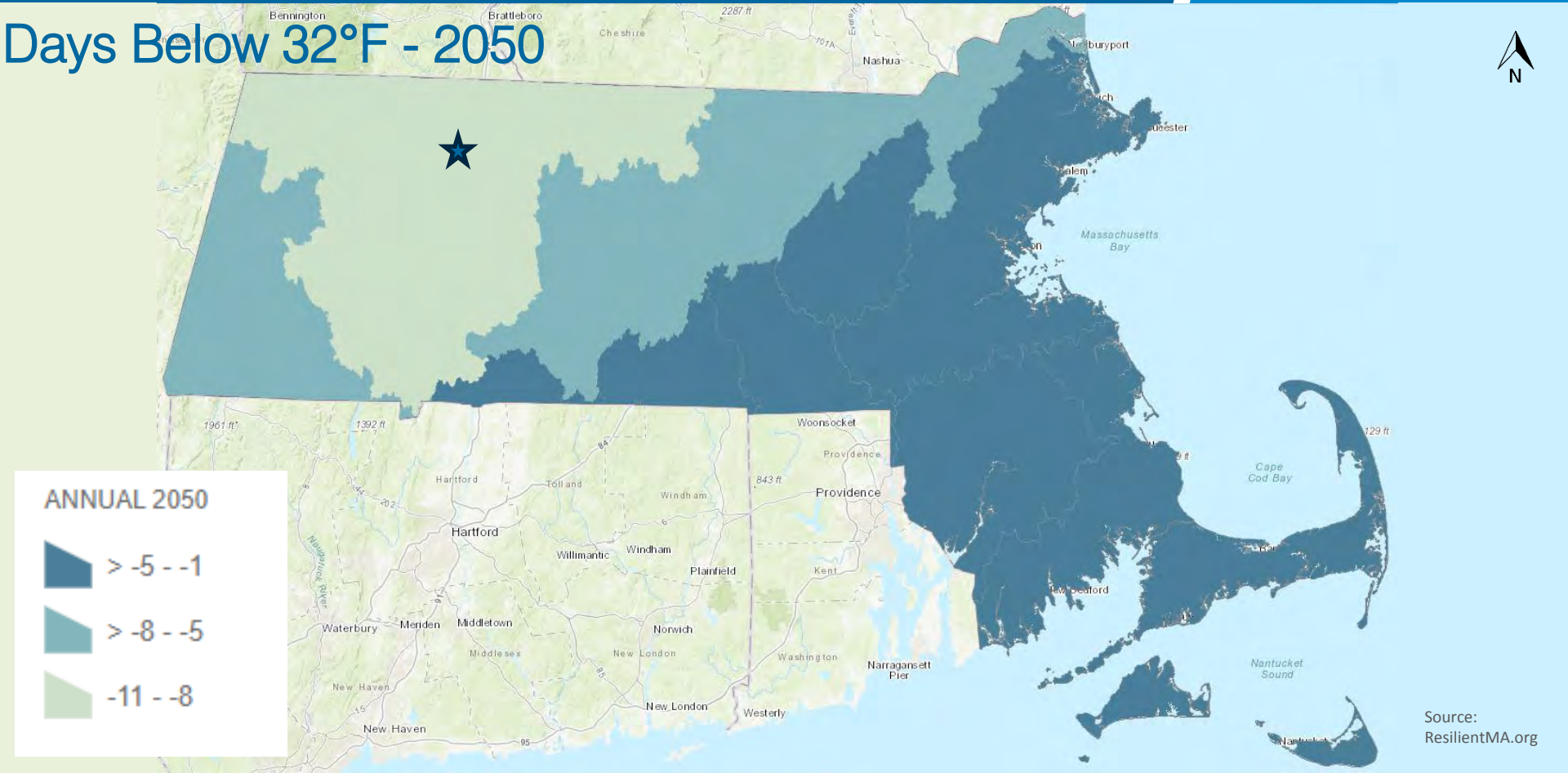
Days Below 32°F - 2030



Source: ResilientMA.org

EXTREME TEMPERATURES

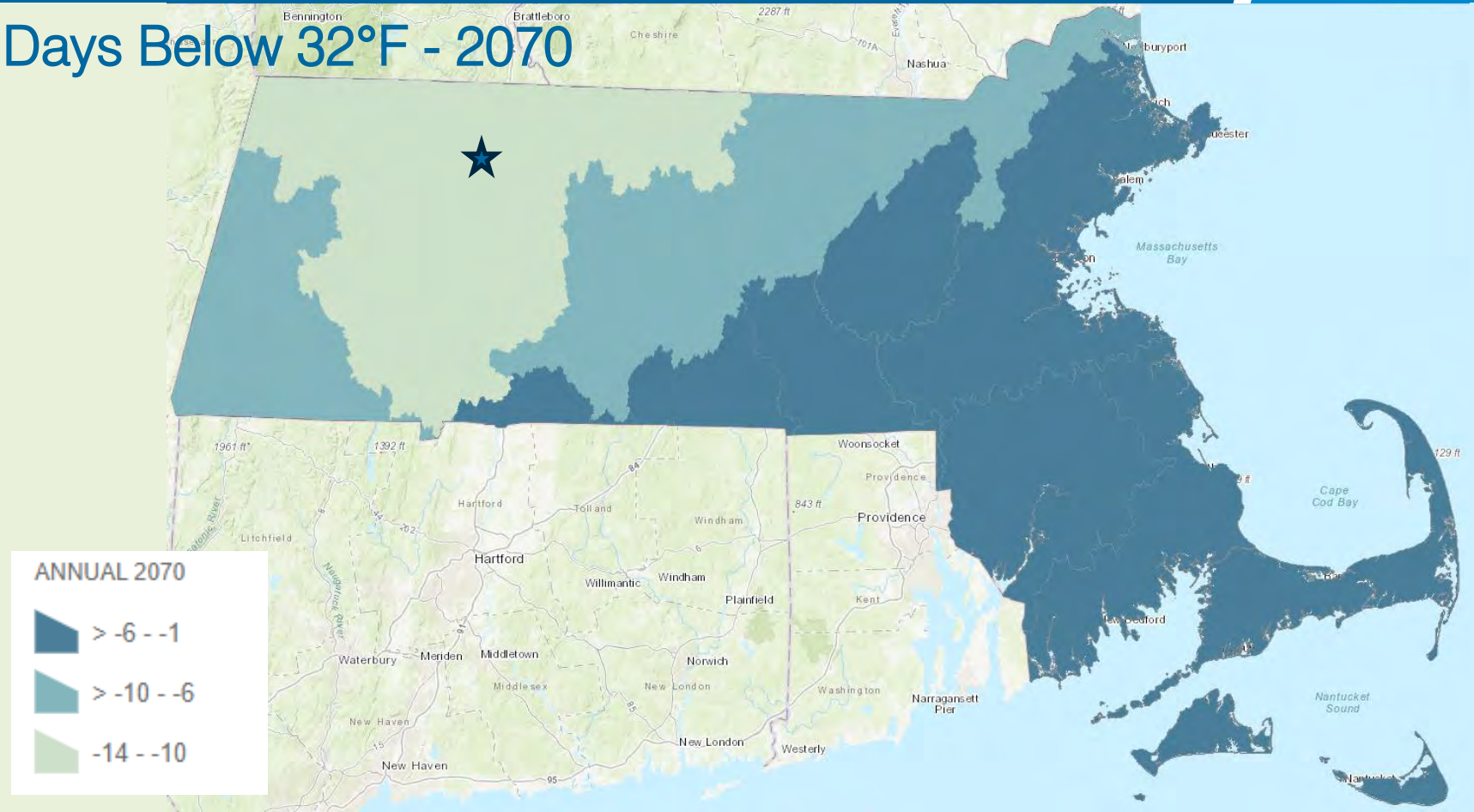
Days Below 32°F - 2050



Source: ResilientMA.org

EXTREME TEMPERATURES

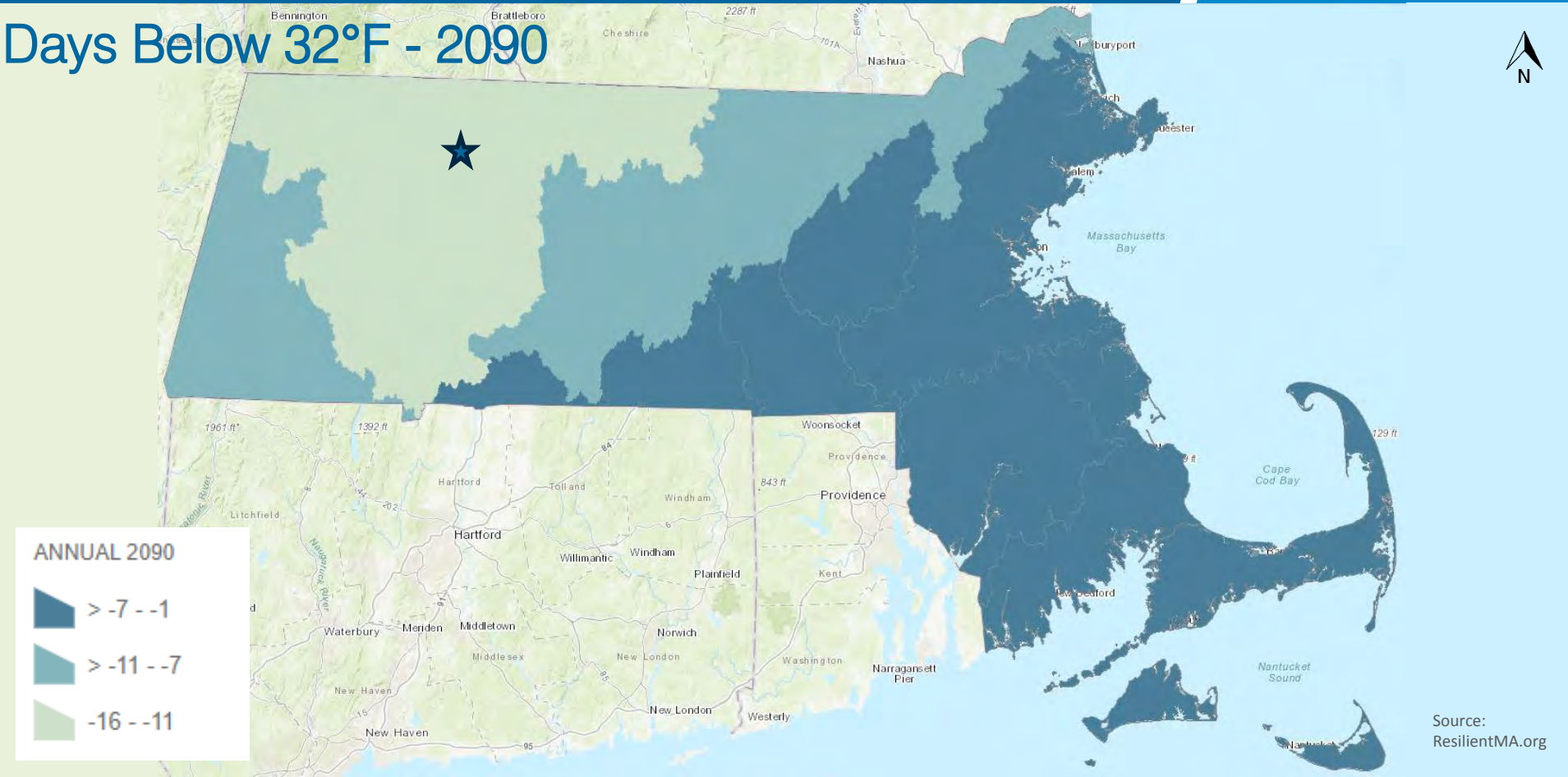
Days Below 32°F - 2070



Source: ResilientMA.org

EXTREME TEMPERATURES

Days Below 32°F - 2090



Source: ResilientMA.org

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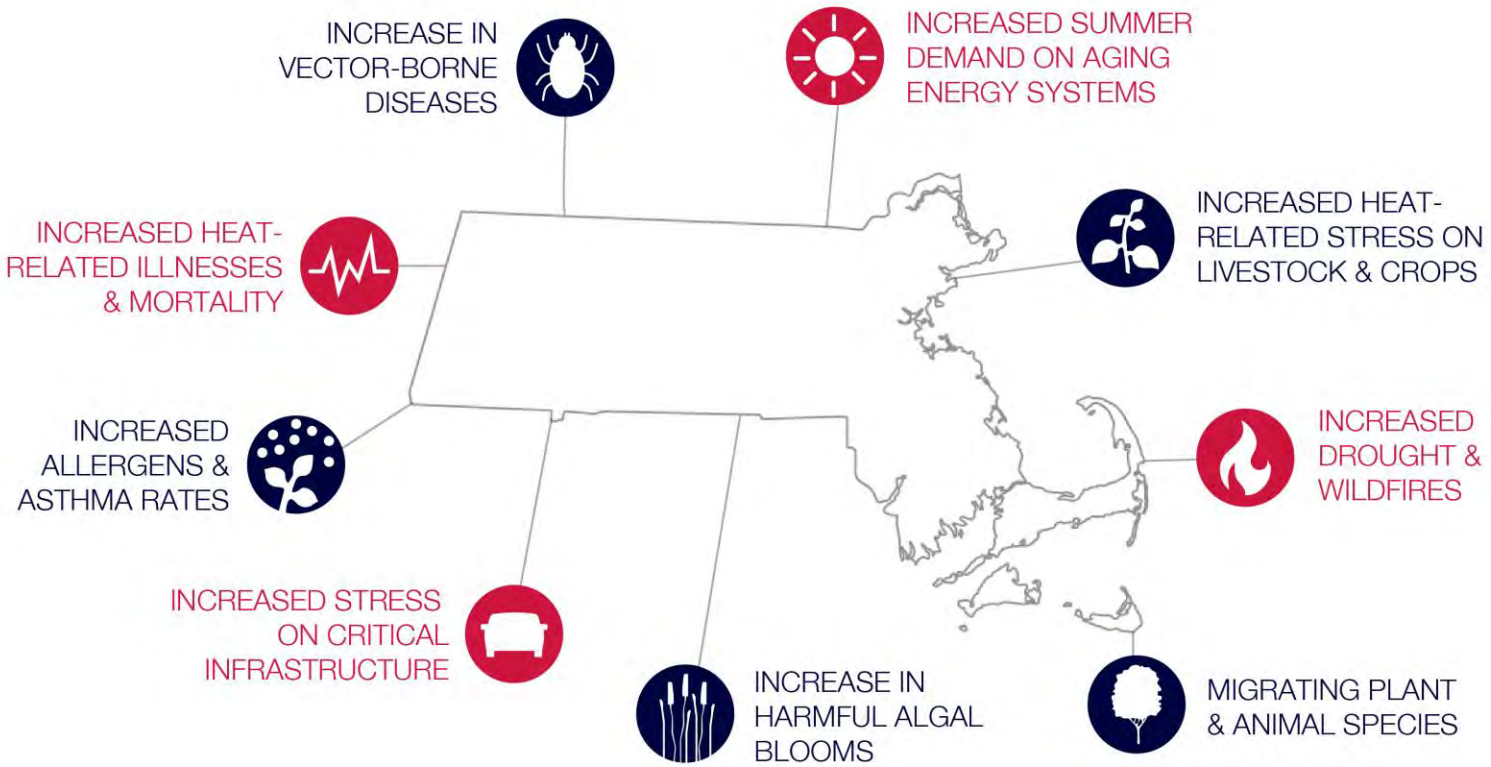
IMPACTS OF **RISING TEMPERATURES**

WARMER ANNUAL AIR TEMPERATURES
UP 0.5°F PER DECADE SINCE 1970, ON AVERAGE

WARMER WINTERS
UP 1.3°F PER DECADE SINCE 1970, ON AVERAGE



INVASIVE SPECIES

Invasive Species: A non-native organism (disease, parasite, plant, or animal) that spreads and can cause harm to the environment, economy, or human health.

Examples of pests threatening Massachusetts' forests include:

- **Asian long-horned beetle**
- **Emerald ash borer**
- **Hemlock Wooly Adelgid**
- **Spongy (Gypsy) Moth**

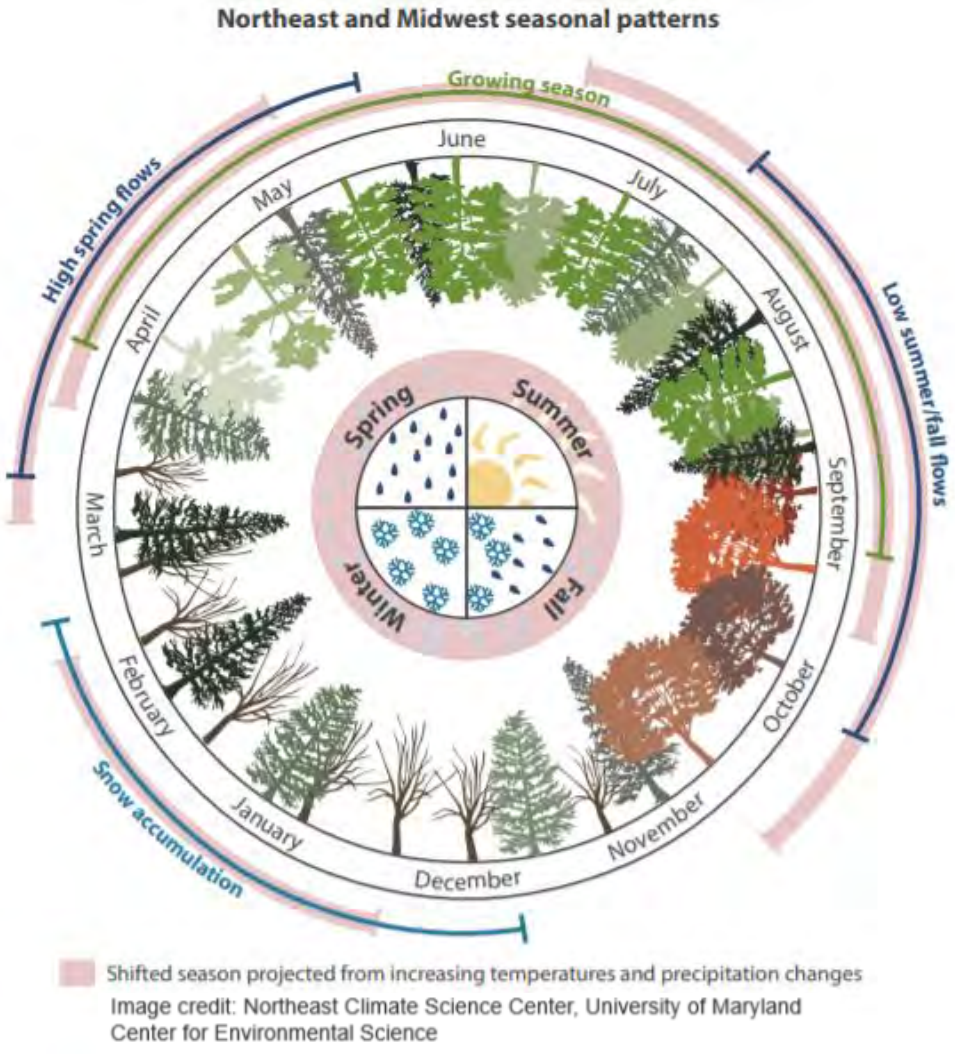
Invasive plants are also a threat to our native New England species

DROUGHT

Drought: A prolonged period of very low rainfall, leading to a shortage of water.

More rainfall during large events could mean longer gaps of little or no rainfall locally.

Hot days combined with soil moisture increase drought conditions



The drought in 2022 affected Franklin county and impacted agricultural activities.

The occurrence of droughts **lasting 1 to 3 months** could go up by as much as **75% over existing conditions** by the end of the century, under the high emissions scenario[1]

What was the drought response in 2022?

BRUSHFIRE

Brushfire: An unplanned, destructive fire that spreads quickly over woodland, brush, or an urban environment.

In recent years, there have been no occurrences of wildfires in Shelburne.

Annually, there are between 2 to 10 brush fires in town, which typically consume less than one acre of land.

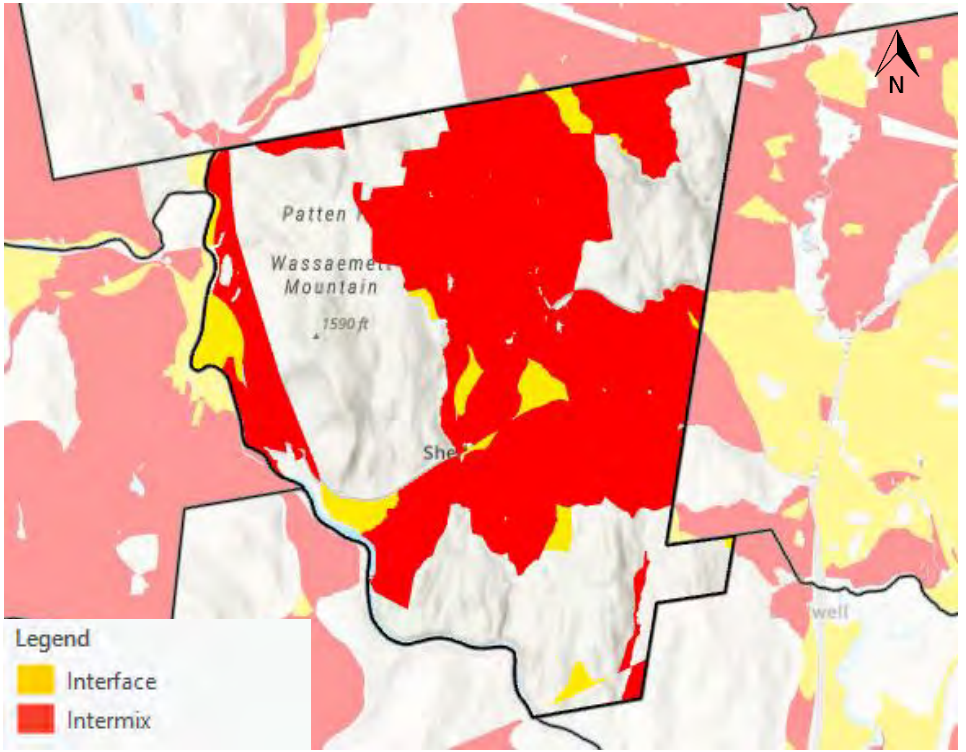
https://www.mass.gov/doc/2019-mfirs-annual-report/download

BRUSHFIRE

Brushfire Hazard Areas

Interface: Structures are adjacent to wild vegetation

Intermix: Structures intermingle with wild vegetation



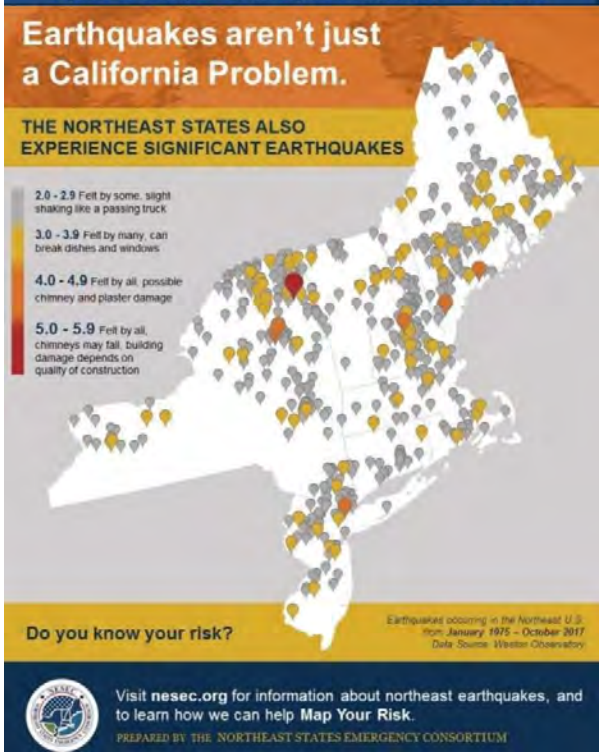
EARTHQUAKES

Earthquake: A sudden or violent shaking of the ground as a result of volcanic activity or movements within the earth's crust.

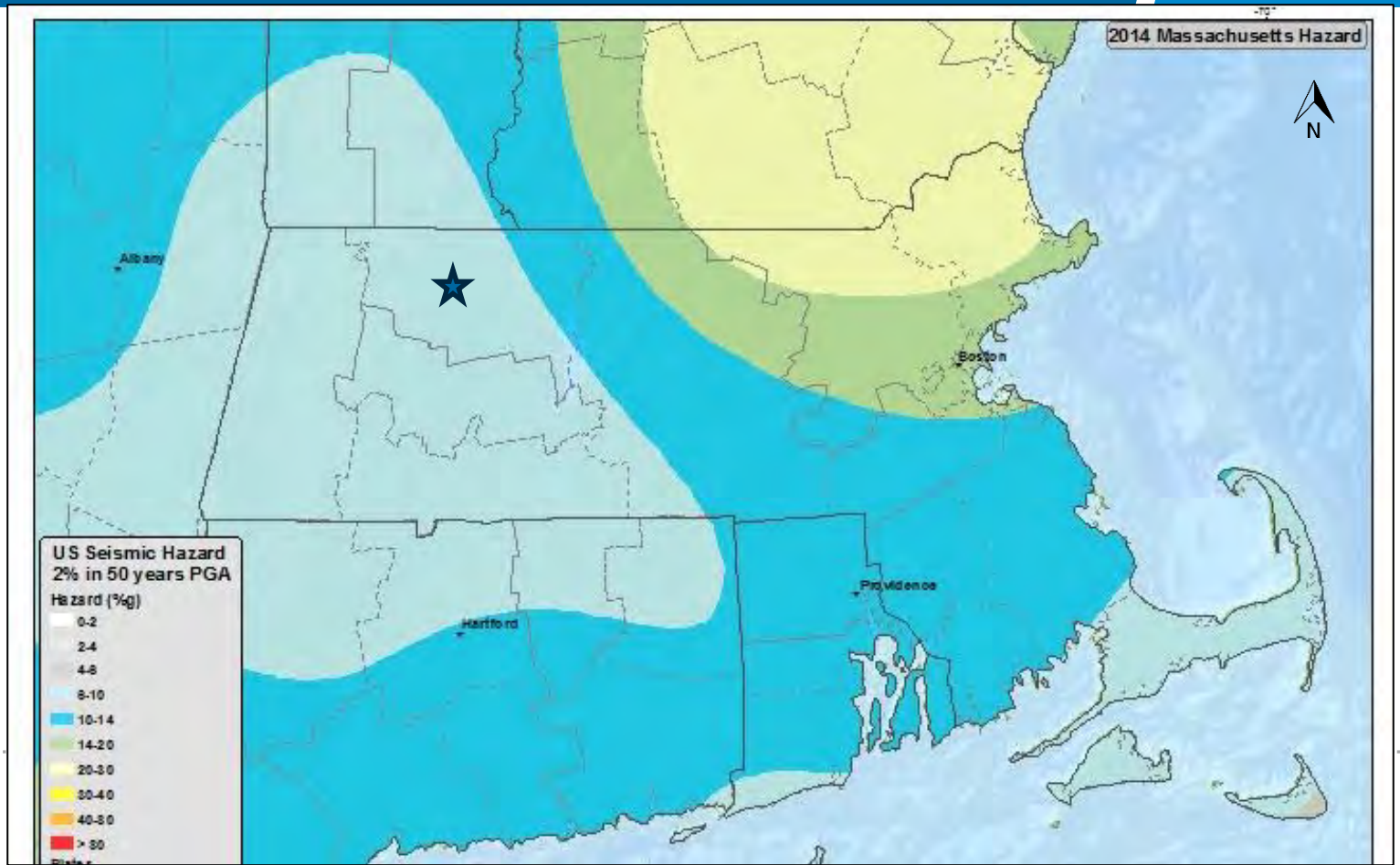
New England experiences an average of 6 earthquakes per year

There is no record of any damage to the Town of Shelburne caused by earthquakes

Figure 3-15: Earthquakes Occurring in the Northeast from 1975 - 2017



EARTHQUAKES



LANDSLIDES

Landslide: Sliding of a mass of earth or rock down a steep slope.

Hinsdale Brook

- Flooding along the Hinsdale Brook has caused frequent erosion, landslides and slumping along the banks of the brook.
- This has resulted in the temporary closure of an evacuation route, Brook Road

Deerfield River Valley (northwest side of town)

- Shelburne has completed slope stabilization work on both private and public property around the river to prevent landslides.

QUESTIONS?

AGENDA

02 **Large Group: Prioritize Top Hazards**

NATURAL HAZARDS IMPACTING SHELBURNE

WIND EVENTS

INLAND FLOODING

EXTREME TEMPERATURES

SEVERE WINTER WEATHER / NOR'EASTERS

LANDSLIDES

DROUGHT

BRUSHFIRE

EARTHQUAKES

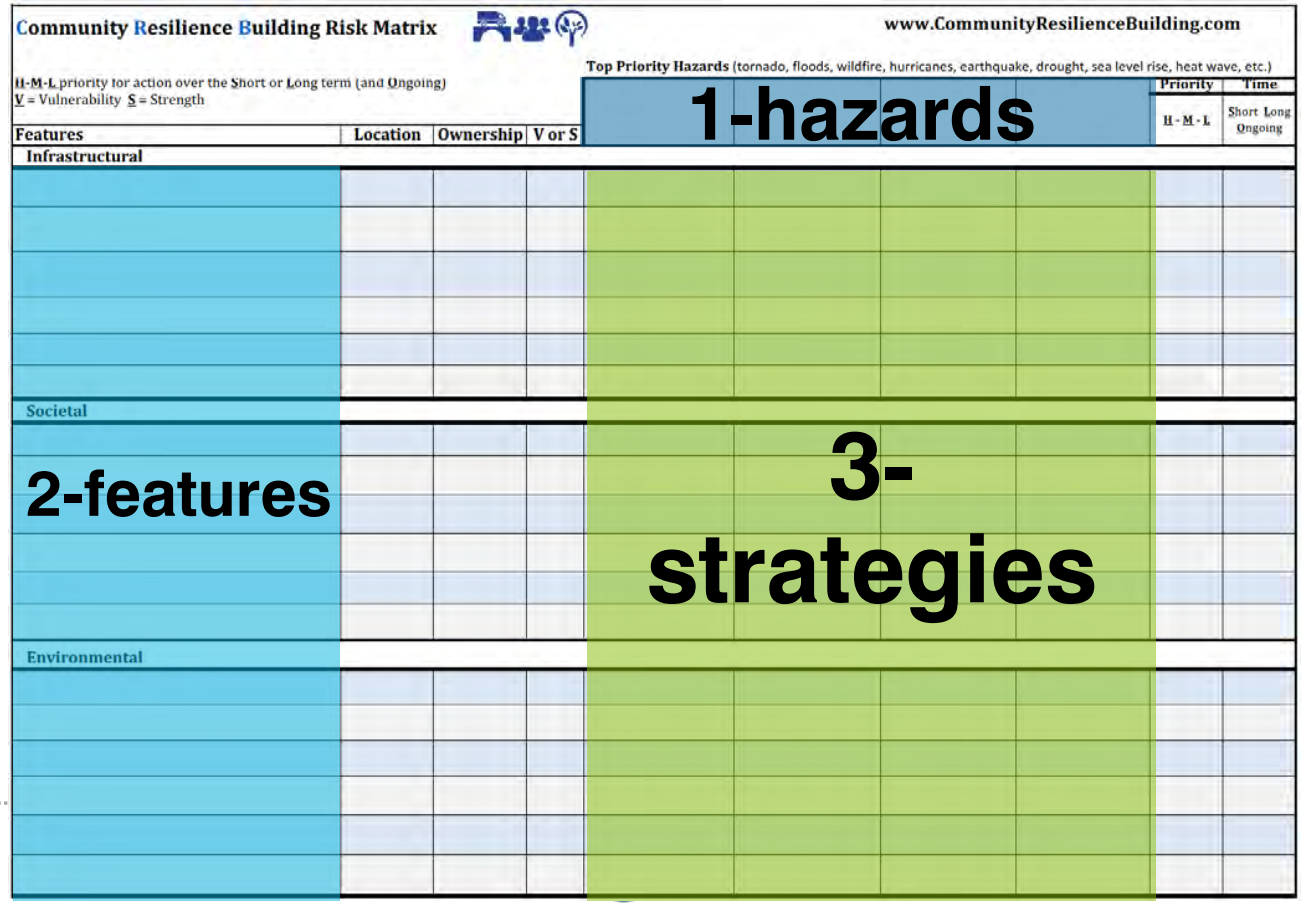
INVASIVE SPECIES

10 MINUTE BREAK

AGENDA

03 **Small Group: Risk Matrix Features**

RISK MATRIX


Community Resilience Building Risk Matrix
www.CommunityResilienceBuilding.com
H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength
Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)
1-hazards
Features
Location
Ownership
V or S
Priority
H - M - L
Time
Short Long Ongoing
Infrastructural
Societal
2-features
3-strategies
Environmental

RISK MATRIX: HAZARDS

Community Resilience Building Risk Matrix

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

p Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat v ve, etc.)

Features	Location	Ownership	V or S					Priority H - M - L	Time Short Long Ongoing
Infrastructural									
Societal									
Environmental									

RISK MATRIX: FEATURES

Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.com

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

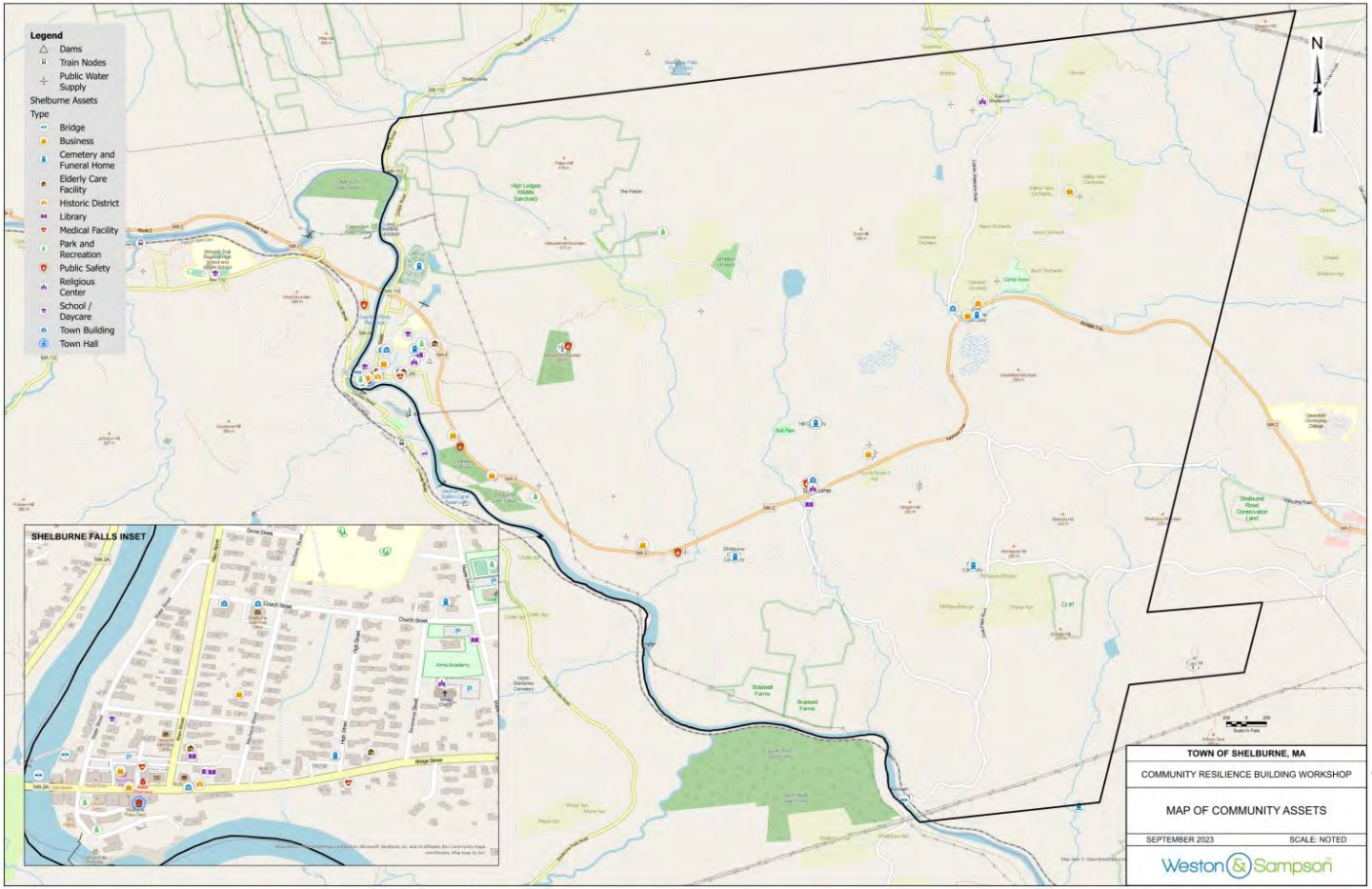
Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

Features	Location	Ownership	V or S					Priority	Time
								H - M - L	Short Long Ongoing
Infrastructural									
Societal									
Environmental									

RISK MATRIX: FEATURES

FEATURES	LOCATION	OWNERSHIP	VULNERABILITY OR STRENGTH
Infrastructural	Town wide	State	Vulnerability
Societal	Multi- vs. Single-neighborhood	Town	Strength
Economic	Specific location	Private	Both
Environmental		Shared	

LIFELINES AND CRITICAL FACILITIES



RISK MATRIX: INFRASTRUCTURAL FEATURES

- Emergency Services
- Drinking Water
- Wastewater
- Stormwater
- Electrical & Communications Network and Infrastructure
- Dams
- Culverts and Bridges
- Roadways
- Emergency Shelters

RISK MATRIX: SOCIETAL FEATURES

- Agriculture
- Tourism
- Historic Villages and Buildings
- Senior Populations
- Emergency Shelters
- Schools
- Climate Migration
- Health Department
- Community members with disabilities

RISK MATRIX: SOCIETAL FEATURES

Population	Franklin County	Massachusetts
2022	70,894	6,981,974
2010	71,372	6,547,790
Age		
Under 18 years	16.4%	19.2%
65+ years	24.9%	18.1%
Economics		
Median household income	$64,949	$89,026
Persons in poverty	10.7%	10.4%
Additional Information		
Bachelor's degree or higher	38.8%	45.2%
With a disability	12.1%	7.9%

US Census Bureau, ACS 2021 Estimates

RISK MATRIX: ENVIRONMENTAL FEATURES

- Open Space and Trails
- Parks
- Ponds & Lakes
- Wetlands, Streams & Rivers
- Trees & Forests
- Agriculture & Farmland
- Invasive Species
- Wildlife

3 Small Group Exercises

01 Infrastructure and Building Features

02 Societal Features

03 Environmental Features

20 minutes for each exercise
Feature, owner, location, strength/vulnerability

REPORT OUT

Choose a speaker for your table to report out key features

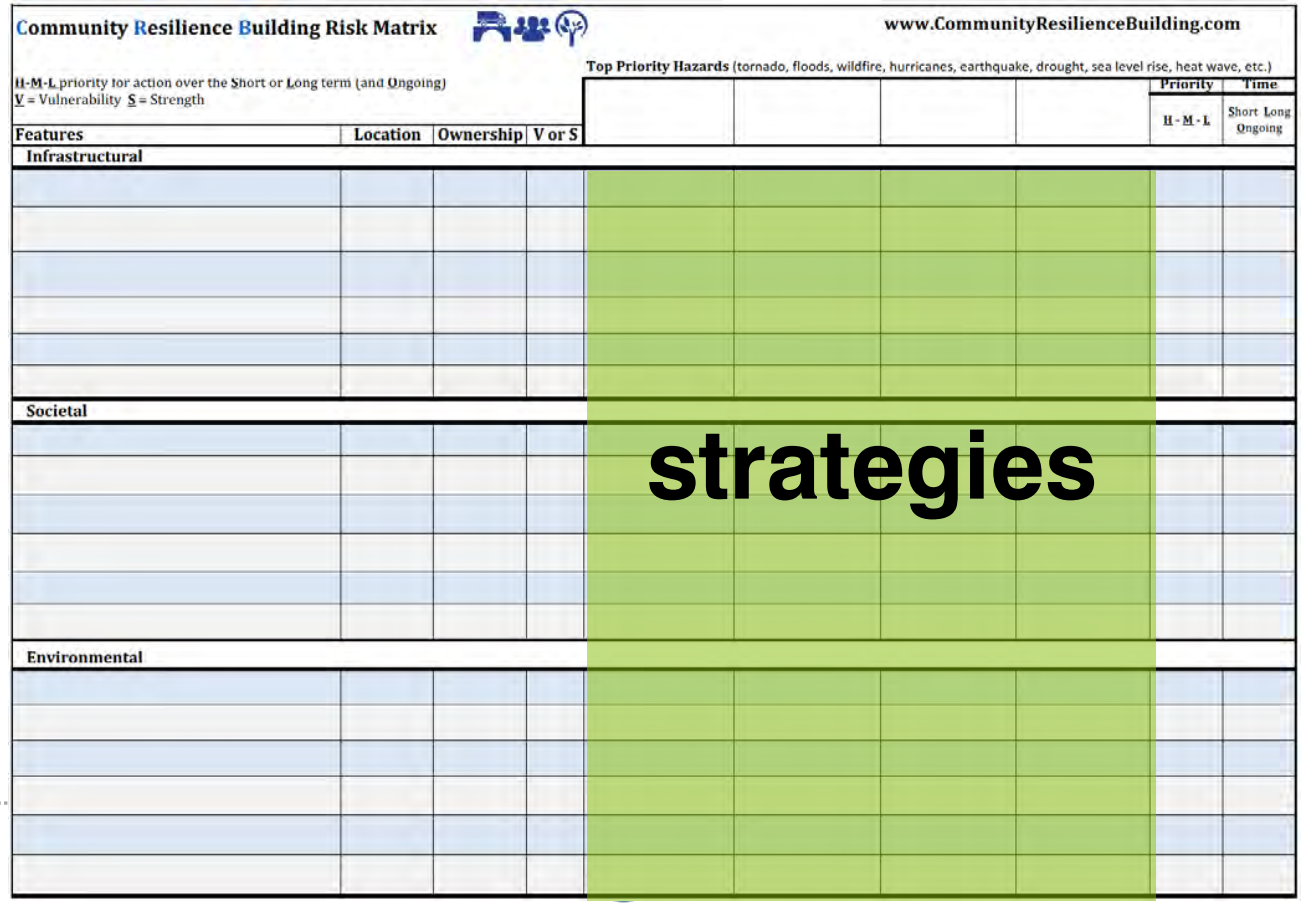
LUNCH (15 MIN BREAK)

While you eat, we will present on item 5

AGENDA

05 **MVP Community Actions / Strategies**

RISK MATRIX: STRATEGIES



Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.com

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

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

Features	Location	Ownership	V or S					Priority H-M-L	Time Short Long Ongoing
Infrastructural									
Societal									
Environmental									

strategies

RISK MATRIX: PRIORITY & TIMEFRAME

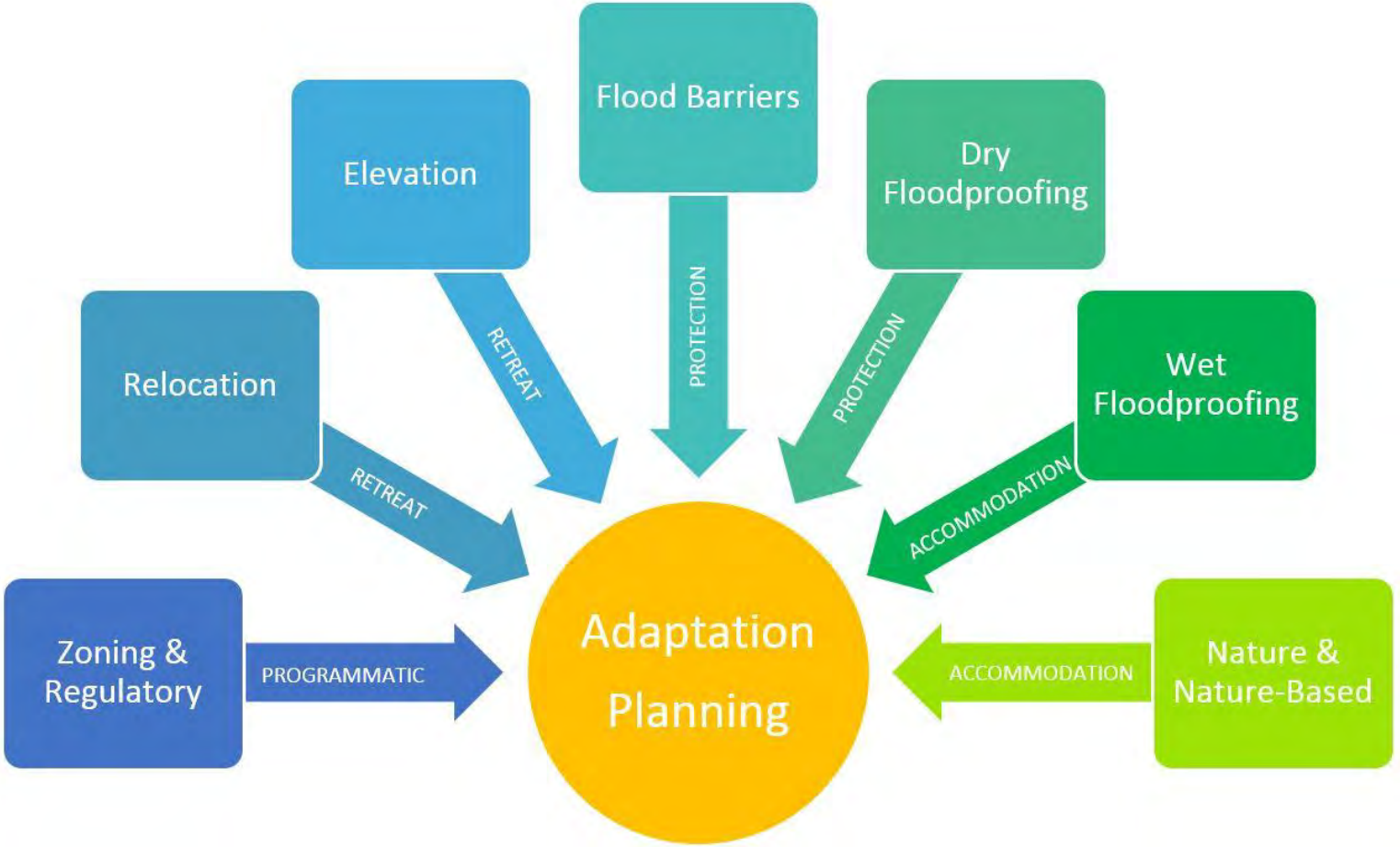
Community Resilience Building Risk Matrix www.CommunityResilienceBuilding.com

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

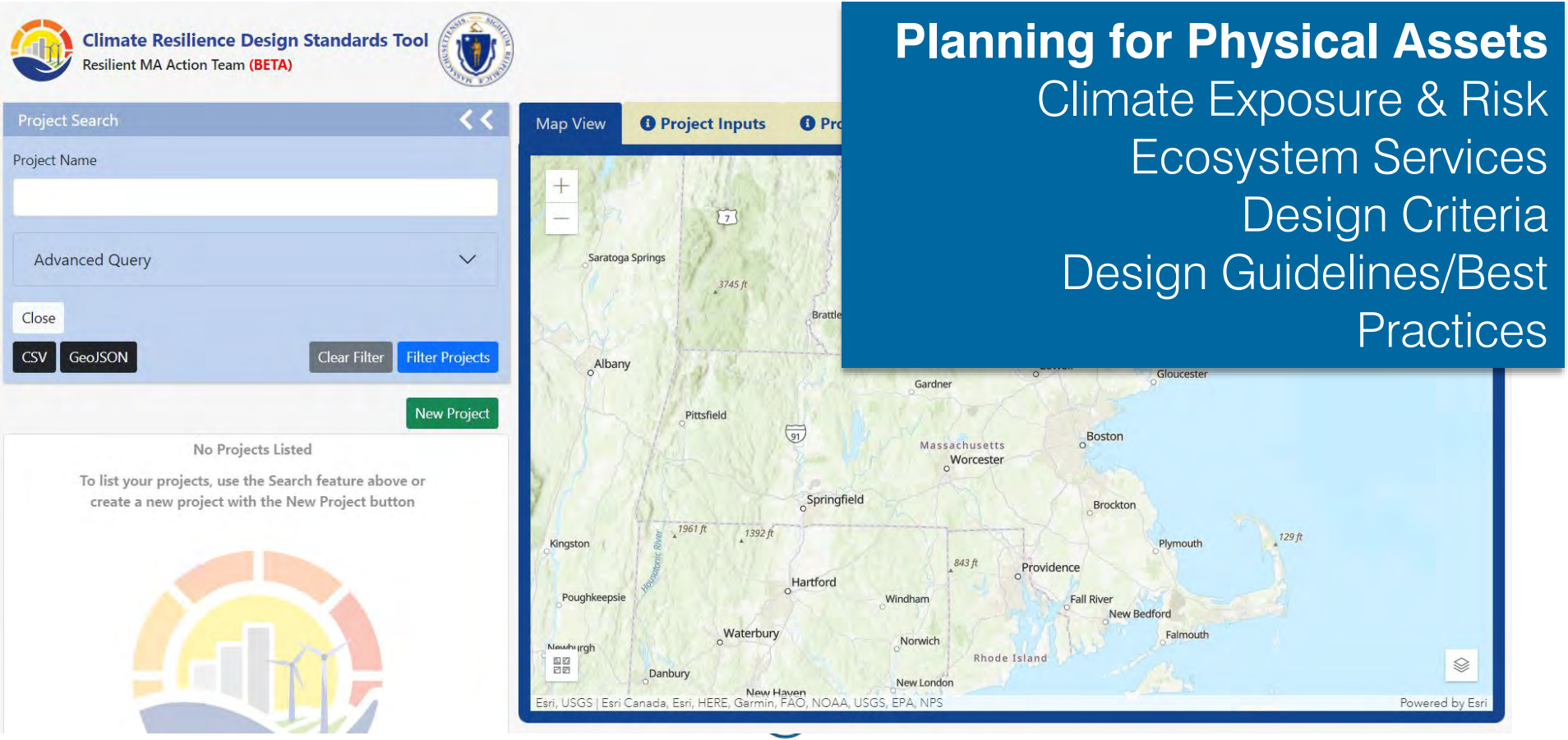
Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

Features	Location	Ownership	V or S					Priority	Time
								H - M - L	Short Long Ongoing
Infrastructural									
Societal									
Environmental									

ADAPTATION STRATEGY TYPES



CLIMATE RESILENCE DESIGN STANDARDS



Planning for Physical Assets

Climate Exposure & Risk

Ecosystem Services

Design Criteria

Design Guidelines/Best Practices

NATURE-BASED SOLUTIONS

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STORMWATER/LID STRATEGIES

- Create Sub-Surface Stormwater Storage
- Implement Green Infrastructure (GI) Opportunities For Stormwater Management
- Reduce Impervious Surfaces in Developed Areas

STREAM RESTORATION

BANK RESTORATION & STABILIZATION

Live Crib Wall

Vegetated Retaining Wall

Joint Planting

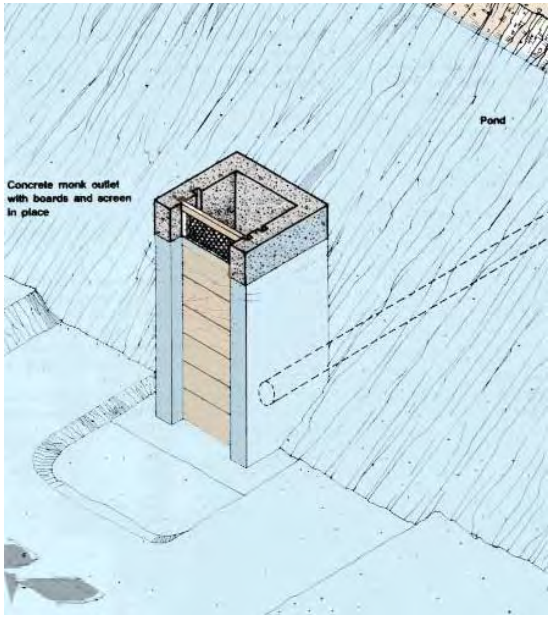
Gabions

CULVERT WIDENING TO IMPROVE HABITAT & FLOW

Weston & Sampson℠

DAMS

Dams with Potential for Increased Storage or Drawdown

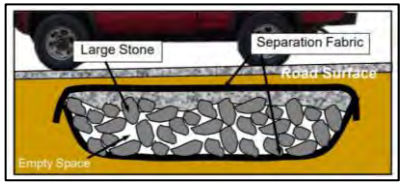


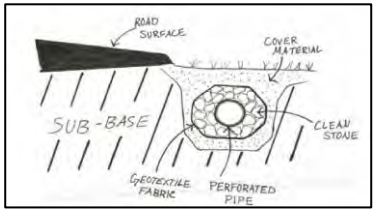
Dam Removal Candidate

ROAD-STREAM CROSSINGS

GRAVEL ROADS

- Road Surfaces
- Sub Surface Drainage
  - French Mattress
  - Underdrain
- Ditches
- Outlet Protection
  - Rock Apron
  - Splash/Plunge Pool
- Bank Stabilization
- Sediment Control & Traps
- Green Infrastructure





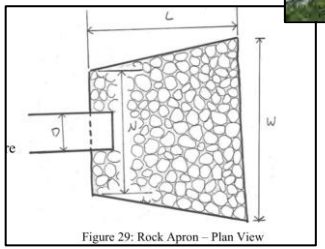


Figure 29: Rock Apron – Plan View

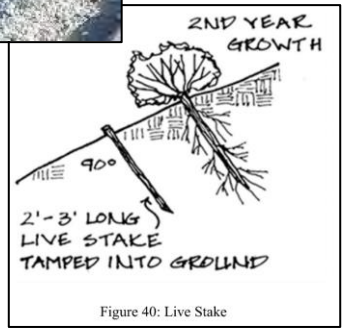
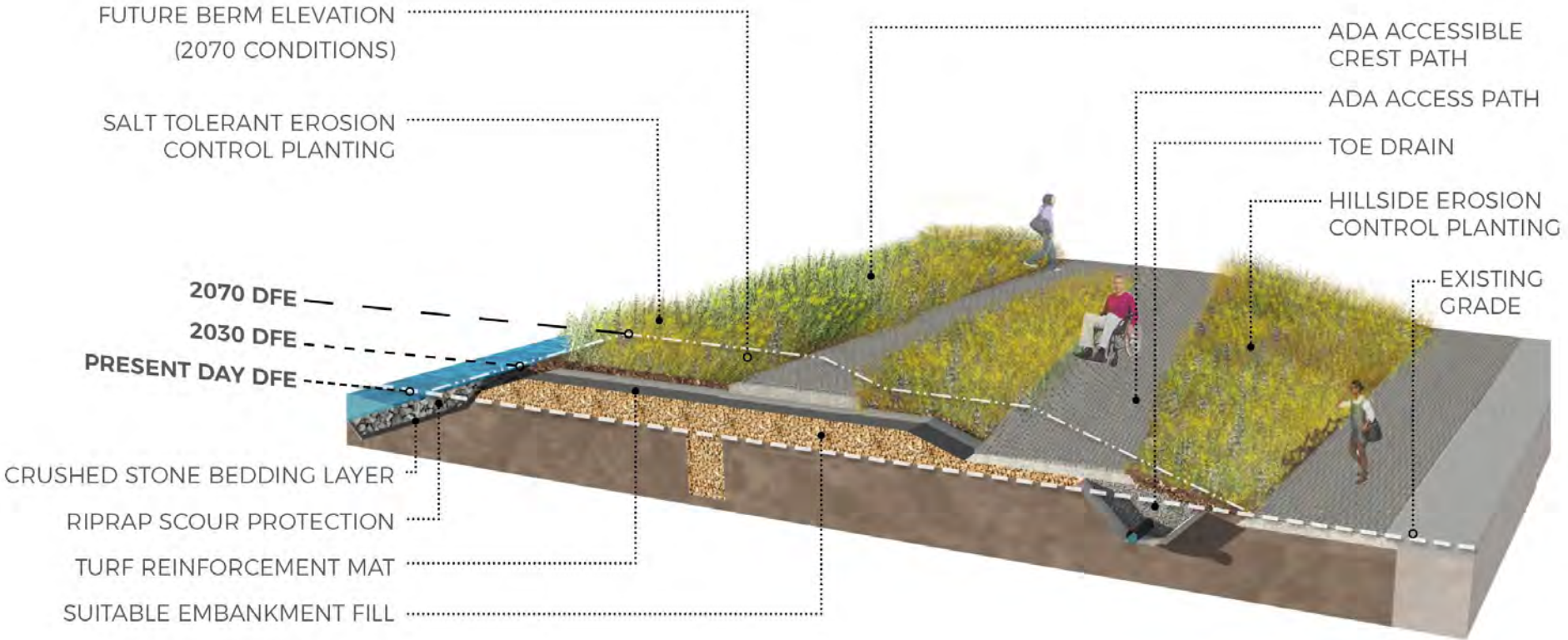


Figure 40: Live Stake

VEGETATED BERM



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RE-EVALUATE LOCAL REGULATIONS & POLICIES

Chelmsford Making Progress to Meet Key Climate Action Goals

Posted on November 4, 2022 by Weston & Sampson (A)

1. Sustainability/Net Zero Design Standard for Projects

2. Low Impact Development/GI Guidance Document

3. Complete Streets Zoning & Regulation Revisions

4. Streamlined Permitting for Sustainability/Net Zero Development

5. Review Codes for Consistency

6. Stretch Energy Code Upcoming Changes

7. Explore Opportunities for Promoting Public Transportation

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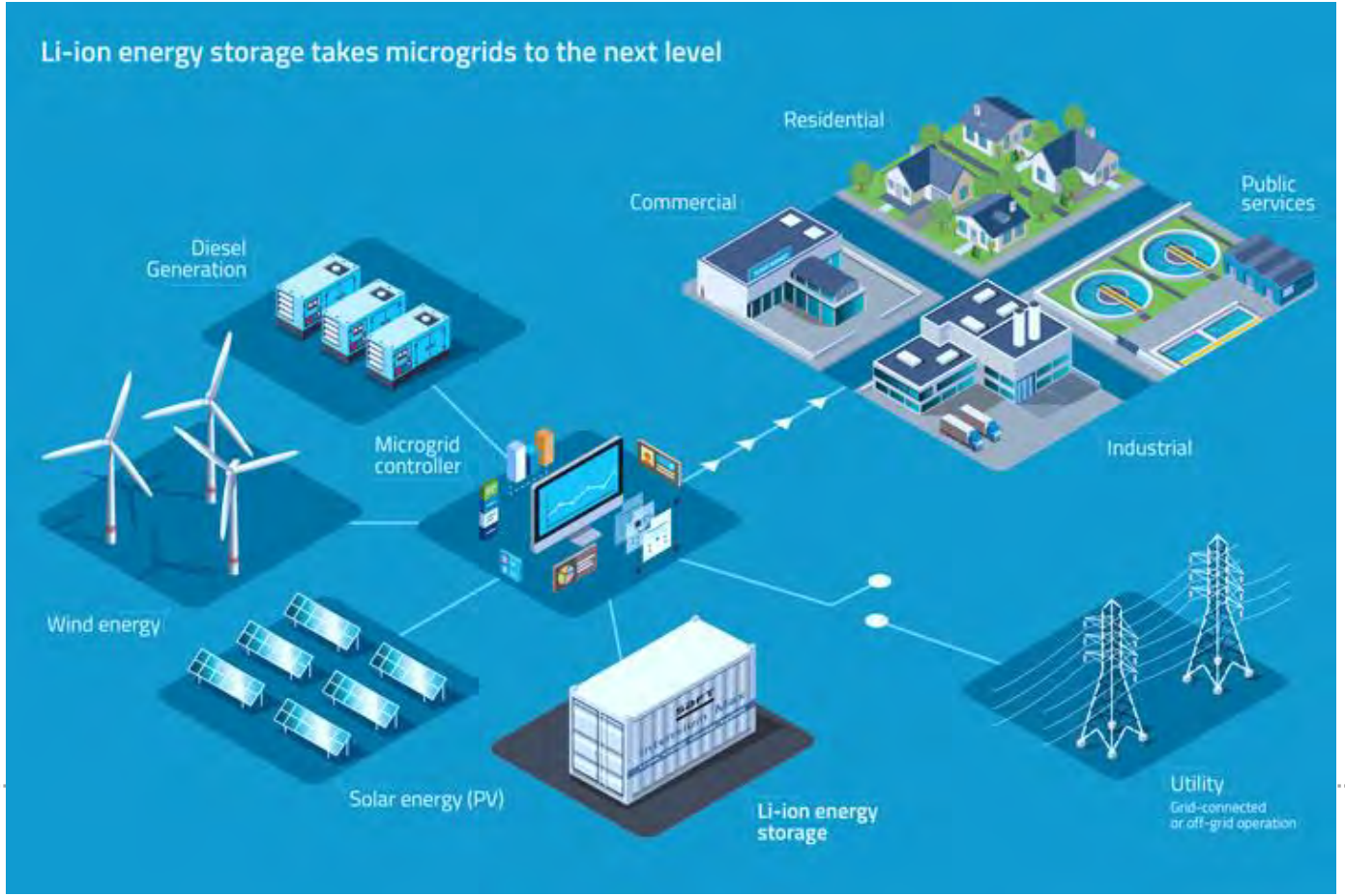
RENEWABLE ENERGY/MICROGRIDS



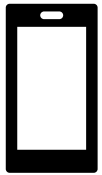
CHILDCARE

KNOWLEDGE

TRANSPORTATION

FOOD

TRANSLATION



TECHNOLOGY

REDUCE BARRIERS TO PARTICIPATION

WORK WITH VOLUNTEERS

PUBLIC HEALTH

- Wellness checks
- Database of residents at risk of isolation
- Community Emergency Response Teams (CERT)
- Mobile markets
- Housing upgrades and investment

LOCAL BUSINESSES

DESIGN STRATEGIES | Mitigation Concepts

Illustrated here are practical strategies to mitigate damage from flooding. The recommendations comprise physical retrofits of the spaces and buildings, as well as suggestions to integrate flood resiliency into everyday operations.

Operational strategies, such as those referenced on pages 37 and 38, that do not require changes to a building's structure can also be effective strategies for mitigating risk by ensuring that vulnerable inventory, electronic systems and business records are protected from flooding and power outages.

Dry floodproof
Elevate
Wet floodproof

SHELTERS, HEATING & COOLING CENTERS

HOUSEHOLD PREPAREDNESS

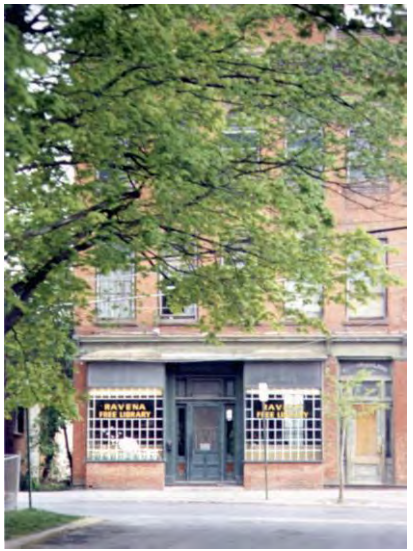
WETLAND RESTORATION

Wetlands in Troy, New York

REMOVAL OF INVASIVE SPECIES

Invasive Japanese Knotweed in Arlington, MA

TREE OR FOREST MANAGEMENT



Tree species, placement, and maintenance recommendations

LAND ACQUISITION

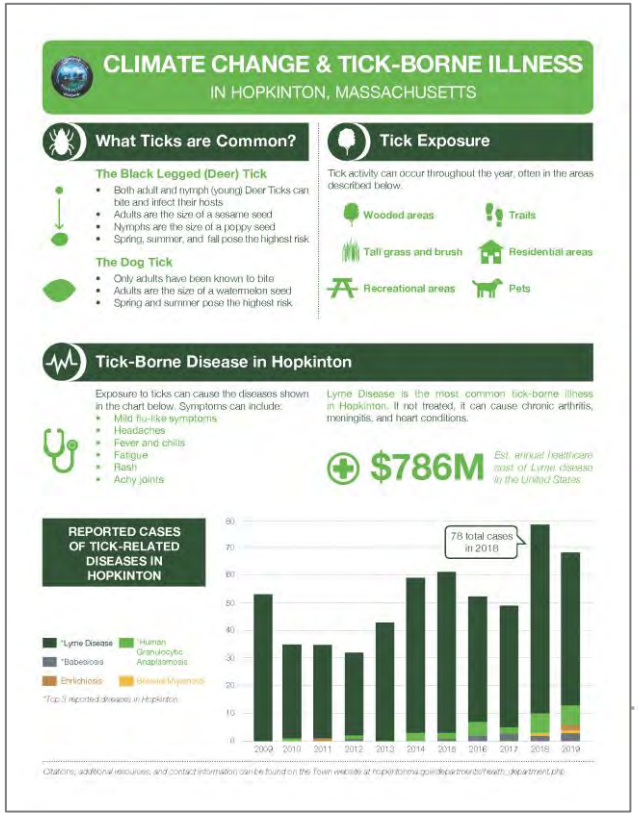
As part of an MVP Action Grant, Mattapoisett purchased 120 acres of forest, streams, freshwater wetlands, and coastal salt marsh as conservation land to prevent development in vulnerable areas

Image from EOEAA, 2019

REMEDIATE CONTAMINATED SITES

Medfield State Hospital, Remediation along the Charles River

EDUCATION, OUTREACH, SIGNAGE



CLIMATE CHANGE & TICK-BORNE ILLNESS
IN HOPKINTON, MASSACHUSETTS

What Ticks are Common?

The Black Legged (Deer) Tick

- Both adult and nymph (young) Deer Ticks can bite and infect their hosts
- Adults are the size of a sesame seed
- Nymphs are the size of a poppy seed
- Spring, summer, and fall pose the highest risk

The Dog Tick

- Only adults have been known to bite
- Adults are the size of a watermelon seed
- Spring and summer pose the highest risk

Tick Exposure

Tick activity can occur throughout the year, often in the areas described below.

Wooded areas · Trails · Tall grass and brush · Residential areas · Recreational areas · Pets

Tick-Borne Disease in Hopkinton

Exposure to ticks can cause the diseases shown in the chart below. Symptoms can include:

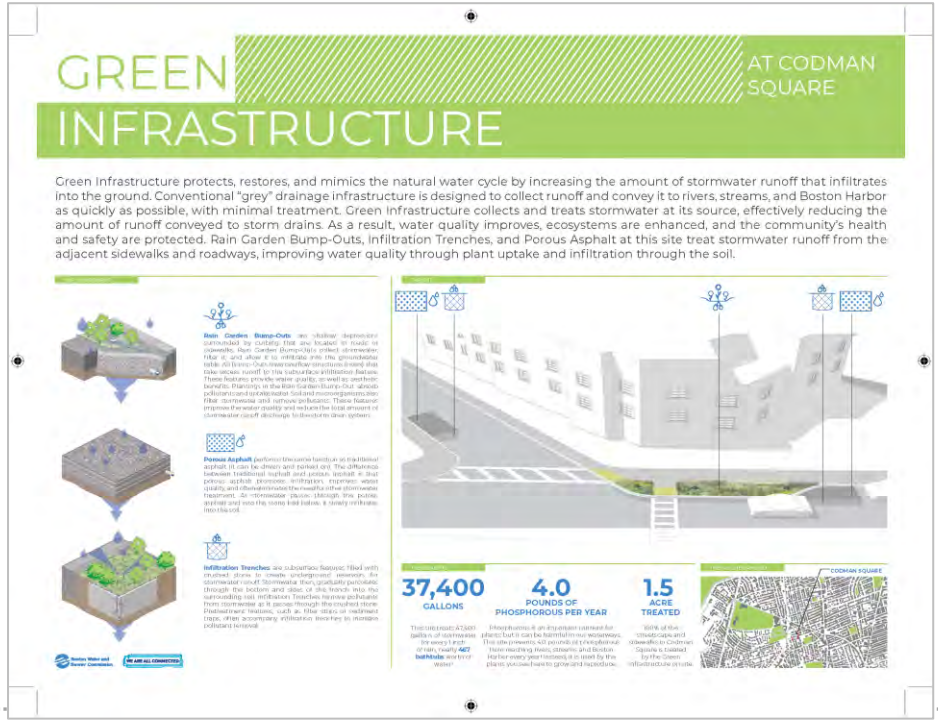
- Mild flu-like symptoms
- Headaches
- Fever and chills
- Fatigue
- Rash
- Achy joints

Lyme Disease is the most common tick-borne illness in Hopkinton. If not treated, it can cause chronic arthritis, meningitis, and heart conditions.

$786M *Est. annual healthcare cost of Lyme disease in the United States*

REPORTED CASES OF TICK-RELATED DISEASES IN HOPKINTON

Citations, additional resources, and contact information can be found on the Town website at hopkintonma.gov/departments/health_department.php.



GREEN INFRASTRUCTURE AT CODMAN SQUARE

Green Infrastructure protects, restores, and mimics the natural water cycle by increasing the amount of stormwater runoff that infiltrates into the ground. Conventional "grey" drainage infrastructure is designed to collect runoff and convey it to rivers, streams, and Boston Harbor as quickly as possible, with minimal treatment. Green Infrastructure collects and treats stormwater at its source, effectively reducing the amount of runoff conveyed to storm drains. As a result, water quality improves, ecosystems are enhanced, and the community's health and safety are protected. Rain Garden Bump-Outs, Infiltration Trenches, and Porous Asphalt at this site treat stormwater runoff from the adjacent sidewalks and roadways, improving water quality through plant uptake and infiltration through the soil.

Rain Gardens Bump-Outs are shallow depressions surrounded by curbing that are located in roads or sidewalks. Rain Garden Bump-Outs collect stormwater, filter it, and allow it to infiltrate into the groundwater table. All Bump-Outs treat overflow structures treated that take excess runoff to the subsurface infiltration trenches. These features provide water quality, as well as aesthetic benefits. Plantings in the Rain Garden Bump-Out absorb pollutants and precipitate. Soil and microorganisms filter stormwater and remove pollutants. These features improve the water quality and reduce the total amount of stormwater runoff discharge to the storm drain system.

Porous Asphalt performs the same function as traditional asphalt. It can be driven and parked on. The difference between traditional asphalt and porous asphalt is that porous asphalt promotes infiltration, improves water quality, and otherwise mimics the benefits of the stormwater treatment. As stormwater passes through the porous asphalt and into the stone bed below, it slowly infiltrates into the soil.

Infiltration Trenches are subsurface features filled with crushed stone to create underground reservoirs for stormwater runoff. Stormwater then gradually percolates through the bottom and sides of the trench into the surrounding soil. Infiltration Trenches remove pollutants from stormwater as it passes through the crushed stone. Pretreatment features, such as filter strips or sediment traps, often accompany infiltration trenches to maximize pollutant removal.

37,400 GALLONS

4.0 POUNDS OF PHOSPHORUS PER YEAR

1.5 ACRE TREATED

CODMAN SQUARE

Weston & Sampson℠

Small Group Exercises

01 Identify community actions for infrastructure, societal, and environmental features (30 min)

02 Prioritize community actions (15 min)

03 Identify action timeline (5 min)

50 MINUTES TOTAL

10 MINUTE BREAK

REPORT OUT

Choose a speaker for your table to report out on your top 3-5 actions

AGENDA

06 **Large Group: Determine Overall Priority Actions**

CONSENSUS ON PRIORITY ACTIONS

- Each participant gets 3 stickers
- Place your stickers on the 3 priority action items you most agree with

NOTE: All the priority action items determined here today will be included in the final report!

QUESTIONS?

Next Steps

Community listening session (October 2023)

Final Project Report (March 2024)

MVP Action Grants (April 2024)


Weston & Sampson
SM
transform your environment

thank you

westonandsampson.com