Today’s Agenda

6:30 – 6:35
Welcome and Event Overview

6:35- 6:40
Community Polling

6:40- 7:00
Presentation on the MVP Process, Community Resilience, and Climate Change Hazards

7:00 – 8:00
Round Robin Discussions at Each Station
Keypad Polling
What is your favorite winter activity? *Choose 1*

A. Skiing  
B. Snowshoeing  
C. Watching holiday movies  
D. Drinking hot chocolate  
E. Avoiding the snow
How important is the issue of climate change to you personally? Choose 1

A. Very Important
B. Quite Important
C. Not Very Important
D. Not at All Important
What issues are of most concern to you related to climate change? *Choose 2*

A. Disease & illness (Lyme disease, EEE, etc.)
B. Natural disasters
C. Economic security
D. Resources shortages
E. Air and water quality
F. Loss of biodiversity
G. Other
How prepared do you feel that you and/or your family are for the impacts of climate change? Choose 1

A. Very prepared
B. Somewhat prepared
C. Not prepared
D. No need to prepare
How prepared do you think the Town of Watertown is to address the impacts of climate change? Choose 1

A. Very prepared
B. Somewhat prepared
C. Not as prepared as we should be
D. I don’t know
Municipal Vulnerability Preparedness (MVP)

State and local partnership grant to build resiliency to climate change

1. Engage Community
2. Identify CC impacts and hazards
3. Complete assessment of vulnerabilities & strengths
4. Develop and prioritize actions
5. Take Action
Resilience

Resilience is about **surviving and thriving**, regardless of the challenge. **Bouncing Forward**

**Urban resilience** is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of **chronic stressors** and **acute shocks** they experience.

~100 Resilient Cities
**Other Key Terms**

**Vulnerability** *(noun)*  
The degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change.

**Drought** *(noun)*  
A period of abnormally dry weather long enough to cause issues such as crop damage, water supply shortages, and habitat loss.

**Heat Wave** *(noun)*  
For Northeast: a period of three or more consecutive days over 90°F.

**Hazard** *(noun)*  
An event or condition caused by changes in the climate that may result in loss of life, injury, negative health impacts, or damage to property, infrastructure, services, or environmental resources.

**Impact** *(noun)*  
Effects on natural and human systems caused by climate hazards.

**Intense Storms** *(noun)*  
Nor'easters, ice storms, extreme precipitation, hurricanes.
The three changing climate conditions are...

- Temperature
- Precipitation
- Sea Level

Which lead to climate hazards...

- Heat Waves
- Drought
- Inland Flooding
- Intense Storms
- Coastal Flooding

Which in turn create impacts...

- Heat-related illnesses
- More vector-borne diseases
- Increased risk of brushfires
- Crop and habitat damage
- Blocked roadways
- Infrastructure damage
- Power outages
- Infrastructure damage
- Inundated communities
Chronic Stresses

Financial stresses: Feeling like you aren’t making enough money to provide for yourself or your family

Social stresses: Feeling unsafe in your neighborhood due to crime, feeling alone, or other factors

Health stresses: Feeling like you can’t put your best self forward because of physical or mental health challenges

Environmental stresses: Feeling like your environment is lessening your quality of life (e.g., water quality, air pollution, lead, litter)
Climate Change Hazards in Watertown
**Drought**
Precipitation will be concentrated in fewer storm events. This can lead to water supply shortages, crop damage, and habitat stress.

**Trends**
Between 2001 and 2017, Watertown saw 48 weeks of **severe drought** (water restrictions) and 21 weeks of **extreme drought** (water shortages).¹

**Projections**
Extended periods of little to no precipitation coupled with rising temperatures are projected to increase the frequency of short-term droughts.

¹United States Drought Monitor. The National Drought Mitigation Center,
Flooding

A single intense downpour can cause serious flooding, which can damage critical facilities and infrastructure or close essential roads.

Trends

Middlesex County saw $35.2 million worth of damage from flooding in March of 2010. ¹

Projections

Annual Precipitation by 2050: 2-13% increase (1-6 inches/year)

Annual Precipitation by 2100: 3-16% increase (1.2-7.3 inches/year)²

¹ Massachusetts State Hazard Mitigation and Climate Action Plan. Massachusetts Emergency Management. 2018

Heat Waves
An increase in the number of days with high temperatures—particularly days over 90°F—will lead to heat-related illnesses and higher energy demand in the summer.

Trends
There were 11.5 days above 90°F between 2010 and 2014—the highest number since 1950.¹

Projections
Increase in the number of days over 90°F by 2050: 10-35
Decrease in the number of days under 32°F by 2050: 17-39²

¹ NOAA National Centers for Environmental Information – State Climate Summaries
² Massachusetts Climate Change Projections - Statewide and for Major Drainage Basins, Northeast Climate Adaptation Science Center, MA Climate Change Clearinghouse, 2018
Average Annual Days Above 90°

Source: Resilient MA. Accessed 10/18/2019
Intense Storms
Nor’easters, ice storms, blizzards, hurricanes, and heavy rain events lead to downed trees, power outages, and property damage.

Trends
In the Northeast, the amount of precipitation falling in very heavy events between 1958 and 2010 increased by more than 70%.

Projections
Intense storms will become more frequent and more intense. Overall, annual precipitation is expected to increase between 6% and 9%.

NUMBER OF HEAVY DOWNPOURS IN MASSACHUSETTS

Takeaways from MVP Workshops
**Infrastructure Themes:** Power outages, green infrastructure, flooding roadways, town-wide communication systems, water conservation, transportation demand

**Environmental Themes:** Tree maintenance and smart planting, expanding open space, protecting wetlands, expanding education and incentives for sustainable landscaping

**Socio-Economic Themes:** Vulnerability of the elderly, financial stressors to low-income populations, emergency preparedness, health services, business resilience
Top Actions from MVP Workshops

**Infrastructure**
- Encourage green infrastructure and healthy environments for shade trees
- Improve communication of building closures during intense storms
- Develop a sidewalk inventory which includes a drainage and condition assessment

**Social and Economic**
- Create incentives for landlords to make resiliency improvements
- Ensure preparedness communication are well known and accessible to all
- Implement a preparedness drive and preparedness kit program

**Environmental**
- Acquire more open space for recreation and conservation
- “Right Tree, Right Place” (planting a diversity of absorbent and climate-adaptable trees)
- Develop education materials for tree maintenance and fix gas leaks to keep them healthy
Open House Discussions at Hazard Stations

** Recommended 15 minutes each station**

- Intense Storms
- Heat Waves
- Flooding
- Drought
Thank you!