

Climate Resilient Carlisle

Public Forum

February 15, 2024



Agenda – Public Forum to Gather Input

- Welcome
- Overview of Climate Resilient Carlisle Effort
- Q&A
- Breakout Discussions – What are your climate resilience priorities for Carlisle?
- Report Out
- Q&A
- Next Steps

Climate Resilient Carlisle

Purpose of this effort:

To incorporate strategic, comprehensive, and data-driven climate resilience best practices into our local rule, regulations, and bylaws for land use, in a coordinated and integrated manner. This project will build capacity locally to better handle the following climate impacts and vulnerabilities, which are local as well as regional: drought, ecological changes, extreme heat, inland flooding, severe winter storms, Nor'easters, hurricanes, tornados and other extreme weather events.

Overall Project Approach



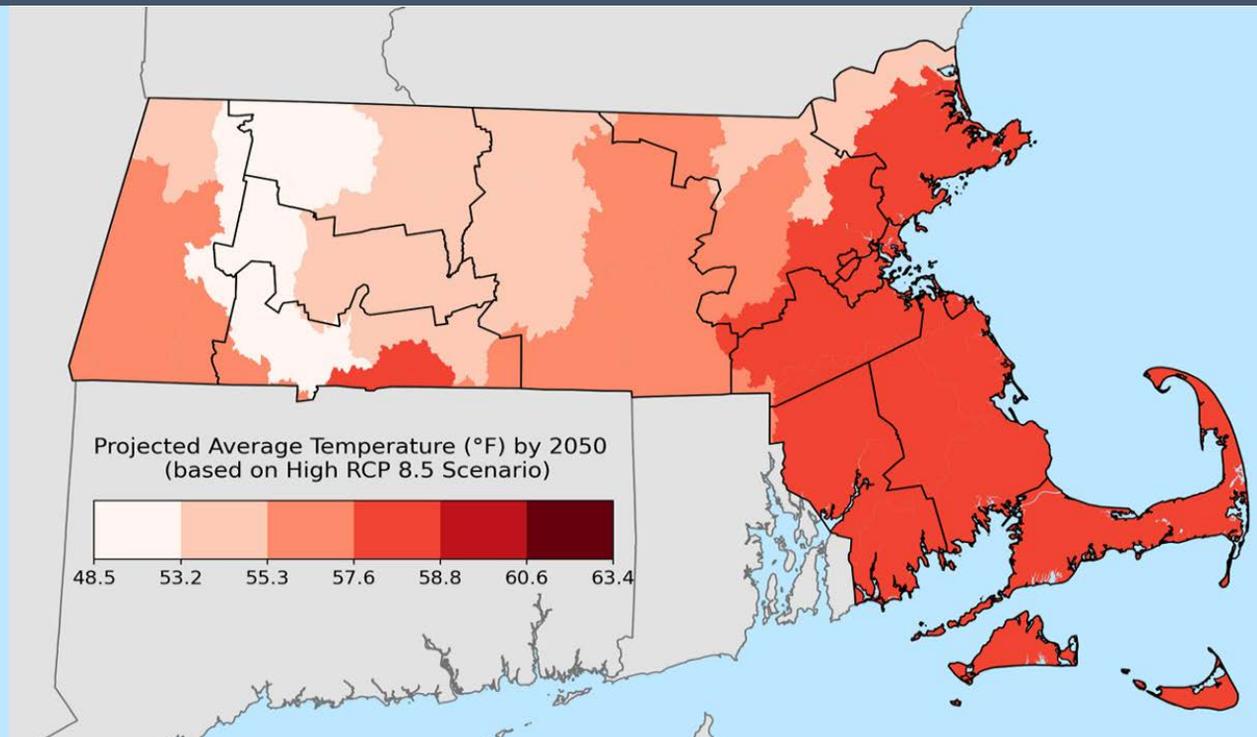
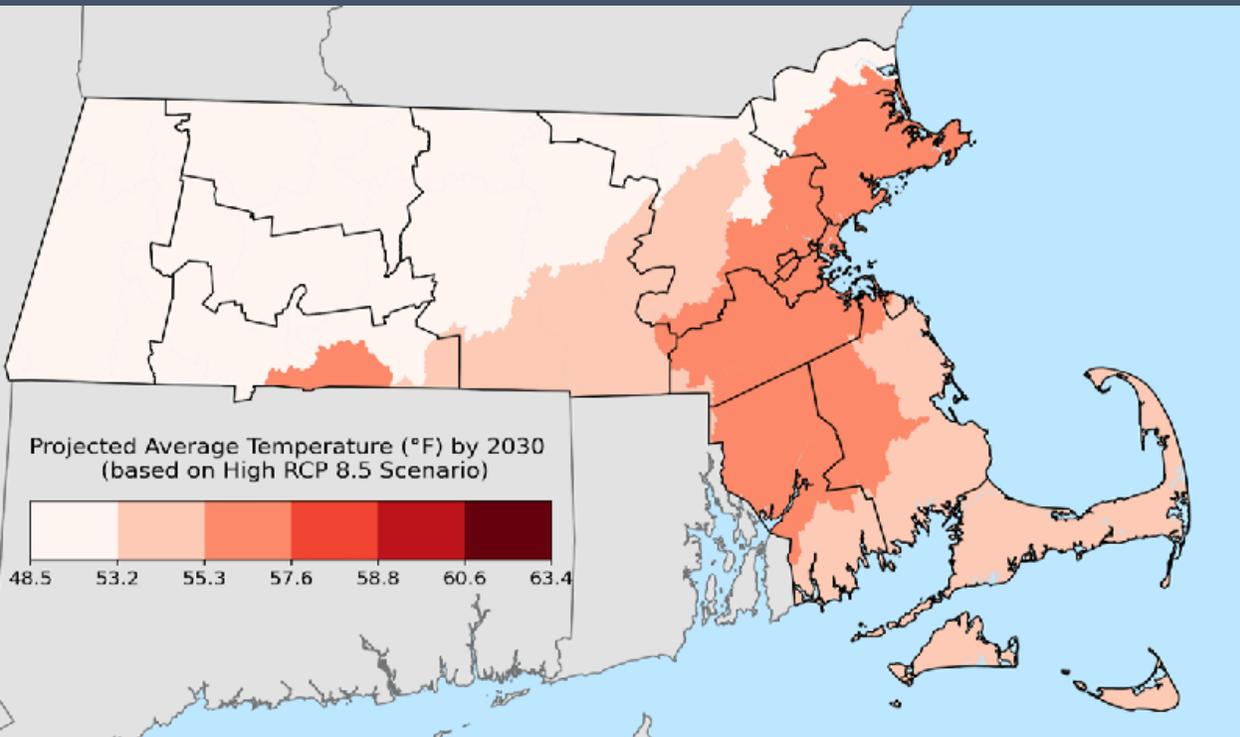
- Meet with Town
- Review Codes
- Discuss Prelim Recommendations
- Gather Board/Committee/Public Feedback
- Revise Recommendations
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- Strategy for Implementation
- Complete by June 2025

Please note: This meeting is being recorded.

Why Climate Resilience?

Temperatures are rising

Ave T in Carlisle expected to increase by 3.6 F by 2030, and 5.4 F by 2050 over 1950-2013

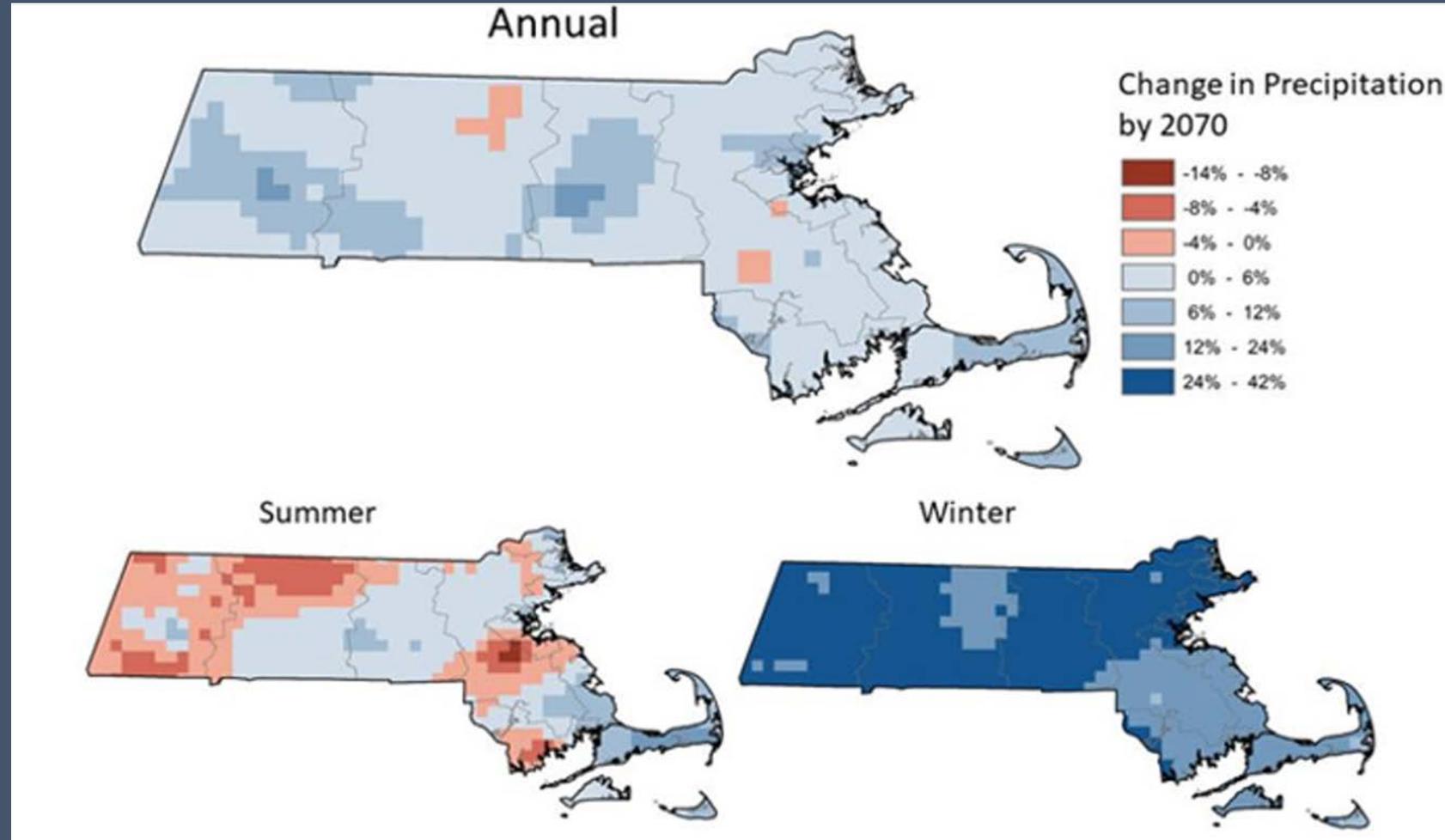


Why Climate Resilience?

Baseline: 45 inches/yr

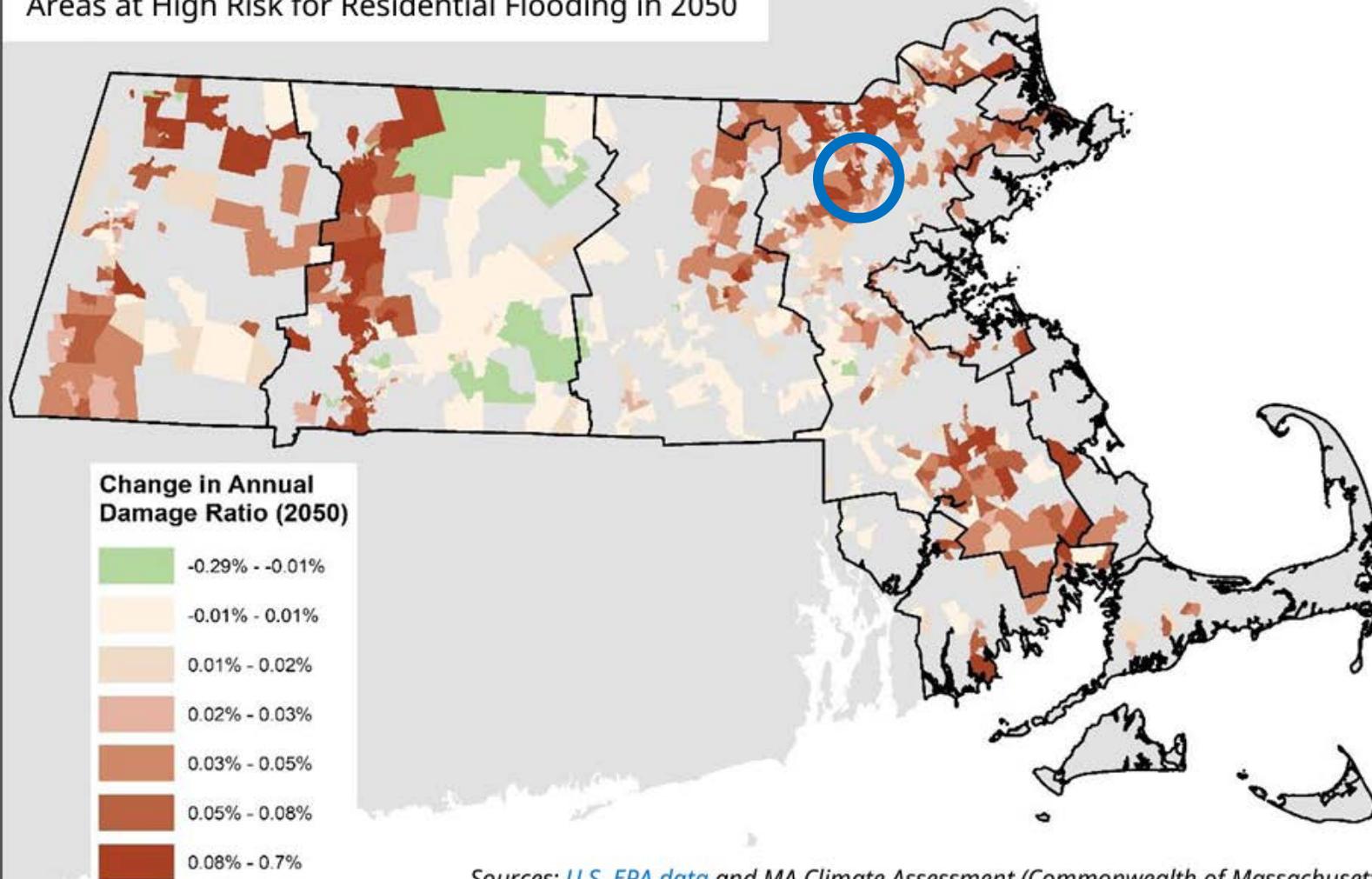
By 2070: + 5 inches/yr

Most will come in winter



Why Climate Resilience?

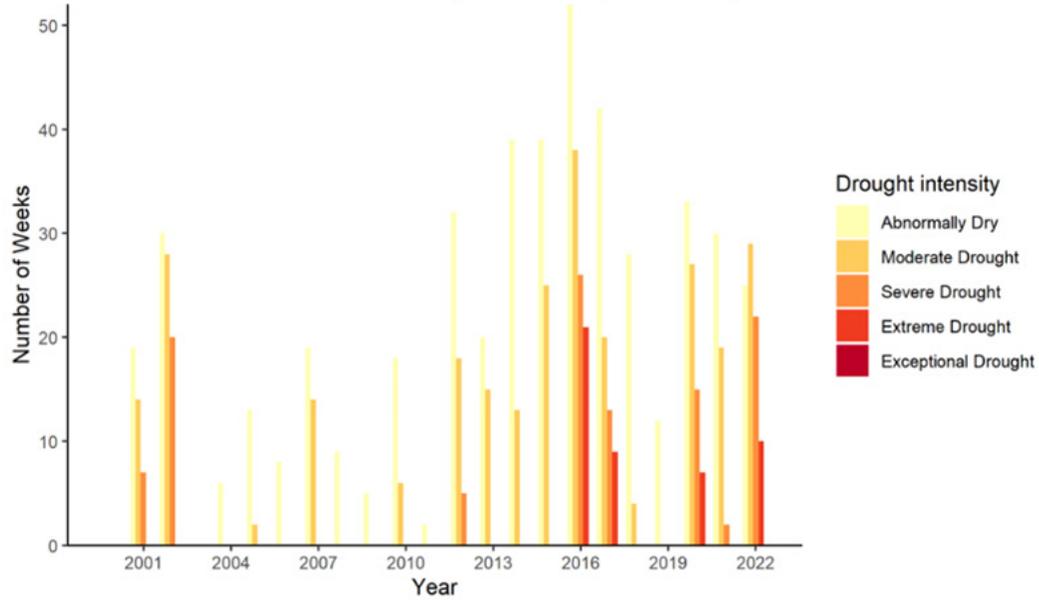
Areas at High Risk for Residential Flooding in 2050



Sources: [U.S. EPA data](#) and MA Climate Assessment (Commonwealth of Massachusetts, 2022).

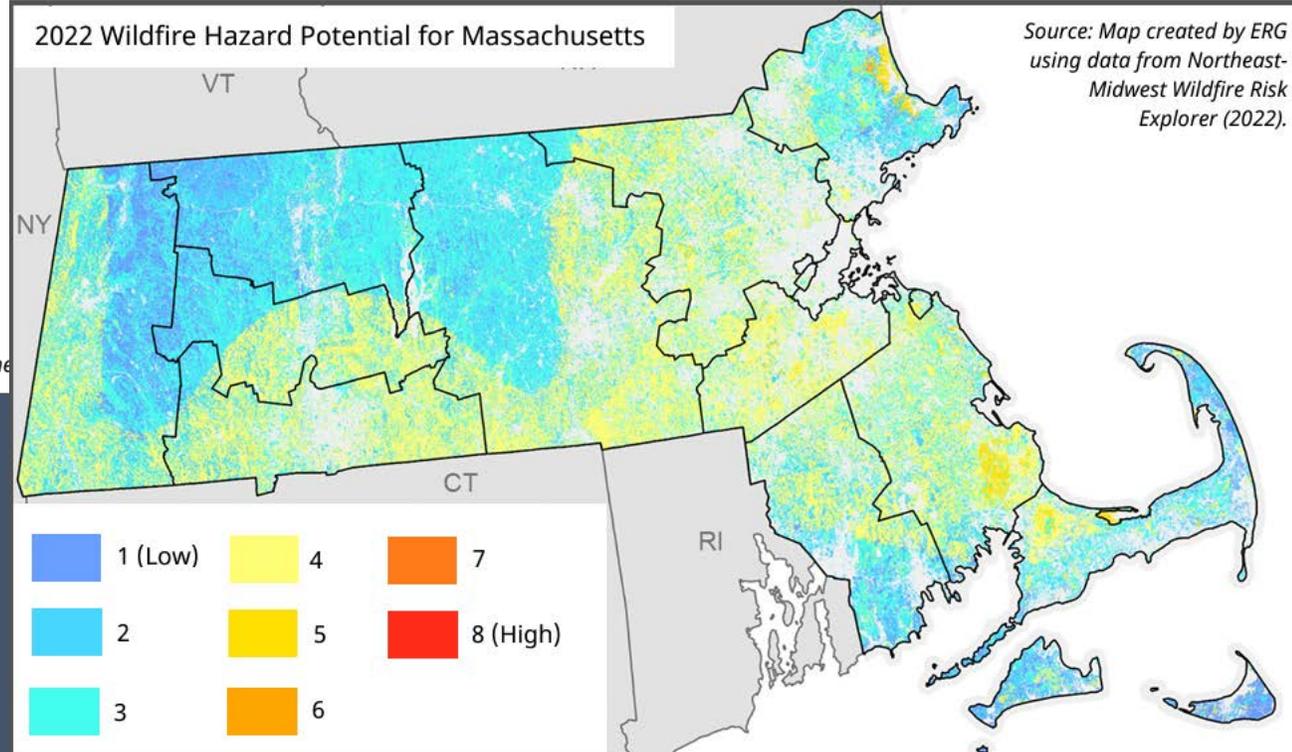
Why Climate Resilience?

Number of Weeks in Drought Conditions (2001–2022)



Source: Massachusetts Executive Office of Energy and Environmental Affairs & Massachusetts Emergency Management

2022 Wildfire Hazard Potential for Massachusetts



What Impacts Are We Experiencing Already?

- Flooding damage and water quality impacts
- Power outages from wind and downed trees and limbs
- Heat waves stressing vulnerable populations and the power supply
- Drought-stressed groundwater supply and ecosystem impacts
- Waste and trash production, increasingly difficult to manage

Building Climate Resilience Through Mitigation and Adaptation



MITIGATION – Reducing C emissions

- Decarbonization of buildings
- Renewable energy sources
- Electric vehicle use
- Maintaining forests
- Protecting wetlands
- Waste reduction

Building Climate Resilience Through Mitigation and Adaptation



ADAPTATION

- Cooling strategies
- Managing precipitation
 - Infiltration, manage at the source, green infrastructure
- Reducing drought impacts
 - Infiltration, manage at the source, green infrastructure
- Protecting and employing nature
- Preparing for/responding to storms, emergencies
- Nurturing community and connections
- Reduce waste, reuse

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Or, as already noted:

Big Local Issue / Priority

- Flooding
- Power Outages
- Heat Waves
- Tree Debris/Damage
- Embodied Carbon
- Decarbonization / Electrification
- Waste/Trash Reduction

Potential Adaptation Strategy

- Nature-Based / Flood Storage Capacity
- Micro-grids / Energy Storage
- Energy Reduction / Cooling Locations
- Town-wide Tree Protection Policy
- Demolition Delay
- Muni Commitment / EV Fleet Policy
- Local Composting

Shaping Climate Resilience Through Town Plans, Codes and Policies

Pertinent Town Plans

- Carlisle Master Plan (Apr 2022)
- Carlisle Hazard Mitigation Plan (Nov 2021)
- Carlisle MVP Report (Jun 2021)
- Carlisle Open Space and Recreation Plan (Nov 2020)
- Carlisle Path to Zero Emissions (Mar 2020)

Shaping Climate Resilience Through Town Codes and Policies

General Bylaws

- Wetlands Protection Bylaw
(and Tree Removal Policy)
- Subdivision Approvals
- Historic District
- Public Safety- Public Ways
- Utilities
- Scenic Roads
- Recycling
- Right to Farm

Zoning Bylaws

- Two General Residential Districts (A & B)
- Business District & Center Business District
- Residence District M (multi-dwelling housing for the elderly)
- Wetland/Flood Hazard District
- Solar Photovoltaic Facility Overlay District
- Conservation Cluster, Residential Open Space
Community Special Permits

Regulations

- Board of Health
 - Septic, Water Supply, Subdiv Review

A Few Resilient Town Code/Policy Ideas...

- Zero Net Carbon Buildings / Building Energy Decarbonization
- Waste/Trash Reduction
- Municipal EV Fleet Policy
- Municipal Buildings Policy / Commitment to LEED and/or Healthy Building Standards
- Demolition Delay Bylaw
- Embodied Carbon Policy
- Stormwater LID/Nature-Based Solutions in Subdivision Regulations, etc.
- Town-wide Tree Protection Bylaw
- Wetlands Regulations w/local wetlands buffer and additional flood storage requirements
- Dams: proper design and maintenance, most ecologically sound alternatives to dam removal

Discussions

We want to hear your ideas and priorities

Discussion 1 – What do we mean by Resilience?

There are many definitions of resilience and specifically climate resilience. Can anybody put into words what this means for them? Are there some key words that come to mind?

Discussion 1 – What do we mean by Resilience?

Resilience: The capacity of individuals, communities, businesses, institutions, and governments to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruptions to everyday life, such as hazard events.

- MA SHMCAP (2023)

Resilience: 1. the capacity to withstand or to recover quickly from difficulties; toughness.
2. the ability of a substance or object to spring back into shape; elasticity.

- Oxford Dictionary

Resilience: The capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption.

-U.S. Climate Resilience Toolkit

Discussion 2 – What are your Ideas?

- What Carlisle climate resilience issue do you think needs to be addressed in this effort?
- How might that issue be addressed in the local Carlisle bylaws or policies?
- Does it address climate change mitigation, adaptation or both?

Discussion 3 – What are your Priorities?

Given the list of ideas we compiled, do any rise to the top of the priority list?

Discussions – Report Out

We want to hear your ideas and understand your priorities

Next Steps

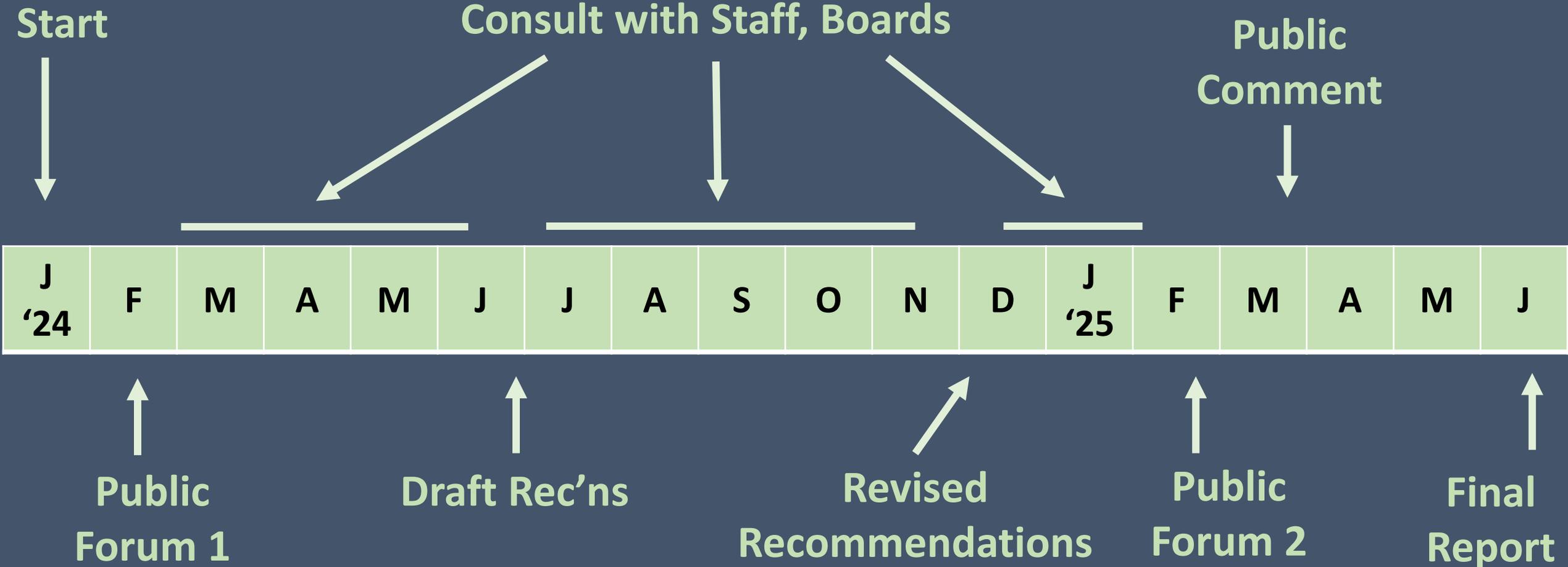
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Climate Resilient Carlisle – Timeline (Est)



Do you have any final questions?

Thank you!!

Contacts:

Julie Mercier, Town Planner, jmercier@carlislema.gov

Ellie Baker, Horsley Witten Group, ebaker@horsleywitten.com