

Fundamental Concepts in Planning for Climate Change



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Principles of Planning

- Comprehensive
- Efficient
- Inclusive
- Informative
- Integrated
- Logical
- Transparent



Climate Change Adaptation



Climate Mitigation – Any measure or action taken to reduce greenhouse gas emissions.

Climate Adaptation – Any measure or action that reduces the negative impacts of climate change or increases new opportunities.

Adaptation and Mitigation are not mutually exclusive!



Why Plan For Climate Change

Positive proof of global warming.



18th
Century

1900

1950

1970

1980

1990

2006

Goal of Adaptation Planning

Developing more “climate resilient” organizations, departments, infrastructure communities, economies, and ecosystems

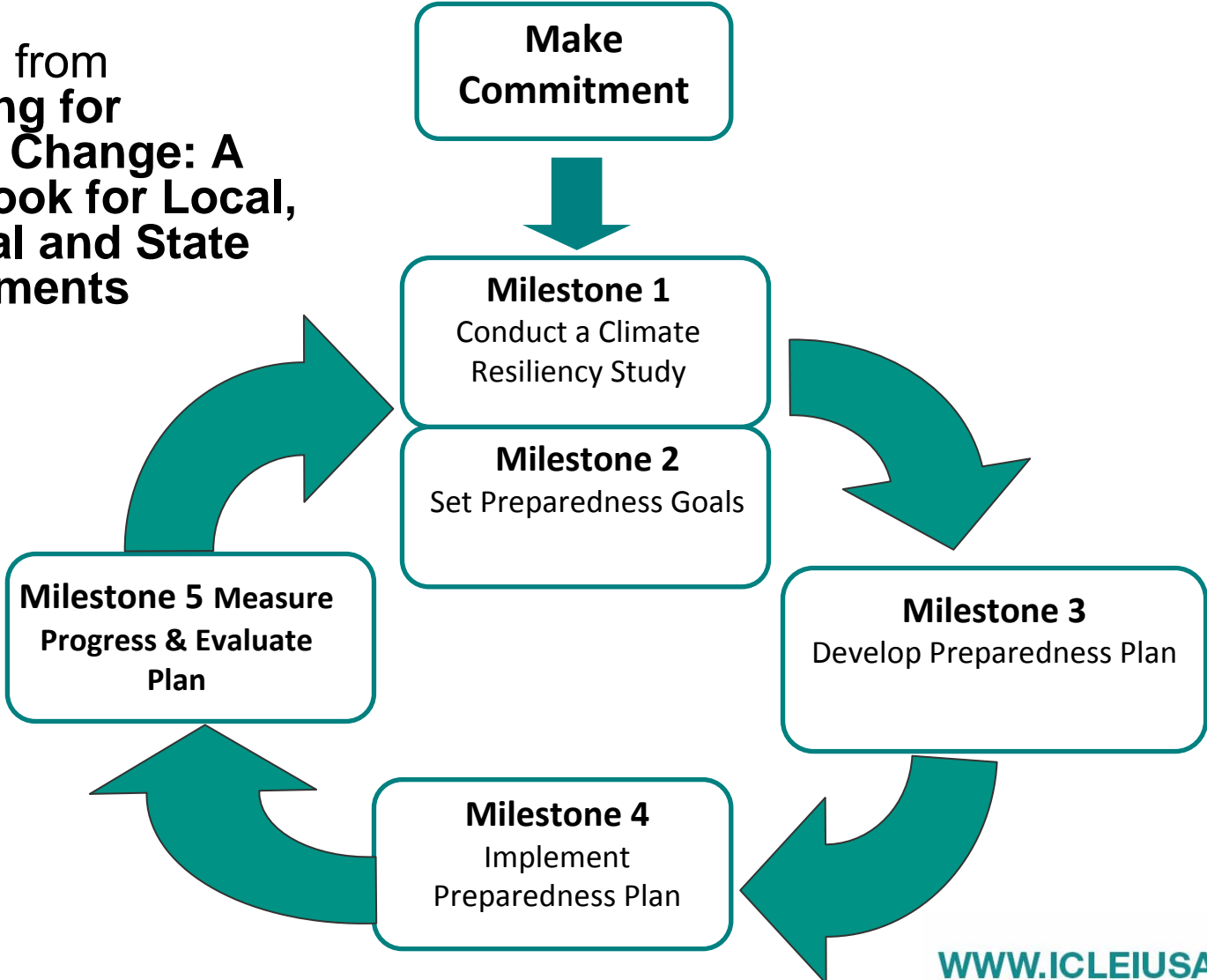
What does this mean?

Ensuring that systems (social, political, economic, natural, etc.) have the ability to absorb, recover, and adapt to climate changes or perturbations that can span multiple combinations, conditions, and timeframes.



Five Milestones for Climate Adaptation

Adapted from
**Preparing for
Climate Change: A
Guidebook for Local,
Regional and State
Governments**



Pre-Milestone One: Getting Started

Identify who should be involved

Begin identifying regional/local changes in climate

- Local climate scientists
- State scientists
- University professors
- Union of Concerned Scientists
- ICLEI's guidebooks

Build support and provide education

Formalize commitment (resolution)

Form and hold first Preparedness Team meeting



Milestone One: Conduct Resiliency Study

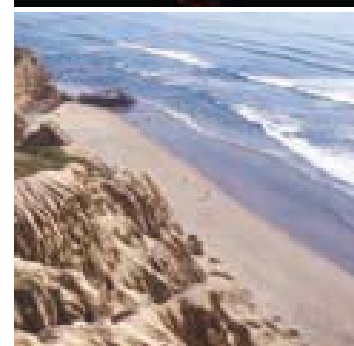
Assess how regional climate is expected to change

Assess regional/community ***impacts*** predicted from these changes in climate

Identify systems that could be impacted (+/-) from forecasted changes in climate

Conduct climate vulnerability assessment (**sensitivity x adaptive capacity**)

Conduct risk assessment (**likelihood x consequence**)



Milestone Two: Establish Preparedness Goals

- Analyze results of vulnerability and risk assessment
- Establish goals for the systems that have the highest vulnerability and risk
- Consider short, medium, and long-term goals
- Consider alignment with existing community goals



Milestone Three: Create Preparedness Plan

- Review goals established for vulnerable and at risk systems
- Identify actions that capitalize on opportunities and reduce vulnerability and risk to climate change
- Prioritize actions
- Draft Adaptation Plan or integrate into existing plans
 - Framework (roadmap) for approaching adaptation
 - Outlines preparedness goals
 - Actions to achieve goals
 - Timelines and associated costs with actions



START

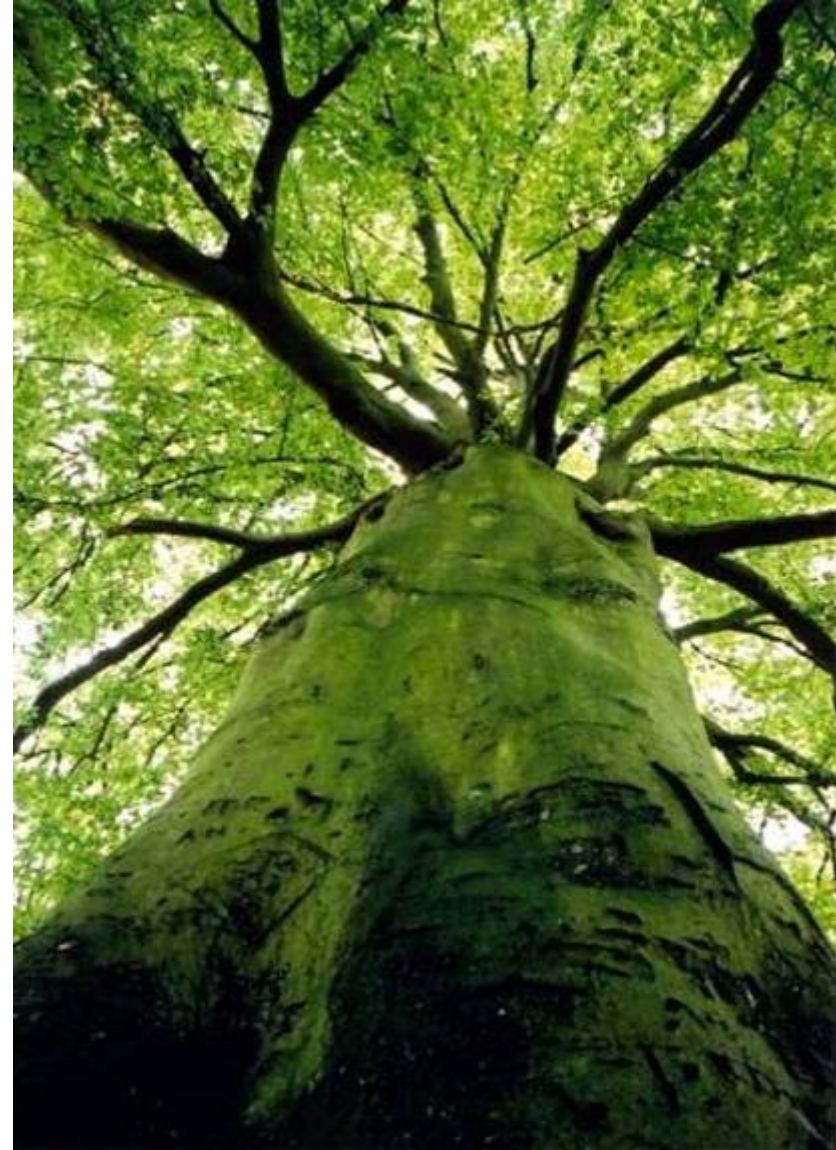
WWW.ICLEIUSA.ORG



Milestone Four: Implement Preparedness Plan

IMPLEMENT identified actions

- Create and adopt policy
- Identify funding, staffing, other resource needs, etc.
- Create a timeline and designate responsibility parties
- Share implementation results with community and ICLEI
- Celebrate successes!



Example: Hull, MA

Building a case for adaptation with 3D photorealistic images of flooding impacts

The Board of Selectman unanimously passed a freeboard incentive - gives citizens up to \$500 in building permit fees if the builder elevates the home 2 feet above the current highest standard



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The following freeboard* incentive is offered in the interests of protecting the health and safety of Hull citizens, preventing property damage, and reducing the need for costly emergency services during storm events.

"For residential and commercial building elevation, or new construction projects, building department permit fees will be reduced by \$500 (or by the cost of the permit, if lower than \$500) if an elevation certificate is provided to verify the building is elevated a minimum of two feet above the highest federal or state requirement for the flood zone. If the base flood elevation on the FEMA November 2008 draft map is higher than the current map, eligibility for the permit fee reduction will be based on the draft map. When an updated map is officially accepted, eligibility for permit fee reduction will be based on the newly approved map. The Building Commissioners will determine whether a permit application is eligible for this freeboard incentive."

Background:

This proposal stems from the Town's work with the StormSmart Coasts technical assistance grant we received from Massachusetts Coastal Zone Management. The grant focuses on helping cities and towns consider actions or policies that will help prepare for future increases in sea level rise. The relevant points are as follows:

- Neither the current nor the draft FEMA flood maps take in to account any amount of sea level rise. They are predictions based on today's conditions.
- Tide gauge data for Boston shows that sea level rose 10 inches over the past 100 years. We don't have comparable New England figures, but on a global level we know that sea level rose at a rate of .07 inch/year from 1961 to 2003 and .12 inch/yr from 1993 to 2003. That is, the rate of increase in sea level is increasing.
- The latest sea level rise predictions for the next 100 years, from the International Panel on Climate Change (IPCC), range from a low of 7 inches to a high of 25 inches. More recent data indicate that sea level rise is currently on a trajectory that would be at the high end of IPCC estimates. In fact, more recent data suggest that the IPCC estimates are conservative.
- The draft FEMA maps are a result of sophisticated engineering modeling, but we can't be certain that they are 100% accurate. Much attention has been focused on areas where people believe the maps are overly conservative (the flood elevations are too high). However, it must be noted that it is also possible that the maps have underrepresented risk in some areas.
- One of the key predicted impacts of a warming climate is an increase in the frequency and intensity of coastal storms.
- Towns do not have the legal right to require that property owners build at elevations higher than the FEMA maps, or other state regulations require. It is, however, permissible to encourage owners to include freeboard in their projects.

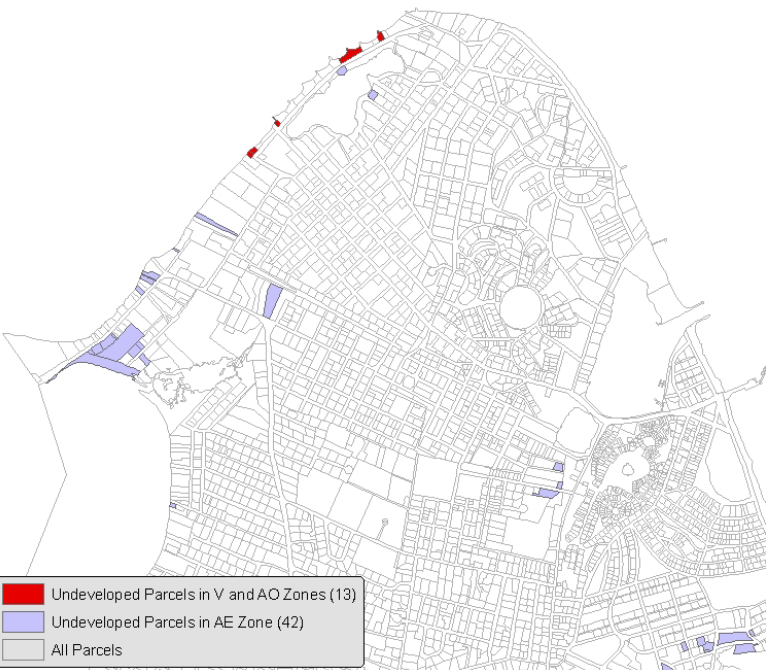
This incentive may be eligible for CRS credit. We wouldn't know until after the next CRS review if we would receive credit, or how much credit we would receive.

*freeboard is the term used when buildings are elevated higher than required by the FEMA flood maps



Example: Oak Bluffs, Massachusetts

"Better" Regulatory Option for New Residential Construction in Oak Bluffs:
Special Permit in A Zone & Prohibited in V and AO Zones



Focused on a floodplain overlay zoning bylaw change

Worked across town boards:

Used a good / better / best framework in conjunction with parcel maps to assist in decision making

Created support for the change through public meetings, letters to the editor and mailings to citizens

The citizens voted to adopt the new bylaw that prohibits new development in the most hazardous flood zones and has a special review process for all flood zones



Milestone Five: Monitor, Evaluate, and Re-Assess

- Continue implementation and keep track of progress
- Report progress to the elected officials, community, funders, and ICLEI (annually)
- 2 to 5 years in – take stock and evaluate focus
- Revisit updated climate forecasts
- Change course, if needed
- Update Preparedness Plan
- Continue to celebrate successes!



Example: Adaptation in Keene, NH

Full Planning Process – looking holistically at climate impacts and vulnerabilities

Member of ICLEI's CRC Pilot

Established Committee of Department Heads to go through process (inc. Mayor, Chief of Police, etc.)

Completed Milestones 1-3; currently in implementation phase

Currently looking to include adaptation in:

- Capital Improvement Program
- Wetlands ordinances
- Land rights issues along watershed
- Culvert studies

Including adaptation and mitigation in Community Visioning and Comprehensive Planning



Questions



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