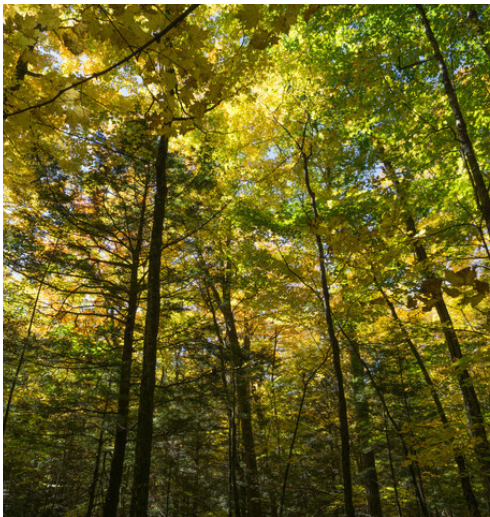


# Forest carbon, net zero, and climate action planning

## Key Considerations for Massachusetts Municipalities



Many governments, businesses, and other organizations are establishing net-zero carbon emissions goals to fight climate change. For towns in Massachusetts, achieving net zero often entails developing a Climate Action Plan, or roadmap to emissions reductions for each sector of the economy.

Reaching net zero will require both reducing emissions that can be reduced, and offsetting those that can't by increasing carbon sequestration through other means. Nature based solutions (NBS) to climate change include protecting the carbon storage and sequestering ability of natural lands, especially forests. Thus, protecting forests and improving their management can contribute to net-zero goals.

### What We Know

Forest carbon storage and sequestration is an important nature-based solution, but there is a limit to how much carbon can be sequestered. NBS by themselves cannot solve climate change; emissions reductions are also necessary. Therefore, forest carbon should only be used to offset emissions that are the most difficult to reduce by other means.

**Management influences forest carbon and resilience**—human actions affect how much carbon is stored in a forest now, how rapidly the forest sequesters carbon, and the stability of both storage and sequestration over the long term (resilience). Climate-smart forestry practices seek to maintain and improve sequestration, storage, and resilience, and include both active and passive approaches.

**Protocols and programs exist for measuring and selling forest carbon**—In Massachusetts, forest carbon projects have been developed for both the voluntary and California regulatory markets, with landowners selling carbon to polluting entities to offset those emissions. Mass Audubon and DCR have developed a guide to forest carbon projects for municipalities.

### What We Don't Know

**Climate regulations are evolving**—Existing frameworks for carbon accounting include both voluntary and regulatory approaches. However, we don't know what the future regulatory environment will look like for emissions reductions in different sectors, and the market or policy mechanisms for doing it—at the state, national, and international level. Future state or national policy may incentivize or disincentivize market approaches to carbon crediting.



## Opportunities for Municipal Action

In absence of state policy, towns have decision-making power about where their emissions are counted. When developing conservation projects or Climate Action Plans to benefit municipal forests, municipalities may consider a variety of actions.

Depending on the goals of your town and the timing of activities, some of these actions may be combined with each other or with a market-based forest carbon offset project. It's important to seek advice early on about the near-term and long-term approaches your town is interested in.

**Conduct a forest inventory.** Perform a GHG [inventory](#) of municipal forest land to determine its [contribution to climate change](#) mitigation in your town—or emissions due to development.

**Plan for climate adaptation.** Get a [Forest Stewardship Climate Plan](#) for any municipal forest land with the help of a licensed consulting forester through the Department of Recreation and Conservation Service Forestry.

**Implement climate-smart forestry practices.** Work with a [licensed consulting forester](#) to implement recommended actions from your Forest Stewardship Climate Plan to boost carbon sequestration or storage and support forest adaptation to climate change.

**Protect existing trees and forest from development.** Keep land forested!

- [Add a Conservation Restriction](#) to any non-protected municipal forest land. Permanent protection of landscapes like [Bear Hole in West Springfield](#) promote key co-benefits like wildlife habitat, flood mitigation, and carbon sequestration—and contribute to municipal resilience.
- [Enact, revise, or strengthen bylaws](#) to support tree planting, maintaining tree cover, and tree protection. [Metropolitan Area Planning Council's Climate Resilient Land Use Strategies tool](#) gives examples of climate resilience bylaws in different sectors. DCR also offers a [guide to bylaws](#) and ordinances focused on trees.
- [Enforce the Wetlands Protection Act](#): Wetlands of all kinds store large amounts of carbon. Protecting wetlands from development means avoiding significant carbon emissions in addition to protecting water quality and biodiversity.

## Key Terms to Know

**Forest carbon project:** an individual, nonprofit, government, or private company commits to managing their forest for carbon sequestration for a specified length of time. The additional carbon produced is quantified and sold as credits to offset the carbon emissions of a polluting entity

**Net zero:** the emissions produced within a jurisdiction are balanced by the amount of carbon sequestered

**Climate action plan:** report that establishes an emissions reduction goal and outlines near and long-term strategies across different sectors of the economy to meet this goal

**Carbon accounting:** the method used to measure and summarize carbon emissions, reductions, sequestration, and storage at a specific level (e.g. individual, company, state)

**Double-counting:** claiming emissions reductions from a carbon project twice

**Carbon storage:** the carbon amassed in a forest that is held in trees, dead wood, leaves, and soil

**Carbon sequestration:** process in which trees take in carbon dioxide from the air and convert it to solid plant tissue in their trunks, branches, roots, and leaves

**Nature-based solutions:** actions that promote the natural benefits of our ecosystems to address environmental challenges or societal needs ([IUCN, 2021](#))

## Opportunities for Municipal Action—Continued

**Increase tree cover in urban areas and underserved communities.** Work to reduce inequities and the urban heat island effect while promoting carbon sequestration, stormwater filtration, flood mitigation, clean air, and community health.

- Conduct an [urban tree inventory](#) or [tree canopy assessment](#), or develop an [urban forest plan](#).
- Develop [forest gardens](#) in underserved neighborhoods to produce food and expand or enhance green space and fostering community resilience.
- Create pocket parks on vacant or ill-sized lots - check out example parks in [Cambridge](#) and [Medfield, MA](#).

**Enhance soil carbon.** The January 2021 [Economic Development Bill](#) included a Healthy Soils Amendment. Massachusetts is now developing a [framework](#) to implement programs like the [MA Coordinated Soil Health Program](#) to improve soil health and enhance carbon sequestration.

**Set up a local carbon fund.** Businesses or individuals within the municipality contribute to emissions reductions projects in the community, such as energy efficiency projects. Example funds include the [Finger Lakes Carbon Fund](#) and the [Monterey Bay Offset Fund](#).

**Develop forest carbon offset project.** This market-based approach offers many benefits: towns can sell their carbon, pay for the project, protect their land for decades, and generate funding for other conservation initiatives. However, if contributing to local emissions reductions is important, buyer location matters. Projects can help municipalities meet net-zero goals, but only if carbon credits are accounted for *within the town*. If a town (or other entity) sells carbon credits to a buyer outside the town, that carbon can no longer be counted towards town-level net-zero goals.

For towns and cities interested in learning more, Mass Audubon is available to consult about different approaches to forest stewardship and protection. Reach out to us to discuss your town's ideas ([climateforestry@massaudubon.org](mailto:climateforestry@massaudubon.org)).

## How to Fund This Work

There are numerous state and federal programs available to fund these activities. Listed below is a snapshot of options and the action pathways that they support.

- **[Forest Stewardship Program \(DCR\)](#):** Plan for climate adaptation, implement climate-smart forestry practices on municipal land
- **[Municipal Vulnerability Preparedness Program \(EEA\)](#):** Supports most action pathways – discuss with your [local representative](#).
- **[Natural Resources Conservation Service](#):** Plan for climate adaptation, implement climate-smart forestry practices on private land, increase tree cover
- **[Greening the Gateway Cities Program](#):** Increase tree cover in urban areas and underserved communities.
- **[City Forest Credits](#):** Develop forest carbon offset project, increase tree cover in urban areas and underserved communities
- **[Community Forest Program](#) | USFS:** Protect trees from development
- **[Northeast Sustainable Agriculture Research and Education](#):** Enhance soil carbon

