

Nature-based solutions

NBS Goal 1: Acton's natural resources are protected, managed, connected, and restored to increase carbon sequestration, equity, resilience, and biodiversity.

NBS Goal 2: Acton increases its waste diversion rate through town-wide programs, bylaws, and policies to streamline, prevent, reduce, reuse, compost, and recycle waste.

NBS Goal 3: Local land use policy encourages affordable, diverse, transit-oriented and net zero housing while also enhancing nature-based solutions.

NBS Goal 4: Acton prepares for climate disruptions, including drought, flooding, more frequent and/or severe storms, extreme heat, and biodiversity loss.

Increase protection of existing open space and potential green spaces throughout town in line with the Open Space and Recreation Plan

NBS1: Prioritize increasing equitable access to green space and water table recharging areas.

Evaluate and set a goal for proximity to parks and open space in Acton for every resident. Similarly prioritize adding green spaces in water table recharge areas where needed. Pursue changes to local policies and programs to advance this goal.

NBS2: Adopt a no net loss policy for trees in the town.

The Town will coordinate with key committees and stakeholders to explore options to establish a no net loss policy for trees, which could include identifying a formula to determine individual and total tree canopy, a formula for replacement canopy, a formula for replacement shrub and groundcovers, and recommendations for implementing the policy in new construction projects. Exceptions could include tree removal in response to natural disasters, standard wildlife management, or actively managed existing utility easements.

NBS3: Develop a tree planting plan.

The Town will develop a plan to identify a target increase in canopy cover based on community needs. Pair the development of the plan with a tree planting campaign to enhance tree care, awareness, and education. Consider trees resilient to climate impacts (disease, shorter cold peaks, drought, etc.).

NBS4: Explore the opportunity to establish a municipal nursery.

The Town will explore options to establish a nursery to provide low maintenance trees at below wholesale prices. These trees will be used on municipal streets, parks, schools, etc.

NBS5: Ensure development is paired with nature-based solutions.

Key Town departments will work with committees and stakeholders to review and assess best development practices from local, regional, state, and federal examples to evaluate existing land use regulations in comparison to these best practices. An example includes adopting a green code that sets minimum requirements for new and existing houses to implement different types of green infrastructure, water-wise landscaping, and native plants within each lot on a points-based system. Another example includes reviewing existing development options such as the Planned Conservation Residential Community (PCRC), which is a type of cluster development, to ensure preservation of open space. Acton's Zoning Bylaw states that the primary purpose of the PCRC, "is to allow residential development that encourages the preservation of open space and thus allows within it the preservation of significant land, water, historic, archeological and natural resources, in a manner consistent with the goals of the Master Plan and the Open Space and Recreation Plan."

NBS6: Review and update bylaws and procedure to incorporate climate change and sustainability considerations (for permitting, planning approvals, etc.).

The Town will work with committees and stakeholders to review best practices from local, regional, state, and federal examples to evaluate existing bylaws and procedures, and suggest updates as necessary.

Spotlight Corner

Stormwater runoff in developed locations is easily polluted and increases pathogens in the surrounding waterways. To help reduce this effect, Provincetown, Massachusetts paved several of their main streets in town using porous pavement that allows up to 80% of annual rainfall to infiltrate to the subsoil. The decrease in stormwater runoff greatly improved the water quality of the Provincetown Harbor.

https://www.epa.gov/sites/default/files/2016-12/documents/ma_provincetown_508.pdf

Support food resilience and sustainable farming practices

NBS7: Provide resources, including financial assistance, to support Community Supported Agriculture (CSA) memberships for low-income residents.

A CSA is a partnership between farmers and consumers who typically want to purchase fresh whole foods that can also support the local economy and often, sustainable growing practices. Consumers typically pay for the season up-front so farmers have enough capital to prepare for the spring. These up-front payments can be cost prohibitive to low-income residents. Other barriers to CSA participation can include the time and knowledge required to prepare whole foods, and transportation, work schedule, and child care challenges that get in the way of picking up deliveries. To reduce some of these barriers, experts recommend offering flexible distribution practices including self-selection of fruits and vegetables, informational outreach about fresh produce seasonality and CSA programs, education and tools to assist with fruit and vegetable preparation, sliding scale pricing or subsidies for low-income families, and Electronic Benefits Transfer (EBT) acceptance for CSA payments. The Town will work with community partners to identify opportunities to make whole foods more accessible while also supporting the local farm economy.

NBS8: Explore opportunities to encourage agrophotovoltaics (APV).

APV, also known as agrivoltaics, is a new opportunity for farms to maximize land use efficiency while generating power for farms, and potentially as an additional revenue stream. Unlike a typical solar field, APV entails spacing and orienting the arrays to allow for sunlight for the crops and more space for free maneuvering of both equipment and people. The Town will work with key stakeholders to explore opportunities to pilot this technology in Acton.

NBS9: Promote programs for farms and restaurants to donate extra food to food pantries or shelters.

The Town will provide information and resources to farms and restaurants interested in donating their food to pantries or shelters. This includes providing an up-to-date list of local food pantries and shelters for restaurants and farms to consider.

Pair Nature-based Solutions with Resilience

NBS10: Ensure town-wide planning efforts incorporate the latest available climate change data and include resilience-focused priorities or strategies.

The Town will incorporate the latest available climate change data, associated risks and impacts when reviewing and updating town-wide plans (e.g., Hazard Mitigation Plan, Municipal Vulnerability Preparedness Plan, Open Space and Recreation Plan, Master Plan, etc.). New implementation actions in these plans will include measures, with a focus on nature-based solutions where feasible, that enhance the Town's climate resilience.

NBS11: Explore opportunities to promote and/or pilot projects with natural carbon sinks and sequestration solutions.

Carbon sequestration is the process in which carbon is captured and stored, which prevents it from releasing into the atmosphere. The Town will work with key partners and organizations working in this space to identify opportunities to create an internal carbon market and/or price to support strategy NBS2 and NBS3.

NBS12: Explore policies and programs to reduce impervious surfaces in line with the Municipal Separate Storm Sewer System (MS4) permit, to allow more greenhouse gas absorption, water recharge, and reduce water pollution.

As stormwater flows, it picks up soil, animal waste, salt, pesticides, fertilizers, oil and grease, litter and other potential pollutants. Green infrastructure or previous pavement can help stop runoff pollution by capturing rainwater and either storing it for use or letting it filter back into the ground, replenishing vegetation and groundwater supplies. The Town will continue to explore ways to reduce stormwater pollution, including the development of a stormwater fee, that can help finance the cost of a stormwater program implementation. Stormwater fees are proportional to the total impervious area on a particular property, including concrete or asphalt driveways and roofs, that do not allow rain to infiltrate.

NBS13: Support sustainable and resilient water management.

The Town will continue to include water management as part of its resilience planning, including the Hazard Mitigation Plan and Municipal Vulnerability Preparedness Plan. The Town will work closely with the Acton Water District (AWD) to continue to explore ways to ensure clean water for current and future generations.

NBS 14: Provide emergency funds to low-income residents to manage climate change related disasters.

The Town will explore best practices to protect vulnerable populations and will incorporate this action into Municipal Vulnerability Preparedness Plan and Hazard Mitigation Plan. The Town will review and explore potential sources of funding, including setting up a city fund supported by a stormwater fee or state or federal funding sources.

NBS15: Explore opportunities to promote eco-roof installations.

An “eco-roof” is a term used to describe a climate-smart roof that provides multiple benefits. Eco-roofs can generate renewable energy, manage stormwater, reduce heating loads in a building, and/or mitigate urban heat island effect, depending on the type of roof installed. The Town will explore establishing an eco-roof requirement for new construction and roof replacements to ensure developers make use of frequently underutilized rooftop space to advance net zero goals and co-benefits. Examples include a roof that is partially or completely covered with vegetation or using white paint to reflect sunlight to increase cooling capabilities of the roof.

Improve and expand services to increase to reduce waste and increase the waste diversion rate

NBS16: Advocate for initiatives that increase waste diversion.

Example initiatives include expanding opportunities for residents to participate in the Town’s pay-as-you-throw (PAYT) program, which charges for the collection of municipal waste, or household trash, based on the amount thrown away. Another example is Extended Producer Responsibility (EPR) policies, which enact product specific and framework legislation to have producers share in the responsibility for product waste management costs, which shift costs from municipalities and give producers the incentive to design products to make them easier to reuse and recycle and less toxic.

Spotlight Corner

To help reduce food waste the city of Cambridge has created a curbside compost collection program. This program is available to any resident who uses the City's trash collection and compost bins and carts are provided. <https://www.cambridgema.gov/Services/curbsidecomposting>

NBS17: Promote a culture of reuse by promoting the swap shop and local businesses that collect used items.

The Town of Acton will conduct outreach to inform residents and businesses of options to donate used items, including the promotion of the swap shop located at the Transfer Station. Acton will also explore the possibility of an exchange center for multi-unit dwellings.

NBS18: Conduct a waste audit in Acton to explore curbside solid waste and recycling collection to reduce waste, increase composting, improve efficiency and reduce emissions.

The Town of Acton will work with the Massachusetts Department of Environmental Protection (MASSDEP) to develop a feasibility study for implementing a town-wide curbside solid waste and recycling collection system, which would include options for PAYT. Acton will include multi-unit dwellings in the study. The Town will also investigate setting a standard for haulers to electrify their vehicles.

Lead by example

NBS20: Transition to electric mowing equipment.

The Town will develop a phased plan to purchase electric mowing equipment for all mowing equipment replacements.



Tom Tidman, Natural Resources Director, and Mel Anderson, Sustainability Fellow, lead residents on a Nature Walk & Talk.

Nature-based Solutions & Waste Diversion

Short = 1-2 years
 Medium = 3-5 years
 Long = 6-10 years

ID	Action	Co-Benefits	Action Type	Implementation Timeline	Municipal Lead Implementers	Potential Community Partners
NBS1	Prioritize increasing equitable access to green space and water table recharging areas.	<ul style="list-style-type: none"> Improves local resilience Improves public health Protects or enhances biodiversity Preserves green and open spaces Centers equity and environmental justice 	Policy / Regulations/ Standards	Short	<ul style="list-style-type: none"> Natural Resources Acton Water District GIS Recreation Sustainability Land Stewardship Committee Conservation Commission DEIC 	<ul style="list-style-type: none"> Green Acton The Nature Conservancy MAPC Mass Audubon
NBS2	Adopt a no net loss policy for trees in the town.	<ul style="list-style-type: none"> Improves local resilience Protects or enhances biodiversity 	Policy / Regulations/ Standards	Short	<ul style="list-style-type: none"> Natural Resources Sustainability Planning DPW Land Stewardship Committee 	<ul style="list-style-type: none"> Green Acton Acton Conservation Trust The Nature Conservancy Mass Audubon
NBS3	Develop a tree planting plan.	<ul style="list-style-type: none"> Improves local resilience Preserves green and open spaces Centers equity and environmental justice 	Policy / Regulations/ Standards	Short	<ul style="list-style-type: none"> DPW Natural Resources Sustainability Land Stewardship Committee 	<ul style="list-style-type: none"> Green Acton The Nature Conservancy
NBS4	Explore the opportunity to establish a municipal nursery.	<ul style="list-style-type: none"> Improves local resilience Preserves green and open spaces 	Feasibility assessment/ Pilot program	Medium	<ul style="list-style-type: none"> Natural Resources DPW Sustainability 	<ul style="list-style-type: none"> Green Acton The Nature Conservancy
NBS5	Ensure development is paired with nature-based solutions.	<ul style="list-style-type: none"> Improves local resilience Improves public health Protects or enhances biodiversity Preserves green and open spaces 	Policy / Regulations/ Standards	Medium	<ul style="list-style-type: none"> Natural Resources Planning Sustainability Acton Water District Conservation Commission Planning Board 	<ul style="list-style-type: none"> Local developers Green Acton Acton Conservation Trust The Nature Conservancy Mass Audubon
NBS6	Review and update bylaws and procedure to incorporate climate change and sustainability considerations.	<ul style="list-style-type: none"> Improves local resilience Improves public health Protects or enhances biodiversity Preserves green and open spaces 	Policy / Regulations/ Standards	Short	<ul style="list-style-type: none"> Sustainability Planning Natural Resources Acton Water District Conservation Commission Planning Board Select Board 	<ul style="list-style-type: none"> Green Acton The Nature Conservancy MAPC Mass Audubon

Nature-based Solutions & Waste Diversion (cont.)

ID	Action	Co-Benefits	Action Type	Implementation Timeline	Municipal Lead Implementers	Potential Community Partners
NBS7	Provide resources, including financial assistance, to support Community Supported Agriculture (CSA) memberships for low-income residents.	<ul style="list-style-type: none"> Improves public health Centers equity and environmental justice 	Financing	Short	<ul style="list-style-type: none"> Sustainability Community Resources Agricultural Commission 	<ul style="list-style-type: none"> Local farms Green Acton Boston Area Gleaners
NBS8	Explore opportunities to encourage agrophotovoltaics (APV).	<ul style="list-style-type: none"> Produce local energy Improves local resilience 	Feasibility assessment/ Pilot program	Medium	<ul style="list-style-type: none"> Sustainability Natural Resources Planning Agricultural Commission 	<ul style="list-style-type: none"> Local farms Boston Area Gleaners
NBS9	Promote programs for farms and restaurants to donate extra food to food pantries or shelters.	<ul style="list-style-type: none"> Improves local resilience Improves public health Centers equity and environmental justice 	Training /Education/ Outreach	Short	<ul style="list-style-type: none"> Sustainability Community Resources Agricultural Commission 	<ul style="list-style-type: none"> Local restaurants and farms Acton Food Pantry, and other food pantries
NBS10	Ensure town-wide planning efforts incorporate the latest available climate change data and include resilience-focused priorities or strategies.	<ul style="list-style-type: none"> Improves local resilience Improves public health Protects or enhances biodiversity Preserves green and open spaces Centers equity and environmental justice 	Policy / Regulations/ Standards	Short	<ul style="list-style-type: none"> Sustainability DPW Fire Police Acton Water District 	<ul style="list-style-type: none"> Green Acton Acton Climate Coalition
NBS11	Explore opportunities to promote and/or pilot projects with natural carbon sinks and sequestration solutions.	<ul style="list-style-type: none"> Improves local resilience Protects or enhances biodiversity Preserves green and open spaces 	Feasibility assessment/ Pilot program	Medium	<ul style="list-style-type: none"> Sustainability Natural Resources Planning 	<ul style="list-style-type: none"> Acton Conservation Trust Mass Audubon
NBS12	Explore policies and programs to reduce impervious surfaces in line with the Municipal Separate Storm Sewer System (MS4) permit.	<ul style="list-style-type: none"> Improves local resilience Protects or enhances biodiversity 	Policy / Regulations/ Standards	Short	<ul style="list-style-type: none"> DPW Engineering Sustainability Acton Water District 	<ul style="list-style-type: none"> MassDEP

Nature-based Solutions & Waste Diversion (cont.)

ID	Action	Co-Benefits	Action Type	Implementation Timeline	Municipal Lead Implementers	Potential Community Partners
NBS13	Support sustainable and resilient water management.	<ul style="list-style-type: none"> Improves public health Centers equity and environmental justice 	Policy / Regulations/ Standards	Long	<ul style="list-style-type: none"> DPW Engineering Sustainability Acton Water District WRAC 	<ul style="list-style-type: none"> Green Acton MassDEP
NBS14	Provide emergency funds to low-income residents to manage climate change related disasters.	<ul style="list-style-type: none"> Improves local resilience Centers equity and environmental justice 	Financing	Medium	<ul style="list-style-type: none"> Sustainability AHA Fire DPW 	<ul style="list-style-type: none"> Committee for Action on Housing and Climate Change HUD
NBS15	Explore opportunities to promote green roof installations.	<ul style="list-style-type: none"> Improves local resilience 	Feasibility assessment/ Pilot program	Short	<ul style="list-style-type: none"> Sustainability Planning 	<ul style="list-style-type: none"> Built Environment Plus Mass Audubon
NBS16	Advocate for initiatives that increase waste diversion.	<ul style="list-style-type: none"> Improves public health Centers equity and environmental justice 	Advocacy	Medium	<ul style="list-style-type: none"> Sustainability DPW Green Advisory Board Select Board 	<ul style="list-style-type: none"> Waste haulers MassDEP MassRecycle
NBS17	Promote a culture of reuse by promoting the community-wide swap shop and local businesses that collect used items.	<ul style="list-style-type: none"> Centers equity and environmental justice 	Training /Education/ Outreach	Short	<ul style="list-style-type: none"> Sustainability DPW 	<ul style="list-style-type: none"> Swap Shop Energize Acton Green Acton E4TheFuture Local donation and reuse centers and businesses
NBS18	Conduct a waste audit in Acton to explore private hauling options to reduce waste, increase composting, improve efficiency and reduce emissions.	<ul style="list-style-type: none"> Improves public health Centers equity and environmental justice 	Feasibility assessment/ Pilot program	Short	<ul style="list-style-type: none"> Sustainability DPW 	<ul style="list-style-type: none"> MassDEP Waste haulers Electric garbage truck companies
NBS19	Ensure recycling options are offered for residents in multi-unit buildings as mandated by the state, and at no cost to low-income residents.	<ul style="list-style-type: none"> Centers equity and environmental justice 	Policy / Regulations/ Standards	Short	<ul style="list-style-type: none"> Sustainability DPW AHA ACHC 	<ul style="list-style-type: none"> Committee for Action on Housing and Climate Change Recycle Smart MA MassDEP MassRecycle
NBS20	Transition to electric mowing equipment.	<ul style="list-style-type: none"> Improves air quality Improves public health 	Policy / Regulations/ Standards	Short	<ul style="list-style-type: none"> Natural Resources Sustainability 	<ul style="list-style-type: none"> Electric lawn mower companies