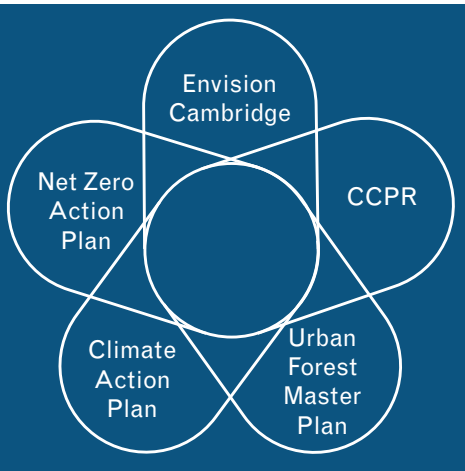
Climate and Environment Plan

Cambridge is a dense, transit-oriented city with a progressive environmental tradition and ambitious environmental planning underway. The City is working to enhance environmental quality for all and decrease its impact on the climate and regional ecosystems. Cambridge's soil, air, water, and waste stream have improved in the decades of regional deindustrialization, growing acknowledgment of environmental issues, and concerted action by local government. However, as the impacts of climate change become more apparent, we must also contend with increased risk of flooding and extreme heat. These risks stem from a changing physical environment, but social and economic conditions will affect who is most impacted by climate change. While Cambridge works to address these issues, the task is complicated by aging infrastructure, our regional role as an economic engine, and the need for regionally and globally coordinated action.



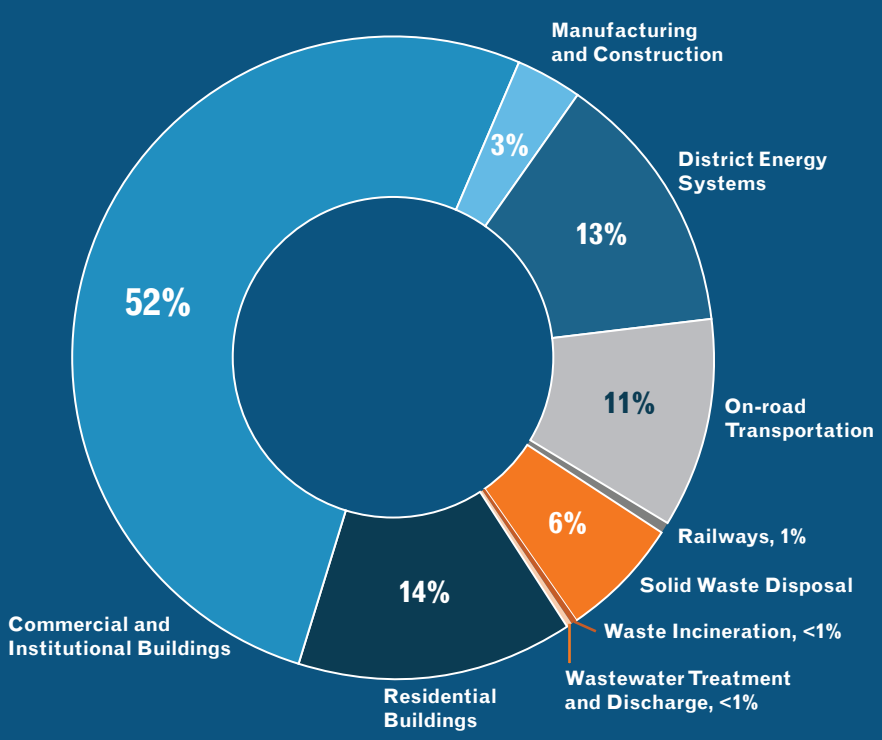
Coordinated Efforts
The City of Cambridge has several current or recent efforts that directly address climate change, including the Climate Change Vulnerability Assessment, Climate Change Preparedness and Resilience Plan, the Climate Action Plan, the Net Zero Action Plan, and the Urban Forest Master Plan. Each of these plans addresses a different aspect of environmental policy, including greenhouse gas emissions reduction, dealing with the risks of climate change, and restoring natural ecologies. Envision Cambridge takes a comprehensive view, tying these plans to changes in development patterns, as well as the aspirations and core values of the Cambridge community.

Climate and Environment

Context

Greenhouse Gas (GHG) emissions in Cambridge by Source, 2012

Source: Cambridge GHG Emissions Inventory, 2017.



"A resilient physical environment nurtures an equitable social and cultural environment."

— Wellington-Harrington resident via online survey

Climate Change Mitigation and Resilience

Climate change impacts are already being felt in Cambridge, and they will become more serious in the coming years. Cambridge will face triple the current number of high heat days by 2030. Extreme heat will be pervasive citywide, but it will have the greatest effect in areas with limited cooling capacity from vegetation, like Alewife and much of eastern Cambridge. The city also faces more regular and more extreme episodes of flooding. Cambridge's riverfront was historically a tidal estuary. After the construction of the Charles River Dam in 1910, areas of marshland were filled and developed for institutional, industrial, and residential uses. Residents of Alewife and the Port are particularly vulnerable to flooding.

Throughout the engagement process, many people expressed a concern about climate change and the City's role in mitigating its impacts. Some participants interacting with the Envision Cambridge Street Team noted the role green infrastructure could play in natural mitigation for extreme heat and flooding. Some public meeting participants said that emergency planning and the creation of resilient communities are important. They stressed that the planning process must accommodate vulnerable people

"The City needs to take a much more aggressive role in creating healthy green spaces, supporting trees, and reducing air, light, and noise pollution."

— Huron Village resident via online survey

Members of the public discuss actions proposed by the Envision Cambridge working groups.

who have fewer resources at their disposal. The City is tackling these issues through the Climate Change Resilience and Preparedness Plan, a process that builds upon the Climate Change Vulnerability Assessment.

Greenhouse Gas Emissions and Renewable Energy

Cambridge has set ambitious energy and greenhouse gas emissions goals, including a plan for net zero emissions from all buildings by 2050. Since buildings generate 82% of greenhouse gas emissions, this is an important goal. Solar energy generation capacity has increased more than 500% since 2010, but this represents only 2% of the city's potential capacity. The electric grid also produces fewer emissions than previously, but these improvements are limited, and Cambridge cannot expect similar progress in the future.

Sustainability and resilience are among the city's core values identified through the Envision Cambridge process. Many survey respondents stated they want the city to fully transition away from fossil fuels to renewable energy. Some of these respondents said they want Cambridge to achieve the present targets, but also do more to craft innovative solutions for emissions reductions and renewable energy.

Waste Reduction

In 2008, the City set a goal of reducing trash by 30% by 2020 and 80% by 2050. As of 2017, trash has decreased by 24%. More than 50% of Cambridge's waste can be recycled or otherwise diverted from landfill or incineration. The City already provides weekly pickup for residential compost and recycling citywide. However, more can be done to ensure all of Cambridge's divertable waste is sustainably disposed of.

Protection of Cambridge's Natural Environment

Cambridge has some of the best natural assets in the region, and residents who engaged with the Envision Cambridge Street Team stressed the importance of both protecting these assets and ensuring greater and more equal access to them. In recent years, the City and its regional partners have improved the water quality in local water bodies, set environmental standards, and established new open spaces. This work has improved Cambridge's natural environment after centuries of air, water, and soil pollution, paving over of green areas, and disruption of local habitats.

Where possible, Cambridge has proactively rebuilt infrastructure and rehabilitated landscapes to reduce pollution and restore ecologies. For instance, the City now plants 300–500 trees per year, and today there are more than 19,000 public trees in Cambridge. However, air and water quality, tree canopy, and impervious surfaces are unevenly distributed across the city's neighborhoods. Investments in natural resources and green infrastructure will make Cambridge healthier, more resilient, and overall a better place to live.

Vision

Cambridge is a sustainable city that cultivates its natural systems, limits its greenhouse gas emissions, and is resilient to the impacts of climate change. The City understands connections between energy consumption, stewardship of natural ecologies, mitigation of extreme weather, and the health and wellbeing of its people. Cambridge actively develops green infrastructure, sets smart environmental regulations, and incentivizes private action to create a sustainable environment for all.

Goals

Climate Action: Achieve carbon neutrality by 2050.	Through a broad-based reduction in energy consumption and investment in sustainable energy, Cambridge can set its course to achieve overall carbon neutrality by midcentury.
Climate Change Preparedness: Protect the lives and livelihoods of the Cambridge community from the impacts of climate change.	Cambridge must adapt its current physical and social infrastructure to protect the community—especially its most vulnerable populations—from the risks associated with climate change.
Ecological Protection: Preserve and enhance Cambridge's biodiversity, open spaces, and habitats.	Cambridge must reduce pollution, restore ecosystems, and create a symbiotic relationship between the built and natural systems that comprise Cambridge's environment.
Water Quality: Maintain sustainable water resources and enhance water quality.	Cambridge should preserve its water resources though reduced water usage, elimination of point-source water pollution, and aggressive stormwater runoff management.
Waste Management: Minimize waste generation and eliminate landfill waste.	Cambridge should limit its impact on local and global ecosystems by reducing the overall production of waste—including recyclables, compostables, and trash—and diverting the remaining waste away from landfills.
Environmental Justice: Ensure that all Cambridge residents are protected from environmental impacts and benefit equally from environmental resources.	The benefits of a healthy environment should be shared by everyone in Cambridge, including all residents, workers, students, and visitors, regardless of their background and identity.

Connections to Our Core Values

Outlined here are key ways that the core values of the Cambridge community, identified through the Envision Cambridge process, are reflected in the Climate and Environment goals and recommendations. For more about the community's vision and core values, see page 26.

Livability: We value a vibrant built and natural environment and support sustainable transportation with affordable and convenient access to daily needs and recreational resources.

This section focuses on strategies and actions to improve Cambridge's climate resilience and reduce our ecological footprint, which serve to enhance livability. Efforts to reduce air, water, light, and noise pollution and waste bring with them overall improvements to quality of life.

Diversity and Equity: We are a welcoming community that celebrates our diversity and ensures access to affordable housing choices and opportunities to succeed.

As we work toward enhancing environmental quality and addressing the risks of climate change, this section recognizes that we must work with the entire Cambridge community. Recommendations included here speak to keeping a focus on environmental justice and social equity to ensure that all Cambridge residents are protected from environmental impacts and benefit equally from environmental resources.

Economic Opportunity: We provide opportunity and stability through access to quality jobs, workforce development and training, and livable wages that support economic security for residents.

Recommendations in this section recognize that employees and businesses have a role in, and benefit from, efforts to create a more sustainable and resilient community that is prepared for, and will more readily recover from, social and physical impacts of climate change. These efforts will involve work across sectors and will include opportunities to develop green infrastructure, create smart regulations, and support public-private-institutional participation in problem solving.

Community members and the Envision Cambridge Streets activity.

Community members write their thoughts about the city's future on the Mobile Engagement Station in Lafayette Square.

Sustainability and Resilience: We take responsible action to reduce our impact on the environment and build a resilient city and strong community.

This section focuses on building upon Cambridge's progressive environmental tradition and ambitious environmental planning currently underway to help us continue to reduce our impact on the environment, and to prepare for and mitigate the impacts of climate change. These efforts involve collective action at scales ranging from hyperlocal to regional to global, and they can also help to foster social resilience.

Community Health and Wellbeing: We promote healthy and active lifestyles in supportive, safe community with diverse opportunities to connect with our neighbors and nature and to engage in civic life.

Ecological sustainability and preparedness for the impacts of climate change include changes to infrastructure and the built environment, but also highlight the importance of the social fabric to protect our community—and especially the most vulnerable—from the risks of climate change. Recommendations in this section encourage forging connections with neighbors to foster community resilience.

Learning: We embrace lifelong learning and celebrate art and creativity in our culturally rich community.

In the arena of evolving climate science, we learn together as we develop an understating of the impacts of climate change and action, cultivate greater community awareness of the impacts, and frame policies, including those recommended in this section. This is particularly important as climate actions and solutions span a wide range of scales—from regional interventions to collective and individual action.

Strategies & Actions

1 Accelerate the transition to net zero greenhouse gas emissions for all buildings in the city.

The City has a goal of net zero GHG emissions from all buildings by 2050. It can help achieve this goal by moving its own operations to renewable energy, incentivizing net zero adoption, and modifying regulations to allow for or require sustainability improvements for new and existing buildings.

Net Zero Action Plan
The Cambridge Getting to Net Zero Task Force convened in 2013 to create a plan to reduce net GHG emissions from buildings to zero. The City Council adopted the Task Force's recommendations as the Net Zero Action Plan in 2015. The plan's actions include building retrofits, new construction standards, a low-carbon energy supply strategy, and more.

Action	Action Type	Status	Completion Timeframe
Establish a solar and/or cool roof requirement for new construction in all zoning districts.	Zoning changes	New	Near term
Participate in statewide working groups to develop safety and performance codes and standards for energy storage systems. Once established, adopt those codes locally.	Regional partnerships	New	Near term
Establish demonstration projects for safe energy storage systems.	Capital investments	New	Near term
Investigate outcome-based requirements for GHG emissions in new buildings.	Study or plan	New	Near term
Implement community solar demonstration projects.	Capital investments	New	Near term
Develop architectural green guidelines (i.e. desirable materials, amount of glass, etc.) to complement Article 22: Sustainable Design and Development.	Other regulatory changes	New	Near term

1 Accelerate the transition to net zero greenhouse gas emissions for all buildings in the city. (Continued)

Action	Action Type	Status	Completion Timeframe
Offer a density bonus incentive through zoning for net zero projects until net zero requirements are in place for each building type.	Zoning changes	New	Medium term
Procure 100% of municipal electricity from renewable sources.	Programs and operations	New	Medium term
Streamline existing efforts to expand access to energy-efficiency funding and technical assistance, including supporting expanded use of Property Assessed Clean Energy (PACE) to finance retrofits.	Community interface and outreach	Expanded	Ongoing
Revise Article 22 of the zoning ordinance: Sustainable Design and Development to require higher levels of green building design and energy efficiency for new construction and major renovations.	Other regulatory changes	Expanded	Ongoing
Implement the Net Zero Action Plan, a comprehensive set of strategies aimed at achieving net zero emissions from building operations.	Programs and operations	Existing	Ongoing
Regularly update the Climate Action Plan.	Study or plan	Existing	Ongoing
Continue to offer the Cambridge Community Electricity Aggregation program.	Programs and operations	Existing	Ongoing
Work with the Commonwealth to advocate for a stronger Renewable Portfolio Standard and more stringent cap levels for the Regional Greenhouse Gas Initiative.	Regional partnerships	Existing	Ongoing
Require buildings to report energy use.	Other regulatory changes	Existing	Ongoing
Implement the recommendations of the Low Carbon Energy Supply Strategy.	Programs and operations	Existing	Ongoing

2 Reduce transportation-related greenhouse gas emissions.

Electric vehicle charging stations in a Cambridge parking lot.

After buildings, transportation is the largest producer of greenhouse gas emissions in Cambridge. In the mobility section, Envision Cambridge proposes a number of actions that will grow the proportion of people making mobility choices which produce no or few GHG emissions, while reducing traffic and improving public health. *See the chapter "Mobility" on page 157 for this plan's mobility recommendations.* Cambridge should take additional action to reduce GHG emissions from transportation through planning, policy, and infrastructure investment.

Action	Action Type	Status	Completion Timeframe
Develop a zero emissions transportation plan, addressing both mode shift and zero emissions vehicles.	Study or plan	New	Near term
Develop a pilot program to experiment wth electric vehicle charging technology integrated into streetlights.	Capital investments	New	Near term
Require electric vehicle charging infrastructure in new buildings.	Zoning changes	New	Near term
Install high-visibility electric vehicle charging stations at publicly accessible locations.	Capital investments	Expanded	Near term
Reduce vehicle miles traveled (VMT).	Programs and operations	Existing	Ongoing
Promote a shift to electric/clean emissions vehicles.	Programs and operations	Existing	Ongoing

3 Restore and grow Cambridge's green infrastructure and tree canopy, and support biodiversity.

The reconstructed wetland at Alewife Brook, an example of green infrastructure, attenuates and treats stormwater, enhances wildlife habitats, and provides recreational and educational opportunities for Cambridge residents and visitors.

"Green infrastructure" takes advantage of living ecosystems and habitats to accomplish important ecological functions, such as cooling the city during extreme heat events, absorbing water during storms and floods, or filtering out noxious chemicals from the air. Green infrastructure can be as small as a street median planting or as large as a wetland. Large-scale green infrastructure can sometimes double as recreation space for the community. Cambridge should restore existing green infrastructure and increase investment in new green infrastructure, especially in areas that lack existing tree canopy or permeable surface.

Action	Action Type	Status	Completion Timeframe
Implement recommendations from the Urban Forest Master Plan.	Capital investments	New	Ongoing
Commission a study to collect local air quality data and recommend indicators, targets, and data collection methods for the City to adopt on a permanent basis.	Study or plan	New	Near term
Assess opportunities to enhance habitat for local flora and fauna on public and private properties in Cambridge.	Study or plan	New	Near term
Evaluate strategies for increasing open space requirements and limiting the creation of impervious surfaces.	Study or plan	New	Near term
Purchase additional land for use as open space, and prioritize locations that improve open space connectivity and increase public access.	Capital investments	New	Long term

Action	Action Type	Status	Completion Timeframe
Incorporate green infrastructure into City park, open space, sidewalk, and street reconstruction projects as conditions and space allow.	Capital investments	Expanded	Near term
Develop an urban forest master plan that establishes tree canopy expansion and tree planting goals by neighborhood.	Study or plan	Existing	Ongoing
Restore watersheds.	Capital investments	Existing	Ongoing
Promote and improve the quality and diversity of public planting.	Programs and operations	Existing	Ongoing
Implement the Fresh Pond Reservation Master Plan.	Capital investments	Existing	Ongoing
Implement the Charles River Basin Master Plan.	Capital investments	Existing	Ongoing
Implement the Alewife Reservation Master Plan.	Capital investments	Existing	Ongoing
Create and implement an Open Space and Recreation Seven-Year Action Plan.	Capital investments	Existing	Ongoing

"We need more trees and more green space."

—North Cambridge resident via online survey

4 Modernize emergency management systems and existing infrastructure to respond to climate change impacts.

The "new normal" of climate change will be marked by extreme weather events and natural disasters that particularly impact the most vulnerable populations. Cambridge is already undertaking an extensive process, the Climate Change Preparedness and Resiliency (CCPR) Plan, to prepare to mitigate the impact of these extreme events through improvements to the built environment. Cambridge should address regulatory barriers to climate adaptation and implement innovative and district-level approaches to emergency management. Historic building retrofits should emphasize mitigation techniques while maintaining historic integrity.

"We need a clear understanding of the effects and timeframe of climate change, and our options to prevent some of the effects."

—Neighborhood Nine resident

Action	Action Type	Status	Completion Timeframe
Develop disaster preparedness plans at the neighborhood level in conjunction with neighborhood organizations, service providers, public housing residents, and other vulnerable populations.	Study or plan	New	Ongoing
Leverage new communication technologies to alert residents and workers by geography of risks in the event of an emergency (e.g., text message).	Community interface and outreach	New	Near term
Specifically serve low-income/high-vulnerability individuals and public housing residents with targeted preparedness and outreach programs (CCPR).	Programs and operations	New	Near term
Study regulatory barriers and identify potential leverage points and sources of incentives for adaptive retrofits for existing buildings (utility placement, floodable ground floors, etc.).	Study or plan	New	Near term
Create "resiliency hubs," or community centers that coordinate local emergy responses during disasters and hazardous events, within a half-mile of all housing units.	Capital investments	New	Long term
Establish a network of temperature sensors at the pedestrian level to track heat island impacts.	Capital investments	New	Long term

Action	Action Type	Status	Completion Timeframe
Assess Cambridge's climate risks and vulnerabilities.	Study or plan	Existing	Ongoing
Participate in Arlington Belmont and Cambridge (ABC) Flooding Board.	Regional partnerships	Existing	Ongoing
Conduct outreach campaigns about property-level flood vulnerability and mitigation strategies.	Community interface and outreach	Existing	Ongoing
Develop a citywide preparedness and resilience plan.	Study or plan	Existing	Near term

The Alewife Quadrangle has large amounts of impervious surface and little tree canopy, making it vulnerable to climate-related natural disasters.

5 Reduce solid waste generation and divert recyclable and organic waste from landfills or incineration.

A large portion of Cambridge's waste can be recycled or otherwise diverted from landfills or incineration. The City provides weekly citywide pickup for residential compost and recycling.

However, more should be done to ensure all of Cambridge's divertable waste is disposed of sustainably. New approaches to commercial waste are particularly important.

"Waste reduction, especially eliminating food waste, is a top priority."

—The Port resident

Action	Action Type	Status	Completion Timeframe
Require new developments to submit a waste management plan to ensure adequate space for recycling and organics infrastructure.	Other regulatory changes	New	Near term
Study the feasibility of different programs to incentivize trash reduction without causing a disparate impact on low-income communities.	Study or plan	New	Near term
Advocate for statewide Extended Producer Responsibility (EPR) programs and policies.	Regional partnerships	New	Near term
Mandate and enforce residential and commercial food waste diversion.	Other regulatory changes	New	Medium term
Institute commercial waste zones with reporting requirements.	Other regulatory changes	New	Long term
Maximize recycling rates across all sectors by stepping up enforcement and education.	Community interface and outreach	Expanded	Ongoing
Add recycling bins around the city in places where there are only waste bins.	Capital investments	Expanded	Ongoing

Citywide Curbside Composting

In 2008, the City set a goal to reduce residential trash disposal by 30% by 2020, and by 80% by 2050. Removing food scraps reduces trash in landfills. By diverting our food scraps, we are helping protect the environment by:

- Reducing our impact on climate change. Our food scraps become clean energy through anaerobic digestion.
- Returning nutrients to the Earth in the form of fertilizer.

In April 2018, Cambridge expanded its curbside organics collection program to the entire city. In the citywide program's first four months, more than one million pounds of food scraps were diverted from landfills, reducing the City's trash by 9%.

Action	Action Type	Status	Completion Timeframe
Expand curbside organics collection citywide.	Programs and operations	Existing	Ongoing
Implement a food waste education program in public schools.	Community interface and outreach	Existing	Ongoing
Prohibit polystyrene food service containers.	Other regulatory changes	Existing	Ongoing
Encourage recycling via single-stream collection.	Community interface and outreach	Existing	Ongoing

6 Reduce air, light, water, and noise pollution.

Cambridge has made progress in recent decades to limit pollution of the city's natural environment and restore the quality of natural resources. These efforts include protection and restoration of air, water, and soil systems vulnerable to chemical pollution, as well as protection from non-chemical light and sound pollution experienced in urban environments. The City should continue to act as a steward of the environment by cleaning up existing pollution, reviewing projects that could potentially pollute, and studying new ways to limit pollution.

Action	Action Type	Status	Completion Timeframe
Evaluate environmental impacts and heat vulnerability of artificial turf and other man-made materials used in parks and playgrounds.	Study or plan	New	Medium term
Combat light trespassing, light pollution, and energy waste.	Community interface and outreach	Existing	Ongoing
Monitor hazardous waste reporting and remediation.	Programs and operations	Existing	Ongoing
Ensure that new development and infrastructure projects undergo a review to ensure they do not result in noise pollution that could interfere with the comfortable enjoyment of life in Cambridge.	Other regulatory changes	Existing	Ongoing

7 Reduce potable water demand.

Water remains a precious resource everywhere, and Cambridge should use the least amount of water necessary. Reducing unnecessary water consumption will require action by the City, private property owners, businesses, and individuals. Innovative use of 'greywater' can help limit demand for potable water.

Water Use Disclosure
As a result of the 2014 Building Energy Use Disclosure Ordinance, properties with large buildings (or a large collection of buildings) must report their annual water usage (in addition to energy usage) to the City each year. The City compiles this data and produces a report each year. These data can help the City identify uses that consume a great deal of water and take action where appropriate.

7 Reduce potable water demand. (Continued)

Action	Action Type	Status	Completion Timeframe
Study Cambridge's greywater supply assets and non-potable demand.	Study or plan	New	Near term
Require buildings to report water use.	Other regulatory changes	Existing	Ongoing
Conduct water conservation outreach.	Community interface and outreach	Existing	Ongoing

8 Manage stormwater with public investment in stormwater infrastructure and maintenance.

The City has increased its sewer separation and stormwater management efforts because of stricter environmental compliance regulations and a desire to provide a better quality to residents' daily lives. These efforts aim to improve the water quality of waterways in Cambridge, reduce or eliminate combined sewer overflows, reduce or eliminate sanitary sewer backups, and reduce flooding.

Action	Action Type	Status	Completion Timeframe
Implement Cambridge's Stormwater Management Plan.	Programs and operations	Existing	Ongoing
Separate the combined sewer system into storm and sanitary systems.	Capital investments	Existing	Ongoing
Mandate stormwater management for private developments.	Other regulatory changes	Existing	Ongoing
Partner with private property owners to implement stormwater management strategies that exceed City requirements.	Programs and operations	Existing	Ongoing
Implement the Surface Water Protection Plan.	Other regulatory changes	Existing	Ongoing

9 Work with the entire Cambridge community to strengthen the City's climate and environment initiatives.

Governance is most successful when residents and stakeholders can meaningfully weigh in and affect the City's decisions. Cambridge should continue to engage the community in its environmental policymaking and it should expand the universe of stakeholders who are involved in achieving the community's climate goals.

> "Engaging in civic life is the most important. We must make sure all ages are engaged and heard in the community."
>
> —Wellington-Harrington resident via online survey

Action	Action Type	Status	Completion Timeframe
Engage large institutions to collaborate to advance building energy efficiency, reduce waste, and green their supply chains (i.e. EcoDistricts, Cambridge Compact for a Sustainable Future).	Regional partnerships	New	Near term
Continue to work with the Climate Protection Action Committee.	Community interface and outreach	Existing	Ongoing
Continue to work with the Bicycle Committee.	Community interface and outreach	Existing	Ongoing
Continue to work with the Pedestrian Committee.	Community interface and outreach	Existing	Ongoing
Continue to work with the Transit Advisory Committee.	Community interface and outreach	Existing	Ongoing
Continue to work with the Recycling Advisory Committee.	Community interface and outreach	Existing	Ongoing
Continue to work with the Committee on Public Planting.	Community interface and outreach	Existing	Ongoing

Solar panels on a residential rooftop in Cambridge.

10 Communicate to the public the City's climate and environment initiatives and the environmental impact of policy decisions.

Cambridge has many progressive environmental policies and programs, but not everyone in the city knows how to take advantage of them. The City should expand opportunities to inform the community of its work and collect feedback on these initiatives. Furthermore, the City should analyze and properly communicate the environmental costs of any proposed policy or program while crafting that policy or program.

Action	Action Type	Status	Completion Timeframe
Establish a coordinated outreach and engagement approach, including the use of volunteers, regarding environmental programs and issues.	Community interface and outreach	New	Ongoing
Develop and implement a cost/benefit methodology for City capital allocation/budgeting processes that allocates monetary value to environmental benefits.	Other regulatory changes	New	Medium term
Connect home and business owners with information on existing incentive programs and financing for energy upgrades to their buildings through the Cambridge Energy Alliance program.	Community interface and outreach	Existing	Ongoing

Indicators and Targets

Citywide Greenhouse Gas Emissions

Cambridge is working to reduce greenhouse gas emissions to limit the city's impact on climate change. This indicator demonstrates the City's efforts to mitigate greenhouse gas emissions.

Indicator	2012 Baseline	2030 Target
Community-wide greenhouse gas emissions	**1.46** million metric tons of CO_2 equivalent	**0.77** million metric tons of CO_2 equivalent

Source: City of Cambridge Community Development Department

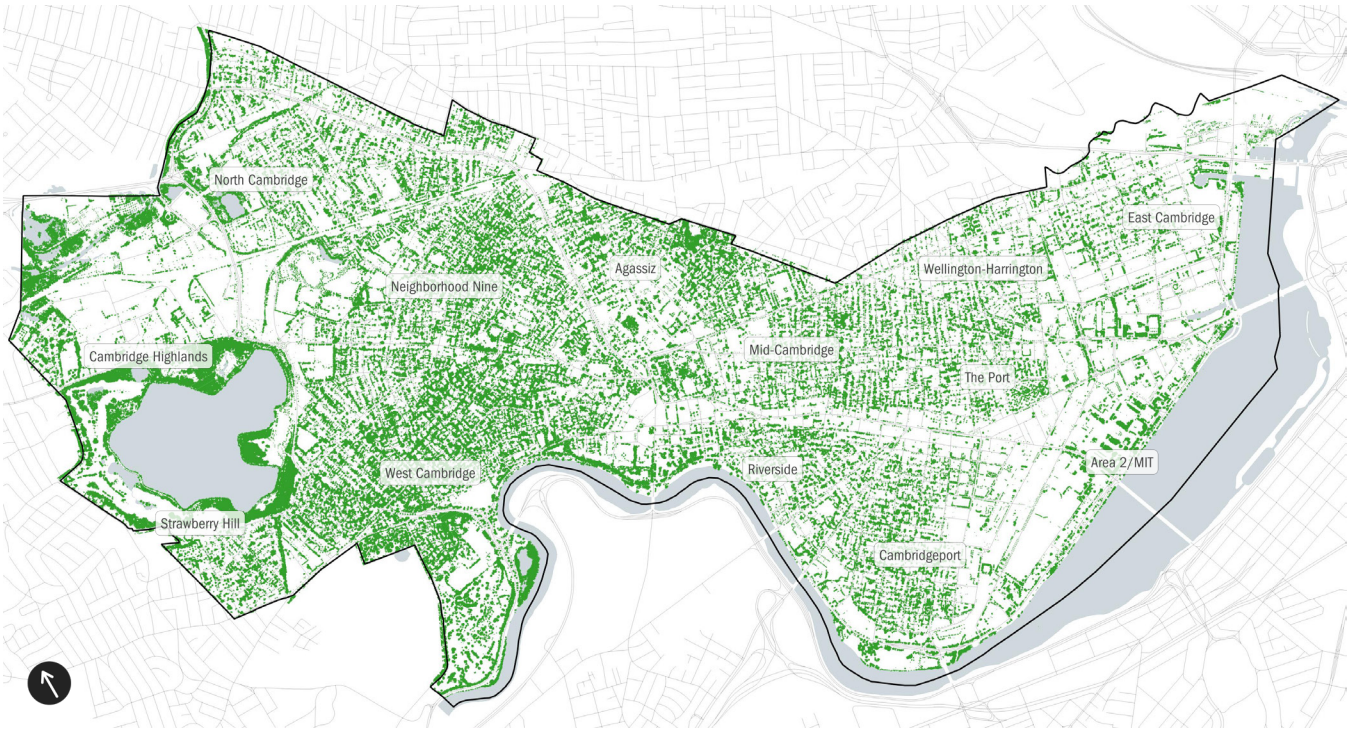
Roof Conditions

Approximately 27% of Cambridge is covered in buildings. Building roofs represent a large area that can become more sustainable and resilient. Strategies to make these spaces more sustainable include green roofs, which are planted and provide benefits for both heat and stormwater; white roofs, which are made of high albedo materials that reflect, rather than absorb, sunlight; and blue roofs, which capture stormwater. Cambridge is working to collect data on roof conditions in order to better track sustainable roofs citywide.

Indicator:	Baseline	2030 Target
Percent of roof area that is covered in green roofs	*The City plans to collect a baseline measurement for this indicator.*	*This targets will be set once initial data is collected.*
Percent of roof area covered in high albedo surfaces	*The City plans to collect a baseline measurement for this indicator.*	*This targets will be set once initial data is collected.*

Tree Canopy Coverage by Neighborhood

This indicator provides insight into the success of actions to preserve and expand Cambridge's tree canopy, particularly in neighborhoods that currently lack trees. These efforts benefit the natural environment and contribute to general quality of life.



Citywide Tree Canopy Coverage, 2014

Source: Cambridge Community Development Department

Indicator	2018 Baseline	2030 Target
Tree canopy coverage	**26%**	*Targets to be established by the Urban Forest Master Plan in 2019.*

Source: City of Cambridge Department of Public Works

Impervious Surfaces

Impervious surfaces create numerous environmental problems, including limiting natural filtration of stormwater into soil and absorbtion of heat from the sun, generating an "urban heat island." Impervious surfaces can include buildings, streets, parking lots, and other paved areas.

Citywide Impervious Surface

Source: Cambridge Community Development Department

Indicator:	2017 Baseline	2030 Target
Percentage of land area covered by non-building impervious surfaces	**39.8%**	**36%**

Flood Risk

As the climate changes, Cambridge will be more at risk of flooding, both from stormwater during major storms and the combined effects of sea level rise and storm surges. Some parts of Cambridge are more at risk than others. This indicator tracks our success at adapting to this risk through infrastructure investment and regulation.

Some areas of Cambridge, including Alewife (pictured), are particularly at risk of flooding, due to their low elevations, poor drainage, and risk of failure of legacy flood protection infrastructure.

Indicator	2016 Baseline	2030 Target
Percentage of land area at risk of flooding due to a 10-year storm (a storm with 10% chance of occurring in any given year)	5%	4%
Percentage of land area at risk of flooding due to a 100-year storm (a storm with 1% chance occurring in any given year)	15%	13%

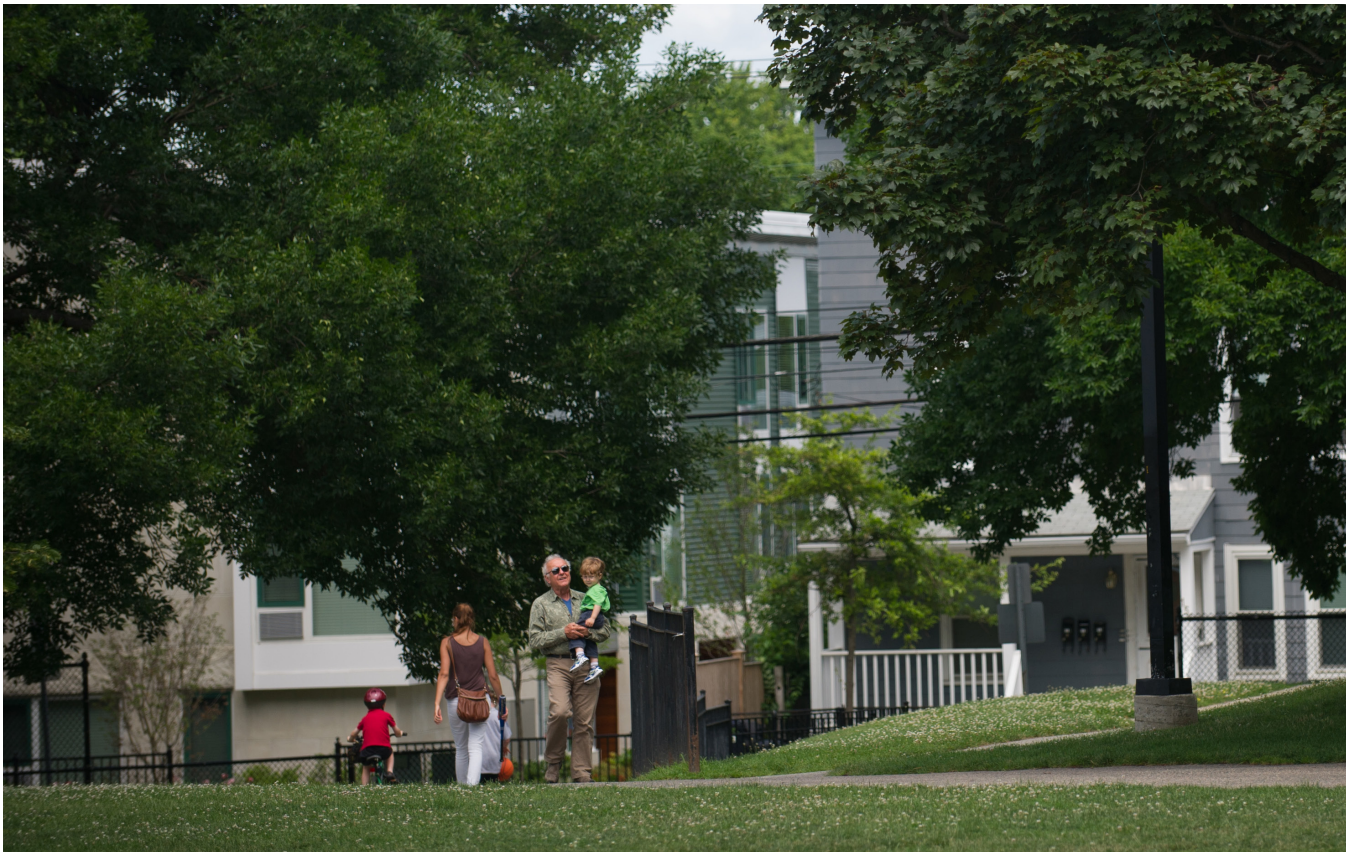
Source: City of Cambridge Community Development Department

Provision of Open Spaces

Open spaces serve a crucial role in urban environments. These landscapes filter air, help to infiltrate stormwater, relieve the urban heat island effect, and more. Of course, they are also important gathering spaces for people. As Cambridge grows, it is imperitive that the amount of open space relative to the number of people remains at a healthy level. This indicator tracks the amount of space. Though privately owned public spaces are also an important component of Cambridge's open space inventory, this indicator specifically tracks the amount of publicly owned open space.

Indicator	2014 Baseline	2030 Target
Acres of publicly owned open space	**446** acres	**462** acres

Source: City of Cambridge Community Development Department



Community members enjoying Raymond Park in Neighborhood Nine.

Trash Collection

This indicator provides insight into the City's efforts to reduce and divert waste from landfills via recycling and separation of organics from other waste streams. Reducing the amount of trash produced per household contributes to a zero-waste future in Cambridge.

Solid waste collection now includes trash, recycling, and compost.

Indicator	2017 Baseline	2030 Target
Pounds of trash collected per household per week	**17.3** pounds	**12** pounds

Source: City of Cambridge Department of Public Works

Potable Water Use

Tracking the total consumption of potable water will provide insight into conservation and efficiency efforts. These efforts contribute to a more sustainable future for Cambridge.

Indicator:	2017 Baseline	2030 Target
Average daily potable water use by billed usage	**12.9** million gallons	*Change at a rate slower than increases in population and employment.*

Source: Cambridge Water Department


Harberly Farms
AMBRIDGE
ARTS
CREA
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CAMBRIDGE | ARTS