

# Memo

**To:** Richard Rossi  
**From:** Susanne Rasmussen  
**CC:** Lisa Peterson, Brian Murphy, Iram Farooq  
**Date:** April 30<sup>th</sup>, 2014  
**Re:** Climate Protection Action Committee: Recommended goals and objectives.

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The Climate Protection Action Committee (CPAC) is an advisory body appointed to assist the City with identifying and prioritizing the implementation of climate protection policies, strategies, and measures. CPAC is recommending that the City Council adopt a set of climate protection goals and objectives for 2020 to provide the City with a framework to prioritize actions to address climate change.

In 2008, as the initial 2010 target year for reaching GHG reductions was approaching, the CPAC committee developed an interim evaluation of progress since 2002. The evaluation identified barriers and challenges to achieving and measuring GHG emissions reductions, and prioritized potential solutions and actions to achieve GHG emissions reductions. The result was the “2009 Interim Recommendations on Moving Cambridge Forward on Climate Protection”. In 2010 CPAC also published “Recommendations for Adaptation to Climate Change” calling for more aggressive action specific to climate change adaptation. These documents have provided interim guidance to the City administration’s work in GHG emissions reduction and climate change adaptation.

Since CPAC’s last recommendation in 2010, the concentration of climate changing GHGs in the atmosphere has continued to rise, driven by daily energy-consuming activities. Globally, the trend in emissions is occurring at a rate that equates to the high emission scenarios used in climate models. These climate models predict potentially catastrophic effects, including severe weather impacts, flooding, droughts and sea level rise. Based on the findings of the Intergovernmental Panel on Climate Change, the National Academy of Sciences, and the National Climate Assessment, the effects of increasing concentrations of GHGs in the atmosphere are already being felt in terms of changes in temperature, precipitation, and extreme weather. The degree to which our climate continues to change in the future will be determined by the amount of GHGs that are emitted to the atmosphere from human activities.

As climate change becomes more apparent and more destructive, it is important that Cambridge continue to pioneer and implement GHG reduction strategies and climate change preparedness measures. Building on the interim recommendations of 2009 and 2010, CPAC has developed new climate protection goals and objectives to guide the City as it continues to strive towards

GHG emissions reduction and climate change preparedness. These goals and objectives provide a framework for identifying and prioritizing specific actions in a manner that is flexible and responsive to opportunities, challenges, and innovations that will emerge. The Climate Action Protection Committee recommends that these goals and objectives be presented to the City Council for formal adoption.

CPAC suggests that the City respond to the threat of climate change in a two-fold manner:

- Work must continue to reduce Cambridge's GHG emissions. While Cambridge's contribution of GHGs to the atmosphere is only a small portion of global GHG emissions, the City should lead efforts to develop GHG emission reduction strategies that can be replicated in municipalities across the country and the world. The technological and social innovation that Cambridge is known for can provide solutions and best practices that achieve significant GHG emissions reductions and eventually, greenhouse gas concentration reductions.
- The City must also begin to prepare for the unavoidable impacts of climate change. Cambridge is developing and will implement a preparedness plan that increases Cambridge's resiliency to climate conditions that depart from our historic experience. This plan will minimize climate related disruptions to the daily functions and operations of our community as much as possible.

As it is not possible in all cases to know in advance exactly what actions will achieve each broad goal, CPAC recommends that the City identify specific actions over time. CPAC will also continue to carry out its mandate to make recommendations as the feasibility and effectiveness of specific actions become clearer through research, experimentation and reporting by other parties.

CPAC will also work with the recently formed Net Zero Task Force (NZTF) and Cambridge Community Compact for a Sustainable Future (the Sustainability Compact) to identify priority actions that address the groups' complimentary climate goals and collaborate on measuring and reporting on the progress of reducing GHG emissions in the city.

The Climate Protection Action Committee is submitting for adoption an updated roadmap for the City's role in the global response to climate change. The roadmap provides a broad framework for actions that will move the City toward an 80% reduction in greenhouse gas emissions by 2050, the timeframe by when the scientific community advises the world needs to achieve greenhouse gas reductions to avoid dangerous disruptions to our climate. CPAC asks that the City Council adopt this roadmap.

Based on the best scientific information, the City of Cambridge believes that future generations of Cantabridgians face in the coming decades costly and disruptive weather events as a result of global climate change, including rising sea levels, more intense storms, and higher temperatures and heat waves. These impacts will affect the way we live and work. Their severity depends on how much the concentration of greenhouse gases, such as carbon dioxide, in the atmosphere increases. The concentration of these gases is driven in part by the world's daily energy-consuming activities. Cambridge's contribution to atmospheric greenhouse gases is miniscule on a global level, yet the actions we take can be used in communities throughout the world as a model for reducing greenhouse gas emissions. Cambridge cannot solve the greenhouse gas accumulation problem on its own, but it can contribute to solutions through technological and social innovation while taking responsibility for its own emissions. The city must also begin to prepare for the unavoidable impacts of climate change even as we work to minimize the degree of those impacts.

The roadmap includes high-level goals and objectives that provide a framework for actions by stakeholders that move the city toward the vision and goals. The City will continue to identify and prioritize actions in a manner that is flexible and responsive to opportunities, challenges, and innovations that emerge in the short term. CPAC will continue to work with the City to review specific actions and to evaluate progress towards these goals and objectives. Many of the objectives indicate a target year of 2020. This is consistent with the Commonwealth's near-term goal and is not so far off as to be made obsolete by technological and social changes. As Cambridge approaches 2020, it can take stock and re-set objectives for the next stage.

## COMMUNITY CLIMATE PROTECTION VISION

*Cambridge will become a center for innovation, entrepreneurship, and leadership on actions to minimize greenhouse gas emissions and increase resiliency to the impacts of global climate change.*

## CLIMATE PROTECTION GOALS

By 2050, Cambridge City Government, institutions, businesses, and citizens will achieve this vision by harnessing the wealth of intellectual, entrepreneurial, social, financial, and physical resources in Cambridge. Leveraging these resources will transform Cambridge into a city that....

- A. Minimizes GHG emissions from all measureable sources
- B. Drives Energy Efficiency
- C. Depends on walking, bicycling, and transit for mobility
- D. Runs on renewable and non-fossil fuel energy sources
- E. Minimizes the impacts of material consumption and waste
- F. Minimizes the urban heat island effect
- G. Anticipates and prepares for the impacts of climate change
- H. Is internationally recognized for climate change education
- I. Is a center of innovation for climate change solutions
- J. Has the capacity to effectively mitigate greenhouse gas emissions and prepare for climate change

## CLIMATE PROTECTION GOALS AND OBJECTIVES

### Goal A: Minimizes greenhouse gas emissions from all measureable sources

*Objective 1: Reduce municipal greenhouse gas emissions by a specific amount below 2008 levels by 2020. Quantify the amount by December 2015*

*Objective 2: Track and report quantifiable sources of greenhouse gas emissions in the community. Establish targets for community GHG emissions reduction.*

### Goal B: Drives energy efficiency

*Objective 3: Reduce municipal energy use by a specific amount below 2008 levels by 2020. Quantify the amount by 2015.*

*Objective 4: Continually reduce the energy use intensity (EUI)(e.g., energy use per square foot) for commercial and residential buildings below current levels. Establish targets and benchmarks as information about building energy use becomes available.*

### Goal C: Depends on walking, bicycling, and transit for mobility

*Objective 5: Reduce ownership of conventional vehicles 10 percent below 2010 levels by 2020.*

*Objective 6: Reduce vehicle miles traveled by vehicles registered in Cambridge 5 percent below 2010 levels by 2020.*

### Goal D: Runs on renewable and non-fossil fuel energy sources

*Objective 7: Increase the portion of municipal electricity use that is supplied by renewable energy on city property to 5 percent by 2020.*

*Objective 8: Increase the portion of community-wide electricity use that is supplied by renewable sources to 20 percent by 2020.*

### Goal E: Minimizes the impacts of material consumption and waste

*Objective 9: Reduce residential waste collected by the City trash service 30 percent from 2008 levels by 2020 and 80 percent by 2050.*

## Goal F: Minimizes Urban Heat Island Effect

*Objective 10: Increase the overall amount of vegetative cover and reduce use of materials that absorb heat. Quantify the objective by 2015.*

## Goal G: Anticipates and prepares for the impacts of climate change

*Objective 11: Complete a vulnerability assessment of the impacts of climate change in Cambridge in 2014*

*Objective 12: Complete a climate change adaptation plan in 2015*

## Goal H: Is internationally recognized for climate change education

*Objective 13: Identify best practices in climate change education and implement climate change curriculum in Cambridge Public Schools.*

## Goal I: Is a center of innovation for climate change solutions

*Objective 14: Grow community capacity in climate-change knowledge, technology and entrepreneurship.*

*Objective 15: Encourage community collaboration to create leading models for a more sustainable future.*

## Goal J: Has the capacity to effectively mitigate greenhouse gas emissions and prepare for climate change

<b>Goals and Objectives</b>	<b>Additional clarification</b>
<b>A. MINIMIZES GHG EMISSIONS FROM ALL MEASURABLE SOURCES</b>	
Objective 1: Reduce municipal greenhouse gas emissions by a specific amount below 2008 levels by 2020. Quantify the amount by December 2015	<i>The 2008 baseline year is the calendar year for which we have the most complete data set for energy use, which represents the majority of the data we have from which to calculate GHG emissions.</i>
Objective 2: Track and report quantifiable sources of greenhouse gas emissions in the community. Establish targets for community GHG emissions reduction.	<i>The "community" will include any person, building, vehicle or other entity within the political boundary of the City of Cambridge.</i>
<b>B. DRIVES ENERGY EFFICIENCY</b>	
Objective 3: Reduce municipal energy use by a specific amount below 2008 levels by 2020. Quantify the amount by 2015.	<i>The 2008 baseline year is the calendar year for which we have the most complete data for energy use.</i>
Objective 4: Continually reduce the energy use intensity (EUI) (e.g., energy use per square foot) for commercial and residential buildings below current levels. Establish targets as benchmarks and information about building energy use become available.	<i>This objective includes both municipal and privately owned buildings.</i>
<b>C. DEPENDS ON WALKING, BICYCLING, TRANSIT FOR MOBILITY</b>	
Objective 5: Reduce ownership of conventional vehicles 10 percent below 2010 levels by 2020.	<i>Conventional vehicles are to be defined as those that run using only petroleum based fuels</i>
Objective 6: Reduce vehicle miles traveled by vehicles registered in Cambridge 5 percent below 2010 levels by 2020	

<b>Goals and Objectives</b>	<b>Additional clarification</b>
<b>D: RUNS ON RENEWABLE &amp; NON-FOSSIL FUEL ENERGY SOURCES</b>	
Objective 7: Increase the portion of municipal electricity use that is supplied by renewable energy on city property to 5 percent by 2020	<i>This means that 5 percent of the municipality's total electricity supply must be supplied by renewable energy installations on city owned property. It does not mean that a renewable energy system must provide 5 percent of the energy used at the site the system is installed.</i>
Objective 8: Increase the portion of community-wide electricity use that is supplied by renewable sources to 20 percent by 2020	<i>This does not require that the renewable energy be generated within Cambridge's geographic boundary.</i>
<b>E: MINIMIZES THE IMPACTS OF MATERIAL CONSUMPTION &amp; WASTE</b>	
Objective 9: Reduce residential waste collected by the City trash service 30 percent from 2008 levels by 2020 and 80 percent by 2050	
<b>F: MINIMIZES URBAN HEAT ISLAND EFFECT</b>	
Objective 10: Increase the overall amount of vegetative cover and reduce use of materials that absorb heat. Quantify the objective by 2015.	
<b>G: ANTICIPATES &amp; PREPARES FOR THE IMPACTS OF CLIMATE CHANGE</b>	
Objective 11: Complete a vulnerability assessment of the impacts of climate change in Cambridge in 2014	
Objective 12: Complete a climate change adaptation plan in 2015	

<b><i>Goals and Objectives</i></b>	<b><i>Additional clarification</i></b>
<b>H. IS INTERNATIONALLY RECOGNIZED FOR CLIMATE CHANGE EDUCATION</b>	
Objective 13: Identify best practices in climate change education and implement climate change curriculum in Cambridge Public Schools	
<b>I. IS A CENTER OF INNOVATION FOR CLIMATE CHANGE SOLUTIONS</b>	
Objective 14: Grow community capacity in climate-change knowledge, technology and entrepreneurship.	
Objective 15: Encourage community collaboration to create leading models for a more sustainable future	
<b>J. HAS THE CAPACITY TO EFFECTIVELY MITIGATE GREENHOUSE GAS EMISSIONS AND PREPARE FOR CLIMATE CHANGE</b>	

## Key Sustainability Initiatives 2014

### Municipal Energy Goals:

- Developing capital program to improve building stock and reduce energy consumption and GHG emissions. Target for 2020 to be set in 2015.
- Target set for generating 5% or more of electricity consumed on-site by 2020. School building renovations key to meeting goal.

### Compact for a Sustainable Future:

- Permanent board announced in April 2014. Focus for coming year is on building energy, sustainable transportation, climate change preparedness and public engagement.
- Building Energy Subcommittee formed; stakeholders include developers, large businesses, MIT/Harvard, HRI, Cambridge Health Alliance.

### Net Zero Task Force:

- 15-person task force started meeting in January; task force has representatives from development community, universities, subject matter experts and residents.
- Work plan developed to complete task force's work by December 2014.

### Kendall Square EcoDistrict:

- Stakeholder driven process to accelerate sustainability at the district level. Received \$200k in grant funding from the Barr Foundation to hire project manager & commission district energy study.
- Stakeholders to date include KSA, MIT, CRA and many developers/businesses.

### Building Energy Disclosure Ordinance

- Draft to be presented to Council May 2014. Implementation to start 2015 if the ordinance is adopted.
- Partnered with NSTAR in the US Department of Energy Data Accelerator Initiative to make utility data more accessible to building owners. NSTAR has launched an energy data web portal to make aggregated building energy use data available to owners.

### Climate Change Vulnerability Assessment and Preparedness Planning

- Vulnerability assessment completion date fall 2014.
- Preparedness planning process to start January 2015.
- Cambridge has partnered with the city of Chiang Rai, Thailand through the CityLinks program to advise them on climate adaptation planning.

### Residential Energy Efficiency/Renewable Energy:

- In discussions with NSTAR and MIT about a pilot program that will address barriers to energy efficiency implementation. Start date: fall 2014.
- Working with DOER and HEET on projects to streamline solar PV permitting and facilitate solar PV implementation in residential and non-profit sectors.

#### Sustainable Transportation:

- Hubway winter pilot successfully completed. Number of stations expanding to 34 stations with more than 250 bikes. Total rides system-wide since inception 1.6m.
- Starting bicycle network planning process spring 2014; completion June 2015. Installing more than 125 new bike racks per year and adding cycle stalls in summer.
- Pathway planning:
  - Waverly Path (Erie to Pacific) to start construction in late 2014.
  - Flagstaff Park/Cambridge Common to start construction summer 2014.
  - Working with MIT and Friends Group on planning for Grand Junction multi-use path.
  - Engaged in planning for pathway improvements along Greenough Blvd.
- Applied for federal TIGER grant for feasibility study and design of Alewife Pedestrian and Bicycle.
- Transit Strategic Plan developed in conjunction with standing Transit Advisory Committee; study to optimize bus circulation in Central Sq to start this spring.
- Protected bicycle lane installed on Ames Street; cycle track on Western Av in construction and cycle track on Binney St. planned.
- Create Safe Routes to School Program.

#### Waste/Recycling/Composting:

- Waste reduction goals of 30% less waste by 2020 and 80% less by 2050 compared with 2008 baseline year.
- Started composting pilot in North Cambridge April 7, 2014 for 1-12 unit buildings.