

SELECTMEN'S CLIMATE ACTION COMMITTEE REPORT TO TOWN MEETING FALL 2011

I. INTRODUCTION

In 2008, the Board of Selectmen established the Selectmen's Climate Action Committee (CAC) in conjunction with a Resolution passed by Town Meeting that May (Appendix 1). The CAC has fifteen members: twelve representatives of various boards and commissions and three citizens appointed by the Selectmen (Appendix 2). In November 2009, the committee released its first Report to Town Meeting, informing the town on the committee's work and progress. The committee continues to provide Town Meeting with such reports annually. This year's report builds upon the content of previous years' reports, presenting a summary of the committee's activities over the past year and identifying new goals and priorities.

The CAC held its first meeting on November 6, 2008, and has met monthly since then. Early on, the committee organized itself into working subcommittees, which hold additional meetings monthly or as needed (Appendix 3). These subcommittees evolve and change as projects and goals arise and are completed.

The charge of the CAC is as follows:

"The responsibilities of the committee shall include:

1. To recommend programs that reduce the net production of greenhouse gases in Brookline, such as energy efficiency measures, green energy sources, and additional greenspace;
2. To monitor, measure, and assess efforts of the Town to reduce net greenhouse gas emissions;
3. To monitor promising relevant programs in other municipalities;
4. To monitor relevant technological developments;
5. To serve as liaison between the Town and the public with regard to information and programs related to reducing net production of greenhouse gases;
6. To report annually to the Annual Town Meeting and to report from time to time to the Board of Selectmen, the Town Administrator, and the public; and
7. Such other responsibilities as may be determined from time to time by the Board of Selectmen."

II. ACCOMPLISHMENTS

Achieving Green Community Status

- In cooperation with town staff, attained "Green Community" status for the Town of Brookline. This designation affirms and publicizes the commitment of the town to sustainability, and the town is now qualified to apply for additional funding opportunities for renewable energy or energy efficiency projects.
- To satisfy Green Community requirements (Appendix 5), assisted with the drafting of a fuel efficient vehicle purchasing policy that requires all new vehicles purchased by

the town, except for police cruisers and heavy trucks, to meet higher fuel efficiency averages set by the state. The Board of Selectmen adopted this policy in spring 2011.

- Also to satisfy Green Community requirements, developed a Municipal Energy Reduction Plan to lower municipal energy consumption 20 percent below 2009 levels over five years. This plan was adopted by the Board of Selectmen in spring 2011. Much of the reduction is anticipated to be accomplished through a continuation of the LED streetlight replacement pilot as well as several projects implemented by the Building Department. A summary from the Municipal Energy Reduction Plan showing municipal energy consumption and projected savings by category is presented below.

Category	Fiscal Year 2009 MMBtu	% of Total MMBtu Baseline Energy Consumption	MMBtu Savings Already Implemented	Projected Planned MMBtu Savings	Total MMBtu Savings	Savings as % of Total MMBtu Baseline Energy Consumption
Buildings*	135,328	70.2%	10,307	19,580	29,887	15.5%
Vehicles	46,402	24.1%	782	1,377	2,159	1.1%
Street/Traffic/Park Lights	10,989	5.7%	0	7,936	7,936	4.1%
TOTAL	192,718	100%	11,089	28,893	39,981	20.7%

- Applied for the initial round of available Green Community funding of \$215,050 from the Green Communities Division of the Department of Energy Resources. The proposed projects are energy reduction measures identified in the adopted Municipal Energy Reduction Plan and will serve as a first step in that plan's implementation.
- After significant efforts by the Selectmen's Climate Action Committee to support its approval, the stretch code, which was adopted by Town Meeting in 2010 to satisfy Green Community requirements, went into effect January 2011 and is being implemented by the town's Building Department.

Improving Residential Energy Efficiency through Green Homes Brookline

- Assist with the outreach and management of the Green Homes Brookline program, an energy assessment and weatherization program funded by the federal Energy Efficiency and Conservation Block Grant (EECBG) program. The energy services company Next Step Living, in partnership with non-profits New Ecology and the Massachusetts Energy Consumers Alliance, administer the program, which encourages all Brookline residents, regardless of housing tenure, to obtain no-cost energy assessments of their homes. Energy assessments of multi-family buildings are also subsidized by the program, as well as energy improvements for households earning between 60% and 120% of area median income. As of 9/30/2011, 383 assessments and 24 weatherization jobs in Brookline homes have been completed.
- Outreach successes: The CAC hosted a landlord event in May that attracted over 50 participants. The CAC is also partnering with local grassroots group Climate Change Action Brookline (CCAB) to promote the program and encourage participation. Over 60 CCAB volunteers signed up to canvass local homes in March, April and October to disseminate information about the program. Both the CAC and CCAB, along with Next Step Living representatives, have been present at local community events such as the Brookline Farmers Market to spread awareness of the program.

Supporting Alternative Vehicles with Electric Vehicle Charging Stations

- The CAC assisted the Department of Planning and Community Development with applying for a state grant for two free electric vehicle charging stations, and the town was awarded the grant in July. The two publicly-available stations will be located in the Town Hall public parking lot and the Babcock Street public parking lot. Each station will be able to charge two electric vehicles simultaneously. The town hopes to also obtain an additional free charging station for the Town Hall garage to charge the Chevrolet Volt expected to be purchased by the Building Department.

Supporting Active Transportation

- CAC Membership served on the Bicycle Sharing Committee and worked with Metropolitan Area Planning Council (MAPC), state and federal transportation officials, and the Department of Planning and Community Development to secure Brookline's participation in the regional Hubway bicycle sharing network.

Engaging Residents through First Annual Climate Week

- The first annual Climate Week was held the last week of January this year, and was co-sponsored by the CAC, CCAB, Brookline School Committee, Brookline Department of Public Health, and Brookline Adult and Community Education. Numerous businesses and town departments collaborated in creating nearly 20 special events. The week of public sessions and workshops included a kick-off environmental town meeting and practical hands-on carbon-savings workshops such as *The Ups and Downs of Windows*. All events helped to inform and encourage climate-friendly behavior.
- Planning for the second annual Climate Week, to be held from January 21-29, 2012, has already begun.

Developing a New Local Climate Action Plan

- Performed research and analysis of other municipalities' local climate action plans in preparation for developing a new local climate action plan for Brookline.
- Hosted a public forum in June 2011 to gather input from the community regarding priorities for the plan.
- Set up an online survey in spring 2011, reaching out to a wide range of citizen groups and individuals, seeking climate action suggestions for possible inclusion in the new plan.
- Determined the reduction target for the new local climate action plan should be consistent with the reduction target selected by the state under the Global Warming Solutions Act, which is a reduction in greenhouse gas emissions of 25 percent below 1990 levels by 2020.
- Developed a methodology for evaluating action measures for inclusion in a new plan, considering factors such as effectiveness at reducing greenhouse gas emissions, cost,

political feasibility, co-benefits and public acceptance. Used this methodology to shorten a long list of possible actions to those that are realistic, effective, and tailored to Brookline.

- Composed the first draft outlines of the plan, with the expectation it will be completed by early 2012.

Strengthening Community Partnerships

- Continued and strengthened a close working relationship with CCAB. Joint initiatives include Green Homes Brookline, Brookline Tomorrow and Climate Week.
- Served in advisory capacity to the Department of Planning and Community Development and the Board of Selectmen regarding the management of EECBG funds, Green Communities milestones and designation, the Green Homes Brookline program, and other related projects.
- Further developed the partnership between CCAB, CAC, and the Public Health Department. This coalition collaborates to plan events meant to raise awareness of the parallels between healthy behaviors (such as walking, biking, and eating a locally produced, plant-based diet) and reducing greenhouse gas emissions.

III. WORK PLAN

The CAC has identified the following tasks for the coming year:

1. Develop a new local climate action plan. The town's previous climate action plan dates from 2002, and through a planning process the committee will identify clear, achievable actions to reduce the town's overall greenhouse gas emissions. These actions will provide a road map and policy framework for the committee as it moves forward.
2. Collaborate with CCAB on community education and engagement activities to promote lifestyle changes that lead to greenhouse gas reduction.
3. Monitor and support the town's implementation of the Green Homes Brookline Program, as well as other EECBG initiatives (Appendix 4).
4. Collaborate with CCAB to organize and run Climate Action Week, to be held in January 22-29, 2012, and other events that are part of the Brookline Tomorrow campaign.
5. Provide support for the town's efforts to implement the Green Communities Act criteria and objectives, including the execution of the municipal energy reduction plan, and encouraging the pursuit of renewable energy generation alternatives.
6. Collect and refine data on town energy use and GHG emissions, by sector and source.

IV. APPENDICES**1. Town Meeting Resolution** (Article 29, May 27, 2008, Annual Town Meeting)

VOTED: That the Selectmen establish a committee, the purpose of which is to reduce the total emission of greenhouse gases by the Brookline community, including Town government. The name of the committee shall be the Selectmen's Climate Action Committee. The responsibilities of the committee shall include:

1. To recommend programs that reduce the net production of greenhouse gases in Brookline, such as energy efficiency measures, green energy sources, and additional greenspace;
2. To monitor, measure, and assess efforts of the Town to reduce net greenhouse gas emissions;
3. To monitor promising relevant programs in other municipalities;
4. To monitor relevant technological developments;
5. To serve as liaison between the Town and the public with regard to information and programs related to reducing net production of greenhouse gases;
6. To report annually to the Annual Town Meeting and to report from time to time to the Board of Selectmen, the Town Administrator, and the public; and
7. Such other responsibilities as may be determined from time to time by the Board of Selectmen.

The committee shall consist of the following members appointed by the Board of Selectmen:

1. A member of the Board of Selectmen
2. The Chair of the Advisory Committee or her/his nominee
3. The Chair of the School Committee or her/his nominee
4. The Chair of the Transportation Board or her/his nominee
5. The Chair of the Conservation Commission, or her/his nominee
6. The Chair of the Planning Board, or her/his nominee
7. The Chair of the Building Commission, or her/his nominee
8. The Chair of the Advisory Council on Public Health, or her/his nominee
9. A Co-Chair of Climate Change Action Brookline, or their nominee
10. The President of the Brookline GreenSpace Alliance, or her/his nominee
11. A Co-Chair of the Brookline Neighborhood Alliance, or their nominee
12. The President of the Brookline Chamber of Commerce, or her/his nominee
13. Three members at large with special consideration given to people with the following skills:
 - Relevant scientific and/or academic expertise
 - Relevant engineering expertise
 - Knowledge of and/or experience with green businesses
 - Relevant public health expertise.

All members shall serve three-year terms, which may be renewed. Initial

appointments shall be for terms of one, two, and three years so that terms will expire at staggered intervals. No member shall be disqualified because she or he is not a resident of the Town. The committee shall have two co-chairpersons, one of whom shall be the selectman member and one of whom shall be elected annually by the committee. The staffing of the committee shall be determined by the Selectmen and the Town Administrator. The committee shall be established by November 30, 2008, and shall be evaluated by the Board of Selectmen before December 31, 2011 to determine whether it should be made permanent or dissolved.

2. CAC Membership

Mary Dewart	Brookline GreenSpace Alliance
Jon Cody Haines	at-large
Alan Leviton	Climate Change Action Brookline
Werner Lohe	Conservation Commission
Patricia Maher	Department of Public Health
Linda Pehlke	Brookline Neighborhood Alliance
Josh Safer	Transportation Board
Amy Kershaw	School Committee
Michael Shepard	Building Commission
Jim Solomon	at-large
Mark Zarrillo	Planning Board
Don Weitzman, Co-chair	Advisory Board
Jesse Mermell, Co-chair	Board of Selectmen
Lara Curtis Hayes, Staff	Department of Planning and Community Development

(There are currently two vacancies, one for the Chamber of Commerce designee and another at-large vacancy.)

3. CAC Organization

The Climate Action Committee was initially organized into five subcommittees, but the committee's organization has continually been modified to improve its effectiveness at accomplishing goals and tasks and to make the best use of its members' resources. At present, the committee has one main subcommittee: the Climate Action Planning Subcommittee. The committee's former subcommittee, Brookline Tomorrow, has become a separate entity.

4. EECBG Program

The Department of Energy has approved the Town's proposal to use Energy Efficiency and Conservation Block Grant (EECBG) monies on the following projects:

- Install energy efficiency improvements in several municipal buildings;
- Two LED street light pilot projects in a neighborhood of South Brookline and in Brookline Village;
- Establish Green Homes Brookline, a residential energy efficiency program to provide enhanced energy audits and improvements for Brookline homes;

- Provide supporting funds to CCAB for a public education campaign;
- Establish an energy-focused web site to provide timely updated energy and climate change information.

5. **Green Communities Act**

To qualify as a Green Community, a municipality must meet all five of the following criteria:

- Provide for the as-of-right siting of renewable or alternative energy generating facilities, renewable or alternative energy research and development (R&D) facilities, or renewable or alternative energy manufacturing facilities in designated locations.
- Adopt an expedited application and permitting process under which these energy facilities may be sited within the municipality and which shall not exceed 1 year from the date of initial application to the date of final approval.
- Establish an energy use baseline inventory for municipal buildings, vehicles, street and traffic lighting, and put in place a comprehensive program designed to reduce this baseline by 20 percent within 5 years of initial participation in the program.
- Purchase only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable.
- Require all new residential construction over 3,000 square feet and all new commercial and industrial real estate construction to minimize, to the extent feasible, the life-cycle cost of the facility by utilizing energy efficiency, water conservation and other renewable or alternative energy technologies.

6. **Town of Brookline Greenhouse Gas Inventory Overview**

History and Purpose

In May 2000, the Town of Brookline elected to participate in the Cities for Climate Protection Campaign, a program of the International Council of Local Environmental Initiatives (ICLEI). The Cities for Climate Protection Campaign follows a 'Five Milestone' process:

- Milestone One: Conduct a Greenhouse Gas Emissions Inventory and Report
- Milestone Two: Set a Greenhouse Gas Emissions Reduction Target
- Milestone Three: Develop a Local Climate Action Plan
- Milestone Four: Implement the Local Climate Action Plan
- Milestone Five: Monitor Emissions Reductions

The Town completed the first three milestones in the ICLEI program, publishing a greenhouse gas inventory in August 2000 and a Greenhouse Gas Emissions Reduction Target and Climate Action Plan in February 2002.

The August 2000 Greenhouse Gas Inventory reported emissions for calendar years 1995 and 1998. The following summary updates those initial findings to include information for calendar years 2003 and 2008. Since the goal of the Greenhouse Gas Inventory is to guide Brookline's process of writing and implementing a plan to reduce the emissions contributing to climate change, it is recommended that the Selectmen's Climate Action Committee work with the Town to revise Brookline's Greenhouse Gas Reduction Target and Climate Action Plan based on the greenhouse gas emission trends from 1995 through 2008.

Brookline's Community Greenhouse Gas Emissions Totaled 520,000 Tons CO₂ for CY2008

Brookline's community greenhouse gas emissions (Table 1 and Figure 1) have been steady at roughly 520,000 tons of CO₂ per year for, at least, the five year period from 2003 through 2008. Community emissions comprise the residential, commercial, and government sectors.

Brookline's 2008 community greenhouse gas emissions were about eight percent below the annual emissions rate of 560,000 tons previously reported for 1995 (August 2000 Greenhouse Gas Inventory Report). Adjusting for possible inconsistencies in electricity and natural gas usage and vehicle emissions described below, Brookline's 1995 greenhouse gas emissions may have been as low as 515,000 tons per year. In either case, Brookline has done better than the United States, as a whole. Greenhouse gas emissions increased about ten percent nationally from 1995 through 2007.

Greenhouse gas emissions from Brookline's government operations (Figure 2) for 2008 are relatively unchanged from those previously reported for 1995 (August 2000 Greenhouse Gas Inventory Report). Government operations are responsible for about three percent of Brookline's total community emissions.

Emissions from MBTA trolleys and buses were not been included in this analysis. Emissions from these sources are likely about one percent of the reported total community emissions, based on the August 2000 Greenhouse Gas Inventory Report.

Brookline's Climate Action Plan Base Year Should be Changed from 1995 to 2003

The ICLEI Local Government Protocol (September 2008) states: "It is good practice to compile an emissions inventory for the earliest year for which complete and accurate data can be gathered. The base year for the UNFCCC and subsequent Kyoto Protocol is calendar year 1990. However, required data from 1990 is often prohibitively difficult or impossible to collect. Given that the priority for a greenhouse gas management program should be on practical results, it is more important that the base year be documented with enough detail to provide a good basis for local action planning than it is that all local governments produce an inventory with the same, stipulated base year."

Graphs of electricity usage (Figure 3) and natural gas usage (Figure 4) from 1995 through 2008 indicate anomalies in trends for both utilities. Values for 1995 and 1998 were reported in the August 2000 Greenhouse Gas Inventory report based on information

provided by Boston Edison and Boston Gas. Usage information for 2002 through 2008 was obtained from NSTAR and National Grid. The significant drop in usage of gas and electricity from 1998 to 2002 is inconsistent with both population growth in Brookline and national trends in residential energy consumption during that period.

CO₂ emissions from vehicles traveling in Brookline may also have been overstated, based on a November 2009 report from the United States Environmental Protection Agency. Vehicle emission factors generated for 1995 by the ICLEI software (CACP 2009) were based on projections that predated the recent EPA report.

Due to the above inconsistencies, it is recommended that 2003 be used as the base year for Brookline's Greenhouse Gas Reduction Target and Climate Action Plan.

Brookline's Residential Carbon Footprint is Much Lower than the U.S. Average

Brookline 2010 and Climate Change Action Brookline (CCAB) are participating in the Massachusetts Climate Action Network's Cool Mass initiative. The Cool Mass Campaign seeks to empower 25 percent of the households in Massachusetts to reduce their carbon footprints 25 percent. CCAB is working to exceed that target by engaging 85 percent of Brookline households in CO₂ reduction by the end of 2012, with an average CO₂ emissions reduction of 25 percent for each participating household.

Cool Mass households are being asked to follow the Empowerment Institute's Low Carbon Diet, which begins with calculating a carbon footprint. Eleven Cool Mass towns, including Brookline, were asked to estimate their residential sector carbon footprint.

CCAB estimated Brookline's residential carbon footprint using information compiled during the process of completing Brookline's Greenhouse Gas Inventory. A few assumptions were made regarding the allocation of electricity, natural gas, and heating oil among residential and commercial users. The Greenhouse Gas Inventory followed the ICLEI protocol of using total vehicle miles travelled by residents and non-residents within Brookline's borders. The carbon footprint was based on the Low Carbon Diet approach, using an estimate of vehicle miles travelled by cars and trucks driven anywhere by Brookline residents and businesses.

In 2008, Brookline's average residential carbon footprint was about 31,000 pounds of CO₂ per year. The average US household had a carbon footprint of 46,000 pounds of CO₂ per year, according to data from the US Energy Information Agency's (EIA) 2005 Residential Energy Consumption Survey and a household vehicle use survey for 2009 published by the National Highway Transportation Survey (NHTS). In both cases, CO₂ emissions from personal air travel were not included. If CCAB achieves its goal of engaging 85 percent of Brookline households in CO₂ with an average CO₂ emissions reduction of 25 percent for each participating household, Brookline's residential carbon footprint will be reduced to 25,000 pounds of CO₂ per year.

Brookline's average commercial carbon footprint was 162,000 pounds of CO₂ per year in 2008, excluding air travel.

Table 1 **Greenhouse Gas Emissions**
CO₂e, Tons/Year

	1995	2003	2008
Electricity	140,920	130,384	137,125
Natural Gas	120,369	104,223	126,643
Heating Oil	126,267	112,366	103,678
Cars and Trucks	151,315	152,194	128,992
Solid Waste	21,129	21,129	21,264
Total	559,999	520,295	517,702

Table 2 **2008 GHG Emissions By Sector**
CO₂e, Tons/Year

	Residential	Commercial	Municipal	Total
Electricity	75,688	54,106	7,331	137,125
Natural Gas	89,812	34,474	2,357	126,643
Heating Oil	81,070	19,980	2,629	103,679
Cars and Trucks				128,992
Solid Waste	14,176	6,998	90	21,264
Total				517,702

Table 3 **Greenhouse Gas Sources**

		1995	2003	2008
Electricity	kwh	311,702,637	288,397,640	293,386,860
Natural Gas	Therms	20,445,394	17,702,807	21,511,045
Heating Oil	Gallons	11,283,499	10,041,279	9,264,891
Cars and Trucks	Miles	232,094,937	242,992,126	210,333,390
Solid Waste	Tons	21,000	21,000	21,135

Table 4 **Brookline's Residential Carbon Footprint - 2008**

	CO ₂ e, Tons/Year
Electricity	75,688
Natural Gas	89,812
Heating Oil	81,071
Gasoline/Diesel	139,156
Solid Waste	14,176
Total	399,901
Number of Households	25,573
Pounds CO ₂ /Household/Year	31,275

Table 5 Brookline's Commercial Carbon Footprint - 2008

	CO ₂ e, Tons/Year
Electricity	52,536
Natural Gas	34,474
Heating Oil	19,980
Gasoline/Diesel	7,576
Solid Waste	6,998
	121,564
Number of Businesses	1,500
Pounds CO ₂ /Business/Year	162,086

Table 6 Brookline's Municipal Carbon Footprint - 2008

	CO ₂ e, Tons/Year
Electricity	8,901
Natural Gas	2,357
Heating Oil	2,629
Gasoline/Diesel	2,305
Solid Waste	90
	16,282



