



CITY OF CAMBRIDGE • EXECUTIVE DEPARTMENT

Robert W. Healy, City Manager

Richard C. Rossi, Deputy City Manager

May 14, 2010

Department of Energy Resources
Green Communities Division
100 Cambridge Street, 10th Floor
Boston, MA 02114
ATTN: Cliff Sullivan

Re: City of Cambridge application for Green Communities Designation

Dear Mr. Sullivan:

Please find enclosed the City of Cambridge's application for designation under the Green Communities Program. The City is providing documentation in accordance with the program guidelines to demonstrate that we have met all five eligibility criteria.

The City of Cambridge has been working for many years to make our community and municipal government more sustainable. In 1979, Cambridge voters approved a referendum to advise the City to encourage energy conservation and renewable energy. This led to the creation of the Cambridge Energy Commission which operated through the 1980s. In 1990, the Recycling Ordinance was enacted which mandated recycling in the community. In 1992, the City undertook a process to create a growth policy plan that led to the document entitled *Toward a Sustainable Future*; the plan was updated in 2007. Through the 1990s, new ordinances and programs were put in place to address transportation issues from an environmental stand point, which has led to measurable results in reducing automobile dependence in Cambridge. And in 1999, Cambridge was one of the first four Massachusetts communities to join ICLEI – Local Governments for Sustainability and began to develop actions to address climate change. Cambridge finds there is a broad array of benefits to pursuing actions on sustainability, including financial savings, reduction of environmental impact, and improved livability.

The Green Communities Act provides a welcome platform on which Cambridge can continue to expand on its work toward becoming a more sustainable community. In anticipation of receiving our designation, we are developing a grant proposal that will strengthen our capacity to generate energy efficiency gains and expand the use of renewable energy.

We look forward to your decision. If you have any questions, please contact Susanne Rasmussen, Director of Environmental and Transportation Planning, at 617-349-4607 or srasmussen@cambridgema.gov.

Yours very truly,

Robert W. Healy
City Manager

City of Cambridge

Application for Green Communities Designation

Contents of Application

1. Cover letter from the City Manager
2. Completed Green Communities Designation Form
3. Letter from City Solicitor on As-of-Right Zoning for alternative energy/renewable energy research & development facilities
4. Cambridge Parking & Transportation Demand Management Ordinance
5. Cambridge Historical Buildings and Landmarks Ordinance
6. Map of As-of-Right Development (Up to 50,000 square feet) for Research & Development
7. Map of Lots with Remaining Development Potential for R&D
8. Excerpts from the Cambridge Zoning Ordinance including Table of Use Regulations
9. List of existing Cambridge alternative energy/renewable energy R&D companies and organizations
10. Letter from City Solicitor on expedited permitting
11. Letter from City Manager committing to 20% energy reduction and adoption of the Energy Use Reduction Plan
12. City of Cambridge Energy Reduction Plan
13. Letter from the Superintendent of Schools committing to 20% energy use reduction and Green Communities vehicle efficiency guidelines
14. City of Cambridge Green Fleet Policy
15. City of Cambridge Vehicle Inventory
16. True copy of the Cambridge City Council Order adopting the Stretch Energy Code



**GREEN COMMUNITIES
GRANT PROGRAM
FY 10 APPLICATION**



DESIGNATION FORM

INSTRUCTIONS

In order to be designated as a Green Community pursuant to MGL c 25A §10, the applicant must meet five criteria. The Green Communities Division is required to verify that the applicant has met the criteria through an application process.

This designation form is the first step in a municipality becoming a Green Community. Please fill out this designation form completely including providing the required information outlined in this form. The designation phase is a rolling process. However, to be considered for grants in FY 2010, designation forms are due on **Friday, May 14, 2010 by 5pm**. One electronic copy must be submitted to Cliff Sullivan at cliff.sullivan@state.ma.us and one unbound hard copy must be submitted to the following address:

Department of Energy Resources
Green Communities Division
100 Cambridge Street, 10th Floor
Boston, MA 02114
ATTN: Cliff Sullivan

Once an applicant has completed this designation form, it will be reviewed by the Green Communities Division and a determination will be made as to designation. When an applicant is designated as a Green Community, it is eligible to apply for grant funds to support energy efficiency and renewable energy projects.

APPLICANT INFORMATION

Municipality / Local Government City of Cambridge			Contact (print) Susanne Rasmussen	
Street Address Community Development Dept., 344 Broadway			Title Director of Environmental & Transportation Planning	
City/Town Cambridge	State MA	Zip Code 02139	Telephone 617-349-4607	Email srasmussen@cambridgema.gov

FOR APPLICANTS SERVED BY MUNICIPAL LIGHT PLANTS - pursuant to MGL c 25A, §10(e)

Please indicate the date the Municipal Light Plant adopted the Renewable Energy Charge and attach a copy of the minutes reflecting the vote taken:

CRITERIA 1: AS OF RIGHT SITING

Description of 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.

Type of As-of-Right Zoning

Please indicate which type of as-of-right zoning the municipality is providing (**check all applicable boxes**).

- RE/AE Generation
 - On-shore Wind – a turbine of a minimum 600kW in size or above
 - Off-shore Wind – a turbine of a minimum 2.5MW or above
 - Solar Photovoltaic – a single ground-mounted system of a minimum of 250 kW or above
 - Biomass CHP - a minimum of 5MW in a stand-alone building
 - Ocean, wave or tidal – no minimum threshold
- RE/AE Facilities
 - Research and Development
 - Manufacturing

Documentation

RE/AE Generation and Facilities

Please provide the following documentation as evidence that the municipality has met this criterion (include documents with this form).

- * Brief description of by-law
- * Identification of designated locations

- * Explanation of how measures meet criteria
- * Attach copy of bylaw or ordinance
- * Copy of zoning map that shows area zoned

RE/AE Facilities – Where Applicant is submitting an existing bylaw not adopted specifically for this Program

For those applicants that meet the criterion for R&D and or Manufacturing through existing bylaws or ordinances please include the following:

Applicants must provide a letter from municipal counsel certifying that the existing zoning complies with the RE/AE Facilities criteria. In terms of specific contents:

The letter must cite and summarize the pertinent section of the zoning ordinance/bylaw;

Applicants must include copies of:

- The applicable section of their zoning bylaw/ordinance
- Copy of zoning map that shows area zoned
- Important zoning definitions
- The relevant section of the use table and any key that will help DOER interpret the use table
- Any related local regulations applicable to facilities sited under the bylaw/ordinance—such as site plan review regulations—so that DOER can confirm that the related local regulations are non-discretionary; AND
- Yield calculations must be either included in the text of the letter or attached.

CRITERIA 2: EXPEDITED PERMITTING

Description of Criteria

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.

The expedited application and permitting process applies to the proposed facilities which are subject to the as-of-right siting provision.

An applicant can meet this requirement by applying the expedited permitting process of MGL c 43D to these zoning districts.

Type of Expedited Permitting

Please indicate which type of as-of-right zoning the municipality is providing (**check the applicable box**).

- Local Expedited Permitting Process
- M.G.L. c43D – Expedited Permitting

Documentation

Please provide documentation that an expedited application and permitting process has been fully adopted for the as-of-right zoned parcels.

Local Expedited Permitting Process

1. Municipalities must provide DOER a letter from legal counsel affirming that nothing within the municipality's rules and regulations precludes issuance of a permitting decision within one year along with the language addressing approval procedures and associated timing from any applicable bylaws/ordinances or regulations.
2. The applicant should also include a copy of the applicable map(s) showing that the areas where the expedited permitting applies coincides with the as-of-right zoned areas for Criteria 1.

MGL c43D

1. Municipalities must provide DOER with a certified copy of their City Council or Town Meeting vote designating the as-of-right zoned parcel(s) as a Priority Development Site ("PDS")
2. The applicant should also include a copy of the applicable map(s) showing the areas where the expedited permitting applies.

CRITERIA 3: ENERGY USE BASELINE / REDUCTION PLAN

Description of Criteria

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.

Documentation

Please provide a copy of the energy use baseline inventory completed for all municipally owned and operated buildings, vehicles, street lights and traffic lights and a detailed plan for reducing fossil fuel consumption by 20% in 5 years **(all required)**.

- Identify inventory tool used: Energy Information System – Peregrine Energy Group (transitioning to MassEnergyInsight)
 - Provide the baseline year used: Fiscal Year 2008
 - Provide documentation of results of inventory – See Energy Reduction Plan
 - Copy of plan / specific Actions to be implemented and timeline with milestones to achieve required energy reductions – See attached plan
 - Documentation that both the general government and school district have adopted the energy reduction plan – Letters from City Manager and School Superintendent provided.
-

CRITERIA 4: FUEL EFFICIENT VEHICLES

Description of Criteria

Purchase only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable.

Documentation

Please provide the following documentation to verify that the municipality has met this criterion **(both required)**:

- A copy of the policy or other mechanism adopted for purchasing only fuel efficient vehicles A Green Fleet Policy is attached.
 - Inventory of existing fleet (model, year, estimated mpg) with plans for replacements with fuel efficient vehicles – The vehicle inventory is attached.
 - Documentation that both the general government and school district have adopted the fuel efficient vehicle policy – The City Manager signed the Green Fleet Policy and the School Superintendent provided a letter committing to the vehicle efficiency goals.
-

CRITERIA 5: MINIMIZE LIFE CYCLE COSTS

Description of Criteria

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.

Cities and towns can meet this requirement by adopting the new BBRS Stretch Code, the new appendix to the MA State Building Code.

Type of Method

Please indicate which type of life cycle cost reduction the municipality is providing (**check applicable box**).

Local Process

Adopted Stretch Energy Code (780 CMR 120.AA, the MA Board of Building Regulations and Standards (BBRS) Stretch Energy Code) – Adopted by City Council on 12/21/09

Documentation

Please provide the following documentation to verify that the municipality has met this criterion:

Local Process

The municipality must provide documentation of the standard adopted, the mechanism in place for requiring this criterion for new construction and documentation of how this standard provides reduced life-cycle energy costs.

NOTE: If a Municipality plans to meet this criterion through a local process, they are encouraged to submit a description of how it plans to do so with supporting documentation in advance of applying for designation. In this manner, the Green Communities can provide feedback on the acceptability of the identified process for meeting this criteria.

Stretch Energy Code

The municipality must provide documentation of the city or town vote adopting 780 CMR 120.AA, MA Board of Building Regulations and Standards (BBRS) Stretch Energy Code.

***NOTE: TOWNS THAT HAVE PLACED AN ARTICLE ON THEIR TOWN MEETING WARRANT (PROVIDED THE TOWN MEETING VOTE IS NO LATER THAN FRIDAY, MAY 14, 2010) CAN SUBMIT A DESIGNATION FORM, INDICATING THAT CRITERION #5 IS IN PROCESS. IF THIS APPLIES PLEASE CHECK OFF THE BOX BELOW AND INDICATE WHEN THE TOWN MEETING VOTE WILL OCCUR AND INCLUDE A COPY OF THE APPLICABLE TOWN MEETING WARRANT. TOWN MEETING MUST APPROVE THE STRETCH CODE ARTICLE FOR THE APPLICANT TO RECEIVE CREDIT FOR MEETING CRITERION #5.**

TOWN MEETING VOTE PENDING

Town Meeting Date: _____

REQUEST FOR WAIVER

Pursuant to MGL c. 25A, Section 10(c), the Secretary of Energy and Environmental Affairs may waive these requirements based on a written finding that due to unusual circumstances, a municipality cannot reasonably meet all of the requirements and the municipality has committed to alternative measures that advance the purposes of the green communities program as effectively as adherence to the requirements.

Please select the criteria that the municipality is requesting a waiver for. A letter justifying why the applicant cannot meet this criteria (with supporting documentation) must be attached. In the letter please provide an alternative measure that advances the purposes of the Green Communities program as effectively as adherence to the requirement.

- | | |
|---|--|
| <input type="checkbox"/> As of Right Zoning | <input type="checkbox"/> Expedited Permitting |
| <input type="checkbox"/> Energy Baseline | <input type="checkbox"/> Fuel Efficient Vehicles |
| <input type="checkbox"/> Minimize Life Cycle Cost | |

No waiver requested.

CERTIFICATION OF APPLICATION

Pursuant to MGL c25A Sections 2 and 10, the applicant is required to certify that they are authorized to execute the application and verify that all information submitted is true.

RESOLUTION OF AUTHORIZATION

Resolved that, Robert W. Healy, is authorized to execute said Application on the behalf of the City of Cambridge, the applying community and verify that the information in this application is true.

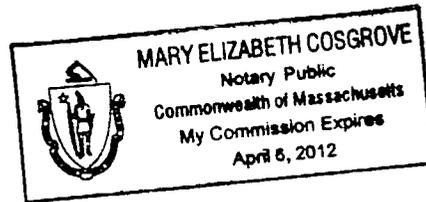
Robert W. Healy [signature] May 13, 2010 [date]

City Manager [title]

[TO BE COMPLETED BY NOTARY] I, Mary E. Cosgrove,

as a notary public, certify that I witnessed the signature of the above named Robert W. Healy, and that said person stated that he or she is authorized to execute this resolution, and that the individual verified his identity to me, on this date:

May 13, 2010 [date]
Mary E. Cosgrove [signature]



My commission expires on: April 6, 2012 NOTARY SEAL HERE:

Criterion #1

As of Right Siting

- Letter from City Solicitor certifying compliance
- Copy of Cambridge Parking & Transportation Demand Management Ordinance
- Copy of Cambridge Historical Buildings & Landmarks Ordinance
- Map of As-of-Right Development for R&D
- Map of Lots with Remaining Development Potential for R&D
- Excerpts from the Cambridge Zoning Ordinance Table of Use Regulations
- List of existing Cambridge alternative energy/renewable energy R&D companies and organizations

Donald A. Drisdell
City Solicitor

Nancy E. Glowa
Deputy City Solicitor

Arthur J. Goldberg
First Assistant City Solicitor



Assistant City Solicitors

Vali Buland
Paul S. Kawai
Elizabeth A. Shaw
Samuel A. Aylesworth
Amy L. Witts

CITY OF CAMBRIDGE

Office of the City Solicitor
795 Massachusetts Avenue
Cambridge, Massachusetts 02139

May 13, 2010

Cliff Sullivan
Green Communities Division
Department of Energy Resources
100 Cambridge Street, 10th Floor
Boston, MA 02114

Dear Mr. Sullivan:

This letter certifies that the City of Cambridge Zoning Ordinance complies with eligibility criterion no.1 of the Green Communities Grant Program concerning as-of-right zoning for renewable energy/alternative energy research and development facilities. The City provides the following specific documentation to demonstrate compliance:

Applicable Section of the Zoning Ordinance – Section 4.34 of the Zoning Ordinance allows for “office and laboratory use” in the following zoning districts: Office 1, 2A, 2, 3, and 3A; Business A-1, A-2, A-3; Business A; Business B, B-1 and B-2; Industrial A-1 and A-2; Industrial A; Industrial B-1 and B-2; Industrial B; and Industrial C. The zoning language can be viewed online at http://library5.municode.com/16233/home.htm?infobase=16889&doc_action=whatsnew&nltext=City%20Ordinances. A map entitled “As-of-right Development (Up to 50,000 square feet) for Research & Development, Cambridge, Massachusetts” is attached which illustrates the locations of the above referenced districts. “Office and Laboratory Use” is defined as “Technical office for research and development, laboratory & research facility subject to the restrictions in Section 4.21m. Any renewable energy or alternative energy research and development activity would fall under the definition of “Office and Laboratory Use”. The restrictions in section 4.21m are basic safeguards to prevent nuisance. A copy of that section is appended to this letter.

Important Zoning Definitions – Under the Cambridge Zoning Ordinance, any research and development use involving less than 50,000 square feet of gross square feet is allowed as of right in the districts listed above, except districts Business A, A-1, and A-2 where the threshold for special permits is 20,000 square feet. These provisions are described at section 19.23 of the zoning ordinance, a copy of which is attached.

Yield Calculations – According to our calculations using the City’s GIS, there is 7,765,541 square feet of remaining development potential for research and development in the districts listed above. A map entitled “Lots with Remaining Development Potential for R&D, Cambridge, Massachusetts” is attached which illustrates the location of unused R&D development potential. Based on this analysis, the City far exceeds the requirement in the Green Communities criteria for 50,000 square feet of development potential. The yield calculations were conducted by computing remaining build-out under current zoning for all lots which allow R&D and including all lots which would allow such development as-of-right.

The City notes that there are many existing alternative and renewable energy R&D facilities in Cambridge, which serve as an indication that these activities are able to be sited here. A list of these facilities is attached.

If you have any questions, please contact me, at 617-349-4121, or John Bolduc, Environmental Planner, at 617-349-4628 or jbolduc@cambridgema.gov.

Sincerely,



Donald A. Drisdell
City Solicitor

Chapter 10.18 PARKING AND TRANSPORTATION DEMAND MANAGEMENT PLANNING; PARKING SPACE REGISTRATION

Sections:

[10.18.010 Purpose.](#)

[10.18.020 Definitions.](#)

[10.18.030 PTDM Planning Officer.](#)

[10.18.040 Registration of All Parking Spaces.](#)

[10.18.050 Parking and Transportation Demand Management Plans.](#)

[10.18.060 Reduction in Minimum Parking and Maximum Distance Requirements.](#)

[10.18.070 Requirements Applicable to Small Projects.](#)

[10.18.080 Enforcement.](#)

[10.18.090 Evaluation.](#)

10.18.010 Purpose.

(a) It is the purpose of this Chapter to regulate and control atmospheric pollution from motor vehicles by formalizing parking and transportation demand management planning, programs, and coordination which have been ongoing for a number of years. This Chapter will reduce vehicle trips and traffic congestion within the City, thereby promoting public health, safety, and welfare and protecting the environment. This Chapter requires parking and transportation demand management (PTDM) plans for commercial parking facilities and other types of non-residential parking facilities over a specified size as set forth in 10.18.050 and 10.18.070. This Chapter also establishes a process whereby City officials will be able to track the number, use and location of off-street parking spaces in the City.

(b) A Parking and Transportation Demand Management Planning Officer will be designated by the City Manager with the responsibility for reviewing, conditioning, approving and/or denying PTDM plans. Any project subject to the requirements of this Chapter shall not be qualified to receive a permit from the Planning Board, a commercial parking permit from the Commercial Parking Control Committee, a special permit or variance from the Board of Zoning Appeal, a building permit from the Commissioner of Inspectional Services, a certificate of occupancy from the Commissioner of Inspectional Services, or an operating license from the License Commission absent written approval of its PTDM plan from the PTDM Planning Officer or evidence of registration of its parking spaces with the Department of Traffic, Parking, and Transportation.

(1211, Added, 11/16/1998)

10.18.020 Definitions.

"Commercial Parking Space" means a parking space available for use by the general public at any time for a fee. The term shall not include (i) parking spaces which are owned or operated by a commercial entity whose primary business is other than the operation of parking facilities, for the exclusive use of its lessees, employes, patrons, customers, clients, patients, guests or residents but which are not available for use by the general public; (ii) parking spaces restricted for the use of the residents of a specific residential building or group of buildings; (iii) spaces located on public streets; or (iv) spaces located at a park-and-ride facility operated in conjunction with the Massachusetts Bay Transportation Authority.

"Commercial Parking Facility" means a parking facility owned or operated by a commercial entity whose primary business is the operation of a parking facility and at which there are at least five (5) Commercial Parking Spaces.

"Commercial Parking Permit" means a (i) permit issued under chapter 10.16 of the Cambridge Municipal Code, authorizing the use of a designated number of parking spaces at a specified location as Commercial Parking Spaces; (ii) a permit or approval issued prior to the effective date of this Chapter pursuant to the Procedures, Criteria, and Memorandum of Agreement dated November 15, 1984; (iii) a Controlled Parking Facility Permit that expressly authorizes use of the parking facility for Commercial Parking Spaces; or (iv) a letter from the Director confirming the number of spaces at a specified location that were in existence and being used as Commercial Parking Spaces as of October 15, 1973.

"Controlled Parking Facility Permit" (CPFP) means a permit issued by the Director prior to the effective date of this Chapter, which authorized the construction or operation of a parking space or the construction, operation, or modification of a parking facility.

"Determination of Exclusion" means a determination made by the Director that a parking facility or a parking space did not require a controlled parking facility permit.

"Director" means Director of the Cambridge Department of Traffic, Parking, and Transportation.

"Effective Date" means November 16, 1998, the original date of final adoption of this Chapter of the Cambridge Municipal Code.

"Existing Parking Facility" shall mean a parking facility for which (i) a certificate of occupancy was issued by the Commissioner of Inspectional Services; (ii) an operating license was issued by the License Commission; or (iii) the Director issued a letter confirming the number of spaces at that location which spaces were in existence and being used as commercial parking spaces as of October 15, 1973 (a "Director's Letter").

"New Project" means a project to construct or operate parking spaces within a new facility or an existing parking facility which will cause such facility to have a net increase in the number of spaces for which a certificate of occupancy, operating license, variance, special permit, or Director's Letter has not been issued as of the effective date of this Chapter and which is not a park-and-ride facility operated in conjunction with the Massachusetts Bay Transportation Authority.

"Parking Facility" means any lot, garage, building or structure or combination or portion thereof, on or in which motor vehicles are parked, except any such facility used in association with or by a municipal police or fire station, and in the case of university or college campuses, the stock of parking spaces maintained within the City by the university or college which supports university or college activities within the City.

"Person" means and includes a corporation, firm, partnership, association, executor, administrator, guardian, trustee, agent, organization, any state, regional or political subdivision, agency, department, authority or board, and any other group acting as a unit, as well as a natural person.

"Planning Officer" means the City official responsible for PTDM plan reviews.

"PTDM" means Parking and Transportation Demand Management.

"Small Project" means a project to construct or operate five (5) to nineteen (19) non-commercial, non-residential parking spaces within a new facility or an existing parking facility which will cause such Facility to have a net increase in the number of spaces for which a certificate of occupancy, operating license, variance, special permit, or Director's Letter has not been issued as of the effective date of this Chapter. To qualify as a Small Project, the total number of non-

commercial, non-residential parking spaces at the parking facility must remain at or below nineteen (19).
(Ord. 1287, Amended, 09/12/2005; 1252, Amended, 09/24/2001; 1211, Added, 11/16/1998)

10.18.030 PTDM Planning Officer.

Within thirty (30) days of the effective date of this Chapter, the City Manager shall designate a Parking and Transportation Demand Management Planning Officer who shall have responsibility for reviewing, conditioning, approving, and/or denying PTDM plans and who shall report to the City Manager. Said officer shall be a Cambridge resident within six months of employment in this position. Prior to rendering his/her determination(s), the Planning Officer shall consult with the PTDM plan applicant, the Director and the Assistant City Manager for Community Development.
(1211, Added, 11/16/1998)

10.18.040 Registration of All Parking Spaces.

(a) No person shall build, expand, or reconfigure a parking facility for non-residential parking spaces resulting in a net increase in the number of parking spaces or a change in the use of such spaces based on the categories of use listed below at paragraphs b(v) and (vi), without first submitting a parking registration form to, and obtaining acceptance from, the Director.

(b) The registration form shall be prepared by the Director and shall be available at the offices of the Department of Traffic, Parking and Transportation. The form will require the following information:

- (i) name and address of parking facility owner;
- (ii) name and address of parking facility operator;
- (iii) address of parking facility;
- (iv) total number of existing parking spaces;
- (v) number of existing parking spaces in each of the following categories:

- residential
- commercial
- non-commercial
- customer
- employee
- patient
- student
- client
- guest

(vi) number of parking spaces proposed to be added to the parking facility in each of the following categories:

- residential
- commercial
- non-commercial
- customer
- employee
- patient
- student
- client

- guest

(vii) identification of any existing parking permits for the parking facility; and

(viii) explanation of any enforcement actions against the parking facility.

(c) The Director shall accept or return a registration form to the registrant with a request for additional information within thirty (30) days after the form was filed.

(d) The License Commission shall not issue a license and the Commissioner of Inspectional Services shall not issue a building permit or certificate of occupancy for a parking facility subject to this section without evidence (i) that the registration form has been accepted by the Director; and (ii) if required, that the facility has a PTDM Plan approved by the Planning Officer.

(1252, Amended, 09/24/2001; 1211, Added, 11/16/1998)

10.18.050 Parking and Transportation Demand Management Plans.

(a) No person shall build, expand, or operate a parking facility subject to the Parking and Transportation Demand Management (PTDM) Plan requirements of this Chapter absent a PTDM Plan approved by the Planning Officer.

(b) The PTDM requirements of this Chapter shall apply to each of the following:

(i) any commercial parking facility for which a certificate of occupancy or operating license, variance or special permit was not obtained prior to the effective date of this chapter;

(ii) an existing commercial parking facility at which the number of parking spaces is increased after the effective date of this chapter;

(iii) any parking facility at which the use of existing or permitted parking spaces is changed to commercial use after the effective date of this chapter;

(iv) any new project to build or create by change of use twenty or more non-residential parking spaces; and

(v) any new project to expand an existing parking facility resulting in a total number of non-residential parking spaces of twenty (20) or more.

(c) The PTDM Plan shall be designed to minimize the amount of parking demand associated with the project and reduce single-occupant vehicle trips in and around Cambridge. The PTDM Plan shall be based on the following facts, projections and commitments:

(i) Facts and Projections:

- nature of development and property use;

- proximity of project to public transit and other non-Single-Occupant Vehicle facilities;

- availability of and accessibility to offsite parking spaces which could serve the project;

- number of employees and their likely place of origin; and

- type and number of patrons/users of proposed parking supply and their likely place of origin.

- number of vehicle trips expected to be generated by the project and description of measures to reduce associated traffic impacts on Cambridge streets; and

- other factors published by the Planning Officer.

(ii) Commitments:

- commitment to work with the Cambridge Office of Work Force Development;

- commitment to implement vehicle trip reduction measures including some or all of the following:

subsidized MBTA passes and other incentives; shuttle services; ride-sharing services; bicycle and pedestrian facilities; flexible working hours; preferential parking for Low Emission Vehicles/Zero Emission Vehicles/bicycles/carpools/vanpools (Note: this list is not meant to

preclude implementation of other types of vehicle trip reduction measures). This commitment must be accompanied by a detailed description of the measures proposed to be implemented; and commitment to establish and make reasonable efforts to achieve a specified, numeric reduction (or percent reduction) in single-occupant vehicle trips in and around Cambridge. The percent reduction will be based on PTDM practices successfully implemented in reasonably comparable environments and as identified in professional and academic literature and based on analysis of existing trip reduction measures in Cambridge.

Each PTDM Plan shall identify the total number of existing and proposed parking spaces at the facility and specify how many existing and proposed spaces fall within each of the following categories (explain how many spaces are used for multiple purposes):

- residential
- commercial
- non-commercial
- customer
- employee
- patient
- student
- client
- guest

Where the parking facility includes or proposes a combination of commercial and non-commercial parking spaces, the Plan shall specify how the parking facility will prevent commercial use of the non-commercial parking spaces.

Each PTDM Plan shall contain the following certification signed by an authorized corporate officer:

"I hereby certify that a commercial parking permit has been obtained for each space being used for commercial parking. None of the other existing or proposed parking spaces at this parking facility have been or will be available as commercial parking spaces until a commercial parking permit therefor has been obtained."

(d) The Planning Officer shall review, condition, approve and/or deny the PTDM Plan based on the above-listed facts, projections, and commitments. The Planning Officer shall issue his/her decision in writing within 60 days of receipt of the proposed PTDM Plan. The required time limit for action by the Planning Officer may be extended by written agreement between the proponent and the Planning Officer. Failure by the Planning Officer to take final action within said sixty (60) days or extended time, if applicable, shall be deemed to be approval of the proposed PTDM plan. If the project proponent elects to make a request pursuant to 10.18.060, the decision of the Planning Officer shall be expanded to include a recommendation about whether offsite parking should be allowed at distances greater than those allowed in the Zoning Ordinance and/or whether fewer parking spaces than the minimum required in the Zoning Ordinance should be allowed. Decisions of the Planning Officer may be appealed by the project proponent to a review committee composed of the City Manager, or his designee, and two other City staff members designated by the City Manager none of whom may have participated in the initial review of the Plan.

(e) The Planning Officer shall also make available sample PTDM plans which a project proponent may adapt for their project, such to approval by the Planning Officer.

(f) No permit, commercial parking permit, special permit, variance, building permit, certificate of occupancy, or operating license shall be issued for any project subject to 10.18.050 by the

Planning Board, Commercial Parking Control Committee, Board of Zoning Appeal, Commissioner of Inspectional Services, or License Commission absent a written decision indicating approval from the Planning Officer of the project proponent's PTDM Plan. Any such permit or license shall be consistent with, and may incorporate as a condition, the decision of the Planning Officer and shall include written notice of the requirements of 10.18.050 (g) and (h), below. Nothing in this ordinance shall be construed to limit the power of the Planning Board or Board of Zoning Appeal to grant variances from or special permits under the provisions of the Zoning Ordinance. No project proponent shall be required by the Planning Officer to seek such relief under the Cambridge Zoning Ordinance.

(g) Approvals issued by the Planning Officer shall be automatically transferrable by and among private parties, provided that the proposed new owner (the "Transferee") shall continue to operate under the existing PTDM Plan and shall submit to the Planning Officer within thirty (30) days of the title transfer a certification that the existing PTDM plan will remain in effect. The certification shall be submitted on a form issued by the Planning Officer and shall certify that such Transferee commits to implement the existing PTDM plan, as approved; and acknowledges that failure to implement the plan is subject to the enforcement provisions of this Chapter. Where such certification is submitted, the approved plan shall remain in effect as to the Transferee. The Transferee may elect instead to and consult with the Planning Officer within thirty (30) days of title transfer regarding appropriate revisions to the existing plan. Based on such consultation, the Planning Officer may require information from the Transferee concerning proposed changes in use of the parking facility and associated buildings and the relevant facts and projections regarding the proposed changes. Within thirty (30) days of receipt of such information, the Planning Officer may issue a written approval of the revised plan and obligations to the Transferee, or the Planning Officer may require submittal of a new PTDM Plan from the Transferee for review, condition, approval and/or denial. Until such time as a new or revised plan has been approved, the existing PTDM plan shall remain in effect.

(h) Each PTDM Plan approval issued by the Planning Officer shall contain, at a minimum, the following conditions:

- (i) The parking facility owner and operator each commit to implement all elements of the PTDM Plan, as approved, including annual reporting requirements, and to maintain records describing implementation of the Plan;
- (ii) The City shall have the right to inspect the parking facility and audit PTDM implementation records; and
- (iii) The parking facility owner and operator each commit to notify and consult with the Planning Officer thirty (30) days prior to any change in ownership, use or operation of the facility.

(1252, Amended, 09/24/2001; 1211, Added, 11/16/1998)

10.18.060 Reduction in Minimum Parking and Maximum Distance Requirements.

(a) A project proponent may elect to request that the Planning Officer include as an element of its PTDM Plan a plan for fewer parking spaces than the minimum set forth in the Zoning Ordinance. Upon the written request of the project proponent, based on an evaluation of the facts, projections, and commitments listed at 10.18.050 (c), the Planning Officer may make a written recommendation about the maximum number of parking spaces for the project. This recommendation shall remain subject to review and approval by the Planning Board or Board of Zoning Appeal as appropriate.

(b) A project proponent may elect to request that the Planning Officer include as an element of its PTDM Plan a plan for utilizing off-site parking spaces that are farther from the project site than the maximum distance requirements set forth in the Zoning Ordinance. Upon the written request of the project proponent, based on an evaluation of the facts, projections, and commitments listed at 10.18.050 (c), the Planning Officer may make a written recommendation about how many parking spaces serving the project may be appropriately located at an off-site location and at what distance from the project site. This recommendation shall remain subject to review and approval by the Planning Board or Board of Zoning Appeal as appropriate. (1211, Added, 11/16/1998)

10.18.070 Requirements Applicable to Small Projects.

The owner or operator of each Small Project shall implement at least three (3) PTDM measures and maintain records of such implementation. A list of acceptable types of measures may be obtained from the Traffic, Parking and Transportation Department, the Inspectional Services Department, the Community Development Department, or the License Commission. The Planning Officer shall create and periodically update this list, which shall include: T-pass subsidies; bicycle parking; changing facilities; carpools/vanpools; financial incentives not to drive alone; or other similar measures.

(1252, Amended, 09/24/2001; 1121, Added, 11/16/1998)

10.18.080 Enforcement.

(a) The Director shall enforce the provisions of this Chapter. If the Director has reason to believe that any provision of this Chapter is being violated, the Director shall investigate the possible violation. If after investigation the Director determines that any provision of this Chapter is being violated, s/he shall provide a first written notice of violation to the person charged with the violation, or the duly authorized representative thereof, of the determination of violation and shall order that the violation cease within thirty (30) days of the issuance of the first written notice. If the violation is not cured within the thirty (30) days after issuance of the determination of violation, the Director may proceed to assess the fines established in this chapter as well as any other remedies available to the city. In addition to all other remedies, if the violation has not ceased within thirty (30) days after the first written notice, then the Director may order shutdown of the parking facility. Second or subsequent written notices to a facility for the same violation shall be immediately effective and shall not provide the thirty (30) day opportunity to cure contained in the first written notice. A determination and order of the Director may be appealed to the City Manager by the person charged with the violation within thirty (30) days of issuance of the Director's determination and order.

(b) In addition to other remedies available to the City, any person who builds or modifies a parking facility without complying with the provisions of this Chapter shall be subject to a fine of up to \$10.00 per day per parking space for every day that such parking space was operated without a registration accepted by the Director or without a PTDM Plan approval issued by the Planning Officer or in non-compliance with an approved PTDM Plan. On a determination, after investigation, by the Director that this Chapter is being violated, and the exhaustion of any appeal to the City Manager in accordance with (a) above, the Director shall take steps to enforce this chapter by causing complaint to be made before the district court and/or by applying for an injunction in the superior court.

(c) In addition to other remedies available to the City, a determination that a facility is operating in violation of the provisions of this Chapter shall be ground for revocation by the Director of the facility's parking permit or other form of approval.

(d) The Planning Officer shall have independent authority to inspect a parking facility and audit its records to determine whether it is in compliance with its PTDM Plan. The Planning Officer shall issue a finding of non-compliance in writing and provide copies to the parking facility owner and operator and to the Director.

(1211, Added, 11/16/1998)

10.18.090 Evaluation.

The PTDM Planning Officer shall prepare a report annually on the status and effectiveness of the implementation of this Ordinance.

(1300, Amended, 09/11/2006; 1252, Amended, 09/24/2001; 1211, Added, 11/16/1998)

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Article I. - Administration

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2.78.010 - Established—Appointment—Terms.

The Cambridge Historical Commission established under the Historic Districts Act, General Laws Chapter 40C, with all the powers and duties of an historic district commission, shall consist of seven members and three alternate members to be appointed by the City Manager with the approval of the Council, including one member from two nominees submitted by the Cambridge Historical Society, one member from two nominees submitted by the Chapter of the American Institute of Architects covering Cambridge, one member or alternate from two nominees submitted by the Boston Society of Landscape Architects, and one member from two nominees of the Board of Realtors covering Cambridge. One or more of the members so appointed shall be a resident of an historic district established in the City pursuant to the Historic Districts Act, and at least one member or alternate shall be a lawyer.

The members and alternate members shall serve for terms of three years and until their successors are appointed and qualified. If within thirty days after submission of a written request for nominees to any of the above-named organizations no such nominations have been submitted, the City Manager may make such appointment without nomination by such organization.

To the extent a person meets more than one of the foregoing specific membership requirements, then each such specific membership requirement so met shall be satisfied by such person's appointment (whether as member or alternate) to the Commission.

The Commission shall, in addition to the powers and duties contained in this chapter and under the Historic Districts Act as in effect from time to time, also have all the powers and duties of an Historical Commission as provided in Section 8D of General Laws, Chapter 40 as in effect from time to time.

(Ord. 1166 §§1, 14, 1995; Ord. 869 (part), 1976; prior code § 2-145)

2.78.020 - Powers and duties.

The Commission shall have in addition to the powers and duties of an historical district commission and of an historical commission the following further powers and duties (and may in exercise of any of its powers or duties accept money, gifts and expend the same, and subject to appropriation or receipt of such gifts, employ clerical and technical assistants or consultants):

A.

To conduct a survey of Cambridge buildings for the purpose of determining those of historic significance architecturally or otherwise, and pertinent facts about them, acting in collaboration with the Planning Board and the Redevelopment Authority to the extent either may from time to time be able to undertake such work, and to maintain and from time to time revise detailed listings of historic sites and buildings, and data about them, appropriately classified with respect to national, State or local significance, to period or field of interest, or otherwise;

B.

To propose from time to time as it may deem appropriate, the establishment in accordance with the provisions of the Historic Districts Act of additional historic districts and changes in historic districts;

C.

To determine an appropriate system of markers for selected historic sites and buildings not already sufficiently marked, to arrange for preparation and installation of such markers, and to arrange for care of historic markers;
D.

To arrange for preparation and publication of maps and brochures and descriptive material about City historic sites and buildings, arranged for convenient walks or tours, or otherwise;

E.

To arrange for construction and placing under appropriate cover at a convenient place on or near the Cambridge Common of a model of Cambridge as it existed in the latter part of 1775;

F.

To cooperate with and advise the Planning Board, the Redevelopment Authority, the Public Works Department and other City agencies in matters involving historic sites and buildings;

G.

To cooperate with and enlist assistance for the City from the National Park Service, the National Trust for Historic Preservation, the Society for the Preservation of New England Antiquities and other agencies, public and private, from time to time concerned with historic sites and buildings;

H.

To advise owners of historic buildings in the City on problems of preservation; and

I.

To make recommendations with respect to any place determined by the Commission to be of historical or archaeological value to the Massachusetts Historical Commission that such place be certified as an historical or archaeological landmark or nominated to the National Register of Historic Places.

(Ord. 1166 §2, 1995; Ord. 869 (part), 1976: prior code § 2-147(a)—(i))

2.78.030 - Adoption of rules and regulations.

The Commission shall adopt rules and regulations for the conduct of its business, not inconsistent with the provisions of the Historic Districts Act or this chapter.

(Prior code § 2-149)

2.78.040 - Advisory Committee—Appointment—Recommendation.

The Commission may recommend to the Manager from time to time as needed appointment of advisory committees of historians and persons experienced in architecture or other arts or in historic restoration or preservation, to assist in manner comparable to the National Park Service Advisory Board or Consulting Committee.

(Prior code § 2-148)

2.78.050 - Historic district established.

A.

There is hereby established under the provisions of the Historic Districts Act an Old Cambridge Historic District consisting of the areas heretofore known as the Cambridge Common Historic District, the Longfellow Historic District, the Lowell Historic District, and the Fayerweather-Lee Historic District and the other areas bounded as shown on the map entitled "Old Cambridge Historic District Map 1976" attached to the ordinance codified in this chapter and made a part of this chapter.

B.

There is further established under the provisions of the Historic Districts Act (Massachusetts General Laws Chapter 40C) a Fort Washington Historic District consisting of Fort Washington Park and an additional area shown on the map entitled "Fort Washington Historic District, 1981," attached to the ordinance codified in this chapter and incorporated in this chapter in full.

C.

The Old Cambridge Historic District, established by vote of the City Council on December 13, 1976, is extended pursuant to the provisions of the Historic Districts Act, Massachusetts General Laws Chapter 40C, by the addition thereto of properties located on Arsenal Square, Berkeley Place, Berkeley Street, Concord Avenue, Craigie Street and Follen Street and portions of said streets bounded as shown on the map entitled "Old Cambridge Historic District Extension 1986," attached to the ordinance codified in this chapter and incorporated in this chapter in full. As so extended, the Old Cambridge Historic District remains in full effect and such extended district shall be subject to the provisions of Massachusetts General Laws Chapter 40C and this section.

(Ord. 1166 §§3—5, 1995; Ord. 1037, 1986; Ord. 975, 1982; Ord. 869 (part), 1976: prior code § 2-146)

D.

The Old Cambridge Historic District is extended pursuant to provisions of the Historic Districts Act, Massachusetts General Laws Chapter 40C, by the addition thereto of properties located on Arsenal Square, Concord Avenue, and Garden Street and the portions of said streets bounded as shown on the map entitled "Proposed Arsenal Square Extension of the Old Cambridge Historic District Extension, April 3, 1998" incorporated in this chapter in full. As so extended, the Old Cambridge Historic District remains in full effect and such extended district shall be subject to the provisions of M.G.L. Chapter 40C and this Section. In making determinations concerning properties in the extension, the Commission shall be guided by the terms of the *Revised Final Report on the Proposed Arsenal Square Extension of the Old Cambridge Historic District and/or the Proposed Landmark Designation of 22, 24, and 26-28 Garden Street*, issued July 27, 1998.

(Ord. 1213, Added, 01/11/1999, addition of Section D to 2.78.050; Ord. 1213, Amended, 01/11/1999, new section D to 2.78.050)

2.78.060 - Application for certificate of appropriateness—Time limitations.

When taking action under the provisions of the fourth paragraph of Section 11 of the Historic Districts Act, the Commission shall make its determination within forty-five days after the filing of the application for a certificate of appropriateness, or such further time as the applicant may in writing allow.

(Prior code § 2-150)

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Article II. - Demolition of Buildings Determined to be Historically Significant

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2.78.070 - Purpose.

The ordinance codified in this article is adopted for the purpose of preserving and protecting significant buildings within the City which constitute or reflect distinctive features of the architectural, cultural, political, economic or social history of the city; to resist and restrain environmental influences adverse to this purpose; to encourage owners of preferably-preserved significant buildings to seek out persons who might be willing to purchase and to preserve, rehabilitate or restore such buildings, rather than demolish them; and by furthering these purposes to promote the public welfare, to preserve the resources of the City and to make the City a more attractive and desirable place in which to live. To achieve these purposes, the Cambridge Historical Commission is empowered to advise the Building Commissioner with respect to the issuance of permits for demolition, and the issuance of demolition permits for significant buildings is regulated as provided in this article.

(Ord. 965 § 1, 1981: Ord. 909 (part), 1978: prior code § 2-147(j) (part))

2.78.080 - Definitions for Article II.

The following terms, when used whether or not capitalized in this article, shall have the meanings set forth in this section, unless the context otherwise requires:

A.

"Application" means an application for a permit for the demolition of a building, which application contains the information referred to in Section 2.78.100 of this article.

B.

"Building" means any combination of materials forming a shelter for persons, animals or property.

C.

"Building Commissioner" means the person occupying the office of Commissioner of Buildings or otherwise authorized to issue demolition permits.

D.

"Business day" means a day which is not a legal municipal holiday, Saturday or Sunday.

E.

"Commission" means the Cambridge Historical Commission.

F.

"Commission staff" means the executive director of the Commission, the person performing the functions of such director in the event there is no person with the title of Executive Director as such, or any other person regularly providing staff services for the Commission to whom the Commission has delegated authority to act as Commission staff under this article.

G.

"Demolition" means the act of pulling down, destroying, removing or razing a building or commencing the work of total or substantial destruction with the intent of completing the same.

H.

"Historic district" means the Old Cambridge Historic District and any other historic district that may from time to time have been established by ordinance.

I.

"Initial determination" means any determination contemplated in Section 2.78.090C of this chapter made by the Commission or the Commission staff.

J.

"Permit" means a permit issued by the Building Commissioner for demolition of a building pursuant to an application therefor.

K.

"Preferably preserved significant building" means any significant building which the Commission determines, as provided in Section 2.78.090D of this chapter, that it is in the public interest to be preserved or rehabilitated rather than to be demolished.

L.

"Significant building" means any building within the City which is in whole or in part fifty years or more old and:

1.

Which is within any historic district; or

2.

Which is listed on, or is within an area listed on, the National Register of Historic Places, or which is the subject of a pending application for listing on the National Register; or

3.

Which is or has been designated by the Commission to be a significant building after a finding by the Commission that a building either:

a.

Is importantly associated with one or more historic persons or events, or with the broad architectural, cultural, political, economic or social history of the City or the Commonwealth, or

b.

Is historically or architecturally significant (in terms of period, style, method of building construction or association with a famous architect or builder) either by itself or in the context of a group of buildings.

(Ord. 1166 § 6, 1995; Ord. 965 § 2, 1981; Ord. 909 (part), 1978: prior code § 2-147(j) (part))

2.78.090 - Procedures for demolition.

A.

No permit for the demolition of a building which is in whole or in part fifty years or more old shall be issued other than in conformity with the provisions of this article, as well as in conformity with the provisions of other laws and ordinances applicable to the demolition of buildings and the issuance of permits therefor generally. An application for demolition of a building over fifty years in age shall be made only by the person, partnership, corporation or realty trust which is the owner thereof at the time of such application.

B.

The Building Commissioner shall cause a copy of each application for a demolition permit to be forwarded to (or shall satisfy himself that a duplicate of such application has been submitted to) the Commission for determination by the Commission whether the building which is the subject of such application is a preferably preserved significant building.

C.

If the Commission staff shall make an initial determination that the building which is the subject of the

application is or may be a significant building, the members of the Commission and the Building Commissioner shall be so advised, and no demolition permit or building permit for new construction or alterations as defined in Ch. 40C §6 shall at that time be issued pending review of the initial determination by the Commission pursuant to subsection D of this section. If the Building Commissioner shall not receive advice of any such initial determination within five business days of the date that a copy of the application is submitted to the Commission staff, then, subject to Section 2.78.130 of this article, the Building Commissioner may grant the permit applied for unless prior to such grant he is advised that such an initial determination has been made.

D.

If the Commission staff shall have made an initial determination that a building which is the subject of the application is or may be a significant building, the Commission shall review the application and such initial determination at a public meeting of the Commission for which the Commission shall cause to be published in a newspaper of general circulation in the City notice that such application will be considered. Such notice, which shall specify the address of the subject building, shall be published in an issue of such newspaper distributed in the week preceding the week in which such meeting is held, or in an earlier week. If requested either by the applicant for the demolition permit or by ten citizens not later than the date of such public meeting, or if at any time the Commission wishes to have the benefit of a public hearing, the Commission shall hold a public hearing prior to making the determination provided for in this section. If the Commission determines, after such a hearing if one has been held or without such hearing if no hearing has so been requested, that the demolition of the subject building would result in the demolition of a significant building whose loss would be detrimental to the historical or architectural heritage or resources of the City, such building shall be considered a preferably preserved significant building. The Commission may delegate to the Commission staff authority to determine without any hearing that a building is not a preferably preserved significant building and to so advise the Building Commissioner. Upon determination by the Commission or by the Commission staff that a building is not a preferably preserved significant building or upon failure by the Commission to make any determination within forty-five days of the date that a copy of the application was submitted to the Commission, the Building Commissioner may, subject to Section 2.78.130 of this article, grant the permit applied for.

E.

Upon a determination by the Commission that any building which is the subject of an application is a preferably preserved significant building, it shall so advise the person who submitted the application and the Building Commissioner, and no demolition permit or building permit for new construction or alterations on the premises shall be issued until six months after the date of such determination by the Commission except as may be provided for in subsection I of this section. Notwithstanding the preceding sentence, the Building Commissioner may issue a demolition permit for a preferably preserved significant building at any time after receipt of written advice from the Commission to the effect either (1) that the Commission is satisfied that there is no reasonable likelihood that either the owner or some other person or group willing to purchase the preferably preserved significant building would be willing to preserve, rehabilitate or restore such building, or (2) that the Commission is satisfied that for at least six months since the owner first sought the advice of the Commission or the Commission staff in locating a person or group that might be willing to purchase such building and to preserve, rehabilitate or restore the same, the owner of the preferably preserved significant building has made continuing, bona fide, reasonable and unsuccessful efforts to locate such a purchaser.

F.

No permit for demolition of a building determined to be a preferably preserved significant building under subsection D of this section shall be granted until all proceedings relating to amendments of the zoning ordinance of the City have been completed, if such proceedings have been initiated prior to the expiration of any period of delay of demolition resulting from such determination, and if such amendments affect the site of the building whose demolition has been thereby delayed.

G.

No permit for erection of a new structure on the site of an existing building over fifty years old may be issued prior to issuance of a permit for demolition of such existing building.

H.

No permit for demolition of a building determined to be a preferably preserved significant building under subsection D of this section shall be granted until plans for use or development of the site after demolition have been filed with the Building Department and found to comply with all laws pertaining to the issuance of a building permit, or if for a parking lot, a certificate of occupancy, for that site. All approvals necessary for the issuance of such a building permit or certificate of occupancy including without limitation any necessary zoning variances or special permits, must be granted and all appeals from the granting of such approvals must be concluded, prior to the issuance of a demolition permit under this section.

I.

During the six-month delay of demolition, no application for a building permit for new construction or alterations on the premises of a preferably reserved significant building shall be granted until reviewed by the Commission as though the property were designated as a landmark under Article III of this chapter 2.78. Until the expiration of the six-month delay period, the Commission shall review all construction, demolition, or alteration that affects the exterior architectural features, other than color, of the structures on the premises of a preferably preserved significant building.

(Ord. 1166 §15, 1995; Ord. 965 § 3, 1981: Ord. 909 (part), 1978: prior code § 2-147(j) (part))

2.78.100 - Application—Publication of notice.

A.

Application Contents. Every application for a demolition permit for a building shall contain the following information:

1.
The applicant's name, address and interest in the property;
2.
The owner's name and address, if different from the applicant's;
3.
The address or location of the building to be demolished;
4.
A brief description of the type of building and the condition requiring issuance of the permit; and
5.
A brief description of the proposed reuse, reconstruction or replacement of the premises upon which the building is located.

B.

Notice. In addition to the publication provided for in Section 2.78.090D of this article, notice of any hearing or determination provided for in this article shall in any event be given by the Commission to the applicant for the demolition permit, and shall also be given to such other persons and in such manner as the Commission may determine. The Commission may among other forms of notice require that the applicant maintain on the building which is the subject of an application a notice, in a form designated by the Commission, visible from the nearest public way, of any hearing upon the subject matter of such applicant; and the applicant shall comply with such requirement.

(Ord. 965 § 4, 1981: Ord. 909 (part), 1978: prior code § 2-147(j) (part))

2.78.110 - Emergency demolition.

A.

In the event that a Board of Survey is convened to consider the condition of a building over fifty years old, the Executive Director of the Cambridge Historical Commission shall be notified to accompany the Board during its inspection. The Commissioner of Inspectional Services shall pursue all reasonable courses of action to prevent emergency demolition of such a building which the Executive Director makes an initial determination is or may be a significant building, including but not limited to requiring the owner to secure it against further danger to the public.

B.

Nothing in this chapter shall prevent the construction, reconstruction, alteration or demolition of any feature which the Commissioner of Inspectional Services shall certify is required for public safety because of an unsafe or dangerous condition.

(Ord. 1166 §1A 1995: Ord. 965 § 5, 1981: Ord. 909 (part), 1978: prior code § 2-147(j) (part))

2.78.120 - Enforcement and remedies.

A.

Enforcement. The Commission and/or the Building Commissioner are each specifically authorized to institute any and all actions and proceedings, in law or in equity, as they may deem necessary and appropriate to obtain compliance with the requirements of this article or to prevent a threatened violation thereof.

B.

Building Permit to be Withheld. No building permit shall be issued with respect to any premises upon which a building fifty years or more old has been voluntarily demolished otherwise than pursuant to a demolition permit granted after compliance with the provisions of this article for a period of two years after the date of the completion of such demolition. As used in this article "premises" refers to the parcel of land upon which the demolished building was located and all adjoining parcels of land under common ownership or control.

C.

Securing of Building Required. Upon a determination by the Commission that a building is a preferably preserved significant building, the owner shall be responsible for properly securing the building in compliance with the regulations of the Building Department. Should the owner fail so to secure the building, the loss of such building through fire or other cause shall be considered voluntary demolition for the purposes of subsection B of this section.

(Ord. 965 § 7, 1981: Ord. 909 (part), 1978: prior code § 2-147(j) (part))

2.78.130 - Conflicts with Historic Districts Act.

Nothing in this article shall be deemed to conflict with the provisions of the Historic Districts Act, General Laws Chapter 40C, with respect to requirements as to notice, hearing and issuance by the Commission of a certificate of appropriateness, a certificate of nonapplicability or a certificate of hardship prior to demolition of any building in an historic district; provided, however, that any temporary building erected or maintained in an historic district pursuant to a certificate issued by the Commission may be demolished in a manner not inconsistent with the terms of such certificate.

(Ord. 965 § 6, 1981: Ord. 909 (part), 1978: prior code § 2-147(j) (part))

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Article III. - Establishment of Neighborhood Conservation Districts and Protected Landmarks

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2.78.140 - Purpose.

The City Council finds it necessary to enact this article under Section 6 of the Home Rule Amendment in order to preserve, conserve and protect the beauty and heritage of the City and to improve the quality of its environment through identification, conservation and maintenance of neighborhoods, areas, sites and structures which constitute or reflect distinctive features of the architectural, cultural, political, economic or social history of the City; to resist and restrain environmental influences adverse to this purpose; to foster appropriate use and wider public knowledge and appreciation of such neighborhoods, areas or structures; and by furthering these purposes to promote the public welfare by making the City a more attractive and desirable place in which to live and work. To achieve these purposes, the City may designate neighborhood conservation districts and landmarks to be administered as set forth in this article.

(Ord. 1002 (part), 1983: prior code § 2-147(k)(1))

2.78.150 - Definitions for Article III.

In addition to the terms defined in Section 2.78.080 of this chapter, the following terms, when used whether or not capitalized in this subsection, shall have the meanings set forth in this section, unless the context

otherwise requires:

A.

"Demolition" means the act of pulling down, destroying, removing or razing structures, or commencing the work of total or substantial destruction with the intent of completing the same.

B.

"Exterior architectural features" means and includes such portion of the exterior of a structure as is open to view from a public street, way, park or body of water, including but not limited to the architectural style and general arrangement and setting thereof, the kind, material and texture of exterior building materials, and the type and style of windows, doors, lights, signs and other appurtenant exterior fixtures.

C.

"Historic district" means an area so established under the authority of Chapter 40C of the General Laws.

D.

"Landmark" means any property within the City so designated in accordance with Section 2.78.180 of this article.

E.

"Neighborhood conservation district" means any area within the City so designated in accordance with Section 2.78.180 of this article.

F.

"Neighborhood conservation district commission" or "district commission" means a commission provided for by Section 2.78.160 of this article.

G.

"Structure" means a combination of materials including a building, sign, fence, wall, terrace, walk, driveway, street, bridge, statue, monument or other manmade feature.

H.

"Gross floor area" means the floor area so defined in Article 2.000 of the Zoning Ordinance of the City of Cambridge.

(Ord. 1166 §§7, 16, 1995; Ord. 1002 (part), 1983: prior code § 2-147(k)(2))

2.78.160 - Neighborhood conservation district commission—Established—Membership requirements.

A.

Upon designation as provided in Section 2.78.180 of this article of any neighborhood conservation district, and unless the designation provides that the Historical Commission itself shall exercise authority with respect thereto, the City Manager shall appoint a neighborhood conservation district commission to consist of five members and three alternates. The members shall include three residents of the neighborhood, not less than two of whom shall be homeowners; one neighborhood property owner (who may or may not be a neighborhood homeowner); and one member or alternate of the Cambridge Historical Commission. **One member and/or one alternate of a neighborhood conservation district commission, in addition to the mandated member of the Cambridge Historical Commission, may be a Cambridge resident who lives outside the district. The remaining alternates shall be neighborhood property owners.**

B.

Any member or alternate of the Historical Commission may be appointed to a neighborhood conservation district commission for a term coterminous with such person's term as a member or alternate of the Historical Commission. Members and alternates of a neighborhood conservation district commission who are not members of the Historical Commission shall by reason of experience or education have demonstrable knowledge and concern for improvement, conservation and enhancement of the district, and at least two of the members or alternates shall have professional qualifications related to real estate or architecture or historic preservation. The members of the neighborhood conservation district commission shall be appointed by the City Manager with regard to the diverse viewpoints expressed in the creation of the district. Such members shall serve for a term of three years, except that the initial appointments shall be for one member to serve one year and one member to serve two years, and vacancies shall be filled for the unexpired term of office. Each member and alternate shall continue in office after expiration of his or her term until a successor is duly appointed and qualified, except that no member shall serve more than two consecutive terms.

C.

The neighborhood conservation district commission shall elect annually a Chairman and Vice-Chairman from its own number. In the case of absence, inability to act, or unwillingness to act because of self-interest on the part of a member, his or her place shall be taken by an alternate member designated by the Chairman, if available, otherwise by the Vice-Chairman if available, otherwise by a majority vote of the members and alternate members of the Commission present. The person exercising the function of Executive Director of the Historical Commission shall serve as secretary of each neighborhood conservation district commission. Persons serving as members or alternate members of a neighborhood conservation district commission shall, as a result of such

service, be considered as "special municipal employees" for purposes of Chapter 268A of the General Laws. (Ord. 1166 §8, 1995; Ord. 1002 (part), 1983; prior code § 2-147(k)(3); Ord. 1331 (part), 2009)

2.78.170 - Powers and duties.

The Historical Commission and each neighborhood conservation district commission shall have like powers, functions and duties with respect to each landmark and neighborhood conservation district over which it has jurisdiction as is provided Historic District Commissions under clauses (a) through (g) under Section 10 of Chapter 40C of the General Laws with respect to historic districts, including without limitation with respect to the approval and disapproval of certificates of appropriateness, nonapplicability and hardship, the dating and signing of such certificates, the keeping of records and adoption of rules and regulations, the filing with the City Clerk and Building Department of certificates and determinations of disapproval by it, and the determination of designs of appurtenances (excluding colors) which will meet the requirements of the landmark or neighborhood conservation district.

(Ord. 1002 (part), 1983; prior code § 2-147(k)(9))

2.78.180 - Designation procedures.

A.

The Historical Commission by majority vote may recommend for designation as a landmark any property within the City being or containing a place, structure, feature or object which it determines to be either (1) importantly associated with one or more historic persons or events, or with the broad architectural, aesthetic, cultural, political, economic or social history of the City or the Commonwealth or (2) historically or architecturally significant (in terms of period, style, method of construction or association with a famous architect or builder) either by itself or in the context of a group of structures; may recommend for designation as a neighborhood conservation district any area within the City containing places and structures which it determines are of importance to the architectural, aesthetic, cultural, political, economic or social history of the City, and which considered together cause such area to constitute a distinctive neighborhood or to have a distinctive character in terms of its exterior features; and may recommend amendments to any designation of landmark or neighborhood conservation district theretofore made.

B.

Prior to the recommendation of designation or amendment of designation of any landmark or neighborhood conservation district an investigation and report on the historical, architectural and other relevant significance thereof shall be made. The report shall recommend the boundaries of any proposed landmark or neighborhood conservation district and shall recommend for incorporation in the order of the City Council designating each landmark or neighborhood conservation district general and/or specific standards and appropriate criteria consistent with the purposes of this article and the provisions of Section 2.78.190 of this article that are to be applied in making any determination of the type referred to in Sections 2.78.170, 2.78.210 and 2.78.220 of this article, with respect to the designated landmark or within the designated neighborhood conservation district.

C.

In the case of a landmark, the report shall be prepared by the Historical Commission. In the case of a neighborhood conservation district, the report shall be prepared by a study committee consisting of three members or alternates of the Historical Commission and four persons appointed by the City Manager, including at least one person who resides in the district under consideration, at least one person who owns property in the district under consideration, and one person who owns property or resides elsewhere in the City and has demonstrated knowledge and concern for conservation and enhancement of those exterior features of the City which are important to its distinctive character.

D.

Any ten registered voters of the City may petition that the Historical Commission initiate, or the Historical Commission on its own may initiate, the process of designating a landmark or neighborhood conservation district or amending or rescinding any such designation theretofore made. The Commission shall within forty-five days following the filing of such request or petition hold a preliminary hearing and arrange for the preparation of a report and, if required, request the appointment of a study committee. The Historical Commission shall not reconsider a proposed designation, amendment or rescission of designation within one year of its previous hearing thereon, unless two-thirds of all its members vote to do so. No later than forty-five days after the transmittal of a report to the Commission pertaining to a proposed designation, the Commission shall hold a public hearing. The Commission shall give not less than fourteen days notice of such public hearing by publication in a newspaper of general circulation in the City and by mailing notice thereof to the owner of the proposed landmark and to every owner abutting the proposed landmark or within the proposed neighborhood conservation district, each such owner to be determined from the then current records of the Assessing Department, and to the City Manager, the Planning Board and the City Clerk.

E.

Prior to the public hearing, the Commission shall transmit copies of the report to the Planning Board for its consideration and recommendations.

F.

The recommendation of the Historical Commission with regard to any designation, amendment or rescission shall be transmitted to the City Manager and to the City Clerk with a copy of the approved designation report. Designation of a landmark or a neighborhood conservation district or amendment or rescission of designation shall be by order of the City Council. In the case of a designation, the order shall include a statement of the reasons for such designation and a statement of standards which the Historical Commission or neighborhood conservation district commission is to apply under Sections 2.78.170 and 2.78.190 through 2.78.220 of this article.

G.

No designation, amendment or rescission of designation shall become effective until a map setting forth the boundaries of the landmark or neighborhood conservation district or change in the boundaries thereof, has been filed with the City Council and has been recorded with the Registry of Deeds for the South District of Middlesex County.

H.

If the order establishing or amending a neighborhood conservation district contains provisions for both regulatory and educational/incentive programs, the regulatory provisions of the order shall not be effective unless and until the educational/incentive provisions of the order are funded.

I.

Following acceptance of a designation petition by the Historical Commission, no application for a building permit for new construction or alterations on the premises of a property being considered for designation shall be granted until reviewed by the Commission as though the property were designated as a landmark or a neighborhood conservation district under this Article III. Beginning with the acceptance of a designation petition and until (a) the Historical Commission makes a negative recommendation on a proposed designation, (b) the City Council determines not to enact the proposed designation, or (c) one year has elapsed, whichever is less, the Commission shall review all proposed construction, demolition, or alteration that affects the exterior architectural features, other than color, of the structures on the premises of a proposed landmark or within a proposed neighborhood conservation district.

J.

Notwithstanding the prior provisions of this section 2.78.180, a neighborhood conservation district previously established by order of the City Council, in accordance with this section, which order instructs that there be a review of the activities of the neighborhood conservation district commission established pursuant to that order, following one or more public hearings by such neighborhood conservation district commission and by the Historical Commission, and a report to the City Council by such commissions containing a summary of testimony at such hearings and recommendations by such commissions for amendments to the powers, responsibilities and procedures of such neighborhood conservation district commission (including amendments to the boundaries of the affected neighborhood conservation district), may be amended by the City Council, in a manner consistent with the recommendations of such report, or be rescinded without the necessity of the appointment of a new study committee or of a *de novo* study process.

(Ord. 1166 §§9, 10, 17, 18, 1995; Ord. 1009A (part), 1984; Ord. 1002 (part), 1983; prior code § 2-147(k)(4); Ord. 1331 (part), 2009)

2.78.190 - Review procedures.

A.

Except as the order designating or amending a landmark or neighborhood conservation district may otherwise provide in accordance with this article, the Historical Commission or neighborhood conservation district commission having jurisdiction shall review all construction, demolition or alteration that affects the exterior architectural features, other than color, of any landmark or within any neighborhood conservation district.

B.

The order designating or amending a landmark or neighborhood conservation district may provide that the authority of the Historical Commission or neighborhood conservation district commission having jurisdiction shall not extend to the review of one or more of the following categories of structures or exterior architectural features of the landmark or within the neighborhood conservation district in which event the structures or exterior architectural features so excluded may be constructed or altered without review by the Commission:

1.

The application of exterior wall material in a manner that does not require the removal or enclosure of any cornice, fascia, soffit, bay, porch, hood, window or door casing, or any other protruding decorative element;

2.

Alterations to the exterior of existing structures that do not increase or diminish the size and location of windows and doors, cause the removal of any bay, porch, hood, window or door casing or any other protruding decorative element, or alter the appearance of a roof;

3. The exterior appearance of a new structure that does not require a variance or special permit under the zoning ordinance then in effect;

4. Signs, temporary structures, lawn statuary, or recreational equipment, subject to such conditions as to duration of use, dimension, location, lighting, removal and similar matters as the Commission may reasonably specify;

5. Terraces, walks, driveways, sidewalks and similar structures substantially at grade level;

6. Walls and fences;

7. Storm doors and windows, screens, window air conditioners, lighting fixtures, antennae, trelliswork and similar appurtenances.

C. The Historical Commission or a neighborhood conservation district commission may determine from time to time after a public hearing that certain categories of exterior architectural features or structures, including, without limitation, any of those enumerated in this section, if the provisions of the applicable order do not limit the authority of such commission with respect thereto, may be constructed or altered without review by such commission without causing substantial derogation from the intent and purposes of this article.

D. If the order establishing or amending a neighborhood conservation district provides, the determination of a neighborhood conservation district commission shall be binding only with regard to applications to construct a new building, to demolish an existing structure if a demolition permit is required, to construct a parking lot as a principal use, and to construct an addition to an existing structure that would increase its gross floor area, and in all other cases the determinations of a commission shall be advisory only and not binding on an applicant. In no case shall a building permit be issued until the commission has made a determination under the applicable provisions of this article.

(Ord. 1002 (part), 1983: prior code § 2-147(k)(5))

2.78.200 - Maintenance, repair and reconstruction.

Nothing in this chapter shall be construed to prevent the ordinary maintenance, repair or replacement of any exterior architectural feature of a landmark or within a neighborhood conservation district which does not involve a change in design or material or the outward appearance thereof, nor to prevent landscaping with plants, trees or shrubs, nor construed to prevent the meeting of requirements certified by duly authorized public officer to be necessary for public safety because of an unsafe or dangerous condition, not construed to prevent any construction or alteration under a permit duly issued prior to the effective date of the order which designates that landmark or district, nor construed to prevent the reconstruction, substantially similar in exterior design, of a structure or exterior architectural feature damaged or destroyed by fire, storm or other disaster, provided such reconstruction is begun within one year thereafter and carried forward with due diligence.

(Ord. 1002 (part), 1983: prior code § 2-147(k)(6))

2.78.210 - Certificates of appropriateness, nonapplicability or hardship.

A. Except as the order establishing or amending a landmark or neighborhood conservation district may otherwise provide, no structure designated a landmark or within a neighborhood conservation district shall be constructed or altered in any way that affects exterior architectural features unless the Historical Commission or neighborhood conservation district commission having jurisdiction shall first have issued a certificate of appropriateness, a certificate of nonapplicability or a certificate of hardship with respect to such construction or alteration.

B. Any person who desires to obtain a certificate from the Historical Commission or neighborhood conservation district commission shall file with the Commission an application for a certificate of appropriateness, a certificate of nonapplicability or a certificate of hardship, as the case may be, in such form as the commission may reasonably determine, together with such plans, elevations, specifications, material and other information, including in the case of demolition or removal a statement of the proposed condition and appearance of the property thereafter, as may be reasonably deemed necessary by the Commission to enable it to make a determination on the application.

C. No building permit for alteration of an exterior architectural feature of a landmark or construction of a structure or

for alteration of an exterior architectural feature within a neighborhood conservation district and no demolition permit for demolition or removal of a landmark or of a structure within a neighborhood conservation district shall be issued by the City or any department thereof until the certificate required by this article has been issued by the Historical Commission or neighborhood conservation district commission having jurisdiction.

(Ord. 1166 §§11, 12, 1995; Ord. 1002 (part), 1983: prior code § 2-147(k)(7))

2.78.220 - Factors considered by Commissions.

A.

In passing upon matters before it, the Historical Commission or neighborhood conservation district commission shall consider, among other things, the historic and architectural value and significance of the site or structure, the general design, arrangement, texture and material of the features involved, and the relation of such features to similar features of structures in the surrounding area. In the case of new construction or additions to existing structures a commission shall consider the appropriateness of the size and shape of the structure both in relation to the land area upon which the structure is situated and to structures in the vicinity, and a Commission may in appropriate cases impose dimensional and setback requirements in addition to those required by applicable provision of the zoning ordinance. A Commission shall not consider interior arrangements or architectural features not subject to public view.

B.

A Commission shall not make any recommendation or requirement except for the purpose of preventing developments incongruous to the historic aspects, architectural significance or the distinctive character of the landmark or neighborhood conservation district.

(Ord. 1002 (part), 1983: prior code § 2-147(k)(8))

2.78.230 - Public meetings and hearings.

The Historical Commission and each neighborhood conservation district commission shall adopt rules for the reasonable conduct of its meetings and public hearings, which rules shall not be inconsistent with the procedures provided for meetings of and hearings by historic district commissions under Section 11 of Chapter 40C of the General Laws; and in the absence of the adoption of any such rules, meetings and public hearings of the Historical Commission and of each neighborhood conservation district commission shall be in conformity with the provisions of Section 11 of Chapter 40C applicable to historic district commissions.

(Ord. 1002 (part), 1983: prior code § 2-147(k)(10))

2.78.240 - Appeal procedure.

Any person aggrieved by a designation of a landmark or district may appeal to the superior court within thirty days after such designation. Any applicant aggrieved by a determination of a neighborhood conservation district commission or ten registered voters of the City opposing a determination under this article may appeal to the Historical Commission within twenty days after the filing of the notice of such determination with the City Clerk. The Historical Commission may overrule the determination and return it for reconsideration consistent with that finding. If the applicant is aggrieved by the determination of the Historical Commission, or if action is not taken by the Historical Commission within thirty days of filing for review, the applicant may appeal to the superior court. Appeal from a Historical Commission determination shall be taken within thirty days of the formal decision; appeal from a failure to act shall be taken within sixty days after the filing for review. The superior court may reverse a determination if it is not supported by substantial evidence in the record. In all other respects, the appeal shall be made in the same manner as provided under Section 12A of Chapter 40C of the General Laws.

(Ord. 1166 §13, 1995; Ord. 1002 (part), 1983: prior code § 2-147(k)(11))

2.78.250 - Historical Commission authority not limited.

No provisions of this article shall alter or diminish the duties and functions of the Historical Commission under the authority of Chapter 40, Section 8D and Chapter 40C of the General Laws, or apply to any historic district currently administered by such commission, or restrict the establishment of any future historic district under Chapter 40C of the General Laws.

(Ord. 1002 (part), 1983: prior code § 2-147(k)(13))

2.78.260 - Limitation on applicability.

The provisions of Article II of this chapter (relative to procedures for demolition permits for significant buildings) shall not be applicable with respect to the demolition of any structure within a neighborhood conservation district if the appropriate neighborhood conservation district commission has issued a certificate of appropriateness or a certificate of hardship permitting the demolition of such structure.

(Ord. 1002 (part), 1983: prior code § 2-147(k)(14))

2.78.270 - Enforcement and remedies.

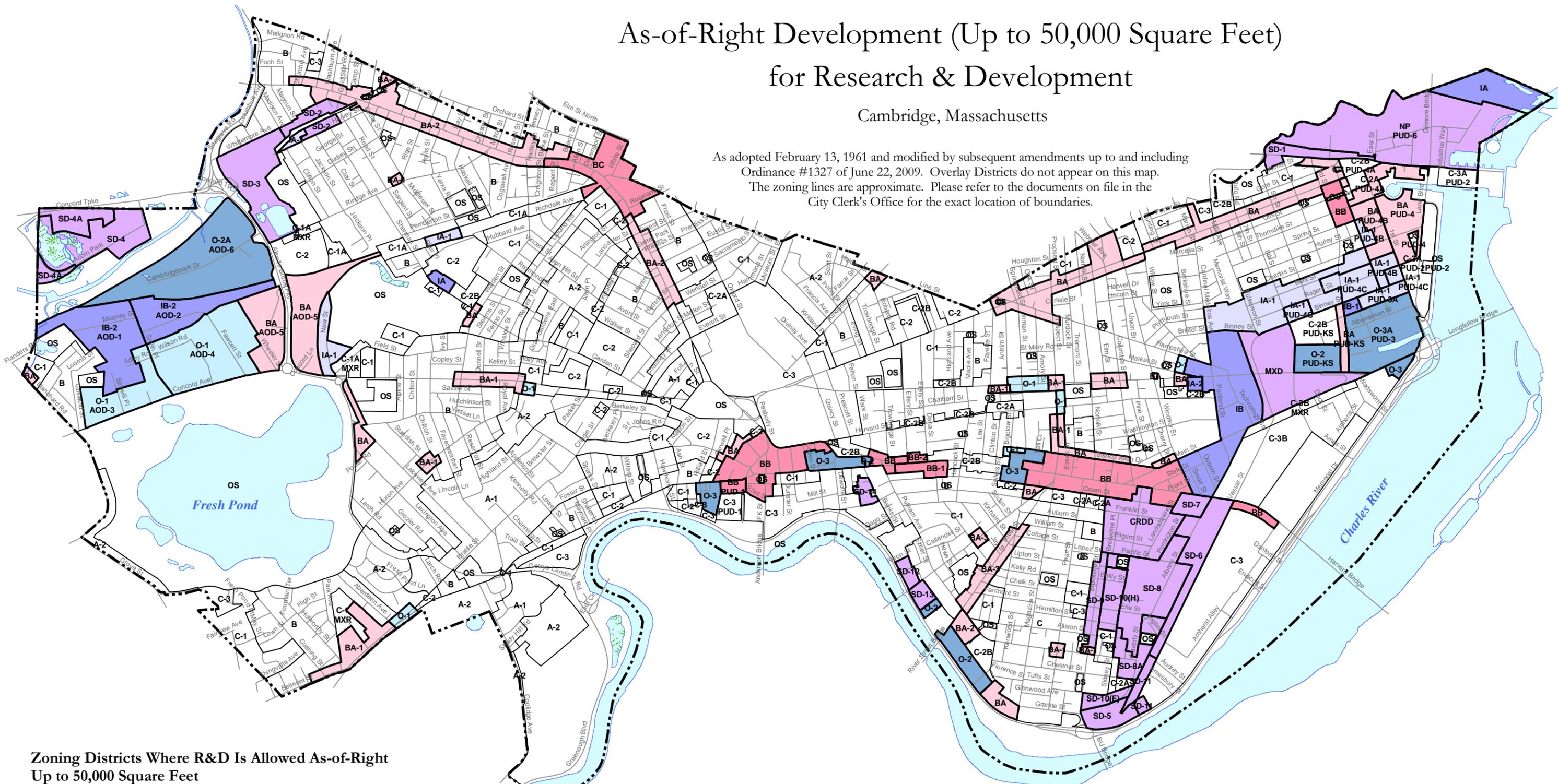
The Historical Commission and any neighborhood conservation district commission are each specifically authorized to institute any and all actions, proceedings in law and in equity, as they deem necessary and appropriate to obtain compliance with the requirements of this article or to prevent a threatened violation thereof. Any violation of any provision of this article may be punished to the like extent provided in Section 13 of Chapter 40C of the General Laws for a violation of said Chapter 40C. In addition to the foregoing, no building permit shall be issued, with respect to any premises upon which a landmark or a structure within any neighborhood conservation district has been voluntarily demolished otherwise than pursuant to a certificate granted after compliance with the provisions of this article, for a period of two years after the date of the completion of such demolition (the word "premises" for the purposes of this sentence referring to the parcel of land upon which the demolished structure was located and all adjoining parcels of land under common ownership or control.)

(Ord. 1002 (part), 1983: prior code § 2-147(k)(12))

As-of-Right Development (Up to 50,000 Square Feet) for Research & Development

Cambridge, Massachusetts

As adopted February 13, 1961 and modified by subsequent amendments up to and including Ordinance #1327 of June 22, 2009. Overlay Districts do not appear on this map. The zoning lines are approximate. Please refer to the documents on file in the City Clerk's Office for the exact location of boundaries.



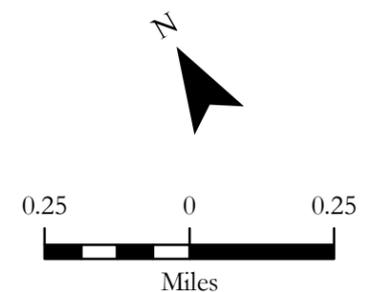
Zoning Districts Where R&D Is Allowed As-of-Right Up to 50,000 Square Feet

- | | | |
|--------------------------|--------------------------|---|
| O-1 Office-1 | BB-1 Business-1 | IB Industry B |
| O-2 Office-2 | BB-2 Business 2 | IC Industry C |
| O-2A Office-2A | BC Business C | MXD Mixed Use Development |
| O-3 Office-3 | BC-1 Business C-1 | AOD Alewife Overlay District |
| O-3A Office-3A | IA-1 Industry A-1 | PUD Planned Unit Development Overlay |
| BA Business A | IA-2 Industry A-2 | MXR Mixed Use Residential Overlay |
| BA-1 Business A-1 | IA Industry A | NP North Point District |
| BA-2 Business A-2 | IB-1 Industry B-1 | CRDD Cambridgeport Revitalization Development District |
| BA-3 Business A-3 | IB-2 Industry B-2 | |
| BB Business B | | |

- | | |
|----------------------------------|--|
| SD-1 Special District-1 | SD-8A Special District-8A |
| SD-2 Special District-2 | SD-9 Special District-9 |
| SD-3 Special District-3 | SD-10(F) Special District-10(F) |
| SD-4 Special District-4 | SD-10(H) Special District-10(H) |
| SD-4A Special District-4A | SD-11 Special District-11 |
| SD-5 Special District-5 | SD-12 Special District-12 |
| SD-6 Special District-6 | SD-13 Special District-13 |
| SD-7 Special District-7 | SD-14 Special District-14 |
| SD-8 Special District-8 | |

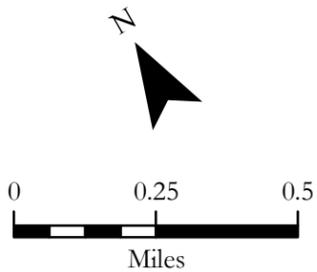
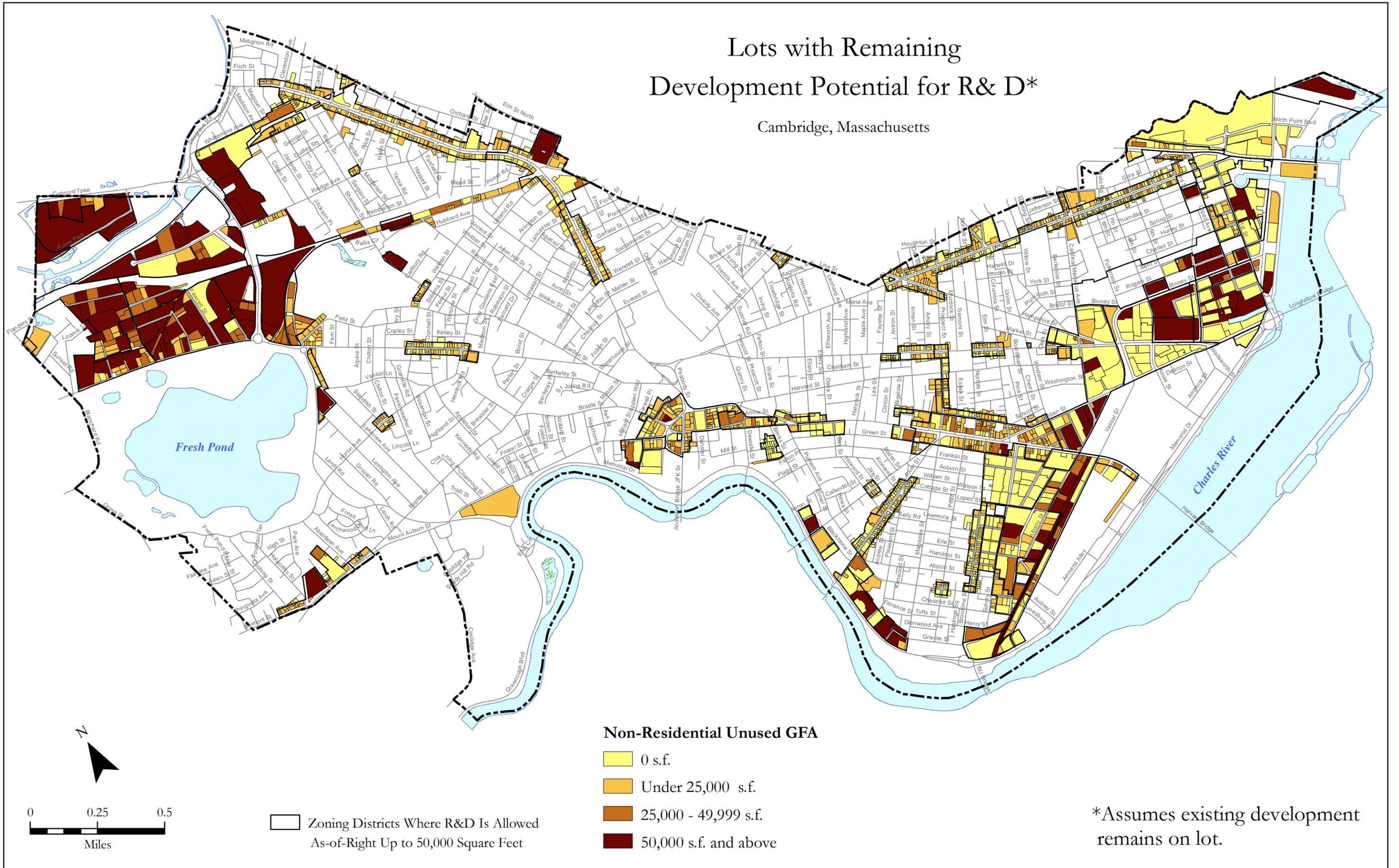
Residential and Open Space Zoning Districts

- | | |
|----------------------------|----------------------------|
| A-1 Residence A-1 | C-2A Residence C-2A |
| A-2 Residence A-2 | C-2B Residence C-2B |
| B Residence B | C-3 Residence C-3 |
| C Residence C | C-3A Residence C-3A |
| C-1 Residence C-1 | C-3B Residence C-3B |
| C-1A Residence C-1A | |
| C-2 Residence C-2 | OS Open Space |



Lots with Remaining Development Potential for R&D*

Cambridge, Massachusetts



Zoning Districts Where R&D Is Allowed
 As-of-Right Up to 50,000 Square Feet

Non-Residential Unused GFA

- 0 s.f.
- Under 25,000 s.f.
- 25,000 - 49,999 s.f.
- 50,000 s.f. and above

*Assumes existing development remains on lot.

Excerpt from
City of Cambridge Zoning Ordinance

4.30 Table of Use Regulations

	Open Space	Res A 1&2	Res B	Res 2, 2A, 2B, 3, 3A, 3B	Res C, C-1, C-1A Off 1, 2A,2, 3,3A	Bus A-1, A-2, A-3 ¹	Bus A	Bus B, B-1, B-2	Bus C, C-1	Ind A-1, A-2	Ind A	Ind B-1, B-2	Ind B	Ind C
4.34 Office and Laboratory Use														
a. Office of a physician, dentist or other medical practitioner not located in a clinic listed under Subsection 4.33(d).	No	No	No	No ⁹	Yes	Yes	Yes	Yes ¹⁰	Yes	Yes	Yes	Yes	Yes	Yes
b. Office of an accountant, attorney, or other non-medical professional person (includes properly licensed massage therapists)	No	No	No	No ⁹	Yes	Yes	Yes	Yes ¹⁰	Yes	Yes	Yes	Yes	Yes	Yes
c. Real Estate, insurance or other agency office	No	No	No	No ⁹	Yes	Yes	Yes	Yes ¹⁰	Yes	Yes	Yes	Yes	Yes	Yes
d. General office use	No	No	No	No ⁹	Yes	Yes	Yes	Yes ¹⁰	Yes	Yes	Yes	Yes	Yes	Yes
e. Bank, trust company or similar financial institution	No	No	No	No ⁹	Yes	Yes	Yes	Yes ¹⁰	Yes	Yes	Yes	SP	Yes	Yes
f. Technical office for research and development, laboratory & research facility subject to the restrictions in Section 4.21m	No	No	No	No ⁹	Yes	Yes	Yes	Yes ¹⁰	Yes	Yes	Yes	Yes	Yes	Yes

Excerpts from
City of Cambridge Zoning Ordinance

4.10 GENERAL CLASSIFICATION RULES

- 4.12** A use listed in Section 4.30 is permitted as of right in any district under which it is denoted by the word **“YES”**. Uses designated in the Table by the letters **“SP”** may be allowed only if a special permit is issued by the Board of Zoning Appeal. Uses designated in the Table by the letters **“PB”** may be allowed only if issued a special permit by the Planning Board. Special permits shall be issued in accordance with the provisions of Section 10.40 and may be subject to such restrictions as the special permit granting authority may establish. Uses designated in the Table by the **“PUD”** may be allowed only if the use is part of a Planned Unit Development approved by the Planning Board in accordance with the applicable requirements of Articles 12.000 and 13.000. Uses denoted by the word **“NO”** in Section 4.30 shall be prohibited. Uses in certain districts designated in the Table by the letters **“IUR”** shall be governed by the applicable provisions of Section 4.50, Institutional Use Regulations.

4.20 SPECIAL CLASSIFICATION RULES

4.21 *Accessory Uses.*

- m. Limited manufacturing activity shall be considered an allowed accessory use to a technical research and development office, laboratory or research facility in a nonindustrial district provided that the following requirements are satisfied:
- (1) Such manufacturing activity is related to research and development activities of the principal use.
 - (2) No manufacturing activity customarily occurs within fifty (50) feet of a residence or residential district.
 - (3) All manufacturing activity customarily occurs inside of buildings; however, outside research work and incidental outside fabrication of equipment to conduct outside experimentation shall be permitted.
 - (4) Outside research in nonindustrial districts should not customarily involve noxious activity which creates disturbances off of the premises.

- (5) Manufacturing activity, excluding incidental fabrication of outside experiments, shall not occupy an area in excess of sixty (60) percent of the gross floor area of a building or group of associated buildings owned by the same establishment.

19.20 PROJECT REVIEW SPECIAL PERMIT

19.23 *Special District Threshold.* A Project Review Special Permit shall be required for new building construction of fifty thousand (50,000) gross square feet or more, in all applicable zoning districts [except that in a Business A, Business A-1, and Business A-2 districts a Project Review Special Permit shall be required for new building construction of twenty thousand (20,000) gross square feet or more], or for building construction of less than fifty thousand square feet [or twenty thousand square feet in the BA, BA-1, and BA-2 Districts] where a Table I threshold has been met, on a lot or combination of contiguous lots held in common ownership at any time after September 15, 2000. Where a mix of uses is proposed the threshold shall be determined by the application of the Mixed Use Formula set forth in Table 1.

CLEAN ENERGY R5/13/2010 FIRMS AND ORGANIZATIONS IN CAMBRIDGE, MA

Company	Field	Address	Website
Advanced Diamond Solutions	solar, thermoelectric generators	12 Inman Street, Suite 15	http://www.advanceddiamond.com/
Ethanol Boosting Systems	Transportation fuels	100 Memorial Dr., Suite 11-22B	http://www.ethanolboost.com/
Ferro Solutions	Energy storage	215 First Street	http://www.ethanolboost.com/
GreatPoint Energy	Coal gasification	222 Third Street	http://www.greatpointenergy.com/index.php
Honda Research Institute	Energy conversion/storage	One Cambridge Center, Suite 401	http://www.honda-ri.com/HRI_Us/
Metabolix	Biofuels	21 Erie Street	http://www.metabolix.com/
Microbia	Bioproducts	320 Bent Street	http://www.microbia-pe.com/
Rive Technologies	Transportation fuels	One Canal Park, 4th floor	http://www.rivettechnology.com/
Schlumberger-Doll Research	Energy	One Hampshire Street	http://www.slb.com/content/about/research/sdr.asp
Charles Stark Draper Laboratory	Energy efficiency	555 Technology Square	http://www.draper.com/index.html
Tiax	Fuel cells	15 Acorn Park	http://www.tiaxllc.com/index.php
WebGen Systems	Energy efficiency	41 Linskey Way	http://www.webgensystems.com/index.html
Fraunhofer Institute	Solar	25 First Street	http://www.fraunhofer.org/Research%20Centers/IndexCSE.html
Covalent Solar	Solar	One Broadway, 14th floor	http://www.covalentsolar.com/
Hyperion Catalysis	Advanced batteries, fuel cells	38 Smith Place	http://www.fibrils.com/index.htm
Advanced Conductors	Solar	411 Massachusetts Avenue	
Verenium Corp	Biofuels	55 Cambridge Parkway	http://www.verenium.com/

As of April 2010

Criterion #2

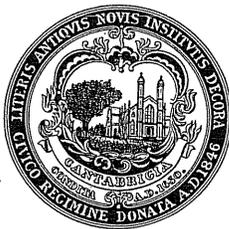
Expedited Permitting

- Letter from City Solicitor certifying compliance

Donald A. Drisdell
City Solicitor

Nancy E. Glowa
Deputy City Solicitor

Arthur J. Goldberg
First Assistant City Solicitor



Assistant City Solicitors

Vali Buland
Paul S. Kawai
Elizabeth A. Shaw
Samuel A. Aylesworth
Amy L. Witts

CITY OF CAMBRIDGE

Office of the City Solicitor
795 Massachusetts Avenue
Cambridge, Massachusetts 02139

May 13, 2010

Cliff Sullivan
Green Communities Division
Department of Energy Resources
100 Cambridge Street, 10th Floor
Boston, MA 02114

Dear Mr. Sullivan:

This letter certifies that the City of Cambridge Zoning Ordinance complies with eligibility criterion no.2 of the Green Communities Grant Program concerning expedited permitting for as-of-right zoning for renewable energy/alternative energy research and development facilities.

Nothing within the City of Cambridge's rules and regulations precludes issuance of a permitting decision within one year of the receipt of an application. In Cambridge, as-of-right uses require a building permit. As part of the routine process of issuing a building permit, a series of administrative reviews is required of several departments by the City's Inspectional Services Department. These administrative reviews include zoning review by the Community Development Department and reviews by the Historical Commission, Traffic and Parking Department, Public Works Department, and Conservation Commission. The building permit applicant is responsible for obtaining written approval from these departments that all legal requirements have been met. The City of Cambridge does not have a formal site plan review process in its ordinances. The aforementioned reviews are completed expeditiously, usually within 30 days.

There are three possible regulatory procedures that might apply to a proposed project depending on its size and location: Wetlands Protection Act, Historical Commission approval, and Parking & Transportation Demand Management Ordinance. The Wetlands Protection Act (G.L., c.131, s.40) is a state statute; the City does not have a separate wetlands ordinance. Under this statute, the Conservation Commission must hold a public meeting or hearing, depending on the type of filing, within 21 days. If an Order of Conditions is requested under a Notice of Intent, the Order must be issued within 21 days of the close of the public hearing. Hearings may be continued if additional information is necessary. Cases are generally concluded well within a year. The time frames associated

with the administration of the Wetlands Protection Act are dictated by state law and cannot be altered by the municipality.

Alterations to landmarks and structures within local historic districts are regulated by state statute under G.L., c.40C and by the City's Historical Buildings and Landmarks Ordinance, Cambridge Municipal Code Chapter 2.78.. Under the state statute, local historic district commissions must issue a Certificate of Appropriateness within 45 days after filing of the application. In Neighborhood Conservation Districts under the City's Ordinance, a similar time-line applies. Proposed demolition of historically significant buildings may cause an additional delay of six months but even this delay, assuming all other requirements can be met, would not preclude issuance of a building permit within one year, A copy of the City's Historical Buildings and Landmarks Ordinance is appended.

The City of Cambridge also has adopted a Parking and Transportation Demand Management (PTDM) Ordinance. This Ordinance requires parking and transportation demand management plans for creation or expansion of commercial parking facilities and other non-residential parking facilities over a specified size. The purpose of the ordinance is to limit traffic impacts resulting from the creation of additional parking. Under the PTDM Ordinance, the City's PTDM Officer must issue a decision on the PTDM plan within 60 days of receipt. If the PTDM Officer does not render a decision within 60 days or the matter is not continued by agreement, the plan is automatically approved. A copy of the City's PTDM Ordinance is appended.

If you have any questions regarding this letter, please contact me, at 617-349-4121, or John Bolduc, Environmental Planner, at 617-349-4628 or jbolduc@cambridgema.gov.

Sincerely,



Donald A. Drisdell
City Solicitor

Criterion #3

Energy Use Baseline/ Reduction Plan

- Letter from City Manager committing to 20% energy use reduction
- Energy Reduction Plan
- Letter from Superintendent of Schools committing to 20% energy reduction plan and vehicle efficiency guidelines



CITY OF CAMBRIDGE • EXECUTIVE DEPARTMENT

Robert W. Healy, City Manager

Richard C. Rossi, Deputy City Manager

May 14, 2010

Department of Energy Resources
Green Communities Division
100 Cambridge Street, 10th Floor
Boston, MA 02114
ATTN: Cliff Sullivan

Re: City of Cambridge commitment to 20% municipal energy reduction

Dear Mr. Sullivan:

As City Manager of the City of Cambridge, I have adopted the plan to reduce municipal energy use by 20% by Fiscal Year 2013 in accordance with the Green Communities Program guidelines. This commitment applies to all City departments, including the School Department.

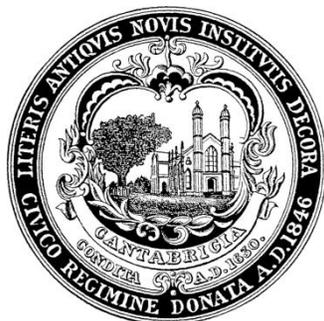
The attached plan lays out the City's current strategy to achieve the reduction goal. We expect over time to adjust the plan as more information is gathered from energy audits and investigations and as new opportunities arise as technology advances.

The City believes it can exceed the 20% reduction goal. We will submit a Green Communities grant application that will include substantial elements to further develop and institutionalize our capacity to manage energy use in a sustainable manner.

Yours very truly,

Robert W. Healy
City Manager

City of Cambridge Energy Reduction Plan



**Submitted by Robert W. Healy, City Manager
City of Cambridge, MA**

May 14, 2010

Submitted by:

Robert W. Healy, City Manager

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Introduction

The City of Cambridge serves a population of approximately 105,000 residents. The City operates 68 municipal buildings, including 18 School Department buildings, 28 pumping stations, 347 vehicles, 1,050 park lights, 6,565 streetlights, and 191 traffic lights. Buildings are typically powered by NSTAR electricity and natural gas, with some school buildings being heated by oil. The City currently has about 42 kilowatts of solar photovoltaic systems installed on its facilities.

Reducing energy consumption in City operations has been a priority in Cambridge for over a decade. In 1999, Cambridge became a member of ICLEI's Cities for Climate Protection program and was also an early signatory of the US Mayors Climate Protection Agreement. The Cambridge City Council approved the Climate Protection Plan in December of 2002. Table 1 outlines additional key milestones since 1999. The City's goal is to lead by example by reducing energy consumption within its municipal buildings and operations. Becoming a Green Community is the next logical step for the City in its efforts to reduce greenhouse gas emissions, minimize energy use, and serve as a leader among municipalities in achieving sustainability.

The City has already taken many steps to reduce energy consumption and green its municipal building stock and operations. It is City policy since 2004 that all new municipal construction and major renovations follow USGBC LEED standards. Two City buildings – City Hall Annex and Russell Field Fieldhouse—have already been certified (Annex is certified LEED Gold) and 5 additional projects are in the process of achieving LEED status—the Main Library, West Cambridge Youth Center, War Memorial recreational facility, the Robert W. Healy Public Safety Facility, and the Cambridge Rindge and Latin High School. City Hall Annex was the first municipal building in Massachusetts to achieve LEED certification; it was certified at the Gold level. The City Manager established an inter-departmental Energy Management Work Group in 2004 to track energy consumption and target buildings for energy-efficiency improvements. Details on energy improvements already made are described below.

The City of Cambridge has been tracking its energy consumption since 2006 in an online database called the Energy Information System (EIS). This system served as the prototype for the Commonwealth's new MassEnergyInsight system and the City's data is currently being transferred into MassEnergyInsight. The City has established Fiscal Year 2008 as its energy baseline and aims to reduce its consumption (298,638 MMBTU in FY08) by at least 20% by the completion of FY13. Actions already implemented have resulted in approximately 15% energy reductions from the baseline by the completion of FY10. The City has additional actions and programs planned that will maintain these reductions and reach the additional 5%, and possibly more, over the next 3 years. These plans are described in more detail throughout the following Energy Reduction Plan.

Table 1: Cambridge Climate & Energy Milestones

<i>Year</i>	<i>Milestone</i>
1999	Cambridge joins ICLEI – Local Governments for Sustainability
2000	Cambridge completes first community greenhouse gas emissions inventory
2002	City Council approves Climate Protection Plan
2003	City Manager appoints Climate Protection Action Committee
2004	City Manager convenes Energy Management Work Group to identify and implement energy efficiency measures in municipal facilities
2005	Cambridge signs U.S. Mayors Climate Agreement
2005	City begins converting traffic signals to LEDs
2005	City Manager issues Energy Star Purchasing Policy; all departments required to purchase Energy Star rated office equipment
2005	City Council issues a policy order setting goal that 20% of municipal power come from renewable sources
2005	City Hall Annex receives LEED Gold rating from the U.S. Green Building Council; first City building to be LEED certified
2006	Public Works Department partners with Mass. Department of Energy Resources to install web-based Energy Information System to track energy use in municipal buildings
2006	City Manager convenes Green Fleet Committee to increase fuel efficiency of municipal vehicles; starts Green Fleet vehicle acquisition procedure
2007	Cambridge Energy Alliance launches by the City and Henry P. Kendall Foundation with the support of Governor Deval Patrick
2009	City receives \$1.1 million Energy Efficiency & Conservation Block Grant by formula from the U.S. Department of Energy under ARRA; 2/3 allocated to municipal energy projects and 1/3 to community energy efficiency
2009	City Council adopts Stretch Energy Code
2009	City Council adopts resolution recognizing climate emergency; works with citizens to hold Cambridge Climate Emergency Congress

Energy Use Baseline Inventory and Data Tracking

In partnership with the Commonwealth's Rebuild Massachusetts program, administered through the MA Department of Energy Resources, the City conducted a baseline inventory and began tracking electricity, gas, and oil consumption, costs, and associated greenhouse gas emissions. Since 2006, the City has tracked energy and fuel consumption and cost data for all City buildings, vehicles, pump stations, streetlights, and traffic lights through the EIS. The database contains data as far back as 2005. The City uses this tool to assess municipal energy performance over time and against national benchmarks in order to develop a comprehensive strategy for future building improvements that maximize the benefit per cost. The tool also facilitates reporting on results from initiatives already taken. In addition, the City has used the EPA's Energy Star Portfolio Manager tool to track usage and assess building efficiency. Most recently, the City is transitioning all energy data over to the new DOER sponsored MassEnergyInsight (MEI) tool. The City anticipates that MEI will also be able to integrate with Portfolio Manager in the near future so that the City will be tracking energy data in both places and be able to track Energy Star achievement. Thus far the City has had 40 facilities benchmarked in the Portfolio Manager system, and aims to benchmark all facilities once integration with MEI occurs.

Tracking of data in MEI will primarily be managed within the Department of Public Works, and additional users will be trained, particularly fiscal staff in other departments, to take full advantage of the system. The Energy Specialist within DPW, along with Peregrine Energy Group, the contractor managing the EIS, currently work together to compile all necessary utility data to provide monthly updates on the EIS and regularly review data for quality control purposes. As the data is transitioned over to the MEI tool, the Energy Specialist will continue to provide monthly updates and reports, which will be used by buildings operations, fiscal staff, and department heads to monitor energy consumption and target areas for improvement.

Perhaps unique to Cambridge, the City is also maintaining vehicle fuel use in the same EIS database. This data will also be transferred to the new MEI system. This facilitates regular monitoring of the entire universe of the City's energy use and fuel consumption and puts the City in a good position to implement strategies and measure reductions. See page 13 for further details on the integration of the City's fuel key system with the EIS. Appendix A includes a sample of the types of vehicle fuel data the City is able to track.

Table 2: Cambridge Energy Use FY08-FY09

Category	Fiscal Year MMBTU	
	2008	2009
Building	234,655	212,419
Streetlight	19,280	19,343
Open Space	4,419	4,190
Traffic Signal	2,153	1,719
Pump Station	162	175
Floodlight	35	35
Non-Vehicle Totals	260,705	237,882
Vehicle fuel MMBTU	36,434	36,096
GRAND TOTAL	297,140	273,978
Change		23,162
% Change		-8%

The above table includes data taken from the EIS tool. It demonstrates that the total energy consumption for FY08 was 298,638 MMBTU, including 36,434 MMBTU from vehicle fuel consumption. In FY09, consumption decreased by 24,660 MMBTU to a total of 273,978 MMBTU. Projections for FY10 are a total of 253,511 MMBTU representing a 15% reduction from the baseline FY08 by the end of FY10. As evident in Table 2, the majority of municipal energy use is from buildings, followed by vehicles, then streetlights. To achieve the full 20% energy reduction by the conclusion of FY13, the City must reduce its total consumption by an additional 15,180 MMBTU. Most of this reduction will come from building upgrades and performance improvements. More details about planned reduction projects follow.

The City currently owns and operates 347 vehicles, including passenger vehicles, public safety vehicles, motorcycles, sedans, light-duty trucks, vans, mid-duty trucks, SUVs, heavy duty trucks, and 45 bicycles. The City gives serious consideration to the fuel efficiency of its vehicle fleet. The inventory includes 22 hybrid vehicles. In 2006 the City Manager instituted a “Green Fleet Committee” and vehicle review procedure. This procedure requires all departments requesting to purchase new vehicles to do a comparison of vehicles and select the greenest option based on fuel efficiency and greenhouse gas emissions that still meet operational and safety needs. This review procedure is a solid jumping-off point for the City to meet Criteria 4 of the Green Communities designation – the purchasing of only fuel-efficient vehicles.

Efficiency Measures already implemented

The City chose FY08 as its baseline year, in part, because it reflects implemented projects that have resulted in energy reductions Citywide. The baseline year includes data for all City and School buildings, except for 4, which were completed after the baseline year and are discussed in a later section of this plan. It also includes all vehicles, traffic lights, streetlights, and park lights. Please see Appendix B for a detailed inventory of property and baseline energy use. The following tables as well as the 5-year energy reduction plan on page 15, outline a large percentage of reductions that occurred in FY09 and FY10 (projected)¹. This section outlines the improvements that Cambridge has already implemented during that time that have resulted in long-lasting energy reductions. Looking at the charts below, one can see that the City's emphasis on energy efficiency has created a downward trend in overall energy consumption beginning even before our baseline of FY08. The City is confident not only that specific improvements made are responsible for the reductions achieved thus far, but also that these are not just temporary fixes. The City has put significant effort into establishing policies and procedures that will keep the efficiency improvements in place and promote further reductions into future years.

Table 3: City Energy Data Trends				
	FY06	FY07	FY08	FY09
ELECTRIC Use (kWh)	40,760,084	39,458,977	38,628,584	37,416,986
GAS Use (therms)	677,343	668,174	673,571	620,171
OIL Use (gallons)	561,057	516,982	439,182	348,215
ELECTRIC Use (MMBTU)	139,114	134,673	131,839	127,704
GAS Use (MMBTU)	67,734	66,817	67,357	62,017
OIL Use (MMBTU)	78,548	72,377	61,485	48,750
VEHICLE FUEL Use (MMBTU) ²	35,607	35,568	36,434	36,096
ELECTRIC Use per sq ft (kWh)	2,495	2,356	2,327	2,230
GAS Use per sq ft (therms)	49	49	52	43
OIL Use per sq ft (gallons)	3	5	4	4
Total site MMBTU (MMBTU)	319,624	308,058	297,139	273,978
Total site kBtu/sq ft (kBtu)	13,850	13,332	13,561	12,246

¹ Energy data within this plan and associated documents includes actual data through March 2010. Consumption from April through June of FY10 is projected.

² The data in this table shows a higher amount of vehicle fuel in FY08 and 09 over FY06 and 07. It is worth noting that vehicle fuel is the smallest contributor of all fuel types to the City's total MMBTU. This can be seen in the chart below. Furthermore, it is estimated that 3-8% of fuel use was not captured prior to the new fuel tracking system described on p.13. Actual fuel consumption is likely more of a downward trend than can be seen in the chart.

Chart 1: Energy Use by Fuel Type

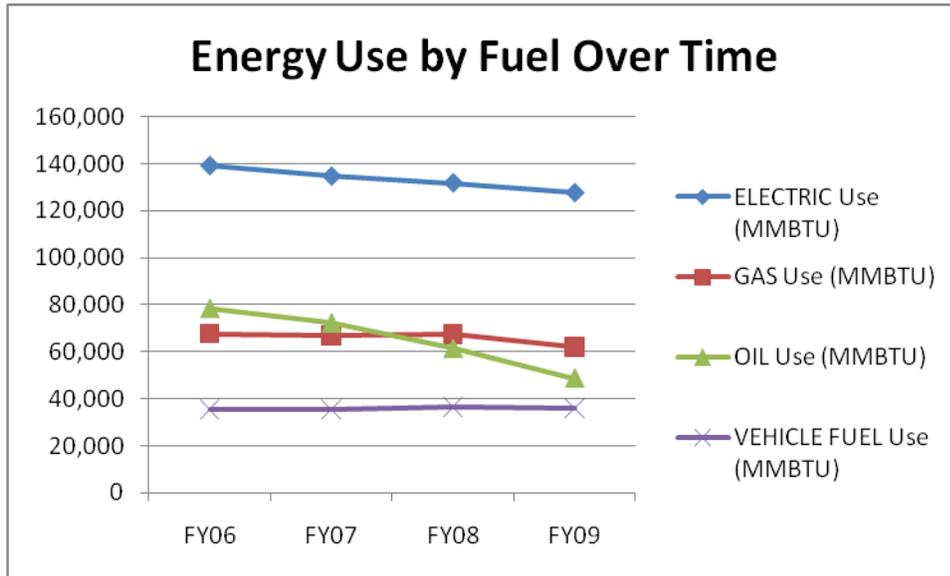
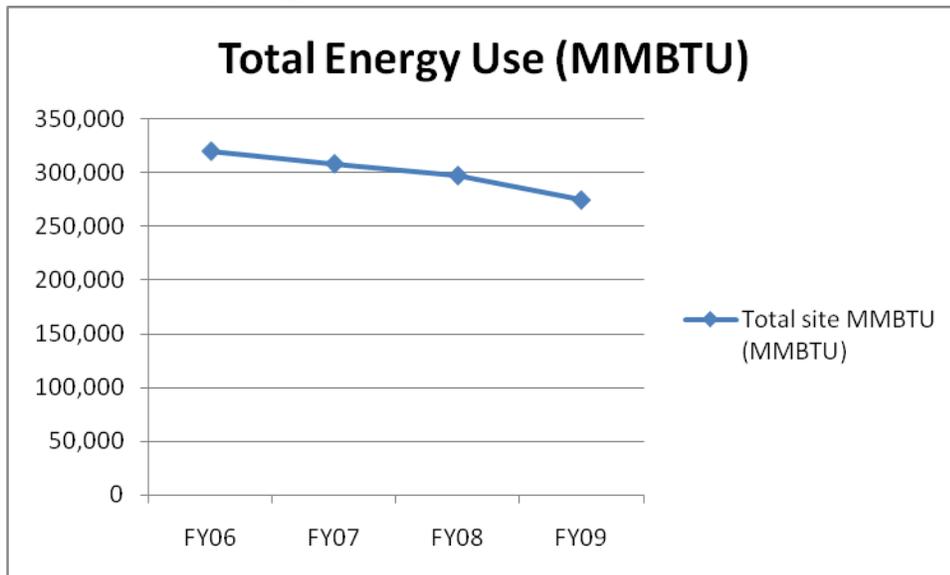


Chart 2: Total City Energy Use



Building Improvements

The City has had numerous energy audits completed to assess potential energy saving upgrades. As of May 2010, 22 municipal and school buildings have been audited. In addition to a recent round of audits performed by Prism Energy Services as part of the City's Energy Efficiency and Conservation Block Grant work, past audits have been completed by Kilojolts Consulting Group and the Cambridge Energy Alliance in 2007 and 2009. As a result of these audits and monthly energy consumption data tracking, the City has identified and implemented numerous energy reduction projects. Lighting upgrades have been

completed in the following buildings: Danehy Park Comfort Station, Harvard Square parking garage, Traffic Meter and Maintenance Office, Area IV Youth Center, Green Street Garage, First Street Garage, Central Square Library, and the Sullivan Water Purification Facility. These lighting upgrades have resulted in over 600,000 kWh saved.

HVAC improvements have included air conditioning efficiency improvements, boiler replacements, installation of building energy management systems (direct digital controls), programmable thermostat installations, and improved insulation at numerous buildings, including the Lombardi Building, City Hall, Senior Center, Fire Headquarters, Coffon Building, Public Works Administration Building, Cemetery Complex, and Water Purification Facility. These improvements have resulted in an estimated total savings of 33,000 therms. There have also been Vending Miser installations at several buildings resulting in an estimated 24,000 kWh savings.

Over the past seven years Cambridge Public Schools converted 3 elementary school buildings from oil to natural gas. The Peabody School was converted in 2000, the Kennedy Longfellow School in 2003, and the Cambridgeport School in 2005. Another conversion is planned for the Longfellow School for FY11.

Standard Contract Language

HVAC Upgrades: When upgrades of HVAC equipment are required in municipal buildings, it is now standard buildings operations practice to specify high-efficiency and properly sized HVAC equipment and to commission the systems to ensure that the most efficient system possible is installed and that it performs to specification. Standard language that is now included in annual HVAC maintenance specifications and all other HVAC installation and upgrade specifications includes:

It is the intent of this specification to prevent failures of the City of Cambridge heating, ventilation and air conditioning systems by performing scheduled preventative maintenance. It is also the intent of this specification to ensure that systems function optimally and operate in an energy-efficient manner. It is therefore recommended that all bidders have demonstrated familiarity and experience with energy efficiency practices, including but not limited to utility incentive programs, selection of high efficiency equipment, energy-efficient installation procedures and energy-efficient operation and maintenance practices.

Additionally, the technical specifications include:

- (1) Contractor must install equipment that is Massachusetts State Building Code compliant as well as meeting U.S. EPA's Energy Star Program (or equivalent) requirements;*
- (2) Contractor must install equipment that meets the appropriate utility's (NStar Gas or NStar Electric) incentive levels for high-efficiency equipment when available. Contractor must include the dollar amount of the rebate or other incentive available; and*
- (3) Any motors powering new equipment or any motors replaced under this contract must be NEMA premium types as approved by the Massachusetts Motor Up Program.*

White Roofs: Additional standard contract and specification language is for municipal building roof replacements. Any roof replacements performed now specify Energy Star high-reflectivity white roofs. Such replacements have already been made on the Frazier Administration Building, Engine 5 Fire Station, City Hall Annex, and Engine 9 Fire Station's roof will be replaced this summer. It is also anticipated that the Department of Public Works' Ryan Garage and Simard Building will both have their roofs replaced in FY11 with Energy Star white gravel and white adhesive (or white pour) roofs. The re-roofing projects will also likely include additional insulation. While energy-saving calculations have not been performed to quantify the exact savings for the City, the EPA has stated that cool roof replacements can result in an annual energy savings of 20%³. Even if the savings are not this high, the practice of installing highly reflective, highly insulated roofs on City buildings will produce long-lasting energy savings for the City, reduce the urban heat island effect, and avoid associated greenhouse gas emissions. When replacing the roofs, the City will also be assessing opportunities for solar panel installations.

Peak Demand Reduction

Since the summer of 2007 the City has targeted peak load demand reduction to help reduce the City's demand charges (costs) and to help reduce the New England Region's peak demand. The effort has been citywide, including all municipal facilities. The Water Department, the largest single municipal electrical user, made a major impact by instituting a number of load shifting measures, e.g. running systems (aeration, residuals pumping, lighting) during off peak hours, optimizing process control, and limiting pumping rates during the peak demand periods. The shift of water treatment processes to non-peak periods results in a lower overall demand during peak times, which reduces the need for peak demand generation, and provides the environmental benefits of reduced pollution from that generation. This demand reduction effort continues.

Outdoor Lighting, Streetlights, and Traffic Signals

Traffic Signals: In February and March of 2009, there were 370 walk signals replaced with LED signals by the Traffic Department. The savings attributed to this upgrade totaled 218 MMBTU in FY09 and an additional 464 MMBTU projected for FY10. Prior to the conversion of the walk signals, 160 traffic signals had been converted to LED in phases over a 4 to 5 year period beginning in 2005. This conversion resulted in an average savings of 57.5%, totaling 787,188 kWh (2,686 MMBTU) annually. While this conversion took place before the City's baseline year of FY08, it is a clear indication of the City's efforts to implement significant energy-saving projects. These savings will be maintained in the coming years.

Streetlights and Outdoor Lighting: Recently, the City completed an evaluation of LED street lighting technology. With the assistance of PB Americas, the City conducted a month-long test in the summer of 2009 of LED streetlights on Inman Street, a residential street. Four high pressure sodium cobra head

³ <http://www.epa.gov/heatisd/resources/pdf/CoolRoofsCompendium.pdf>, p.8

luminaires were replaced with LEDs of equivalent wattage and the LEDs were tested at different lighting levels. A longer term pilot on a non-residential street was started in March of this year. Additionally, some pedestrian-scale metal halide lights will be replaced soon as a means to test the performance of LED technology for pedestrian scale lighting.

Energy Star Purchasing Policy

The City Manager issued an Energy Star purchasing policy in 2005. All new equipment purchased must meet the federal Energy Star standards or equivalent energy efficiency wherever practical. Official language of the policy:

In accordance with the City's stated commitment to climate protection and energy efficiency, it is the policy of this City that any purchase or solicitation by a department for the purchase or lease of an energy-using product, the department shall specify and purchase, where practicable, a product that carries the Energy Star label. For product categories not rated by Energy Star, it is the policy of this City that departments shall specify, where practicable, that the product be in the top 25% of its product category with regards to energy efficiency.

While many energy efficient products are currently available for no price premium, should a price differential exist, the City shall apply a simple life cycle cost analysis. For purchases where the payback period is five years or less, the department shall, where practicable, purchase the Energy Star labeled or energy efficient products, with the exceptions listed below. Where the payback period is longer than five years, the purchase of Energy Star compliant or energy efficient products is still encouraged. The Purchasing Department will offer guidance to department staff in determining the payback periods. In all cases the Purchasing Department will be available to consult with Departments relative to any issues with procurements to ensure the highest compliance with the policy.

As the City replaces older equipment, new Energy Star equipment will reduce the energy load in City buildings. In 2008, the City Manager instituted a policy that all computer monitors in municipal buildings were required to be flat screens. Because the energy and cost savings were significant, the City replaced all CRT monitors with flat screens instead of waiting till they needed to be replaced. CRT monitors use twice as much energy as flat screens. While no exact savings calculations were run at the time, this changeover likely saved the City more than 80,000 kWh per year.

GreenSense

In addition to building improvements, the City recognizes that building performance is just as importantly dependent on occupant behavior within those buildings. In 2008, the City launched the Cambridge GreenSense municipal employee energy awareness program. GreenSense engages 75 municipal employees in more than 40 City buildings as "Energy Champions" to educate colleagues and promote energy-conserving practices in their departments. The first year of the program introduced four "tips", including "Turn It Off," "Power Down," "Summer Sense," and "Use Your (Green) Senses." The tips encourage all employees to turn off unnecessary lights and other equipment, power down computers at the end of the day, reduce peak demand in the summer, and use their "green senses" to identify and report air and water leaks. In its first year, the program helped reduce electricity

consumption by 5% in participating buildings, a total of over 200,000 kWh. *(Please see Appendix C for sample materials from the GreenSense program.)*

Vehicles

As described above, the City has created a Green Fleet Committee and vehicle purchase review policy, which will serve as a basis for adopting Criteria 4 for Green Communities designation *(please see Criteria 4 documentation for further detail)*. In addition to reducing fuel consumption from vehicles through the purchase of more fuel-efficient vehicles, the City has implemented other strategies to reduce the overall use of vehicles and reduce air pollution emissions.

Green Vehicles

The City currently has 22 hybrid vehicles in its fleet, along with 15 bicycles between the Traffic Department and Public Works. In addition, the Police Department has 30 bicycles that are operational and deployed regularly to officers assigned to the Community Relations Unit and to other officers assigned to patrol. There have been a number of hybrid vehicles purchased by the City. Five (5) gas vehicles (including pickup trucks) have been replaced with hybrid sedans and one more hybrid vehicle will be purchased in FY11 by the Water Department. The City Manager, Deputy City Manager, and Mayor also all drive hybrid vehicles.

GPS Systems

The Water Department has piloted 24 vehicle global positioning system (GPS) units and found that this can be very helpful in reducing fuel usage by reducing vehicle trips and idle times. In the first year of this program, alongside other green fleet practices, the Water Department saw a 10% decrease in vehicle fuel use, equal to 2,000 gallons of gasoline (248 MMBTU). The City intends to expand this GPS program to other departments.

Fuel Key System

Another vehicle fuel efficiency measure was implementation of a new fuel key system, which allows for better tracking and management of fuel usage. The key data system is integrated into our Energy Information System database (and will also be integrated with the new MassEnergyInsight system). The fuel system was installed in FY09 and replaced an older system that used a magnetic card reader to record fuel usage. The new system uses a fuel key—users must enter a PIN number (unique to each user) and current vehicle mileage in order to obtain fuel. This provides more accurate fuel usage and mpg info. As with building energy, an essential step in vehicle fuel reduction is knowing the baseline and being confident that consumption records are accurate. This system allowed Cambridge to take that first step.

Re-routing of Rubbish Vehicles

Another strategy was to re-route rubbish packer vehicles to reduce the total distance traveled to perform the job. In the initial phase of this strategy, the trucks were re-routed two days a week. It is estimated that the average daily mileage was reduced by approximately one mile. Since the vehicles get

approximately 3 miles per gallon, and eight packers are used on any given day, it has resulted in a savings of about 5 gallons per week. This strategy will soon be rolled out to all trucks all days, for a savings of about 12.5 gallons per week, or 650 gallons per year. This will result in a savings of approximately 90 MMBTU per year.

Evaluating Next Steps

To assess the City's next steps in reducing energy consumption even further, contributors to this plan evaluated buildings based on a matrix of performance. Buildings were evaluated and prioritized for energy improvements by looking at overall energy use as well as energy *efficiency*. In other words, buildings using little energy and performing more efficiently than others are not current priorities for energy efficiency upgrades. Similarly, large consumers that are not very efficient are priority buildings for improving efficiency and reducing overall consumption. This will be a win-win for the environment with regard to reduced fossil fuel consumption and for the City's budget as utility costs are expected to continue to rise in coming years. After adopting this Energy Reduction Plan, the City will continue ongoing evaluation of building energy performance and prioritization for targeted improvements. The MassEnergyInsight tool has numerous reporting features that will assist the City in this process.

Plan Summary

GREEN COMMUNITIES ENERGY USE REDUCTION STRATEGY					
			Total Energy Use (mmbtu)	Reduction Target (mmbtu)	Cum Change (%)
Baseline Year FY08			297,139	59,428	20.0%
				Change (mmbtu)	
Year 1	FY09	Energy Use FY09	272,259	22,943	7.7%
		Energy Use FY09 - Traffic Signals ⁴	1,719	218	0.1%
Year 2	FY10	Proj Energy Use FY10 - non Traffic	252,370	19,425	6.5%
		FY10 Proj - Traffic Signal LED conversions (walk)	1,141	464	0.2%
Year 3	FY11	FY11 EECBG Lighting Upgrades (10 bldgs)		2,495	0.8%
		Water Treatment Plant audit		-	
		EMS Improvements and Monitoring		2,620	0.9%
		Boiler Replacements (3 bldgs)		2,000	0.7%
		Retro-Commissioning (Area IV, Engine 8, Fire HQ, Lombardi, Peabody)		863	0.3%
		IT Power Management		873	0.3%
		CRLS (heat comes online; overall savings from oil to gas change)		3,283	1.1%
		Non-lighting/HVAC improvements		6,480	2.2%
		Renewables (72 kW of PV) ⁵		300	0.1%
Year 4	FY12	Lighting Upgrades at 7 Add'l Schools		1,746	0.6%
		Lighting Upgrades at 8 High-Use Municipal Buildings		516	0.2%
		Coffon Building Energy Improvements		193	0.1%
		EMS in Elementary Schools		8,000	2.7%
		CRLS renovations complete		(5,423)	-1.8%
Year 4-5	FY12-13	Additional Energy Saving Projects ⁶		2,000	0.7%
Year 5	FY13	Water Plant Upgrades and Process Improvements (10%)		4,074	1.4%
		Lighting Upgrades at 19 Lower-Use Municipal Buildings		292	0.1%
		Total Reductions		73,362	24.7%
		Balance		(13,934)	-4.7%

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⁴ The traffic signal reductions in FY09 and FY10 can for the most part be attributed to conversion of walk signals to LED (218 mmbtu savings in FY09 and projected 464 mmbtu savings in FY10).

⁵ Does not include potential Water Department renewable energy projects.

⁶ Includes conservative estimate of savings from additional energy-reducing projects (such as those described on p.20-21), including GreenSense expansion into school buildings, vehicle fuel reduction from Big Belly, School Dept energy reduction projects, revolving energy fund.

Planned Energy Reduction Measures

Energy Efficiency and Conservation Block Grant

A significant part of the City's energy reduction plan will come from projects to be implemented under the US Department of Energy's Energy Efficiency and Conservation Block Grant program. The City of Cambridge has been approved for \$759,600 for a Municipal Building Energy Efficiency Program. This program is already in its early stages of implementation.

Lighting Upgrades

Energy audits have been conducted by Prism Energy Services in 9 buildings, including 4 schools. Initial lighting upgrade projects identified would result in a savings of 2,239 MMBTU (see Appendix D for a summary project list). Additional financial incentives to carry out this work will be leveraged from the NSTAR municipal rebate program.

City Hall

Bluestone Energy Services, Ltd. recently completed an analysis for energy efficiency upgrades at Cambridge's City Hall. Lighting retrofits and installation of occupancy sensors is projected to save 74,963 kWh annually. Bluestone also recommended installation of a wireless energy management system (EMS) to control air conditioning units based on occupancy. This is projected to save an additional 35,252 kWh annually. There are also plans to improve insulation at City Hall for a savings of over 600 MMBTU annually. All projects at City Hall combined will result in an annual savings of 982 MMBTU. It is anticipated that this work will all be completed during FY11 using EECBG funds.

Coffon Building

In the summer of 2009, the Cambridge Energy Alliance completed an energy audit of the Coffon Building. This building has not been performing efficiently and has had numerous thermal comfort complaints. CEA suggested that the nature and extent of the thermal comfort issues indicates that the building should undergo a thorough retro-commissioning effort. In addition to investigating performance and control issues with the existing HVAC systems, the retro-commissioning will focus on reviewing zone control and developing solutions to address comfort issues in the space. It was also recommended that thermostats be re-programmed with an emphasis on extending the unoccupied time frame. Additionally, light switches need to be added/relocated to better suit the private office/common space layout of the building and motion sensors can be added to certain areas. Finally, CEA recommended installation of point-of-use direct hot water heaters in each of the bathrooms. Combined energy savings estimates for Coffon Building upgrades come to 193 MMBTU.

HVAC Upgrades

Additional energy audits focusing on non-lighting measures were conducted by Prism Energy Services in 9 buildings, including 4 schools. Prism identified energy conservation measures for each building with an estimated total annual energy savings of 6,480 MMBTU if all measures were implemented. Energy conservation measures include installation of direct digital control systems, demand controlled

ventilation, equipment scheduling, variable frequency drives on certain motors, fans, and hot water pumps, re-commissioning, and economizer control programs. Please see Appendix E for a summary project table.

Boiler Replacements

The City also plans to replace the boilers at three buildings—the Public Works Frazier Administration Building, Moore Youth Center, and Longfellow School. Savings from these replacements are estimated to be 2,000 MMBTU. The commissioning of these replacement projects will ensure that maximum energy savings are achieved.

Upgrades in Additional Buildings

Energy audits have identified lighting and HVAC upgrade projects in 10 buildings, which the City plans to implement, partly with EECBG funding through FY11. The City does not intend to stop at those 10 buildings, however. It is anticipated that, if funding permits, the City will perform lighting upgrades at 7 additional school buildings and 8 additional high-use municipal buildings in FY12. Based on equipment comparisons and estimates from the Prism Energy Services audits, additional upgrades would produce 2,262 MMBTU in energy savings. Following that, the City believes that the short payback on lighting upgrades further supports this type of energy-saving work and will likely perform additional lighting upgrades at 19 lower-use municipal buildings for another 292 MMBTU savings. This will reduce overall electricity usage and make the City's lighting stock up-to-date and as energy efficient as possible.

Walter J. Sullivan Water Purification Facility

The Water Department plans an investment-grade audit done at its Sullivan Water Purification Facility. This audit will produce recommendations for process improvements that will reduce energy consumption at the City's most energy-consuming facility. The goal of this audit is to review all aspects of the water treatment facility's operation, e.g. HVAC, lighting, treatment process and pumping. It is anticipated the recommendations will include raw and finished water pumping optimization (may include the addition of raw water VFD's, pump control logic changes, and changes in time of day pumping schedules (demand management and demand response)); treatment unit processes will be reviewed for energy savings while maintaining water quality and regulatory compliance; and additional HVAC improvements. It is anticipated that some of the recommended measures may be implemented immediately and result in reductions of energy usage and costs. Other recommendations are expected to be capital and equipment intensive and will be evaluated and budgeted for future energy and cost savings. Overall it is anticipated that implemented improvements could result in a 10% reduction in energy use for a savings of more than 4,000 MMBTU. Previous facility improvements have included lighting and HVAC improvements.

Building Energy Management

Retro-commissioning

The Department of Public Works plans to have a set of City buildings retro-commissioned during FY11, including the Area IV Youth Center, Engine 8 Fire Station, the Fire Headquarters, Lombardi Building, and the Peabody School/Gately Youth Center. Based on a review of energy consumption data and cost, it's clear that these buildings have not been performing as efficiently as they could. The primary objective for retro-commissioning these buildings is to identify operational and maintenance improvements in energy efficiency, occupant comfort, and indoor air quality. Additionally the process will identify O&M training needs, improve training and documentation, document baseline conditions and measure improvements, and optimize control systems through calibration of critical sensors, review of metered data and trend logs, and equipment functionality testing. Retro-commissioning typically has a quick payback, produces energy savings, extends the lifetime of equipment, and reduces maintenance costs. We have currently estimated a conservative 10% savings in energy consumption in these buildings due to retro-commissioning activities. This anticipated savings will come to approximately 860 MMBTU in FY11, while the process can serve as a model for improved O&M and energy savings throughout other buildings in future years.

EMS monitoring contracts

Cambridge has budgeted for FY11 an improved EMS (Energy Management System) monitoring, maintenance and repair contract. The contract will be for remote monitoring, alarm response, and routine preventive maintenance for 7 existing direct digital control systems at City Hall, City Hall Annex, Coffon Building, DPW Complex, Fire Headquarters, Lombardi Building, and the Senior Center, and also 3 new systems at the Robert W. Healy Public Safety Facility, Main Library, and West Cambridge Youth Center. It is projected that the improved EMS monitoring contract will reduce annual energy use in these buildings by 10%⁷. As the contract is planned to be finalized during FY11, the City will likely begin seeing savings in those buildings during FY12.

Similarly, the School Department is currently preparing bid specs for the design and purchase of an energy management system (EMS) that will digitally control all access points that are currently on existing HVAC systems to better manage energy consumption and occupancy comfort in the school district's 13 elementary school buildings. The system is expected to be purchased and installed within the next 12 months. As with the municipal buildings, the City will likely begin to see savings of approximately 10% for these school buildings beginning in FY12. A 10% savings from FY08 consumption would be over 8,000 MMBTU.

⁷ Industry findings typically average a 10% annual energy savings from EMS systems and monitoring. Links to a few articles supporting this:

<http://www.automatedbuildings.com/news/apr07/articles/esource/070322105430kamm.htm>

http://www.energy.rochester.edu/efficiency/ems_analysis.pdf

<http://www.buildings.com/tabid/3413/ArticleID/9111/Default.aspx>

PC Power Management

In 2008, the City Manager established a policy that all City employees power down computers and other peripheral equipment at the end of each work day. To supplement and promote this policy, powering down computers became the focus of the second GreenSense energy tip as well. Off-hours audits and observations indicate that despite City policy and efforts to encourage this behavior, there is still a significant percentage of employees that do not power down their computers before leaving. Some arguments against the policy have been that system upgrades must be performed outside of work hours and therefore computers cannot be powered off. However, the City's IT Department has recently implemented new strategies that will allow computers to be remotely turned on and off to perform system upgrades. The GreenSense program, in collaboration with the IT Department will be moving forward in the coming year to roll out a revised PC Power Management program that will combine technology improvements and improved behavioral practices so that computers are not running when not in use. While the baseline cannot be determined exactly, the City estimates that electricity use could be reduced by over 255,000 kWh.

Vehicles

The most significant source of vehicle fuel use reduction will come from adoption of the City's Green Fleet Policy (see Criteria 4 documentation). Through the implementation of the Green Fleet Policy, the City will:

- Increase average fuel economy of the City fleet
- Minimize vehicle miles traveled to the extent operationally feasible
- Minimize greenhouse gas emissions and other forms of air pollution
- Reduce vehicle size when appropriate
- Incorporate alternative fuels vehicles into the City fleet when feasible
- Reduce costs of operating and maintaining fleet
- Eliminate unnecessary or non cost-effective vehicles from the fleet

A complete inventory of vehicles will be maintained by the Department of Public Works and fuel usage monitored through MassEnergyInsight. Fuel usage will be tracked in this system as well to ensure that green fleet policy implementation is producing reductions as expected. The Policy also calls for compliance with the state's anti-idling law (MGL Ch.90, s.16A), which will reduce unnecessary fuel consumption while idling.

Additional Energy Savings

There are additional initiatives the City plans to carry out over the next few years that are likely to result in additional energy reductions. These are not projects that have been quantified – either because they are too early in the planning stages or because it is too difficult to isolate the variable to determine the definite cause of the energy reductions—but are worth mentioning as they will further support the City’s efforts in reducing energy consumption by 20% by FY13. One example of this is the LED lighting pilots mentioned previously.

Revolving Energy Fund

As part of the City’s emphasis on sustaining energy conservation work, Cambridge also plans to establish a revolving energy fund. The concept for the fund is that savings from energy efficiency projects will be transferred into a designated fund, which would then be used to further energy efficiency work. The fund will provide additional incentive for energy conservation among all City departments because money saved can then go into the fund for future projects. The fund would have a steering committee to direct and approve the use of funds.

Sustainability Project Manager

Beginning July 1, 2010, the position of Sustainability Project Manager has been created in the School Department’s FY11 submitted budget. Reporting directly to the Director of Plant Maintenance the position will be responsible for identifying opportunities for the reduction of energy consumption and managing the necessary changes in building operations to achieve those reductions. The position is funded through the School Department’s energy budget and will continue to fund itself through energy savings. This will sustain the position and continued energy reduction efforts in the School Department.

Sustainability Standards

Cambridge plans to form a committee and possibly hire a consultant to help the City develop and adopt a formal set of sustainability standards and protocols for buildings and outside areas. The City would build upon criteria such as LEED for Existing Buildings or other similar sustainability guidance for the review of design specifications, renovations, and operations and maintenance protocols. As has been described throughout this plan, the City already has in place many standard specifications, policies, and protocols that require energy efficiency, green cleaning, and sustainable building operations. This initiative would bring all of these pieces together under one set of guidelines for all facilities and operations to which the City would be committed. These efforts will produce additional energy savings, reduce waste, reduce pollution and greenhouse gas emissions, and promote a healthier and cleaner environment—both indoors and out.

Expanding and Continuing GreenSense

The GreenSense program will continue to serve as the foundation for employee energy-reducing and sustainable behavior. Audits have been conducted and a building occupant survey is planned that will provide useful information about to what extent the program has been truly integrated into the culture and behavior of all the departments. These will also help determine what remains as problem areas and

should be targeted for future initiatives and education. Additionally, the School Department, which prior to now has not been a participant in the program, will begin to fully implement the initiative. A conservative savings estimate of 3% electricity reduction in school buildings comes to 1,575 MMBTU.

Demand Response

The City is currently evaluating the option of participating in an energy Demand Response program. In such a program the City would agree to reduce electricity use during peak demand periods. Since demand response reduces electricity generation needs and thus, the cost of generation overall, the City would be given payments for participation dependent on the amount it commits to reduce consumption. The City is in initial stages of evaluating at what level it will be able to participate in such a program, and anticipates that within the 5-year reduction period would see reduced energy consumption during those peak periods, a financial benefit to the City, but also an environmental benefit by reducing overall electricity use and greenhouse gas emissions.

LED Pilot

The City gained valuable information from the smaller pilots recently conducted (described on p.11). This experience will be used to develop a larger-scale pilot test of LED street light technology, to be implemented during the 5-year plan period. The City will be collaborating with the Clinton Climate Initiative on the design of such a pilot to build on the knowledge they have developed from pilots conducted in large cities across the US, including Anchorage, Los Angeles and San Francisco. This experience gained from pilot testing in these cities has demonstrated that the LED lighting technology is advancing very rapidly. The City has also recently joined the Seattle Street Lighting Consortium to continue to learn from pilot tests conducted elsewhere. It is our expectation that, based on the outcomes of our LED pilot tests, at least a portion of city street and park lights could be converted to LED technology in coming years, possibly within the City's 5-year plan period, which could lead to reductions in municipal energy use.

Big Belly Solar Compactors

Over the past several years, the Department of Public Works has been replacing standard curbside litter receptacles with Big Belly Solar Compactors at several locations throughout the city. The goal is to reduce a truck route by cutting down on the number of times a barrel needs to be serviced. The compactors are able to hold five times the amount of a standard receptacle. Reduced collection trips will reduce fuel consumption and greenhouse gas emissions. All new parks specify these units. Central Square, a major business district in Cambridge, has the compactors and DPW has begun to alter pickup schedules in that area.

Renewable Energy

In 2005, the City Council adopted a goal that 20% of the municipal electricity load should come from renewable sources by 2010. With support from the MA Renewable Energy Trust, the City has installed photovoltaic systems on the City Hall Annex, Frisoli Youth Center, and Public Works Frazier Administration Building. In addition, the City is purchasing renewable energy certificates (a total of 2,800 MWh) from Renewable Choice Energy and the Energy Consumers Alliance of New England as a short term step toward meeting the goal. The renovated Cambridge Rindge and Latin School will meet the Massachusetts Renewable Energy Trust's Green Schools Initiative criteria and has received funding for a 30 kW photovoltaic system for the building producing approximately 37,000 kWh of electricity annually. The PV system is expected to be installed this spring.

In April 2009 the Water Department conducted a hydropower feasibility study that identified two potential sites for power generation from the water flow in the conduit supplying the terminal reservoir, Fresh Pond (180kw). The Water Department is exploring permit issues related to these projects and, when completed, the City and the Water Department will evaluate both sites as potential sources of renewable energy.

The Water Department is also conducting a solar feasibility study (to be completed at the end of May 2010). Two sites are being evaluated, 1) the roof of the treatment facility and 2) the top of the eight acre Payson Park finished water storage reservoir. The latter site will require permitting in the town of Belmont, MA. Preliminary estimates of the potential capacities are 108 kW and 910 kW respectively. The City and the Water Department will evaluate both sites as potential sources of renewable energy.

New Construction and Additions

There are four buildings which were not included in our baseline year of FY08. The Robert W Healy Public Safety Building, Main Library, West Cambridge Youth Center, and War Memorial were all completed after the FY08 baseline year. These buildings were under construction during the baseline year and their energy consumption would significantly increase the overall load for the City if added back in for later years. However, these buildings are closely monitored for energy consumption along with the rest of our building, streetlight, traffic light, and vehicle inventory. They have been monitored since their opening and will continue to be monitored under the new MassEnergyInsight system to ensure they are performing efficiently and to identify any problem areas. These buildings, in accordance with City green building policy were built to be energy-efficient, green buildings, and are in the process of LEED certification. After a full year of operation, we will review the buildings' energy consumption compared against their energy models.

West Cambridge Youth Center

The West Cambridge Youth Center has been open for less than a year, but is already performing well. It has submitted enough points to be certified as a LEED Silver building, but the submittal is still under review. Based on data from the months it has already been in use, the building is performing approximately 29% more efficiently than comparable buildings (*compared to 2003 CBECS Public Assembly building consumption*).

Robert W. Healy Public Safety Facility

The Robert W. Healy Public Safety Facility is the new Cambridge Police Department Headquarters. It opened its doors in December 2008 and also houses the City's Emergency Communications Center. This building contains numerous energy-saving features, including an extensive green roof, chilled beam heating and cooling system, high-efficiency mechanical and electrical equipment, and an energy management system (EMS).

War Memorial

The War Memorial is a 73,000 square foot recreational facility serving Cambridge youth and families. This major renovation project was a recipient of an AGC Build New England performance award in 2009 and includes improved use of space, high-efficiency mechanical equipment, efficient lighting, upgraded insulation and numerous other features to improve the energy efficiency and overall sustainability of the building. It is also currently seeking LEED Silver certification.

Main Library

The Main Library opened in October of 2009. It involved the renovation of the historic Main Library and a significant addition. Because the library was closed for renovations prior to FY08, included a large addition, and did not open until after the FY08 baseline, it is not included in the baseline data. This building will also be seeking LEED certification and includes many energy saving features, such as enhanced daylighting, energy-efficient lighting, occupancy sensors, and more.

All 4 of these buildings were commissioned as part of the LEED program to ensure high-efficiency energy performance is attained and maintained. Commissioning reports have been completed and also include systems, operations and maintenance, preventive maintenance, and re-commissioning management manuals. Included are guidelines for energy accounting, including assurance that future renovations and equipment upgrades will not result in decreased energy efficiency and will maintain the owner's requirements. These buildings are also all participants in the GreenSense behavior program to ensure that behavior of building occupants does not offset the green features of the buildings.

Cambridge Rindge and Latin School

Cambridge Rindge and Latin School (CRLS)—the City’s high school—is in the midst of a major renovation project that calls for the building to achieve, at a minimum, LEED Silver certification. Energy reduction components in the project include:

- A cogeneration plant that will generate electricity and utilize waste heat to heat the facility’s 3 indoor swimming pools
- A chilled beam heating and cooling system that will heat and cool the buildings with a motorless system that is acoustically appropriate for a classroom setting
- Room occupancy sensors for both heating and lighting
- All new energy efficient lighting throughout the complex
- Installation of 30kW of photovoltaic panels on the rooftop

The renovations at CRLS are occurring in two phases. During each phase, part of the school complex will be under construction and closed to regular activity. Construction began in July of 2009 and is expected to be complete in August 2011. We have made adjustments in our 5-year reduction plan data to account for the renovations occurring at CRLS and the impacts on energy consumption. During the first year of renovations, the contractor used approximately 300,000 kWh of electricity, which was on the school’s bill, but will actually be billed to the contractor. Remaining energy consumption during that time is included as billed in our reduction plan. The renovations have resulted in an overall reduction in energy use at CRLS, given that half the complex was closed. Phase 2 will have a similar impact except that the heating system (fueled by natural gas) is expected to be fully operational next winter. Overall, from pre- to post-renovations, it is anticipated that CRLS will use less energy. It will be a more efficient building, first and foremost, for all the reasons highlighted above. Also, the conversion of the heating system over to natural gas will result in less energy consumption. Sometimes architects’ energy models turn out to be too low once the building becomes operational. To account for this, we have increased their estimates by 30% for both electricity and natural gas use, and even with those more conservative projections, the building will be using less energy than it was prior to renovations. The City is further supported in this projection given that the School Department will be closely monitoring the building on an energy management system, will be promoting energy-saving behavior among building occupants, and will have a Sustainability Project Manager who can help identify and manage further energy reduction opportunities.

Financing and Program Management

Cambridge's plan is ambitious – the five-year plan for energy reduction will go beyond the 20% minimum, and total costs could well exceed \$3.5 million. Full funding has not yet been identified, but the City has identified certain funds and a strategy to begin implementation:

Operating Budget

Components of the plan related to staffing and maintenance of building systems have been incorporated into the Public Works and School Departments' operating budgets in FY11 and will likely be maintained in subsequent years.

Utility Rebates

The City will continue to seek to maximize utility incentives for retrofit and longer-payback.

Federal American Recovery and Reinvestment Act (ARRA) Funds

\$759,600 of federal stimulus funds in the form of Energy Efficiency and Conservation Block Grants (EECBG) have been designated for building lighting and boiler upgrades.

Capital Funds

The City's conservative approach to taking on debt has enabled it to attain a "AAA" bond rating. The additional capital upgrades identified in this plan will be considered for incorporation in the City's annual capital improvement plans in upcoming years, resources permitting.

Revolving Fund

As part of the City's emphasis on sustaining energy conservation work, Cambridge also plans to establish a revolving energy fund. The concept for the fund is that savings from energy efficiency projects will be transferred into a designated fund, which would then be used to fund further work. The fund will provide additional incentive for City departments to pursue energy conservation among all City departments because money saved can then go into the fund for future projects. A steering committee will direct and approve the use of funds. The City plans to apply for a Green Communities grant for seed money for the revolving fund. Utility rebates and demand response payments are also potential sources of revenue for the fund.

Additional Sources

The City will continue to explore federal grant opportunities for energy initiatives.

Program Management: The Cambridge Approach

The City is committed to integrating the energy reduction program into its operations in order to ensure that the reductions are sustained beyond the initial five-year period. A description follows.

The City has already developed a successful staffing structure for energy management that it will continue to fine tune. Somewhat in opposition to the conventional wisdom, the City has chosen not to consolidate its energy management functions into a single energy manager position. The City has a

strong history of interdepartmental commissions and working groups and has adopted this approach in recent years. While planning for environmental sustainability has generally come from the Environment and Transportation Planning Division within the Community Development Department, operating departments have led the way in implementation. In 2003 the City Manager created an interdepartmental Energy Management Work Group chaired by the Department of Public Works. Work Group members recognized the need for tracking the City's energy use and educated themselves on energy conservation practices and utility programs.

These and other measures have enabled operating departments to develop in-house expertise and allow sustainability leaders to emerge from within. The Department of Public Works enhanced its in-house expertise with a Supervisor of Building Systems hired within the Buildings Division in 2005 and the addition of a part-time Energy Specialist in 2009. As noted previously, the School Department's FY11 submitted budget includes a full-time Sustainability Project Manager to coordinate energy efficiency and sustainability projects and work in partnership with municipal departments.

Operating departments will identify potential energy efficiency and renewable energy projects. Recommendations for project implementation to the City Manager will be coordinated through the work group. Funding options will be identified and selected, and any utility incentives and grant opportunities will be pursued. The appropriate operating department will be responsible for project management and measurement and verification. The City will tap consultants for feasibility assessment, commissioning, and measurement and verification when appropriate through utility contracts, "house doctor" contracts, state contracts, or by utilizing the Cambridge Energy Alliance. The City has been authorized through a home rule petition to the Legislature to engage CEA directly for energy advisory and financing services. Operating departments will share information, project results, and best practices through the Energy Management Work Group and ensure that the overall objectives of the Energy Reduction Plan are being met. The City's overall energy performance will be tracked regularly through the MassEnergyInsight system.

Conclusion and Long-Term Goals

The City of Cambridge is well-positioned to be a leader among Massachusetts communities in operating sustainably and efficiently. The goals of the Green Communities program are in clear alignment with those of the City. The long term goals for the City go significantly beyond what has been laid out in this 20% reduction plan. Cambridge and its municipal and school leaders view all of these steps as part of an overall strategy to institutionalize and sustain its energy and sustainability efforts. The City continues to find new ways to integrate sustainability into all of the day-to-day but also the bigger picture planning of municipal and school operations. It continues to educate staff from both the top down and bottom up in an effort to create a culture of sustainability. Making Cambridge a “green community” starts within its own government. This energy reduction plan includes many specific actions for achieving green operations, and becoming a Green Community is, for Cambridge, an important component of the next phase of ensuring a sustainable Cambridge. A sustainable Cambridge embraces a sustainable way of thinking and operating, and is setting new standards, protocols, and policies within this framework of sustainability. The City believes that this plan and its Green Community designation will serve as an important foundation for this approach.

Appendix A: Sample Vehicle Fuel Tracking Data Fields

FISCAL YEAR
FISCAL MONTH
CITY
DEPARTMENT
ACCOUNT NAME
CARD HOLDER
CARD #
FUEL-Cost (\$)
FUEL-Cost - diesel (\$)
FUEL-Cost - unleaded (\$)
FUEL-Date and Time ()
FUEL-MPG (miles/gal)
FUEL-Miles (miles)
FUEL-Odometer ()
FUEL-Price (\$/gal)
FUEL-Price - diesel (\$/gal)
FUEL-Price - unleaded (\$/gal)
FUEL-Product ()
FUEL-Pump ()
FUEL-Transactions ()
FUEL-Use (gallons)
FUEL-Use - diesel (gallons)
FUEL-Use - unleaded (gallons)
EMISSIONS-CO2 (Lbs)
EMISSIONS-CO2 - diesel (Lbs)
EMISSIONS-CO2 - unleaded (Lbs)

Appendix B: City of Cambridge Property and Energy Consumption FY08-March FY10

	FY08	FY09	FY10
Property	Total MMBTU	Total MMBTU	Total MMBTU
Buildings	234,655	242,173	188,159
489 Broadway (former ECC)	1,521	1,211	673
5 Western Ave (Old Police Station)	6,069	4,219	553
Area IV Youth Center	2,411	2,073	2,332
Baldwin School	5,929	5,322	4,565
Cambridge Rindge & Latin School	45,723	35,475	15,515
Cambridgeport School	5,081	4,025	3,231
Cemetery Complex (3 Bldgs)	1,131	886	621
Central Sq. Branch	623	895	806
City Hall	5,289	4,250	3,331
City Hall Annex (McCusker Bldg)	2,066	2,116	1,603
Coffon Building	2,586	2,029	1,619
Corporal Burns Building	137	119	116
Danehy Park Comfort Station	238	204	185
DPW Complex (3 Bldgs)	8,254	8,159	6,605
Engine 2	1,225	1,248	952
Engine 3	1,572	1,462	1,137
Engine 4	1,113	944	723
Engine 5	1,086	1,014	772
Engine 6	649	617	481
Engine 8	2,488	2,573	2,215
Engine 9	730	645	491
Fire Headquarters	1,437	1,388	1,165
Fletcher-Maynard Academy	4,369	4,107	2,564
Frisoli Youth Center	1,648	1,762	1,381
Garage	4,710	4,714	3,585
Gate House	119	87	112
Gately Youth Center	285	278	193
Gold Star Pool	88	79	72
Golf Course Clubhouse	941	845	495
Golf Course Maintenance Building	185	219	150
Graham & Parks School	4,375	4,821	1,778
Haggerty School	5,800	5,556	5,071
Heritage Branch	1,789	463	372
Kennedy/Longfellow School	9,468	10,250	8,442
King Open School	8,460	6,839	6,977
King/Amigos School	9,974	9,618	6,854
Lombardi Building	2,324	2,090	1,649
Longfellow Building (HS Extension)	4,021	3,325	3,740
Main Library		7,786	12,470
Moore Youth Center	910	861	696
Morse School	7,440	7,385	5,735
Mt. Auburn Branch	334	317	219
No. Camb. Branch	257	215	194
North Cambridge Crime Task Force Trailer	42	41	32

Appendix B: City of Cambridge Property and Energy Consumption FY08-March FY10

North Cambridge Senior Center	55	55	33
Observatory Branch	101	95	73
Old Graham & Parks School	2,242	3,272	2,283
Peabody School	6,667	6,618	4,952
Robert W. Healy Public Safety Facility		12,805	11,622
Russell Field Field House	845	935	729
School Administration Bldg.	3,232	3,059	2,741
Senior Center	3,626	3,536	3,074
Solomon Garage	3,023	2,498	2,258
Sullivan Purification Facility	40,741	38,192	27,795
Tobin School	8,400	9,363	6,948
Traffic Meter and Maintenance Shop	135	97	82
Valente Branch	478	462	385
Valve Chamber	132	121	98
VFW Post 3273	65	70	54
War Memorial		8,277	11,146
Water-Shed Barn	19	13	14
West Cambridge Youth Center		175	1,398
Floodlight	35	35	28
Open Space	4,419	4,210	3,247
Ballfield	1,291	1,244	1,024
Park	2,936	2,779	2,079
Parking Lot	180	181	138
TBD	13	6	5
Pump Station	162	174	133
Brush Screen	2	2	2
CSO Meter	1	1	1
Drain pump	136	142	109
Drain Vault	6	10	7
Flush Vault	13	14	11
Sewer Pump	4	4	3
Streetlight	19,280	19,259	14,088
Metered	3,214	3,209	2,655
Unmetered	16,108	16,071	11,451
Traffic Signal	2,153	1,713	917
Flasher	43	35	21
Garage	50	51	39
Parking Lot	7	7	5
School Zone	7	6	4
Stop and Go	2,045	1,614	847
Vehicles	36,434	36,096	23,741
CITY TOTAL	297,139	303,659	230,313
CITY TOTAL - ADJUSTED (usage excluded from baseline)	297,139	273,978	169,955

Appendix C: GreenSense Sample Materials

**PLEASE
TURN IT
OFF**

IT'S AN EASY WAY TO
CONSERVE ENERGY
AND HELP PROTECT
THE ENVIRONMENT.



DID YOU KNOW?
We can prevent the release of 6 tons of
greenhouse gas emissions just by turning off
unnecessary equipment and lights
in just one City building.



**CAMBRIDGE
GreenSense**
Use Less. Gain More.

Cambridge GreenSense brings City of Cambridge employees together to cut energy use and minimize our impact on the environment. Learn more at www.cambridgema.gov/greensense.

**SUMMER
SENSE**

WHEN SUMMER HEAT
IS AT ITS PEAK LET'S
KEEP ENERGY SAVINGS
GOING STRONG.

Close curtains/blinds in the afternoon
Turn off window AC/fans when you leave for the day
Continue to turn off lights, equipment,
and computers when not in use

DID YOU KNOW?
The City saved \$90,000 last year simply by reducing its electricity consumption
during summer months. We can keep costs down AND reduce greenhouse
gas emissions by using our GreenSense during peak months.



**CAMBRIDGE
GreenSense**
Use Less. Gain More.



Cambridge GreenSense brings City of Cambridge employees together to cut energy use and minimize our impact on the environment. For more information contact
Karl Hewitt at 617-349-6947 or khewitt@cambridgema.gov.



Energy Champion's Guide for Tip #3: SummerSense!

The Opportunity

As the summer heats up, it takes a lot of electricity to keep us cool. So more than ever, we should be extra aware of our electricity use and do all that we can to reduce it. In addition to the lights, computers, and other office equipment that we run year-round, the summer also requires fans and air conditioning. **Summer is the time of "peak demand" for electricity** and the City of Cambridge is counting on its Energy Champions to use their SummerSense to keep that demand low.

What's the Impact?

- **Environmental:** During peak demand, when the summer heat pushes an increase in air conditioning, more power plants have to operate to supply the needed electricity. Increased power plant operations results in more air pollution, which is dangerous for public health, and also more greenhouse gas emissions that contribute to global warming.
- **Financial:** The City of Cambridge pays a capacity charge for its electricity consumption. How much that capacity charge is gets determined by a "tag"—the electricity demand of the City during the highest peak of the summer. It is unknown when peak demand—"Tag Day"—will occur, so the City strives to keep demand as low as possible throughout the summer months. **This past year, the City was able to save \$90,000 by reducing its peak load 28% in August 2007.**
- In just one City building, running 50 window air conditioning units 24 hours a day instead of turning them off at the end of the day **can waste \$10,000 per cooling season.**

Tips for Employees to Reduce Energy Use and Peak Demand

Lighting

- On hot days, **close shades, blinds, and curtains during the afternoon** or time of most direct sunlight to prevent the sun from heating up your space. At night, open them back up to allow heat to escape.

Cooling

- In buildings that do not have a central air conditioning system **try opening windows instead of running window air conditioners**, especially on mild days. However, **if a.c. units are running, keep the windows closed** to prevent wasted energy.
- **Ceiling and portable fans** use much less electricity than a.c. units. Try to use them instead of the air conditioning when you can.



- If you control over the a.c. unit or thermostat, **set the temperature between 74 and 76 degrees**. Each degree you raise the temperature can save 3-5% on air conditioning costs. You and your colleagues will still be comfortable and the a.c. will have to work less. (If you have to put on a sweater, your a.c. is working too hard and wasting electricity!!!)
- Turn off a.c. units and fans at the end of the day
- If you have any issues with space temperature, contact the Operations and Maintenance line at ext 4841 or 4840 or contact the appropriate designee in your department.

Off-Peak Charging

- If you have equipment or vehicles that need to be charged, try to do so during off-peak hours. In summer months, this would mean **charging between 6pm and 9am**.

Don't Forget Tips 1 and 2!

- Continue to **turn off lights, computers, and all other equipment** when it's not being used and at the end of the day—and remind your colleagues! These things give off heat and add to the need for more cooling.

Tips for Facility and Maintenance Staff

- Set cooling points higher (74-78°) to lower demand on the cooling equipment.
- Make sure that lights, fans, and air conditioning units are turned off after closing.
- Turn up the temperature setting on window a.c. units by a couple degrees if it feels cooler than necessary in the room. Don't leave window a.c. units on to run all night.
- Report and/or fix any air leaks in windows, walls, doors, or ductwork. Replace old filters or put in a request for replacement.

Sources and More information

American Council for an Energy Efficient Economy—Efficient Home Cooling:
<http://www.aceee.org/consumerguide/cooling.htm>

Energy Star –Heating and Cooling:
http://www.energystar.gov/index.cfm?c=heat_cool.pr_hvac





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CITY OF CAMBRIDGE ENERGY EFFICIENCY NSTAR MUNICIPAL PROGRAM PROJECT SUMMARY (4/16/10)

BUILDING	TOTAL PROJECT COST	UTILITY INCENTIVE	INCENTIVE AS % OF TOTAL COSTS	OUT-OF POCKET COSTS	kWh SAVINGS	ANNUAL ENERGY SAVINGS	EFFECTIVE PAYBACK (YRS.)	ANNUAL ROI
HAGGERTY SCHOOL	\$55,004.26	\$13,952.78	25.37%	\$41,051.48	55,811	\$7,255.45	5.3	19%
HAGGERTY SCHOOL (NON ARRA)	\$1,524.16	\$0.00	0.00%	\$1,524.16	6,447	\$838.16	1.8	55%
PEABODY SCHOOL ONLY	\$112,458.79	\$51,677.56	45.95%	\$60,781.23	206,710	\$26,872.33	2.0	49%
PEABODY SCHOOL ONLY (NON ARRA)	\$550.60	\$150.00	27.24%	\$400.60	4,090	\$531.70	0.8	133%
GATELY YOUTH CENTER	\$18,412.63	\$12,700.98	68.98%	\$5,711.65	50,804	\$6,604.51	0.8	133%
KENNEDY SCHOOL L&B	\$98,204.69	\$45,713.49	46.55%	\$52,491.20	182,854	\$23,771.01	2.0	50%
KENNEDY SCHOOL L&B (NON ARRA)	\$275.30	\$75.00	27.24%	\$200.30	1,872	\$243.36	0.8	121%
KENNEDY SCHOOL NEW FIXTURES	\$252,864.05	\$45,713.49	18.08%	\$207,150.57	182,854	\$23,771.01	8.5	12%
KENNEDY SCHOOL NEW FIXTURES (NON ARRA)	\$275.30	\$75.00	27.24%	\$200.30	1,872	\$243.36	0.8	121%
BALDWIN SCHOOL	\$51,109.43	\$17,070.25	33.40%	\$34,039.18	68,281	\$8,876.53	3.5	28%
BALDWIN SCHOOL (NON ARRA)	\$1,227.90	\$75.00	6.11%	\$1,152.90	6,023	\$782.94	1.5	68%
SENIOR CENTER	\$12,740.41	\$2,317.50	18.19%	\$10,422.91	9,270	\$1,205.10	8.1	12%
AREA 4 YOUTH CENTER	\$7,831.88	\$3,830.22	48.91%	\$4,001.66	15,321	\$1,991.71	1.9	54%
AREA 4 YOUTH CENTER (NON ARRA)	\$47.63	\$0.00	0.00%	\$47.63	324	\$42.14	1.1	88%
FRANCIS FRISOLI YOUTH CENTER	\$22,153.28	\$7,798.73	35.20%	\$14,354.55	31,195	\$4,055.34	3.3	30%
ENGINE 3	\$18,696.33	\$4,012.02	21.46%	\$14,684.32	16,048	\$2,086.25	6.8	15%
ENGINE 3 (NON ARRA)	\$275.30	\$75.00	27.24%	\$200.30	1,594	\$207.22	1.0	103%
TOTAL/AVG. (W/ KENNEDY L&B)	\$400,512.59	\$159,448.53	39.81%	\$241,064.07	656,644	\$85,363.75	2.7	64%
TOTAL/AVG. (W/ KENNEDY NEW FIX.)	\$555,171.95	\$159,448.53	28.72%	\$395,723.44	656,644	\$85,363.75	3.1	61%

Note: Incentives are estimated and are subject to NSTAR approval before the lighting upgrade installation can begin.



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CITY OF CAMBRIDGE ENERGY EFFICIENCY NSTAR MUNICIPAL PROGRAM PROJECT SUMMARY (4/22/10)

BUILDING	TOTAL PROJECT COST	UTILITY INCENTIVE *	OUT-OF POCKET COSTS	TOTAL kWh SAVINGS	ELECTRICAL ANNUAL ENERGY SAVINGS	NATURAL GAS SAVINGS (THERMS)	NATURAL GAS ANNUAL ENERGY SAVINGS	TOTAL ANNUAL ENERGY SAVINGS	EFFECTIVE PAYBACK (YRS.)	ANNUAL ROI
HAGGERTY SCHOOL	\$217,754.00	\$29,550.00	\$188,204.00	267,705	\$40,156.00	11,056	\$15,479.00	\$55,635.00	3.4	30%
PEABODY SCHOOL	\$205,566.00	\$28,400.00	\$177,166.00	95,169	\$14,275.00	16,599	\$23,238.00	\$37,513.00	4.7	21%
KENNEDY SCHOOL **	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BALDWIN SCHOOL	\$68,167.00	\$5,050.00	\$63,117.00	40,228	\$6,034.00	3,954	\$5,535.00	\$11,569.00	5.5	18%
SENIOR CENTER ***	\$23,140.00	TBD	\$23,140.00	39,130	\$5,870.00	1,260	\$1,764.00	\$7,634.00	3.0	33%
AREA 4 YOUTH CENTER	\$52,135.00	\$4,500.00	\$47,635.00	21,439	\$3,216.00	4,680	\$6,552.00	\$9,768.00	4.9	21%
FRANCIS FRISOLI YOUTH CENTER	\$89,608.00	\$25,750.00	\$63,858.00	55,198	\$8,280.00	6,901	\$9,661.00	\$17,941.00	3.6	28%
ENGINE 3	\$27,348.00	\$4,500.00	\$22,848.00	605	\$91.00	2,626	\$3,676.00	\$3,767.00	6.1	16%
TOTAL/AVG.	\$683,718.00	\$97,750.00	\$585,968.00	519,474	\$77,922.00	47,076	\$65,905.00	\$143,827.00	4.4	24%

* **Note:** Incentives are estimated and are subject to NSTAR approval before the energy conservation measures can be installed.

** **Note:** There were no equipment or control drawings available for this building. To complete a proposal for this building will require a detailed scoping study.

*** **Note:** The utility incentives have not been finalized for the Senior Center project, so the overall utility incentives, out-of-pocket costs, effective payback, and annual ROI will need to be modified at a later date.

Appendix F: Energy Units and Conversion Table

BTU Conversion Chart

Fuel Energy Content of Common Fossil Fuels Per DOE/EIA

BTU Content of Common Energy Units – (1 million Btu equals 1 MMBTU)

1 barrel(42 gallons) of crude oil = 5,800,000 Btu

1 gallon of gasoline = 124,000 Btu (based on U.S. consumption, 2007)

1 gallon of diesel fuel = 139,000 Btu

1 gallon of heating oil = 139,000 Btu

1 barrel of residual fuel oil = 6,287,000 Btu

1 cubic foot of natural gas = 1,028 Btu (based on U.S. consumption, 2007)

1 gallon of propane = 91,000 Btu

1 short ton of coal = 20,169,000 Btu (based on U.S. consumption, 2007)

1 kilowatt hour of electricity = 3,412 Btu

1 therm = 100,000 Btu

CO2 Conversion

Electricity Factor – 0.905 lbs CO2 per kWh

Natural Gas Factor – 11.71 lbs CO2 per therm

CAMBRIDGE PUBLIC SCHOOLS



JEFFREY M. YOUNG, Ed.D.
Superintendent of Schools

159 THORNDIKE STREET, CAMBRIDGE, MASSACHUSETTS 02141
Telephone: (617) 349-6494 • Email: jyoung@cpsd.us

May 14, 2010

Department of Energy Resources
Green Communities Division
100 Cambridge Street, 10th Floor
Boston, MA 02114
ATTN: Cliff Sullivan

Re: City of Cambridge application for Green Communities Designation

Dear Mr. Sullivan:

On behalf of the Cambridge School Department we are committed to achieving the 20 percent energy use reduction goal of the City of Cambridge. The School Department has worked in collaboration with other City departments to develop the Cambridge energy use reduction plan and will continue to collaborate on the implementation of the plan.

We are also committed to complying with the Green Communities vehicle efficiency guidelines.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey M. Young".

Jeffrey M. Young
Superintendent

Criterion #4

Fuel Efficient Vehicles

- Cambridge Green Fleet Policy
- City of Cambridge Vehicle Inventory

Note: Superintendent of Schools letter committing to fuel efficiency guidelines is under Criterion #3

CITY OF CAMBRIDGE GREEN FLEET POLICY

Goals

Through the implementation of this policy, the City will work to achieve the following goals:

- Increase the average fuel economy of the City fleet;
- Minimize vehicle miles traveled to the extent operationally feasible
- Minimize greenhouse gases and conventional air pollution;
- Reduce vehicle size when appropriate;
- Incorporate alternative fuel vehicles into the City fleet when feasible;
- Reduce the costs of operating and maintaining the fleet;
- Eliminate vehicles from the City fleet that are unnecessary or not cost-effective.

Applicability

This policy applies to all departments of the City of Cambridge.

The Green Fleet Policy

- A. All departments shall purchase only fuel efficient vehicles for municipal use whenever such vehicles are commercially available and practicable.
- B. The City of Cambridge shall operate and maintain its vehicles in a manner that is energy efficient and minimizes emissions of conventional air pollutants and greenhouse gases.
- C. The City of Cambridge shall incorporate alternative fuel vehicles and hybrid vehicles into the municipal vehicle fleet when feasible taking into account acquisition, operating, and maintenance costs, appropriateness for the task, safety, and reliability.

Green Fleet Policy Strategies

In order to accomplish the goals stated in the section above, the City of Cambridge shall modify procurement procedures, implement policies, conduct reviews, and take other actions as follows:

- A. A Green Fleet Committee will be appointed by the City Manager to support the implementation of this policy.
- B. Each department with vehicles shall maintain a comprehensive vehicle inventory. All departments with vehicles shall submit their vehicle inventory to the Department of Public Works in each fiscal year by March 31 of each year. The

Public Works Department shall compile the vehicle inventory annually and distribute the comprehensive inventory to all relevant departments by May 31 of each year. The inventory shall be maintained in a manner that is consistent with the Massachusetts Green Communities guidelines. The Department of Public Works may advise other departments as to the fields of data that should be maintained in the inventory and otherwise coordinate the maintenance and compilation of department vehicle inventories.

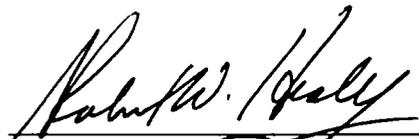
C. Vehicle Acquisition Procedure

1. All departments shall obtain the approval of the City Manager before submitting a vehicle requisition to the Purchasing Department and to the Green Fleet Committee.
2. Prior to submitting a vehicle requisition to the Purchasing Department, the department seeking the vehicle shall submit a completed Green Fleet review form to the Green Fleet Committee. The Committee may request additional information to assist in its review. The Committee shall submit a written recommendation to the requesting department and the Purchasing Agent upon completion of its review.
3. The requested vehicles shall comply with the Massachusetts Green Communities guidelines on fuel efficiency, unless they fall within the exempted category.

D. All City vehicles shall comply with the state anti-idling law, MGL Ch.90, s.16A, which limits idling to no more than 5 minutes, except in specified cases.

E. Maintain vehicles at optimal efficiency by reviewing current maintenance schedule for all fleet vehicles and increasing maintenance wherever cost-effective benefits will accrue as a result.

Issued by:



Robert W. Healy, City Manager

Date issued: May 13, 2010

City of Cambridge
Vehicle Inventory (Green Communities Non-exempt)
May 2010

Department	Description	Model	Make	Model Year	Year Purchased	Drive System		GVWR	MPG	Annual Miles Driven	Total Fuel Consumption	Usage/ Function
Cambridge Police	SUV	Highlander	Toyota	2008	2008	4x4	Automatic - 4 speed	6150	26			24 Hours
Cambridge Police	Sedan	Altima	Nissan	2005	2005	4x2	4 SPEED AUTO		N/A			
Cambridge Police	Sedan	Camry	Toyota	2008	2008	4x2	Automatic - 4 speed		N/A			24 Hours
Cambridge Police	Hybrid	Camry	Toyota	2008	2008	4x2	4 SPEED AUTO		N/A	33		24 HRS
Cambridge Police	Hybrid	Camry	Toyota	2009	2009	4x2	4 SPEED AUTO		N/A	33		24 HRS
Cambridge Police	Sedan	Camry	Toyota	2007	2007	4x2	4 SPEED AUTO		N/A	23		
Cambridge Police	Hybrid	Camry	Toyota	2008	2008	4x2	4 SPEED AUTO		N/A	33		24 HRS
Cambridge Police	Hybrid	Camry	Toyota	2009	2009	4x2	4 SPEED AUTO		N/A	33		24 HRS
Cambridge Police	Hybrid	Camry	Toyota	2009	2009	4x2	4 SPEED AUTO		N/A	33		
Cambridge Police	Hybrid	Camry	Toyota	2008	2008	4x2	4 SPEED AUTO		N/A	33		24 HRS
Cambridge Police	Hybrid	Camry	Toyota	2008	2008	4x2	4 SPEED AUTO		N/A	33		
Cambridge Police	Sedan	Ford 500	Ford	2006	2006	AWD	4 SPEED AUTO		N/A	21		24 HRS
Cambridge Police	Sedan	Ford 500	Ford	2006	2006	AWD	4 SPEED AUTO		N/A	21		24 HRS
Cambridge Police	Sedan	Ford 500	Ford	2006	2006	AWD	4 SPEED AUTO		N/A	21		24 HRS
Cambridge Police	Sedan	Fusion	Ford	2010	2010	FWD	6 SPEED AUTO		N/A	25		24 HRS
Cambridge Police	Hybrid	Fusion	Ford	2010	2010	AWD	6 SPEED AUTO		N/A	25		24 HRS
Cambridge Police	Sedan	Fusion	Ford	2010	2010	AWD	4 SPEED AUTO		N/A	25		24 HRS
Cambridge Police	Sedan	Fusion	Ford	2010	2010	FWD	4 SPEED AUTO		N/A	25		24 HRS
Cambridge Police	Sedan	Sable	Mercury	1999	1999	FWD	4 SPEED AUTO		N/A	20		
Cambridge Police	Sedan	Taurus	Ford	2000	2000	4x2	4 SPEED AUTO		N/A	20		
Cambridge Police	Sedan	Taurus	Ford	1998	1998	4x2	4 SPEED AUTO		N/A	19		
Cambridge Police	SUV	Expedition	Ford	2007	2007	4x4	4 SPEED AUTO		N/A	13		24 HRS
Cambridge Police	SUV	Expedition	Ford	2007	2007	4x4	4 SPEED AUTO		N/A	13		24 HRS
Cambridge Police	SUV	Expedition	Ford	2010	2010	4x4	4 SPEED AUTO		N/A	14		24 HRS
Cambridge Police	SUV	EXPEDITION	Ford	2004	2004	4x4	4 SPEED AUTO		N/A	13		
Cambridge Police	SUV	Explorer	Ford	2007	2007	4x4	4 SPEED AUTO		N/A	15		24 HRS
Cambridge Police	SUV	EXPLORER	Ford	2000	2000	4x4	4 SPEED AUTO		N/A	15		
Cambridge Police	SUV	Pilot	Honda	2010	2010	AWD	4 SPEED AUTO		N/A	18		
Cambridge Police	Van	Odyssey	Honda	1999	1999	FWD	4 SPEED AUTO		N/A	19		
Cambridge Police	Van	Sienna	Toyota	2007	2007	FWD	4 SPEED AUTO		N/A	18		
City Manager	Hybrid	Camry	Toyota	2008	2008	4x2	Automatic - 4 speed		N/A	33		24 Hours
City Manager	Hybrid	Fusion Hybrid	Ford	2010	2010	FWD	6 SPEED AUTO		N/A	39		24 HRS
Clerk	Passenger Vehicle	Crown Vic	FORD	1997	1997	4x2	Automatic - 4 speed - Ford		N/A	17		24 Hours
Electrical	Light Duty Truck	Colorado	Chevrolet	2008	2008		Automatic - 4 speed	5150	18			
Electrical	Light Duty Truck	Escape	Ford	2009	2009		Automatic - 4 speed		N/A	21		
Electrical	Light Duty Truck	Explorer	FORD	1998	1998		Automatic - 4 speed		N/A	15		
Electrical	Light Duty Truck	Ranger 4WD	FORD	2000	2000	4x4	Automatic - 4 speed	4200	15			
Electrical	Van	Astro	Chevrolet	2002	2002	4x2	Automatic - 4 speed		N/A	14		
Electrical	Van	Uplander	Chevrolet	2008	2008	4x2	Automatic - 4 speed		N/A	19		
Emergency Management	Passenger Vehicle	Crown Vic	FORD	2003	2003	4x2	Automatic - 4 speed - Ford		N/A	16		24 Hours
Libraries	Van	Transit Connect	Ford	2010	2010	4x2	Automatic - 4 speed					
Mayor	Hybrid	Fusion Hybrid	Ford	2010	2010	AWD	6 SPEED AUTO		N/A	39		24 HRS
Public Works - Admin	Hybrid	Civic	Honda	2008	2008	4x2	Automatic - 4 speed		N/A	42		24 Hours
Public Works - Admin	Passenger Vehicle	Taurus	FORD	2002	2002	4x2	Automatic - 4 speed - Ford		N/A	20		24 Hours
Public Works - Building Admin	Passenger Vehicle	Lumina	Chevrolet	1997	1997	4x2	Automatic - 4 speed		N/A	18		24 Hours

City of Cambridge
 Vehicle Inventory (Green Communities Non-exempt)
 May 2010

Department	Description	Model	Make	Model Year	Year Purchased	Drive System	GVWR	MPG	Annual Miles Driven	Total Fuel Consumption	Usage/Function
Public Works - Building Maint	Light Duty Truck	S10 2WD	Chevrolet	1998	1998	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Building Maint	Passenger Vehicle	Lumina	Chevrolet	2000	2000	4x2 Automatic - 4 speed	N/A	18			24 Hours
Public Works - Building Ops	Passenger Vehicle	Lumina	Chevrolet	1998	1998	4x2 Automatic - 4 speed	N/A	17			24 Hours
Public Works - Cemetery	Passenger Vehicle	Crown Vic	Ford	2000	2000	4x2 Automatic - 4 speed - Ford	N/A	16			24 Hours
Public Works - Engineering	Passenger Vehicle	Taurus	FORD	2002	2002	4x2 Automatic - 4 speed	N/A	20			24 Hours
Public Works - Park Maint	Light Duty Truck	S10 2WD	Chevrolet	1996	1996	4x2 Automatic - 4 speed	4200	20			24 Hours
Public Works - Park Maint	Light Duty Truck	S10 2WD	Chevrolet	1999	1999	4x2 Automatic	4200	19			24 Hours
Public Works - Park Maint	Light Duty Truck	S10 2WD	Chevrolet	1999	1999	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Park Maint	Light Duty Truck	S10 2WD	Chevrolet	2000	2000	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Park Maint	Light Duty Truck	S10 2WD	Chevrolet	1999	1999	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Park Maint	Light Duty Truck	S10 4WD	Chevrolet	1996	1996	4x4 Automatic - 4 speed	4200	17			8 Hours
Public Works - Park Maint	Passenger Vehicle	Lumina	Chevrolet	1999	1999	4x2 Automatic - 4 speed	N/A	21			24 Hours
Public Works - Recycling	Light Duty Truck	S10 2WD	Chevrolet	2000	2000	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Recycling	Light Duty Truck	S10 2WD	Chevrolet	2001	2001	4x2 Automatic - 4 speed	4200	17			8 Hours
Public Works - Recycling	Van	Astro	Chevrolet	2001	2001	4x2 Automatic - 4 speed	N/A	15			24 Hours
Public Works - Sanitation	Light Duty Truck	S10 2WD	Chevrolet	2002	2002	4x2 Automatic - 4 speed	4200	17			8 Hours
Public Works - Sanitation	Light Duty Truck	S10 4-WD CT10653 Extend	Chevrolet	2002	2002	4x2 Automatic - 4 speed	4200	15			24 Hours
Public Works - Sanitation	Passenger Vehicle	Lumina	Chevrolet	2000	2000	4x2 Automatic - 4 speed	N/A	21			24 Hours
Public Works - Sewer Maint	Light Duty Truck	S10 2WD	Chevrolet	1999	1999	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Sewer Maint	Light Duty Truck	S10 2WD	Chevrolet	2000	2000	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Sewer Maint	Passenger Vehicle	Lumina	Chevrolet	2000	2000	4x2 Automatic - 4 speed	N/A	21			24 Hours
Public Works - Sewer Maint	Passenger Vehicle	Lumina	Chevrolet	1997	1997	4x2 Automatic - 4 speed	N/A	21			24 Hours
Public Works - Street Clean	Light Duty Truck	Ranger	FORD	1994	1994	4x2 Automatic - 4 speed - Ford	4200	20			8 Hours
Public Works - Street Clean	Light Duty Truck	S10 2WD	Chevrolet	1996	1996	4x2 Automatic - 4 speed	4200	20			8 Hours
Public Works - Street Clean	Light Duty Truck	S10 4-WD CT10653 Extend	Chevrolet	2002	2002	4x4 Automatic - 4 speed	4200	15			24 Hours
Public Works - Street Maint	Hybrid	Escape Hybrid	Ford	2006	2006	AWD Automatic - 4 speed - Ford	N/A	29			24 Hours
Public Works - Street Maint	Light Duty Truck	S10 2WD	Chevrolet	1998	1998	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Street Maint	Light Duty Truck	S10 2WD	Chevrolet	2000	2000	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Street Maint	Light Duty Truck	S10 2WD	Chevrolet	2000	2000	4x2 Automatic - 4 speed	4200	19			24 Hours
Public Works - Vehicle Maint	Passenger Vehicle	Crown Vic	Ford	2004	2004	4x2 Automatic - 4 speed - Ford	N/A	16			24 Hours
School - Maintenance	Passenger Vehicle	Freestar	Ford	2004	2004	Automatic	N/A	18			8 hrs
School - Superintendent	Hybrid	Prius	Toyota	2010	2010	4x2 Automatic	N/A	50	5000		24 hrs
School - Maintenance	Hybrid	Escape Hybrid	Ford	2009	2009	Automatic	N/A	28	30000		8 hrs
School - RSTA	Passenger Vehicle	Camry	Toyota	1994	1994	Automatic	N/A	19	9000		8 hrs
School - RSTA	Passenger Vehicle	Taurus	Ford	2002	2002	4x2 Automatic	N/A	21	7500		8 hrs
School - RSTA	Passenger Vehicle	Taurus	Ford	1999	1999	4x2 Automatic	N/A	13	9000		8 hrs
School - Superintendent	Hybrid	Escape Hybrid	Ford	2008	2008	Automatic	N/A	28	8000		8 hrs
Traffic & Parking	Hybrid	Prius	Toyota	2008	2008	4x2 Automatic - 4 speed	N/A	46			
Traffic & Parking	Light Duty Truck	Blazer	Chevrolet	2005	2005	4x4 Automatic - 4 speed	N/A	15			
Traffic & Parking	Light Duty Truck	Colorado	Chevrolet	2007	2007	4x4 Automatic - 4 speed	5150	18			
Traffic & Parking	Light Duty Truck	Colorado	Chevrolet	2008	2008	4x4 Automatic - 4 speed	5150	18			
Traffic & Parking	Light Duty Truck	Colorado	Chevrolet	2006	2006	4x4 Automatic - 4 speed	5150	16			
Traffic & Parking	Light Duty Truck	Escape	Ford	2008	2008	4x4 Automatic - 4 speed	N/A	20			
Traffic & Parking	Light Duty Truck	S10 2WD	Chevrolet	2003	2003	4x2 Automatic - 4 speed	4200	19			
Traffic & Parking	Light Duty Truck	S10 2WD	Chevrolet	2002	2002	4x2 Automatic - 4 speed	4200	17			
Traffic & Parking	Light Duty Truck	S10 2WD	Chevrolet	2002	2002	4x2 Automatic - 4 speed	4200	17			
Traffic & Parking	Light Duty Truck	S10 2WD	Chevrolet	2002	2002	4x2 Automatic - 4 speed	4200	17			
Traffic & Parking	SUV	Trail Blazer	Chevrolet	2005	2005	4x4 Automatic - 4 speed	N/A	16			
Traffic & Parking	Van	Astro	Chevrolet	2004	2004	4x2 Automatic - 4 speed	N/A	15			

City of Cambridge
 Vehicle Inventory (Green Communities Non-exempt)
 May 2010

Department	Description	Model	Make	Model Year	Year Purchased	Drive System		GVWR	MPG	Annual Miles Driven	Total Fuel Consumption	Usage/ Function
Water	Hybrid	Camry	Toyota	2007	2007	4x2	HYBRID	N/A	33			24HOURS
Water	Hybrid	Camry	Toyota	2007	2007	4x2	HYBRID	N/A	33			24 Hours
Water	Hybrid	Prius	Toyota	2010	2010	2X4	HYBRID	N/A	50			8HRS
Water	Hybrid	Prius	Toyota	2010	2010	2X4	HYBRID	N/A	50			24HRS
Water	Hybrid	Prius	Toyota	2009	2009	4x2	HYBRID	N/A	46			8-Hours
Water	Light Duty Truck	F150	Ford	2008	2008	4X4	Automatic - 4 speed - Ford	8200	14			24 Hours
Water	Light Duty Truck	F150	Ford	2005	2005	4X4	AUTOMATIC	8200	14			24HOURS
Water	Light Duty Truck	F150	Ford	2004	2004	4X4	AUTOMATIC	8200	15			8 HRS
Water	Light Duty Truck	Ranger	Ford	2004	2004	4x2	AUTOMATIC	4200	21			8HRS
Water	Light Duty Truck	S10 4WD	Chevrolet	2002	2002	4X4	Automatic - 4 speed	4200	17			8-Hours
Water	Light Duty Truck	S10 4WD	Chevrolet	2001	2001	4X4	AUTOMATIC	4200	17			8HRS

Criterion #5

Minimize Life Cycle Costs

- True copy of Cambridge City Council adoption of the Stretch Energy Code



City of Cambridge

O-11
IN CITY COUNCIL
December 21, 2009

COUNCILLOR DAVIS

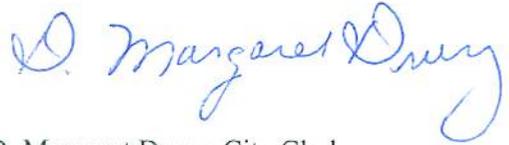
- WHEREAS: In May 2009 the Massachusetts Board of Building Regulations and Standards adopted Appendix 120.AA, known as the Stretch Energy Code that provides a more energy efficient building code option for cities and towns than the base code; and
- WHEREAS: The Health and Environment Committee held a public meeting on July 28, 2009 to discuss the Stretch Energy Code; and
- WHEREAS: Pursuant to City Council Order Number Five of September 14, 2009 two informational sessions were held by the Community Development Department. The informational session held on October 15, 2009 focused on residential buildings and the October 20, 2009 focused on commercial buildings; and
- WHEREAS: On November 23, 2009 the Community Development Department reported back to the City Council on these informational sessions. Said report was referred to the City Council Health and Environment Committee which was designated by the City Council as the committee to hold the required public hearing on the Stretch Energy Code; and
- WHEREAS: Public notice and hearing requirements were fulfilled as follows: on December 3, 2009 the notice of the public hearing was published in the Cambridge Chronicle and on December 9, 2009 the public hearing was held by the Health and Environment Committee; and

WHEREAS: It is the goal of the City of Cambridge to encourage energy efficiency using many strategies, both voluntary and required; now therefore be it

ORDERED: That the Cambridge City Council go on record adopting the Stretch Energy Code which becomes effective July 1, 2010, the required six-month concurrency period between adoption and implementation.

In City Council December 21, 2009
Adopted by the affirmative vote of nine members.
Attest:- D. Margaret Drury, City Clerk

A true copy;



ATTEST:-

D. Margaret Drury, City Clerk