



City of Cambridge

Executive Department

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City Manager

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IN CITY COUNCIL
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To the Honorable, the City Council:

In response to AR 24-045 regarding a request to implement a policy to ensure that City operated buildings have default temperatures that align with health and sustainability best practices, we submit the following report that highlights our Greenhouse Gas Emission Targets for Municipal Operations and our approach to temperature set points for heating and cooling.

City buildings serve our staff, visitors and many community functions. In operating and maintaining these buildings, staff prioritize creating comfortable environments for people working and using the building, and meeting our environmental goals.

Recommendations from Other Communities

California's Standard Operating Efficiency Procedures and DC's Energy Tips both recommend that temperature set points should be no higher than 68°F degrees in winter and no lower than 78°F degrees in summer. Other communities such as Charlotte, NC, Brookline, MA, Dubuque, IA and Plano, TX have set points of 70°F to 72°F for heating and 74°F to 76°F for cooling.

Current Approach for Cambridge Municipal Buildings

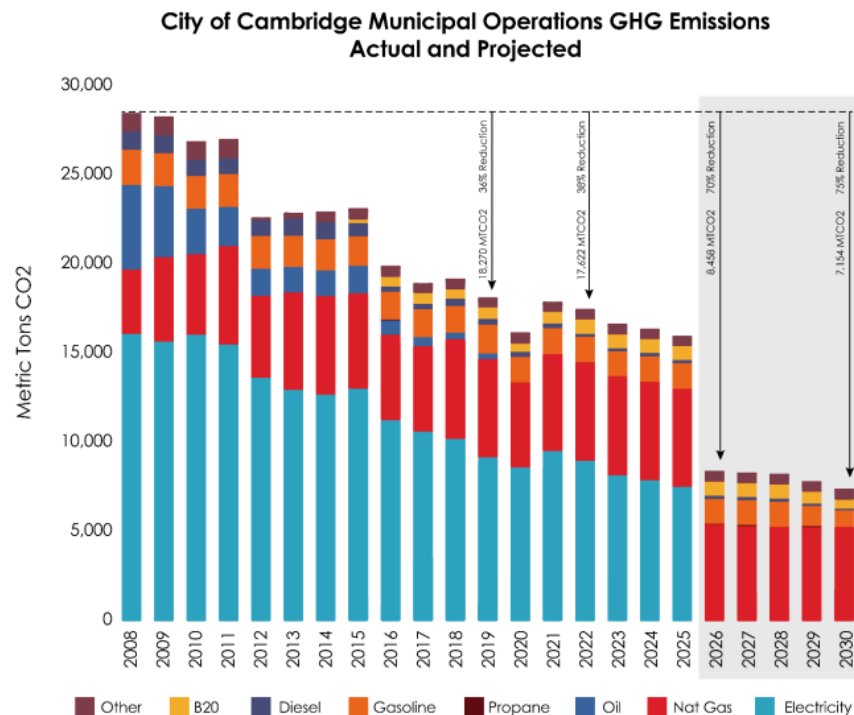
For Cambridge, the condition and complexity of the heating and cooling systems in our buildings vary, but most **buildings are centrally controlled or have programmable thermostats** with schedules that are associated with occupied times and unoccupied times. The **standard settings during occupied times are to heat to 68°F and cool to 74°F**. During **unoccupied times**, the temperatures are **typically set 5°F to 7°F degrees warmer in the summer and cooler in the winter**. The approach is building-specific and considers the usage of the building, the heating and cooling systems of the building, etc. and seeks to maintain the **comfort for building occupants, while reducing the overall energy usage**.

These settings have reduced concerns about temperatures from employees and also reduced wasteful over-control patterns. The **majority of the individual temperature controls in buildings are locked**, as we find that if people can control the settings, they tend to either crank them up or down and then leave them there. Then the next day or next person comes along, and they crank the settings the other way and leave them there. This creates more swings in the system, can lead to inefficient operations, and adds pressure to the HVAC systems.



Other Municipal GHG Reductions & Energy Efficiency Actions

The Cambridge Net Zero Action Plan is the driving force behind our environmental goals and climate actions. One of the commitments in the January 2023 NZAP Update was to establish 2030 GHG emission targets for municipal operations, which include buildings, fleet, and streetlights. By **2022**, we **had reduced our GHG emissions for municipal operations by 38% from the 2008 baseline** and we have set a **target goal of 75% reduction by 2030**. This data and the target goals were included in the [FY25 Budget](#) and are shown in the chart below.



Note: In 2022, the City reduced greenhouse gas (GHG) emissions from municipal operations 38% below 2008 levels. The chart also depicts the significant impact of the planned procurement of 100% renewable electricity supply from a new offsite renewable system with a commercial operation date on or about Dec. 2025 and the 75% projected reduction by 2030.

The specific reductions in emissions associated with electricity (shown in light blue) are based on both a **cleaner grid and decreased electricity usage**. The decreased electricity usage comes from a variety of actions that the City has undertaken including streetlight upgrades, capital building renovations and HVAC replacement projects, as well as a number of smaller to medium scale projects. For example:

- In 2023 and 2024, DPW completed **14 lighting upgrade projects**, including projects at the Healy Public Safety Building, Cambridge Rindge and Latin High School and the First Street Garage. These projects have saved 1,060,000 kWh of electricity.
- **Recommissioning of existing buildings** evaluates the operation of existing buildings to confirm the buildings are operating as designed and to identify new opportunities for performance improvements. Recommissioning has recently been completed at the Alice K Wolf Building and the Cambridge Public Library. Recommissioning is planned at the Cambridge Rindge and Latin High School.
- **Energy Demand Response Programs** pay organizations to reduce their energy load during times of high demand on the electricity grid or high prices. To be effective, these programs focus on larger

buildings with the highest energy use. The **Water Treatment Plant** has been a longtime participant, and DPW has **recently enrolled ten additional City-owned buildings** to begin in **2025**.

We continue to pursue **energy efficiency and improvement projects** in both old and new city buildings to reduce energy use overall, as well as during the peak hours.

Recommend Maintaining Current City Building Set Points

Consistent temperature settings help **reduce energy use, reduce wasteful over-control patterns and improve comfort** for the users of the building. In establishing the temperature set points, there are a variety of considerations and standards used by state and local governments. Although increasing summer cooling and decreasing winter heating in City buildings beyond current ranges could decrease carbon emissions, it could also decrease staff and visitor productivity, and may impact indoor viral transmission rates. This is particularly true in a more **humid climate like the northeast**.

“The **U.S. Occupational Safety and Health Administration (OSHA)**...**recommends** that employers keep the thermostat between 68°F and 76°F.” OSHA provides a high degree of flexibility, as comfort can be subjective and vary widely based on multiple factors. Some employees might feel more comfortable at the lower end of the temperatures, while others might prefer a slightly warmer environment. Therefore, while the guidelines provide a reference point, OSHA encourages employers to make adjustments to ensure a comfortable and productive work environment.

A recent [NIH publication](#) proposes that the benefits of maintaining a temperature close to 71°F to 73 °F extends beyond comfort alone. This paper suggests that viral transmission is reduced at this temperature range along with a Relative Humidity (RH) of 40-60%. There is also a reference to work productivity, which matches other references that indicate a gradual loss of productivity above 73.4 °F (23 C). This reduced productivity is small, about 2% per degree C, but leads to a higher effect in areas where the temperature might be higher because of inefficient cooling dynamics. **Inconsistent cooling and heating** can be a **significant challenge in many of our city buildings** that have older and outdated HVAC systems; have large spaces controlled by a single system; or may have been cut into smaller spaces over time without modifications to the HVAC system.

We continue to monitor the performance of our buildings and improve our operations to reduce energy use and support staff and the community that use our facilities.

Very truly yours,



Yi-An Huang
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