

REPORT OF THE CLIMATE ACTION COMMITTEE

The Climate Action Committee (CAC) was originally established by Town Meeting as the Sustainable Energy Committee (SEC) in 2010. The CAC is composed of seven appointed members, with staggered terms of three years. The Select Board, Municipal Light Plant (MLP), and School Committee each appoint a representative, and the Select Board appoints the remaining four members from among residents or others with relevant interests and expertise.

A brief timeline of climate action milestones:

- **2010:** Annual Town Meeting (ATM) establishes the SEC to lead efforts to accomplish the goal adopted at the 2009 Annual Town Meeting to reduce town-wide greenhouse gas (GHG) emissions 10 percent below 2007 levels by 2013, to monitor and report progress toward that goal, and to propose further goals for emissions reductions to Town Meeting.
- **2014:** The 2009 goal is reached, and ATM adopts the SEC proposal to establish a new goal to reduce town-wide emissions 25 percent below 2007 levels by 2020.
- **2020:** The town achieves the 25% emissions reduction goal due to a variety of factors including greening of the electricity grid, the transition away from the use of fuel oil to heat buildings, improved energy efficiency and waste reduction, and pandemic-related changes in building and vehicle use. At Special Town Meeting in Fall 2020, the Town adopts a resolution proposed by the Select Board to address the serious impact of climate change urging that all boards, committees, and departments proactively consider actions to reduce greenhouse gas emissions associated with Town-supported projects and programs and to coordinate with the SEC to develop and implement a comprehensive climate action plan for the Town.
- **2021:** Annual Town Meeting adopts new GHG emissions goals to reduce town-wide GHG emissions 50 percent below 2007 levels by 2030, 75 percent below 2007 levels by 2040 and to net zero emissions by 2050 (Article 24). These goals align with the emissions goals set by the Commonwealth of Massachusetts, which has also adopted a 2050 net zero carbon emissions goal. ATM also approved a name change from the SEC to the Climate Action Committee (CAC).
- **2022:** The CAC completes a Climate Action Plan and Town Meeting approves a reporting line change for the Sustainability Director, who now reports to the Executive Director of General Government Services.

MEASUREMENT OF 2021 EMISSIONS AND TRENDS

Measurement of Emissions 2021-2022

As shown in the table below, Wellesley's total 2022 GHG emissions decreased 3% from 2021 levels. Significant emissions reductions in 2022 can be attributed to an increase in carbon-free electricity purchases by the Wellesley Municipal Light Plant (MLP), as well as mild weather during the 2022 heating season.¹

¹ GHG electricity emissions factors for 2020 and 2021 were revised based on new reports from Massachusetts Department of Environmental Protection and updated information on MLP electricity purchases.

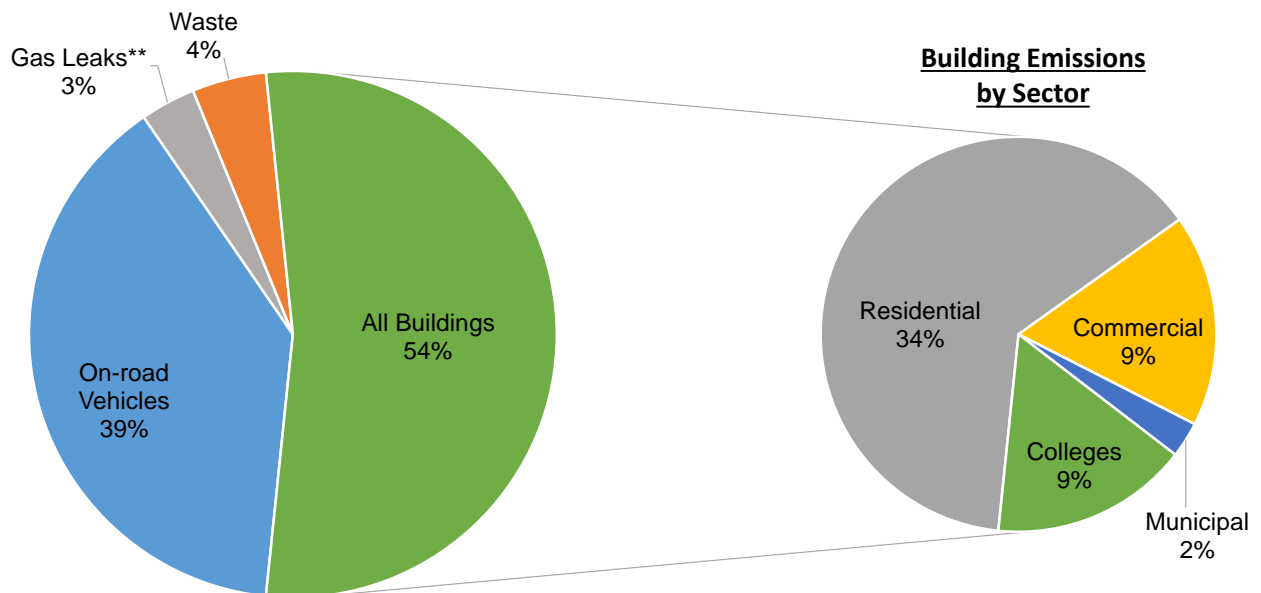
Preliminary Greenhouse Gas Emissions (CO ₂ e) in metric tons [‡]							
	Share of Total 2022 Emissions	2022 Emissions	2021 Emissions	2021 - 2022 Percent Change	2020 Emissions	2007 Emissions	2007 - 2022 Percent Change
Buildings	55.0%	124,864	138,454	-9.8%	139,018	255,941	-51.2%
Residential	35.0%	79,292	83,886	-5.5%	85,080	138,172	-42.6%
Commercial	9.6%	21,712	25,944	-16.3%	26,286	61,421	-64.6%
College	8.9%	20,214	24,569	-17.7%	24,046	48,747	-58.5%
Municipal & School	1.6%	3,646	4,056	-10.1%	3,607	7,601	-52.0%
On-road Vehicles	40.1%	90,979	85,064	7.0%	80,266	85,042	7.0%
Municipal Services[§]	0.2%	357	480	-25.7%	551	2,369	-84.9%
Waste	4.7%	10,659	10,085	5.7%	11,469	8,912	19.6%
Total Emissions	100.0%	226,860	234,082	-3.1%	231,306	352,264	-35.6%
Gas Leaks[°]			7,939		7,858		
Total w/Gas Leaks			242,021		239,164		

[‡]GHG estimates are based on actual municipal and college energy use data, actual electric and natural gas use by households and businesses, estimates for heating oil consumption and vehicle miles traveled for on-road vehicles, a mix of actual and estimated waste data, fuel efficiency of on-road vehicles, and conversion factors that translate energy use into GHG emissions. The methodology is guided by the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions established in October 2012. Town-wide emissions are calculated using ICLEI – Local Governments for Sustainability software.

[§]Municipal services include water treatment, Recycling and Disposal Facility operations, public electric vehicle charging, as well as street, traffic, field, and municipal parking lot lights.

[°]Gas leaks are not yet included in emissions totals used to track progress toward Wellesley's GHG reduction goals due to lack of data for the baseline year of 2007.

Contribution to 2022 Total GHG Emissions* (MTCO₂e)



*Municipal services, not shown above, contributed 0.2% of total GHG emissions in 2022.

**Gas leak emissions using 2021 data are included here to show their impact relative to total emissions.

Buildings emissions decreased across all sectors between 2021 and 2022, resulting from lower natural gas consumption and an increase in MLP's carbon-free electricity purchases by 29% over 2021 levels. Although electricity use by each sector rose slightly, the GHG emissions associated with that electricity use were still lower than in 2021 because of the cleaner electricity purchases by MLP.

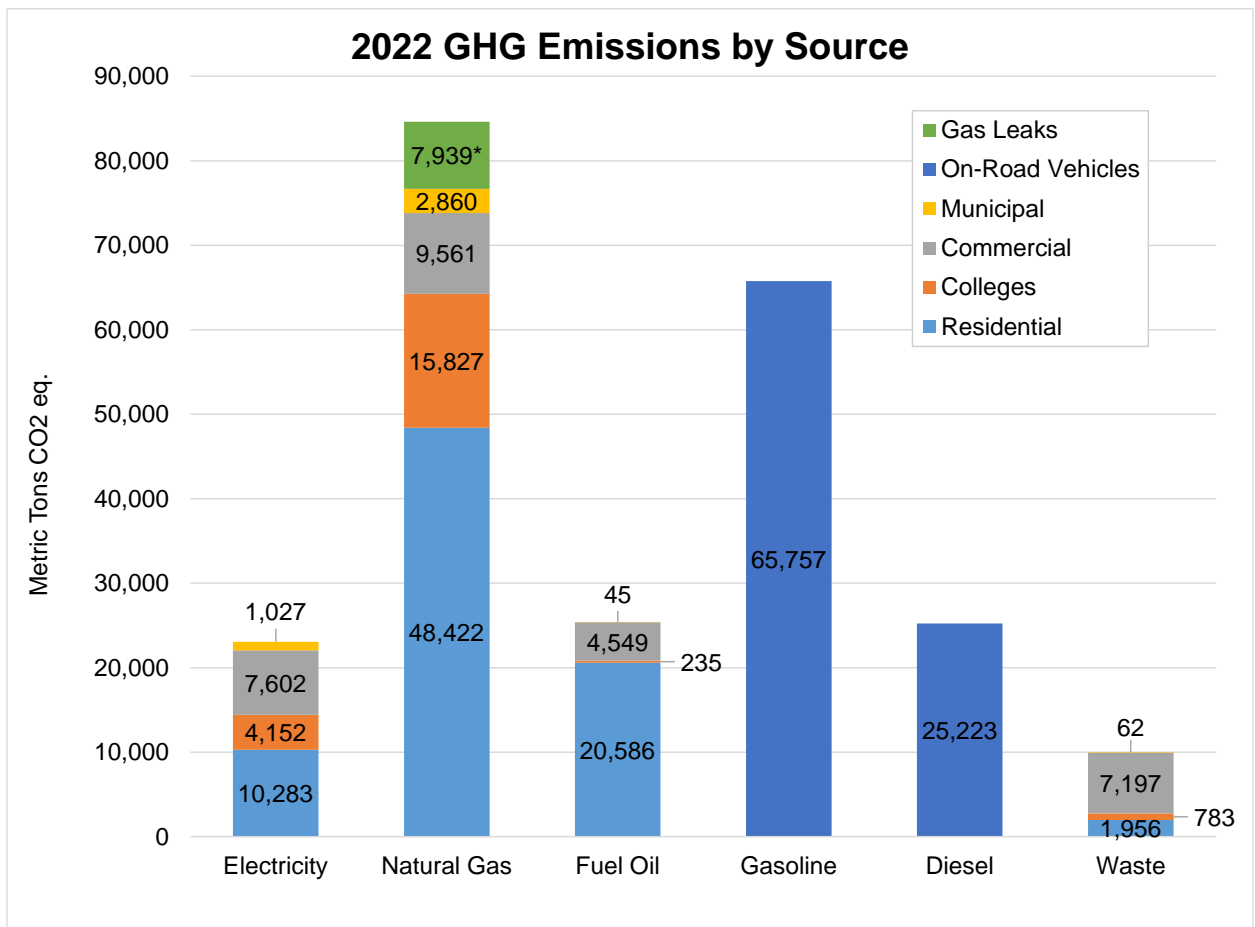
On-road vehicles emissions for 2020-2022 were recalculated based on Massachusetts Department of Transportation (MassDOT) vehicle miles traveled (VMT) modeled for Wellesley based on traffic counts. The MassDOT model results indicate Wellesley average annual VMT dropped by 14.3% in 2020 and 6.5% in 2021 compared to 2019. 2022 VMT was assumed the same as 2019.² Therefore, GHG emissions for on-road vehicles increased 7% in 2022 compared to 2021.

Municipal services emissions decreased by 25.7% in 2022 compared to 2021. This change reflects a lower emissions rate associated with electricity consumption and reduced energy use due to changes in water treatment and distribution operations by the Department of Public Works.

Waste sector emissions grew 6% from 2021 levels, driven by increases in materials discarded by college (22%), commercial (11%), and municipal (7%) sectors. Residential waste tonnage and emissions fell by 12%. Waste is a small sector and tends to fluctuate with the economy, building demolition waste, and fees for waste disposal in Wellesley and the surrounding area.

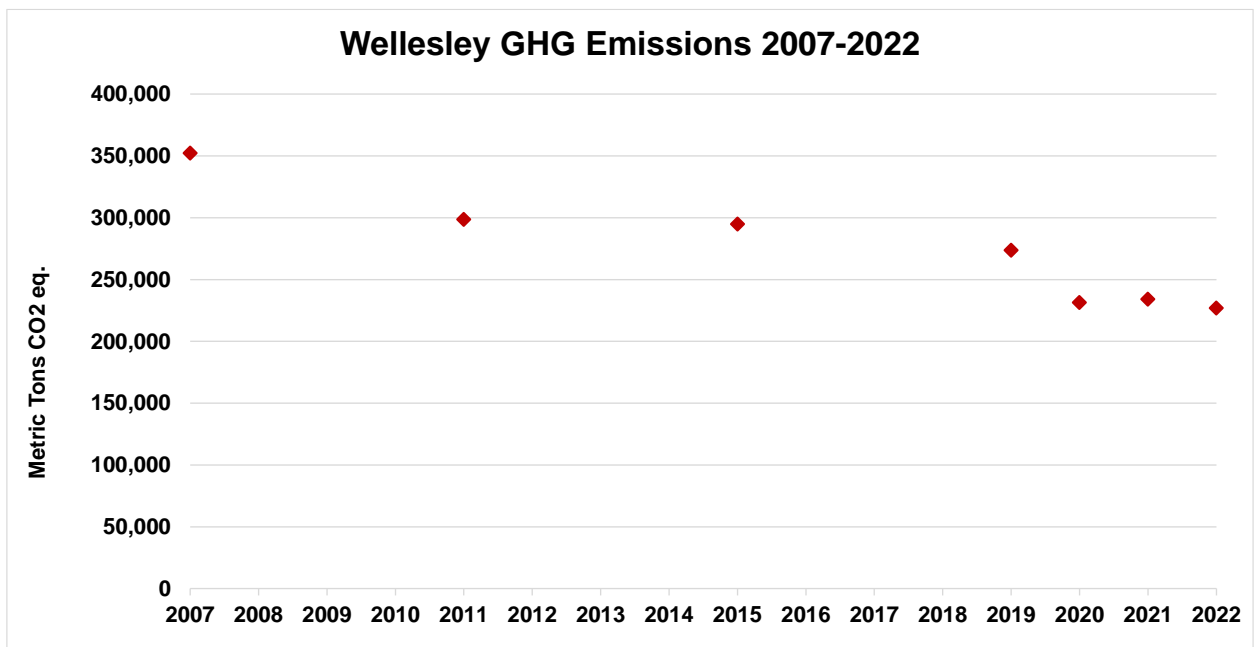
Gas leaks are not yet included in emissions totals used to track progress toward Wellesley's GHG reduction goals due to lack of data for the baseline year of 2007. However, according to analyses from the Home Energy Efficiency Team ([HEET](#)), at the end of 2021, Wellesley had 234 unrepaired gas leaks emitting an estimated 92.3 metric tons of methane annually, equaling 7,939 metric tons of carbon dioxide equivalents (MTCO₂ eq.). The volume of methane leaked was slightly higher in 2021 despite a smaller number of unrepaired leaks compared to 2020. Annually, gas leak emissions are approximately two times greater than municipal/school buildings and municipal services combined.

² VMT for 2022 was assumed the same as for 2019 since vehicle activity rose back towards pre-pandemic levels. VMT calculations and associated emissions will be revised in next year's inventory when 2022 data are available.



*Gas leak emissions using 2021 data are included here to show their impact relative to total emissions.

2007-2022 Emissions Trends



Significantly lower energy consumption, warmer than average winters, and large increases in MLP purchases of carbon-free electricity in 2021 and 2022 resulted in emissions reductions 30% and higher compared to 2007 levels. While on-road vehicle emissions are rebounding after significant pandemic-related reductions in 2020 and 2021, building sector emissions reductions should persist. Long-term trends contributing to GHG emissions reductions since 2007 appear below.

- **Decarbonization of the electricity grid:** Over the last 15 years, Wellesley MLP's electricity sources shifted from coal and oil to natural gas and included more non-emitting energy, lowering the emissions per unit of electricity by 78%.
- **Transition from heating with fuel oil to natural gas:** Many homes, businesses and college buildings switched from heating with fuel oil to natural gas, which releases fewer GHG emissions per unit of energy.
- **Energy Efficiency:** Electricity consumption between 2007 and 2022 fell by 0.5% despite a roughly 7% increase in Wellesley's population. New, more efficient heating and cooling systems, appliances, and lighting in Wellesley homes and businesses lowered energy use and resulting emissions. The MLP's light-emitting diode (LED) streetlight retrofit project and the Facilities Management Department's LED retrofits, recommissioning and other energy conservation measures contributed to a decline in energy use. Changes in the building code and building practices also improved energy efficiency and lowered building emissions. These improvements helped to keep electricity consumption level.
- **Changes at Wellesley College:** Wellesley College decreased its natural gas use and emissions by sourcing electricity from Wellesley's Municipal Light Plant instead of generating it on-site.
- **Transportation:** Increased fuel efficiency in vehicles was not sufficient to offset the increasing number of vehicle miles traveled between 2007 and 2022.

Note that 2022 GHG inventory results are marked as preliminary since emissions factors for the electricity grid are updated annually with a two-year lag. GHG inventory results for 2020 have been updated with the recently released 2020 factor. The CAC will finalize the 2022 results in 2024 and publish them in the Report to ATM 2025.

COMMITTEE ACTIVITIES IN 2022 AND EARLY 2023

In addition to tracking and analyzing GHG emissions, the CAC led and contributed to several initiatives, detailed below, aimed at reducing the Town's carbon footprint.

Climate Action Plan

The Committee completed a Climate Action Plan (Plan or CAP) which serves as a comprehensive road map for achieving the GHG emissions goals adopted by ATM 2021. The CAC worked with at least twelve departments, boards, and committees to plan and execute the Climate Action Plan. In Spring 2020, the Committee hired a consultant and recruited over 70 community-wide stakeholders to participate in working groups focused on governance, energy, buildings, mobility, waste, and natural resources. The CAC also carried out several CAP community outreach efforts including a climate action survey, nearly 40 public presentations, and a first-ever Building Energy Roundtable for commercial property owners. The Committee published the Climate Action Plan and an eight-page summary in February 2022. The Committee now focuses on many facets of implementation.

Governance

The CAC increased its communication channels. More community members receive CAC messaging and participate in CAC events.

The CAC initiated a working group involving the Celebrations Committee, Natural Resources Commission and Sustainable Wellesley. This working group is exploring ways to enhance sustainability in Wellesley Wonderful Weekend through programming and “lead by example” best practices.

The CAC initiated a collaboration with a Babson College graduate course, the MLP, and the Department of Public Works. During Spring 2023 Babson graduate students will assist the Town with strategies to encourage community heat pump adoption and vehicle electrification, and increase residential food waste diversion.

Members of the CAC continue to participate in the on-going Multi-Town Gas Leaks Initiative which brings together cities and towns in National Grid territory to work with the utility to accelerate progress on gas leaks. Gas leaks are made up of methane which is 86 times more potent as a greenhouse gas than carbon dioxide.

The Sustainability Director participates in a working group focused on the multi-family zoning requirement for Massachusetts Bay Transportation Authority communities.

See below for CAC efforts related to the Municipal Opt-in Specialized Energy Code.

The CAC initiated development of a Climate Action dashboard to track progress on metrics identified in the CAP.

Energy

The CAC collaborates closely with the MLP on an energy coaching program, decarbonization audits, electric vehicle (EV) showcase and test drive events (see below), and on public outreach about beneficial electrification and related incentives.

Buildings

The CAC leads a Buildings Working Group. In FY22, the Working Group focused on sustainable zoning, stretch energy code proposals from the Department of Energy Resources (DOER), engagement with the Rocky Mountain Institute’s Building Electrification Accelerator, and building-related community outreach.

The CAC supported the Planning Department’s sustainable zoning articles and collaborated with Planning on presentation of these articles to Advisory Committee and ATM. ATM 2022 approved motions to include reference to sustainable building practices and greenhouse gas emissions reduction, add “Sustainable Design” to Design Review Standards, and allow cold climate heat pumps in setback areas.

The CAC provided feedback to DOER on its Stretch Energy Code Straw Proposal, which eventually became the Municipal Opt-in Specialized Energy Code (Opt-in Code). Opt-in Code adoption by Town Meeting is an action in Wellesley’s Climate Action Plan. The Select Board and

Climate Action Committee are co-sponsoring Article 36 asking ATM 2023 to adopt the Opt-in Code. Since October 2022 the Climate Action Committee engaged in Opt-in Code outreach, presenting to boards, making Opt-in Code information available to the public, and interviewing stakeholders. At two webinars, scheduled for March 2022, building and sustainability experts, along with CAC staff, will explain the Opt-in Code and answer questions from building professionals and Wellesley community members.

The CAC leads the Building Energy Tracking and Reporting (BETR) program. BETR is a Town of Wellesley initiative to assist large commercial, multi-family, and institutional properties in Wellesley with lowering energy costs, making buildings more sustainable, and reducing greenhouse gas (GHG) emissions. The program has two components: energy tracking and reporting, and a Building Energy Roundtable. The CAC recruits participants, provides information and support regarding building energy tracking and reporting software, and holds quarterly Building Energy Roundtable meetings.

Mobility

The CAC participates in the Town-wide Mobility Working Group and contributed to development of the Town's Sustainable Mobility Plan.

CAC staff participate in a town-wide EV Working Group to plan the fleet transition to electric vehicles (EVs) and EV charging infrastructure.

In 2022, the CAC, MLP, Sustainable Wellesley, and Energy New England collaborated on two highly successful EV Showcase and Test Drive events at MassBay Community College. These events attracted hundreds of community members, provided hundreds of test drives, and allowed community members to view and learn about many makes and models of EVs and plug-in hybrid EVs (PHEVs) from dealers and from Wellesley residents who own these vehicles.

Waste

The Climate Action Committee contributes to WasteWise Wellesley and the 3R (Reduce, Reuse, Recycle) Working Group which includes the CAC, DPW and the Natural Resources Commission working to reduce waste and positively impact sustainable materials management in Wellesley. Initiatives include zero waste and recyclable of the month programs, food rescue and food waste diversion programs, and community and business outreach and education.

The CAC worked with Wellesley High School (WHS) students and staff to pilot a food waste diversion program in the WHS cafeteria.

Green Collaborative

To connect over 30 environmentally interested groups across Town, the CAC facilitates Wellesley's "Green Collaborative," which hosts speakers and lively discussions on sustainability topics. In 2022, the Green Collaborative hosted a webinar for community members on saving money and combatting climate change.

Green Communities

Since 2018, Wellesley earned over \$475,000 in Green Communities grant funding. All Green Communities projects reduce the Town's operating costs.

In February 2022, the Department of Energy Resources awarded Wellesley a Green Communities grant totaling \$200,000 to contribute to the following projects:

- Air source heat pumps at Wellesley Avenue water treatment plant (WTP);
- Air source heat pumps at Morses Pond WTP;
- Air source heat pumps at Longfellow WTP;
- LED lighting in the DPW's Water and Sewer garage; and
- Two additional hybrid electric police cruisers.

CAC staff coordinated this 2021 grant application in collaboration with DPW and the Police Department. The CAC worked with the DPW and Police Department on project implementation and reporting.

In early 2023, the heat pump projects at the three water treatment plants were withdrawn from the Town's Green Communities grant award due to concerns raised about PFAS in Wellesley and the status of the water treatment plants going forward.

The Committee continued to use MassEnergyInsight software to track municipal energy use and report results to the Department of Energy Resources.

Change in Funding Source for Sustainability Director's Salary

The CAC's FY24 operating budget remains level compared to FY23 except for an increase of \$43,370, equal to approximately half of the Director's salary. Since 2016 the MLP and CAC each covered half of the Director's salary. For the past several years the MLP Director and Director of General Government Services discussed the eventual migration of the full Director's salary to the Climate Action Committee budget. In Summer 2022 the MLP hired a Sustainability Coordinator, making FY24 an appropriate year to transition the CAC Director's salary fully into the CAC's budget.

Conclusion

Wellesley's Climate Action Plan implementation is off to a robust start with some actions complete and several actions moving forward through strong Town leadership and collaborations among Town departments, boards, committees, residents, businesses, and institutions across Wellesley.

CLIMATE ACTION COMMITTEE

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