

REPORT OF THE CLIMATE ACTION COMMITTEE

The Climate Action Committee (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 Town Meeting climate action milestones:

- **2023:** Annual Town Meeting (ATM) adopts the Municipal Opt-in Specialized Energy Code, a necessary step toward achieving net zero greenhouse gas emissions by 2050. This code encourages electrification and avoids costly retrofits by requiring new buildings that are not all-electric to prewire for future electrification. The Specialized Code also offsets GHG emissions by requiring solar installation for some mixed-fuel projects (i.e., buildings with combustion equipment designed for fossil fuel use).
- **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.
- **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 making the Sustainable Energy Committee (SEC) the Climate Action Committee (CAC).
- **2020:** The town achieves the 25% emissions reduction goal due to 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.
- **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.
- **2010:** ATM establishes the Sustainable Energy Committee (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.

MEASUREMENT OF 2023 EMISSIONS AND TRENDS

The CAC's report to ATM traditionally includes reporting and analysis of the previous year's town-wide greenhouse gas emissions. Because the CAC is changing its GHG reporting schedule, this report contains the same 2022 GHG emissions results that appeared in the CAC's report to ATM 2023. GHG emissions results from 2023 will appear in the Town of Wellesley's 2024 Annual Report (compiled in Fall 2024) and in the CAC's Report to ATM 2025.

This new GHG reporting scheduling will allow CAC staff to:

- Collect the previous year's data when they are more readily available;

- Incorporate more accurate greenhouse gas emissions factors; and
- Incorporate more accurate transportation data.

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

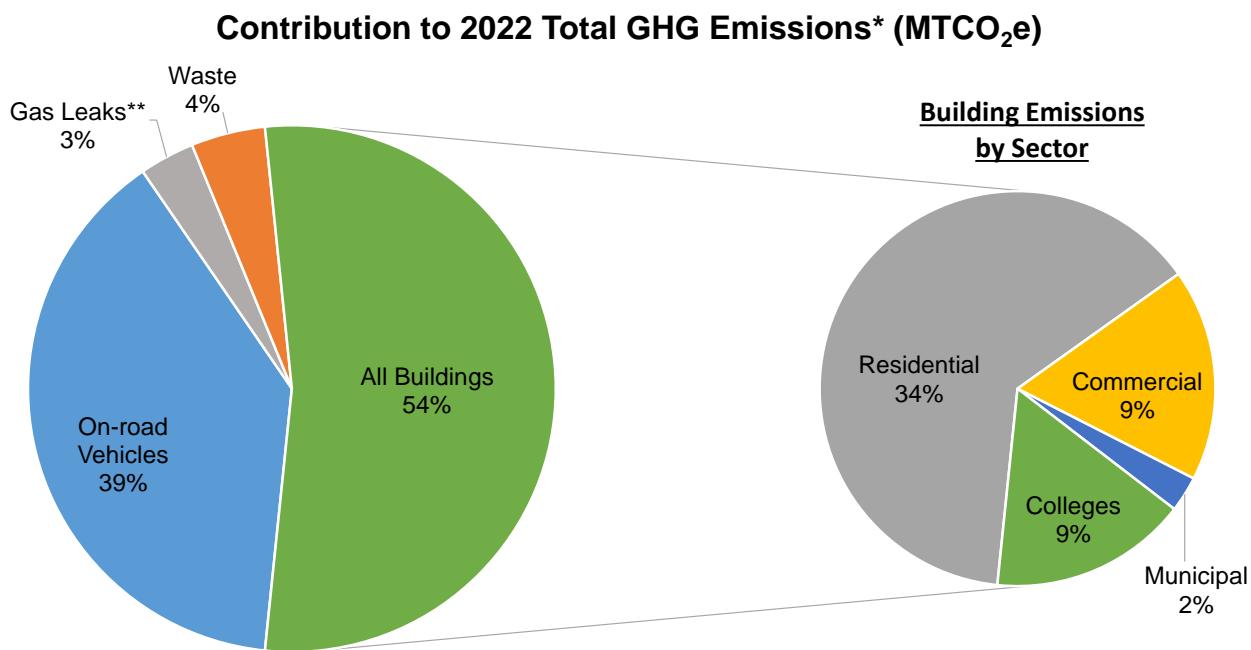
Preliminary Greenhouse Gas Emissions (CO ₂ e) in metric tons [‡]							
	Share of Total 2022 Emissions	2022 Emissions	2021 Emissions	2021 - 2022 Percent Change	2020 Emissions	2007 Emissions	2007 - 2022 Percent Change
Buildings	55.0%	124,864	138,454	-9.8%	139,018	255,941	-51.2%
Residential	35.0%	79,292	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.

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.



*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.

Building 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 2019.¹ Therefore, GHG emissions for on-road vehicles increased 7% in 2022 compared to 2021.

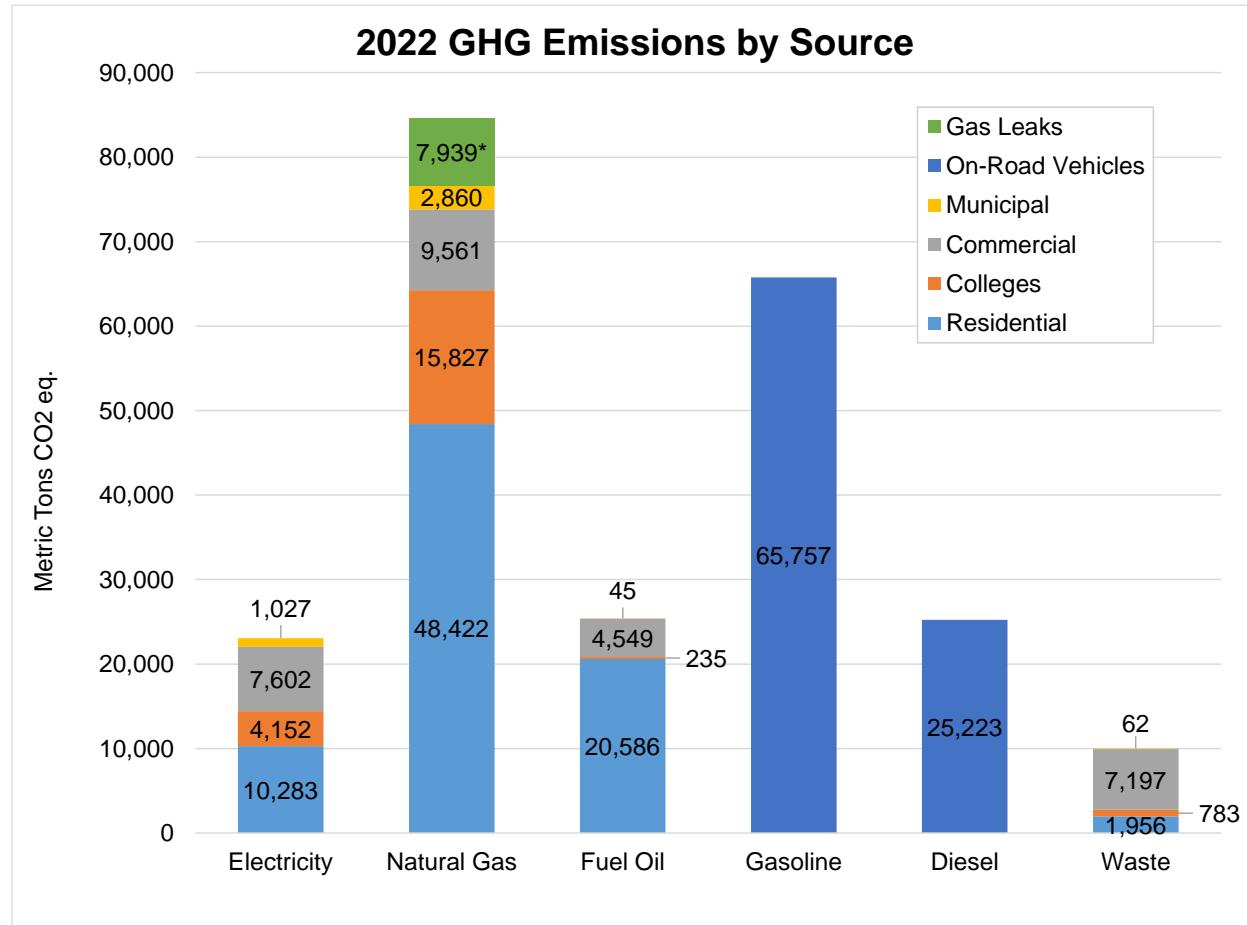
Municipal services emissions decreased by 25.7% in 2022 compared to 2021. This change reflects a lower emissions rate associated with electricity consumption and reduced energy use due to changes in water treatment and distribution operations by the Department of Public Works.

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 unrepairs

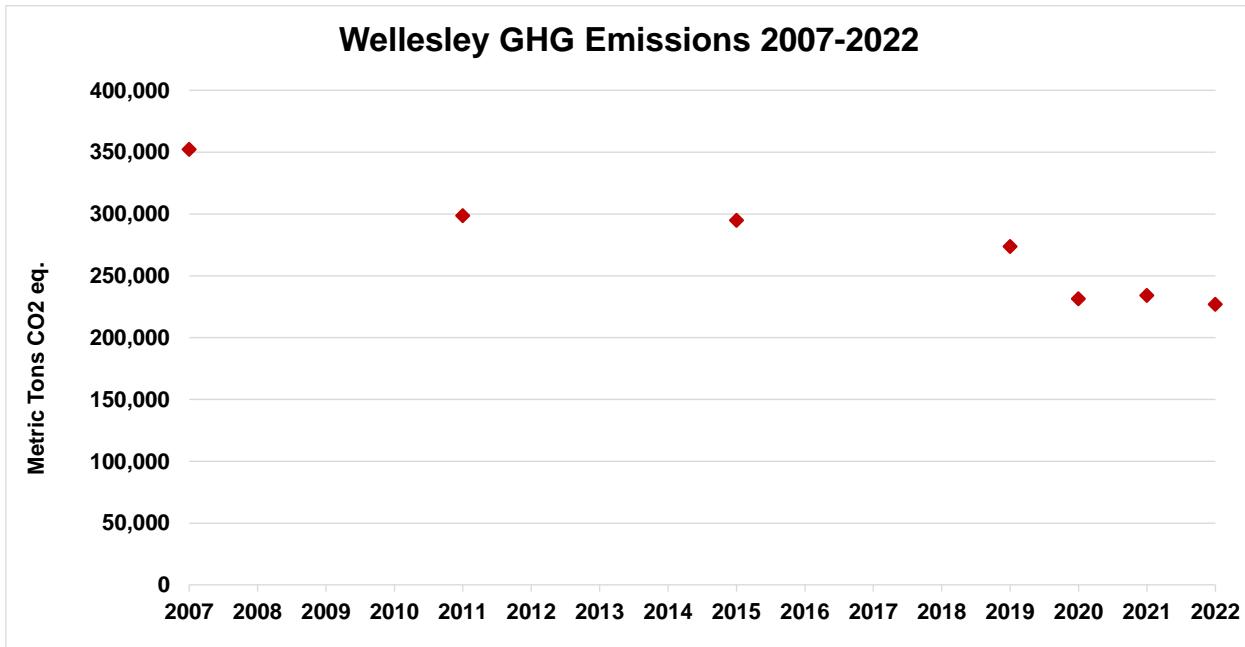
¹ VMT for 2022 was assumed the same as for 2019 since vehicle activity rose back towards pre-pandemic levels. VMT calculations and associated emissions will be revised in next year's inventory when 2022 data are available.

gas 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.



*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 2023 AND EARLY 2024

In addition to tracking and analyzing GHG emissions, the CAC collaborated with Town departments, boards, and committees to implement actions spanning all six pathways of Wellesley's Climate Action Plan.

Governance

The CAC launched a new Climate Action Department webpage and a set of "Wellesley Climate Action Be Part of It!" webpages to promote residential climate action in the areas of home weatherization, heat pump adoption/home electrification, solar installations, sustainable mobility, sustainable landscaping, and waste reduction. The CAC is preparing a town-wide climate action campaign to inspire and support greenhouse gas mitigation in these areas.

The CAC is finalizing a Climate Action dashboard to track progress on CAP implementation. The dashboard details activities underway for the CAP's 90+ actions. The dashboard also tracks progress on fifty-five CAP metrics.

Members of the CAC continue to participate in the 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.

The CAC coordinates a Gas Leaks Working Group to develop a triage and transition approach to reducing methane emissions.

The CAC advocated for three bills in the state legislature: H.3137/SD.2603 An Act relative to intervenors and utility work, S.2105/H.3203 An Act relative to the future of clean heat in the Commonwealth, and S.452/H.869 An Act establishing the Municipal Reforestation

The Sustainability Director participated in working groups for the Hazard Mitigation Plan and for the multi-family zoning requirement for Massachusetts Bay Transportation Authority communities.

The CAC partnered with the Celebrations Committee, Natural Resources Commission, Department of Public Works, and Sustainable Wellesley to enhance sustainability in Wellesley Wonderful Weekend (WWW) through programming and "lead by example" best practices.

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. These activities support the CAC's efforts to encourage greenhouse gas mitigation town-wide.

Buildings

The CAC led efforts resulting in Town Meeting's adoption of the Municipal Opt-in Specialized Energy Code at Annual Town Meeting 2024. This new code will greatly improve the sustainability of new construction in Wellesley.

The CAC leads a Buildings Working Group to address sustainable zoning, sustainable guidelines for municipal buildings, engagement with the Rocky Mountain Institute's Building Electrification Accelerator, and building-related community outreach.

The CAC provided input on the Town's Design Review Guidelines.

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

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

The CAC, in consultation with the EV Working Group, drafted a Zero Emission Vehicle First Fleet Policy. The Municipal Light Board, Board of Public Works, and School Committee approved the policy. Other vehicle-owning departments are considering the policy.

The CAC, MLP, Sustainable Wellesley, and Energy New England collaborate on EV Showcase and Test Drive events at MassBay Community College. These events provide test drives and allow community members to view and learn about 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 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 supported efforts by Wellesley Public Schools to pilot food waste diversion programs in the Middle School and High School cafeterias.

Green Communities

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

The CAC is coordinating a \$500,000 Green Communities Building Decarbonization Grant application for the Warren Building's renovation to an all-electric building. The application is due in April 2024.

The CAC is coordinating the Town's application to the Department of Energy Resource's Climate Leader program. The application includes decarbonization roadmaps showing how the Town will move its buildings and vehicles to net zero by 2050.

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

Conclusion

Robust Climate Action Plan implementation continues 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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