

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 adopts the Municipal Opt-in Specialized Energy Code, a necessary step toward achieving net zero greenhouse gas (GHG) 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 (CAP), 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. 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.
- **2020:** The town achieves the 25 percent 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 GHG 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 SEC to lead efforts to accomplish the goal adopted at the 2009 Annual Town Meeting to reduce town-wide 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

Inventory Methodology Update

The GHG emissions inventory for 2023 reflects a new method (applied to all years reported here) for calculating on-road vehicle emissions. The on-road vehicle emissions were calculated based on annual vehicle miles traveled by vehicles registered in Wellesley using data from the Department of Transportation Massachusetts Vehicle Census. On-road emissions estimates will inform local policy, outreach, and incentives aimed at furthering sustainable mobility in Wellesley and lowering vehicle emissions.

Preliminary Measurement of Emissions 2022-2023^{1,2}

As shown in the table below, Wellesley's total 2023 GHG emissions decreased more than 6% from 2022 levels. Significant emissions reductions in 2022 can be attributed to a large decrease in natural gas use in the commercial sector and an increase in carbon-free electricity purchases by the Municipal Light Plant (MLP).^{1,2,3} The percentage of non-emitting energy sources in the MLP portfolio increased from 55% to 62%. Emissions increased for college buildings as Wellesley College resumed using its natural gas cogeneration systems to generate heat and electricity for the campus to help with peak shaving during periods of highest electricity demand.

| Preliminary Greenhouse Gas Emissions (CO2e) in metric tons [‡] | | | | | | |
|---|-------------------------------------|-------------------|-------------------|----------------------------------|-------------------|----------------------------------|
| | Share of Total 2023 Emissions | 2023 Emissions | 2022 Emissions | 2022 - 2023 Percent Change | 2007 Emissions | 2007 - 2023 Percent Change |
| Buildings | 62.5% | 119,813 | 133,894 | -10.5% | 255,941 | -53.2% |
| Residential | 41.7% | 79,912 | 83,326 | -4.1% | 138,172 | -42.2% |
| Commercial | 6.8% | 13,115 | 24,753 | -47.0% | 61,421 | -78.6% |
| College | 12.2% | 23,420 | 21,860 | 7.1% | 48,747 | -52.0% |
| Municipal & School | 1.8% | 3,366 | 3,954 | -14.9% | 7,601 | -55.7% |
| On-road Vehicles | 31.8% | 60,997 | 60,229 | 1.3% | 72,938 | -16.4% |
| Municipal Services[§] | 0.2% | 412 | 468 | -11.9% | 2,369 | -82.6% |
| Waste | 5.5% | 10,524 | 10,659 | -1.3% | 8,912 | 18.1% |
| Total Emissions | 100.0% | 191,747 | 205,250 | -6.6% | 340,160 | -43.6% |
| Gas Leaks[◊] | | | 6,400 | | | |
| Total w/Gas Leaks | | | 211,650 | | | |

[‡]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, annual on-road vehicle miles traveled using Registry of Motor Vehicle data, 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 GHG Emissions established in October 2012, and results are calculated using ICLEI – Local Governments for Sustainability software.

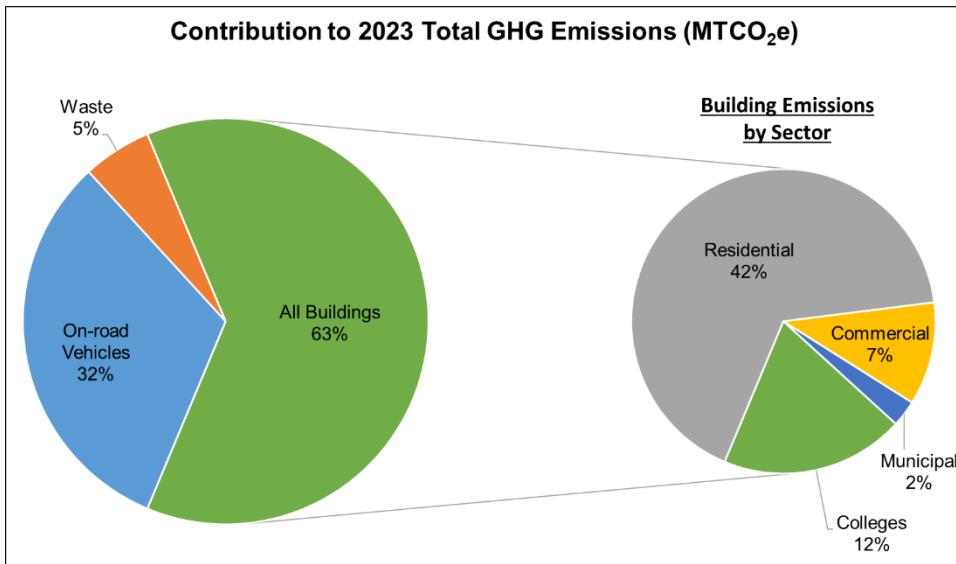
[§]Municipal services include water treatment, Recycling and Disposal Facility waste processing, as well as street, traffic, field, and municipal parking lot lights.

[◊]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 inventory results for 2023 and 2022 are preliminary since emissions factors for the electricity grid are updated annually with a two-year lag.

² Climate Action staff are working with National Grid to confirm the large decrease in 2023 commercial sector natural gas use.

³ GHG electricity emissions factors for 2021 and 2022 were revised based on new reports from Massachusetts Department of Environmental Protection and updated information on MLP electricity purchases.



Building emissions decreased between 2022 and 2023 across all sectors except for colleges. As noted above, Wellesley College's use of natural gas for cogeneration was the main source of increased emissions in the college sector, though emissions remain well below 2007 levels. Commercial building emissions dropped by 47%, largely due to a 70% decrease in natural gas use.^{2,4} The reason for this sudden, large reduction is not known because the Town receives aggregated natural gas use data from National Grid. Modest decreases in electricity consumption (1-5%) across each building sector combined with the lower GHG emissions factor for electricity in 2023 accounts for 33% of the reduction in total GHG emissions between 2022 and 2023. Note that a large portion of the municipal building electricity use reduction is due to the closure of the old Hunnewell Elementary School and Town Hall during construction.

On-road vehicle emissions for 2007-2023 were recalculated based on annual vehicle miles traveled (VMT) by vehicles registered in Wellesley. This method is now possible using Massachusetts Vehicle Census data recently made available by the Department of Transportation as well as 2009-2014 data available from the Metropolitan Area Planning Council. Some extrapolation is necessary to fill data gaps. For 2007, VMT is estimated to be the same as 2009, and for 2015, VMT is estimated to be the same as for 2014. VMT percentage by vehicle type for 2007, 2011, and 2015 is based on the average mix of fossil fuel vehicles for 2020-2023.

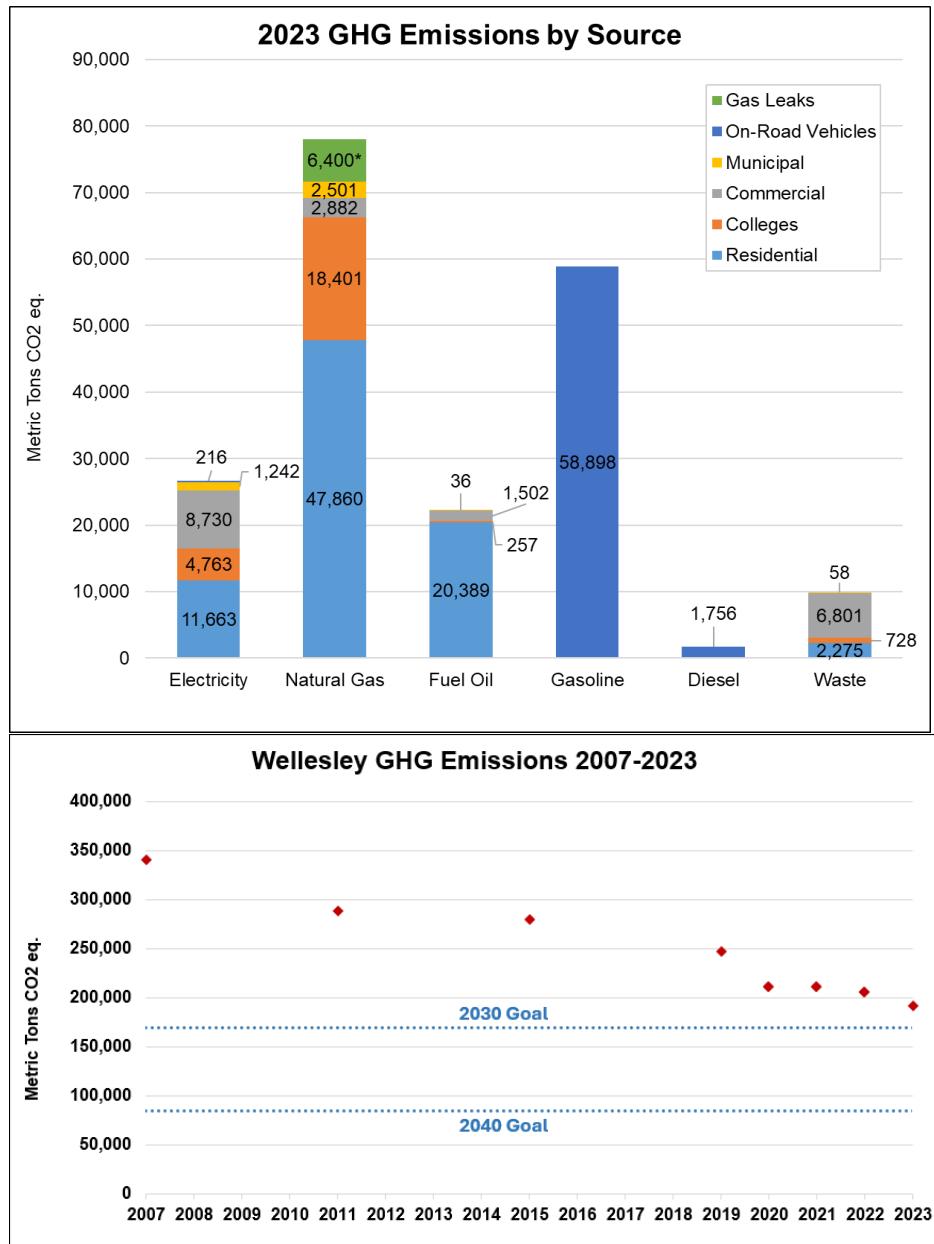
Municipal service emissions decreased by 12% in 2023 compared to 2022. This change reflects a lower emissions rate associated with electricity consumption, less electricity use for field lighting through installation of LED light fixtures, and reduced energy use due to changes in water treatment and distribution operations by the Department of Public Works.

Waste sector emissions dropped 1% from 2022 levels, driven by reductions in materials discarded by college (7%), commercial (5%), and municipal (6%) sectors. Residential waste tonnage and emissions rose by 16%. 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

⁴ [Mass Save data](#) also showed a large drop in town-wide natural gas use.

from the Home Energy Efficiency Team (HEET) at the end of 2022, Wellesley had 201 unrepaired gas leaks emitting an estimated 74 metric tons of methane annually, equaling 6,400 metric tons of carbon dioxide equivalents (MTCO₂ eq.). The volume of methane leaked was somewhat lower in 2023 than in 2022. Annually, gas leak emissions are approximately 1.5 times greater than municipal/school buildings and municipal services combined.



2007-2023 Emissions Trends

Significantly lower energy consumption, warmer than average winters, and large increases in MLP purchases of carbon-free electricity in 2023 resulted in emissions reductions of more than 40% compared to 2007 levels. While on-road vehicle emissions are rebounding after significant pandemic-related reductions in 2020 and 2021, the gradual shift to electric vehicles should

decrease on-road vehicle emissions. Reductions in building sector emissions are expected to continue. Long-term trends contributing to GHG emissions reductions since 2007 are listed 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 74%.
- **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 2023 fell by 2.8% 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 most electricity from the Municipal Light Plant instead of generating electricity on-site.
- **Transportation:** The 16% reduction in on-road vehicle emissions in 2023 compared to 2007 is due to improved vehicle performance (57%), gasoline and diesel-powered passenger vehicle replacements with electric vehicles (32%), a reduction in annual vehicle miles traveled by Wellesley vehicles (9%), and a reduction in heavy duty diesel vehicles registered in Wellesley (2%).

Note that the 2023 and 2022 GHG emissions inventory results are preliminary since emissions factors for the electricity grid are updated annually with a two-year lag. In addition, CAC staff are investigating the large drop in 2023 commercial building natural gas use. The most up-to-date GHG emissions for 2007, 2011, 2015, and 2019-2023 can be found on the Town's Climate Action website at: <https://wellesleyma.gov/1126/Greenhouse-Gas-Emissions-Inventory>.

COMMITTEE ACTIVITIES IN 2024 AND EARLY 2025

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

Since 2018, Wellesley earned nearly \$1 million in Green Communities grant funding. All Green Communities projects reduce the Town's operating costs. In 2024 the Town was awarded a \$500,000 Green Communities Building Decarbonization grant to support the all-electric renovation of the Warren Building. The CAC prepared this grant application with support from the Facilities Management Department.

The CAC led the development of the Town's application to the Department of Energy Resource's Climate Leader Program. This process included Zero-Emissions-Vehicle-First Fleet Policy (ZEV Policy) development and adoption. CAC staff also created, with help from FMD and DPW, a Decarbonization Roadmap, a planning tool that demonstrates how the municipality can bring its buildings and vehicles to net zero by 2050.

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

The CAC publicized its “Climate Action - Be Part of It!” website and campaign 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. Initiatives included a heat pump webinar, Climate Café, tabling at several community events, programs at Wellesley Wonderful Weekend, an Electric Vehicle Showcase and Test Drive event (see below), a direct-mail postcard, and an evening at Wellesley Free Library entitled “Six Ways YOU can Save Money and the Climate.”

The CAC launched a Climate Action dashboard to track progress on CAP implementation. The dashboard details activities underway for the 90+ actions in the Climate Action Plan. The dashboard also tracks progress on 55 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.

Energy

The CAC collaborates closely with the MLP on an energy coaching program, decarbonization audits, electric vehicles and charging infrastructure, renewable energy, and public outreach. These activities support the CAC’s efforts to encourage greenhouse gas mitigation and resilience town-wide.

Buildings

The CAC partnered with HomeWorks Energy, a Mass Save® approved contractor, to invite Wellesley residents who are gas customers of National Grid to sign up for a no-cost home energy assessment via door-to-door canvassing and tabling at the Recycling and Disposal Facility. The goal of the program is to help Wellesley homeowners reduce their energy costs and climate impact by improving their home insulation and by converting to energy-efficient air source heat pumps, electric appliances and more. To date, HomeWorks has completed more than 200 home energy assessments.

The CAC leads a Building 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. With Building Working Group input, CAC staff identified ways to enhance the Municipal Sustainable Building Guidelines and began discussing potential improvements with Town staff.

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 GHG missions. 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 hosts Building Energy Roundtable meetings.

Mobility

The CAC drafted and garnered support for a ZEV Policy from vehicle-owning boards. The CAC worked with the Finance Department to integrate this policy into the Town's budget process.

In spring 2024, the CAC, MLP, Sustainable Wellesley, and Energy New England collaborated on a successful EV Showcase and Test Drive event at MassBay Community College. The event enabled residents to view and learn about many makes and models of EVs and plug-in hybrid electric vehicles (PHEVs) from dealers and from Wellesley residents who own these vehicles.

Waste

The CAC participates in the 3R (Reduce, Reuse, Recycle) Working Group which engages the CAC, DPW, Natural Resources Commission, and Sustainable Wellesley in sustainable materials management.

The CAC worked with the Department of Public Works to design and fill two new part-time Waste Reduction Coordinator positions. The CAC supported efforts by Wellesley Public Schools to pilot food waste diversion programs in the Middle School and High School cafeterias.

The CAC partnered with the Celebrations Committee, Department of Public Works, and Sustainable Wellesley to enhance materials management practices at the Wellesley Wonderful Weekend picnic.

The CAC is co-sponsoring 2025 ATM Warrant Article 35, also known as Skip the Stuff, to reduce waste created by single-use food service ware and single-serving packaged condiments. The proposed bylaw supports implementation of the CAP strategy to "Develop a culture that minimizes single-use products and packaging" and CAP action to "Explore and implement programs and/or regulations to minimize use of disposable, single-use products throughout town." Skip the Stuff is co-sponsored by the Select Board and Board of Health and unanimously supported by the Board of Public Works and the Natural Resources Commission.

The DPW, RDF, and CAC are working with a class of students at Olin College of Engineering to identify opportunities to improve the Town's waste management model.

Conclusion

Robust Climate Action Plan implementation continues with many actions underway through leadership from and collaboration with Town departments, boards, committees, residents, businesses, and institutions across Wellesley.

CLIMATE ACTION COMMITTEE

Sue Morris, Chair

Ellen Korpi, Vice Chair

Sharon Clarke

Martha Collins

Mary Gard

Lise Olney

Madison Riley