

## REPORT OF THE SUSTAINABLE ENERGY COMMITTEE

Town Meeting established the Sustainable Energy Committee (SEC) in 2010, to lead efforts to accomplish the goal adopted at the 2009 Annual Town Meeting (ATM) to reduce town-wide greenhouse gas (GHG) emissions 10% below 2007 levels by 2013, to monitor and report progress toward that goal, and to propose further goals for emissions reductions to Town Meeting. The 2014 ATM adopted the SEC proposal to establish a new goal to reduce town-wide emissions 25% below 2007 levels by 2020.

The SEC has seven appointed members, with staggered terms of three years. The Board of Selectmen (BOS), Municipal Light Plant (MLP), and School Committee each appoint one board member, officer, official, or paid employee. The BOS appoints the remaining four members from among residents or others with relevant interests and expertise.

### MEASUREMENT OF 2020 EMISSIONS AND TRENDS

#### 2020 Emissions and Changes from 2019

As shown in the table below, Wellesley’s total 2020 GHG emissions decreased 14.4% from 2019 levels. Historically, town-wide GHG emissions have varied only a few percentage points from year-to-year. The significant emissions reduction in 2020 can be attributed to pandemic-related changes in activity patterns as well as to milder weather in the 2020 heating season compared to 2019.

Preliminary Greenhouse Gas Emissions (CO <sub>2</sub> e) in metric tons						
	Share of Total 2020 Emissions	2020 Emissions	2019 Emissions	2019 - 2020 Percent Change	2007 Emissions	2007 - 2020 Percent Change
<b>Electricity/Natural Gas/Fuel Oil</b>						
Residential	32.5%	101,429	107,106	-5.3%	136,236	-25.5%
Commercial	12.6%	39,246	44,328	-11.5%	61,203	-35.9%
Colleges	9.4%	29,186	34,659	-15.8%	46,668	-37.5%
Municipal	1.9%	5,962	6,730	-11.4%	9,723	-38.7%
<b>Building Subtotal</b>	<b>56.4%</b>	<b>175,823</b>	<b>192,822</b>	<b>-8.8%</b>	<b>253,830</b>	<b>-30.7%</b>
<b>Waste</b>	0.6%	1,777	1,559	14.0%	2,027	-12.3%
<b>Gas/Diesel</b>	43.0%	134,249	170,076	-21.1%	160,468	-16.3%
<b>Total Emissions</b>	<b>100.0%</b>	<b>311,849</b>	<b>364,457</b>	<b>-14.4%</b>	<b>416,325</b>	<b>-25.1%</b>

GHG calculations are based on actual municipal and college energy use data, actual electric and natural gas use by households and businesses, and estimates for heating oil consumption, fuel efficiency in the transportation sector, and the 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 and calculated using ICLEI – Local Governments for Sustainability software.

**Buildings** in the commercial, college, and municipal sectors all show GHG reductions over 10% between 2019 and 2020, reflecting reduced building usage in 2020, especially during the spring stay-at-home order. Residents spent more time at home in 2020, leading to a 6% increase in electricity use in Wellesley homes. However, warmer temperatures in the 2020 heating months contributed to a 9% reduction in GHGs from natural gas and fuel oil, resulting in a 5% drop in overall GHG emissions from residential buildings.

**Transportation**-related emissions between 2019 and 2020 dropped 21%. Typically, Wellesley traffic counts averaged over past years are used to calculate GHG emissions from gasoline and diesel used in on-road vehicles. Given the lack of 2020 traffic data, this method was insufficient to capture dramatic, pandemic-related changes in the town’s 2020 traffic patterns. Therefore, statewide 2020 data showing average reductions in vehicle miles traveled (see Figure 1), were used to conservatively estimate the pandemic’s effect on vehicle miles traveled in Wellesley in 2020.

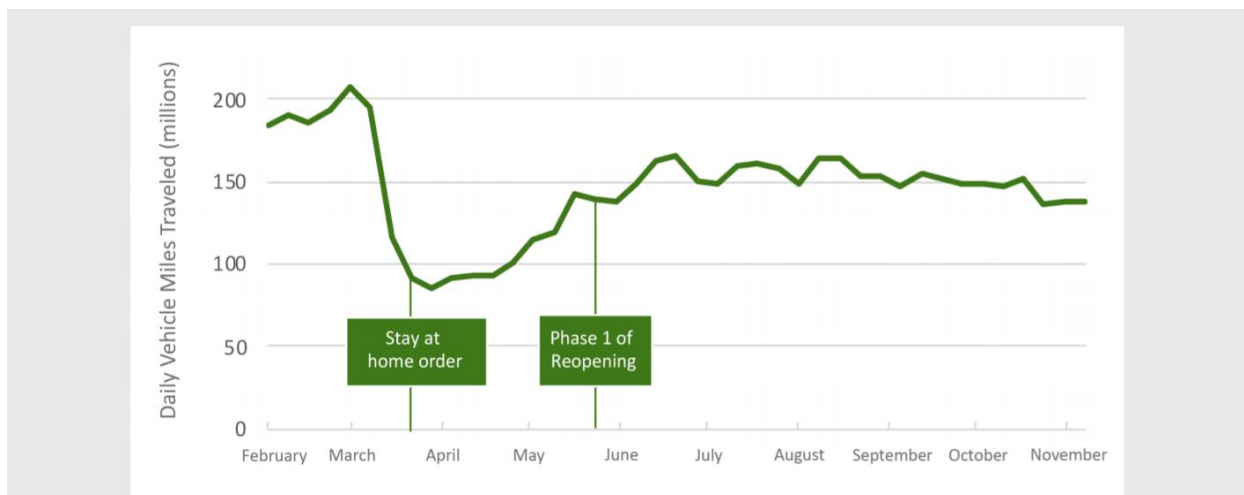


Figure 1. Statewide Total Weekday Daily Vehicle Miles Traveled (all vehicle types, averaged by week)<sup>1</sup>

**Waste** sector emissions increased 14% in 2020, mirroring a similar increase in the tonnage of solid waste accepted at Wellesley’s Recycling and Disposal Facility (RDF), with materials discarded by the residential and commercial sectors rising by 12% and 26%, respectively. The increase in residential waste reflects more people eating, working, and generating waste at home during the pandemic. Although commercial waste increased by 26% compared to 2019, waste is a small sector of our town’s emissions and tends to fluctuate with the economy, building demolition waste, and fees for waste disposal in Wellesley and the surrounding area. Emissions from municipal waste dropped by 30% from 2019 levels as municipal building occupancy was lower in 2020.

### Overall 2007-2020 Emissions Trends

As of 2019, Wellesley had reduced its overall GHG emissions by 12% compared to 2007 but was not on track to meet its goal of reducing emissions 25% below 2007 levels by 2020. This shortfall resulted primarily from the large and growing impact of the transportation sector. However, significantly lower energy consumption in buildings and transportation in 2020 led to a 25% reduction in emissions below 2007 levels. This outcome is largely an artifact of the pandemic, but also reflects a warm 2020 heating season and long-term emission reductions in buildings and waste sectors. Long-term trends that have contributed to GHG emissions reductions since 2007 are outlined below.

<sup>1</sup> Massachusetts Executive Office of Energy and Environmental Affairs. December 2020. *Massachusetts 2050 Decarbonization Roadmap*. Page 36. <https://www.mass.gov/doc/ma-2050-decarbonization-roadmap>

- **Decarbonization of the electricity grid:** Over the last 13 years, energy powering the grid shifted from coal and oil to natural gas and included more clean energy sources, lowering the emissions per unit of electricity by 29%.
- **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. New, more efficient heating systems and building weatherization also helped to minimize increased natural gas consumption.
- **Electricity consumption:** Electricity use increased by only 0.5% despite a roughly 4% increase in the Wellesley population. New, more efficient electric heating and cooling systems, appliances, and lighting in Wellesley buildings 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.
- **Waste reduction:** Increased recycling, lightweighting of packaging materials, as well as food waste recovery and composting contributed to reductions in waste tonnages and resulting emissions.
- **Transportation:** Increased fuel efficiency in vehicles was not sufficient to offset the steadily increasing number of vehicle miles traveled between 2007 and 2019. Reduction in vehicle miles traveled during the pandemic significantly lowered the town's GHG emissions in 2020.

While post-pandemic emissions in Wellesley are expected to rise again in 2022 and beyond, some pandemic-related changes such as work-from-home may persist into the future and help Wellesley to retain some of the emission reductions seen in 2020. As described below, the SEC is recommending new, more ambitious GHG emission reduction goals to ATM 2021. A climate action planning process, currently underway, will develop a road map for achieving these goals.

Note that 2020 GHG inventory results are marked as preliminary since emissions factors for the electricity grid are updated annually with a one-year lag. GHG inventory results for 2019 have been updated with the recently released 2019 factor. The SEC will finalize the 2020 results in 2022 and publish them in the Report to ATM 2022.

## **COMMITTEE ACTIVITIES IN 2020 AND EARLY 2021**

In addition to tracking and analyzing GHG emissions, as described above, the SEC led and contributed to a number of initiatives, detailed below, aimed at reducing the Town's carbon footprint.

### **Climate Action Plan**

The SEC launched a climate action planning process. The Climate Action Plan (Plan or CAP) will serve as a comprehensive road map for achieving new GHG emissions goals the SEC is proposing to ATM 2021 (Article 24): reduce town-wide GHG emissions 50% below 2007 levels by 2030, 75% below 2007 levels by 2040 and to net-zero emissions by 2050. The Plan will also detail resilience, economic, equity, and other benefits of addressing climate change. In Fall 2020, the SEC worked with Town staff and board members to design a planning process, create public outreach materials, and prepare a request for proposals for a consultant to support data collection and analysis. The SEC will hire a consultant in mid-March. The consultant will work with sector-specific working groups to identify, prioritize, and time climate actions in energy,

building, mobility, waste, natural resource, and governance sectors. The SEC also commenced a CAP community engagement effort that will continue throughout the year and will include public forums, presentations to community groups, print and digital media, an interactive website, and opportunities for public feedback. The CAP will be a dynamic working document. The SEC will oversee annual evaluation and updating of the CAP going forward. The SEC will also work with Town departments and the community to coordinate CAP implementation.

### **Green Communities**

In Spring 2020, the SEC worked with the Facilities Management Department (FMD), Department of Public Works (DPW), MLP, and the Police Department to obtain a Green Communities grant of \$137,920 to fund the following projects:

- Interior LED retrofit in the High School auditorium and gymnasium;
- Exterior LED retrofit in municipal parking lots; and
- Two hybrid police cruisers.

As of February 2021, the High School LED retrofit is complete and the municipal parking lot and police cruiser projects are nearing completion.

### **Municipal Sustainable Building Guidelines**

Municipal Sustainable Building Guidelines (the Guidelines) outline a process and criteria by which the Town may design, construct, and operate municipal buildings in a cost-effective and sustainable way such that these projects minimize GHG emissions and other forms of environmental degradation, support the health, comfort and productivity of building occupants, and conserve resources. The Guidelines also encourage the construction and renovation of buildings that are resilient and adaptable to a changing environment and flexible such that they accommodate multiple uses. MSBG present a minimum level of requirements for the design and development of new buildings and roofs, major renovations, large additions, and private development on Town-owned land. The Guidelines are reflected in ongoing projects such as the new Hunnewell and Hardy Schools, the interior renovation of Town Hall, and the Morses Pond beach house.

The following seven boards committed to Municipal Sustainable Building Guidelines for building improvements and the construction of future town buildings: Select Board, Municipal Light Board, Board of Public Works, Natural Resources Commission (NRC), Recreation Commission, Wellesley Free Library Board of Trustees and School Committee.

### **Building Electrification and Sustainable Zoning**

The SEC and Sustainable Wellesley, the local grassroots environmental nonprofit organization, formed a working group to participate in the Rocky Mountain Institute's Building Electrification Accelerator Program. This group explored avenues to building electrification, including zoning bylaw amendments, that would promote sustainable building projects and reduce GHG emissions. A new working group with the Planning Department is exploring amendments to introduce sustainability into zoning bylaws. The first of these amendments are expected to come before Town Meeting in Fall 2021.

## **Gas Leaks**

Members of the SEC 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. At the end of 2019, National Grid reported 256 gas leaks in Wellesley. The climate action planning process will consider the impact of gas leaks on Wellesley's carbon footprint, public health, and ecosystems.

## **Working with the Municipal Light Plant**

The SEC contributes to the Municipal Light Plant's WECARE Program, Incentive Design Working Group and to the implementation of incentive programs such as the Clean Comfort air-source heat pump initiative, residential solar rebate project and electric vehicle off-peak charging program.

## **Town-wide Mobility Working Group**

The SEC participates in the Town-wide Mobility Working Group and is engaging members of this group in developing the mobility portion of the Climate Action Plan.

## **WasteWise Wellesley**

The SEC continues to lead WasteWise Wellesley and the 3R (Reduce, Reuse, Recycle) Working Group (DPW, SEC and NRC) to identify and capitalize on win-win opportunities associated with sustainable materials management. Programs such as cafeteria recycling, food rescue and food waste diversion, the Metrowest Food Recovery Program and The Repair Café were on hold through much of 2020 due to COVID-19.

## **Green Collaborative**

To connect over thirty environmentally interested groups across Town, the SEC facilitates "Wellesley's Green Collaborative," which hosts speakers and lively discussions on sustainability topics. The Green Collaborative held a sustainable buildings event in early 2020 and a zero-waste webinar in September 2020. Upcoming webinars in Spring 2021 will highlight air-source heat pumps and the Climate Action Plan.

## **Proposed Name and Staffing Changes**

ATM 2021 Article 24 proposes changing the Sustainable Energy Committee's name to the Climate Action Committee. The proposed name connects the Committee to the Climate Action Plan, and plan implementation.

The SEC Operating Budget Request seeks a 5 hour/week increase in the Director's position to support work on the Climate Action Plan.

## **Conclusion**

Wellesley must take more aggressive action to reduce greenhouse gas emissions and build resilience to climate change impacts. The Inter-governmental Panel on Climate Change

recommends net-zero emissions by 2050 to keep globally averaged temperature rise to within 1.5 Celsius. The Baker Administration and the Massachusetts House and Senate have all expressed support for this same net-zero goal and for 2030 and 2040 interim targets. The Climate Action Plan will provide a road map for reaching the abovementioned new, more ambitious GHG emission reduction goals. The SEC will work with Town departments and the community to develop the Plan and coordinate its implementation.

**SUSTAINABLE ENERGY COMMITTEE**

Laura Olton, Chair	Sue Morris, Vice Chair	Ellen Korpi	Cindy Mahr
Lise Olney	Martha Collins	Sue Morris	