

REPORT OF THE SUSTAINABLE ENERGY COMMITTEE

Purpose

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 Unified Plan also identifies sustainability and energy conservation as important goals.

Organization

The SEC has seven appointed members, with staggered terms of three years. The Board of Selectmen (BOS), Wellesley Municipal Light Plant (WMLP), and School Committee each appoint one board member, officer, official, or paid employee. The BOS appoints the remaining four members from residents or others with relevant interests and expertise. Members In July 2018 were: Laura Olton (Chair, Selectmen appointee), Ellen Korpi (Vice Chair, Selectmen appointee), Fred Bunger (Selectmen appointee), Tom Ulfelder (Selectmen representative), Michael D'Ortenzio (School Committee representative), Katy Gibson (WMLP representative), and Rob Lamppa from Wellesley College (Selectmen appointee). Katy Gibson and Rob Lamppa departed the Committee mid-year. Ellen Korpi was elected to the WMLP Board and assumed Katy Gibson's seat. Richard Lee and Sue Morris filled the Selectmen-appointed vacancies.

Measurement of 2018 Emissions and Trends

Each year the SEC measures the Town's "carbon footprint" and tracks the change against earlier years. This carbon footprint measurement is 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 established in October 2012 and calculated using ICLEI – Local Governments for Sustainability software.

Wellesley is not on target to meet its goal of reducing emissions 25% below 2007 levels by 2020. While emissions in the building sector have decreased almost 23% since 2007 (with even higher emission reductions in commercial and municipal buildings), the transportation sector has seen a 6.4% increase since 2007. As described below, the SEC is taking steps to address both building and transportation emissions.

Year 2018 (See Table 1) shows a nearly 1% increase in total emissions, driven largely by a 2% increase in transportation-related emissions, and a slight decrease in total building emissions. The small increase in building-related emissions in the municipal and residential sectors could reflect a cold winter and high summer temperatures. Despite the weather, however, the colleges and commercial sectors experienced a decrease in building emissions. Transportation emissions are based on traffic counts on Wellesley streets and these emissions continue to rise at a rate commensurate with (or even below) what the Massachusetts Department of Transportation (MassDOT) and traffic consultants generally predict for annual changes in traffic volume. The 12.2% increase in the waste sector emissions mirrors a similar increase in the tonnage of solid waste accepted at Wellesley's Recycling and Disposal Facility (RDF). In 2018 emissions from commercial waste increased approximately 50% over 2017. This increase was due in large part to new but temporary commercial customers who sought out the Wellesley RDF when their local transfer station experienced difficulties and could not accept them. Waste is a small sector and, in general, waste amounts fluctuate with the economy, building demolition waste and fees for waste disposal in Wellesley and the surrounding area.

Table 1: Town of Wellesley Greenhouse Gas Emissions 2019¹

	Greenhouse Gas Emissions (CO ₂ e) in metric tons					
	Share of Total 2018 Emissions	2018 Emissions	2017 Emissions	2017 - 2018 Percent Change	2007 Emissions	2007 - 2018 Percent Change
Electricity/Natural Gas/Fuel Oil						
Residential	29.6%	108,945	108,422	0.5%	136,236	-20.0%
Commercial	11.4%	41,859	42,192	-0.8%	61,203	-31.6%
Colleges	10.2%	37,494	38,720	-3.2%	46,668	-19.7%
Municipal	2.0%	7,383	7,201	2.5%	9,723	-24.1%
Building Subtotal	53.1%	195,681	196,536	-0.4%	253,830	-22.9%
Waste	0.5%	1,837	1,637	12.2%	2,027	-9.4%
Gas/Diesel	46.4%	170,751	166,892	2.3%	160,468	6.4%
Total Emissions	100.0%	368,269	365,064	0.9%	416,325	-11.5%

In 2018, the SEC employed two technical changes to improve the calculation of the town’s emissions. First, SEC changed the source of its electricity emissions factor² from the U.S. Environmental Protection Agency’s (EPA’s) Emissions & Generation Resource Integrated Database (eGRID) to ISO-New England (ISO-NE).³ Electricity emissions for all years in Table 1 are based on the ISO-NE factor. The SEC also updated the transportation

¹ The values in Table 1 reflect municipal energy use data from Fiscal Year 2019 (July 2018 thru June 2019) and community energy use data from Calendar Year 2019 (January 2019 thru December 2019). The use of these data sets for estimating GHG emissions was established when Wellesley began keeping an inventory around 2010.

² An emissions factor is the average emission rate of a given greenhouse gas for a given source. Two authorities publish emissions factors for electricity generation in New England: (1) the U.S. Environmental Protection Agency, and (2) ISO-NE, the regional electricity grid operator.

³ Since the Town established a GHG inventory, Wellesley has employed eGRID in calculating electricity-related emissions. Historically, the electricity emissions factors from the two sources have had comparable values. A recent divergence in the eGRID and ISO-NE values, however, prompted the SEC to label emissions results for 2018 Annual Town Meeting “preliminary” and to take a closer look at the attributes of these factors, including the data and assumptions underlying them. Based on its analysis, the SEC decided to switch to ISO-NE for two reasons: (1) ISO-NE uses more actual emissions data in calculating its emissions factor for New England, and (2) the ISO-NE factor is published annually while the eGRID factor is updated only every other year. Given these two advantages, the SEC has decided to use the ISO-NE emissions factor for current, future, and past GHG inventories.

data used in calculating transportation-related emissions for the Wellesley community.⁴ Table 1 includes revised 2017 data for Babson College.

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

Green Communities

The SEC coordinated the Town's Green Communities activities and its reporting to the Massachusetts Department of Energy Resources. The Committee continued to use MassEnergyInsight software to track Wellesley's municipal energy use. The SEC worked with the Facilities Management Department (FMD), the Department of Public Works (DPW) and the WMLP to implement four, and potentially five, projects funded by Wellesley's Green Communities Designation Grant of \$137,250. A portion of this grant supported an exterior light-emitting diode (LED) retrofit on the DPW campus, led by FMD. The grant also supported a DPW-led energy evaluation of the Town's water and wastewater infrastructure and an ongoing DPW LED retrofit at the Town's water treatment plants. The Municipal Light Plant received Designation Grant funds to install LED exterior lights at the WMLP's operations yard and to replace three crosswalk floodlights. The SEC, WMLP and Traffic and Parking Committee are currently exploring a possible Green Communities-funded electric vehicle charging station and the SEC is working with several Town groups and departments to identify energy conservation measures to propose in the Town's 2020 application to the Green Communities Competitive Grant Program. Green Communities grants regularly fund heating, ventilation and air conditioning upgrades, lighting improvements, variable frequency drives, solar panels, electric vehicles and electric vehicle charging stations, education programs, and certain consultant services to support renewable energy and energy efficiency in qualifying cities and towns.

⁴ The SEC relied on the Massachusetts Department of Transportation (MassDOT) 2017 Road Inventory Report to refine its road classification and road mileage values. The SEC also used traffic counts from the MassDOT Transportation Management System interactive map, and from traffic studies for the Route 9 Enhancement Study and for 40B and other proposed projects in Wellesley to further update and expand its traffic count database. The SEC has included new traffic data in FY18 GHG estimates. Where newly found traffic counts are available for previous years, the SEC is re-calculating transportation-related emissions for those years as well.

WasteWise Wellesley

The SEC launched WasteWise Wellesley to identify and capitalize on win-win opportunities associated with sustainable materials management, as part of the 3R (Reduce, Reuse, Recycle) Working Group (DPW, Natural Resources Commission (NRC) and SEC). The EPA estimates that the provision of goods and food in the United States contributes approximately 42% of the country's carbon footprint. The SEC's current tracking system does not reflect decreases in GHG emissions associated with reducing, reusing and recycling materials (including food) but we have implemented these programs to improve our emissions reductions nevertheless.⁵ WasteWise Wellesley initiatives support Unified Plan goals and involve collaborations with Wellesley Public Schools (WPS), WPS Food Services, FMD, DPW, NRC, Health Department, Green Schools, Sustainable Wellesley, EPA, and the Massachusetts Department of Environmental Protection, and include:

- Cafeteria recycling, food rescue, and food waste diversion at Bates, Fiske and Sprague Elementary Schools. This year these schools added food donation to their established cafeteria recycling and food recovery programs. Uneaten packaged food and whole fruit from school lunches is either shared with students in the school or is donated to the Wellesley Food Pantry. Bates School also participates in EPA's Food Recovery Challenge (FRC).
- A Metrowest Food Recovery Program. The SEC spearheaded the Metrowest Food Recovery Program through which the Cambridge-based nonprofit, Food For Free, picks up kitchen leftovers from Wellesley Public Schools, Olin, Wellesley and Babson Colleges and Bentley University and packages these leftovers into single-serve frozen dinners to distribute to food insecure individuals and families. Food for Free delivers some of these meals to MassBay Community College in Wellesley where a recent survey found that up to 52% of MassBay students are food insecure. The EPA provided generous guidance and support to this endeavor and an SEC volunteer worked closely with Wellesley's Health Department to develop detailed Standard Operating Procedures to ensure food safety. In September 2018, The Metrowest Food Recovery Program (including the Town of Wellesley and other participants)

⁵ The SEC continues to review and contemplate improvements to its methodology for calculating GHG emissions.

received an EPA Environmental Merit Award at Faneuil Hall in Boston for its work.

- Food Recovery Education and Outreach. Wellesley's food recovery operations serve as a model for other towns and organizations. In October 2018, Wellesley hosted a Food Waste and Food Rescue Workshop that attracted 40 participants from seven neighboring communities. Together they represented 70 schools interested in replicating Wellesley's programs. The SEC has also met with retirement communities and others in response to their requests to learn more about Wellesley's food waste and food recovery programs. This outreach work helps Wellesley to fulfill some of its goals as endorser of the EPA's FRC program.
- The Repair Cafe continues to offer free fixes for broken items. On two separate dates, the Rotary Club provided tools and materials, along with skilled volunteers, to help residents fix clothes, furniture, electrical appliances, bicycles, crockery, gadgets, toys and more.
- The SEC encouraged the residential food waste drop-off program at the RDF and helped lay the groundwork for a successful pilot that diverts Wellesley Middle School kitchen food waste to the RDF food waste drop-off. The program is now fully integrated with RDF services and the RDF transports approximately 125 pounds of food waste per week from WMS. The RDF sends food waste to an anaerobic digestion facility which turns the food waste into biogas.

As discussed above, it is well established that reducing, reusing, and recycling materials (including food) decreases GHG emissions but unfortunately, the SEC's current carbon footprint accounting methodology does not reflect such efforts in our town's GHG estimates in Table 1.

Sustainable Buildings

In keeping with Unified Plan elements on sustainable buildings, the SEC has prepared Draft Sustainable Building Guidelines for the design, construction, operation and maintenance of municipal building projects and private development on Town-owned land. Throughout 2018 and 2019, the SEC worked closely with FMD to refine this draft and has presented it to and sought feedback from almost all town departments, boards and committees. The SEC plans to seek approval of the Sustainable Building Guidelines from Town Meeting in March 2020.

The SEC serves as a resource to the School Committee and School Building Committee (SBC) on sustainability-related topics and the SEC supports

liaison efforts between the Hardy, Hunnewell, Upham (HHU) school process and interested community members. The Hunnewell School Feasibility Study Request for Qualifications and the SBC's Owner's Project Manager Request for Services for the Upham/Hardy project included sustainability language and criteria drafted by the SEC. SEC members attended SBC meetings, participated in Hunnewell Feasibility Study public forums, and met with the Hunnewell Feasibility Study team to discuss sustainability considerations. The SEC researched energy, GHG emission and cost-related elements of building design, and participated in webinars, workshops, and conferences on zero net energy and sustainable building design to assist the School Committee and SBC.

The SEC initiated a Home Energy Seminar project to educate residents about energy conservation and home energy assessments offered by the WMLP and National Grid. Throughout the year, the SEC presented 11 seminars (nine at the Tolles-Parsons Center, one at Rotary Club and one at the Village Church). Approximately ninety (90) residents attended the seminars, learned about their energy usage and ways to reduce it, and most said they planned to get a home energy audit.

To promote energy efficiency provisions in building codes, the SEC formed a roster of voters to participate in the International Energy Conservation Code voting opportunity in 2019. The SEC also encouraged additional Wellesley rosters and kept up with informational webinars and other materials for educating voters.

Municipal Vulnerability Preparedness

Wellesley earned a grant for \$25,000 from the State's Municipal Vulnerability and Preparedness (MVP) Program. These funds are supporting goals set out in the Unified Plan around Wellesley's adaptability to changing environmental conditions. In particular, the funds support an MVP Workshop and Public Listening Session aimed at identifying vulnerabilities and resiliency measures. The SEC is working with the Natural Resources Commission, the Planning Department and an outside consultant to plan for the Workshop and Listening Session.

Transportation Working Group

In part to further mobility-related goals outlined in the Unified Plan, the SEC organized a Transportation Working Group to identify opportunities for reducing transportation-related GHG emissions and to serve as a resource to the Town's Mobility Working Group. Transportation emissions

comprise approximately 46% of Wellesley's carbon footprint. The Working Group includes an SEC Committee member, SEC staff, Green Schools members and interested volunteers. The group has consulted with our Town officials, transportation departments in other communities, Wellesley Public School administrators, staff from local colleges, members of grassroots organizations, public transportation experts, and staff members with the Metropolitan Area Planning Council with the aim of identifying opportunities in the following areas:

- Potential programs to streamline and improve bus transportation for Wellesley residents, the Council on Aging, colleges, and private employers;
- Technologies to reduce idling in municipal vehicles;
- Programs to reduce vehicle traffic associated with the Schools;
- Strategies to reduce traffic congestion; and
- New methodologies for calculating transportation-related emissions.

The SEC has also worked with the WMLP in promoting its Bring Your Own Charger Program for residents with electric vehicles (EV). This program encourages EV residents to charge their cars during off-peak hours in exchange for an \$8.00 credit on monthly electric bills.

Solar

In 2018, Wellesley earned a SolSmart Silver designation through the U.S. Department of Energy. According to the SolSmart organization, "This designation is in recognition of all the hard work and leadership your community has shown to reduce soft costs and barriers to going solar."

The SEC worked with the WMLP to prepare for a residential solar campaign in 2019. This program will encourage solar installations in Wellesley under the State's new solar rebate program for municipal light plants.

Leading by Example Award

At a ceremony in the Massachusetts State House, the Department of Energy Resources awarded a Leading by Example award to the Town of Wellesley for its energy conservation, renewable energy and sustainability efforts. Specifically, the Commonwealth recognized Wellesley's energy conservation measures, food waste diversion and food recovery efforts, its

rooftop solar installations, LED streetlight retrofit, greenhouse gas emissions reductions, and leadership in the state.

Green Collaborative

The SEC works with boards and staff members throughout the Town and with Wellesley Public Schools to advance its mission. SEC's programs also involve significant participation by other groups with common interests in town. To connect numerous, environmentally-interested groups across Town, the SEC facilitates "Wellesley's Green Collaborative." The Collaborative consists of nearly 30 entities including Town Departments, grass roots climate action groups, houses of faith, land conservation activists, civic organizations, and garden clubs. The Collaborative meets several times a year to discuss sustainability issues relevant to Wellesley and to share information and encourage collaboration where there are common interests. The Collaborative recently hosted a MassDOT speaker to present on its Safe Routes to School Program.

Looking Ahead

The SEC is making progress on many fronts toward lowering the community's carbon footprint, yet challenges remain. Energy conservation measures, home energy seminars, Sustainable Building Guidelines, and the promotion of solar energy facilitate cuts in energy use, emissions, and costs. WasteWise programs reduce environmental degradation and emissions through better materials management practices. The town's GHG emissions goal eludes us largely because of transportation, the sector over which we have the least control. Nevertheless, the SEC Transportation Working Group aims to reduce traffic congestion and fuel use while exploring new technologies and more accurate and useful transportation emissions estimates. With the goal of mapping out future carbon reductions, the SEC is laying the groundwork for a Climate Action Plan (CAP). CAP development will entail a town-wide collaborative process to identify, prioritize and plan the implementation of GHG emission reduction goals and activities. At 2020 Annual Town Meeting, the SEC will update Wellesley's emissions status and provide more detailed information about the CAP.

SUSTAINABLE ENERGY COMMITTEE

Laura Olton, Chair Fred Bungler, Vice Chair Lise Olney

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