



Sustainability, Resilience, and Green Practices

The Town of Wellesley has made commitments to sustainability through the creation of the Sustainable Energy Committee (SEC), goals for reduction of greenhouse gas (GHG) emissions by 2020, use of “green” products in maintenance services, a very effective recycling program, a food waste collection pilot program, and a school food waste recovery initiative, and incorporation of sustainable practices in Town projects.

Town government has been working diligently to reduce greenhouse gas (GHG) emissions from buildings and Town-owned vehicles. The Town’s GHG reduction goals are intended to mirror state goals. The Municipal Light Plant purchases 5% renewable energy for municipal electricity use and customers of the Municipal Light Plan may opt in to renewable energy for their electricity, with about 1,000 customers (11%) choosing to do so in 2017. Babson and Wellesley Colleges have also opted for 5% renewable energy. The Municipal Light Plant elects 100% renewable energy for its own use. It also collaborates in projects such as solar panel installation for the 900 Worcester Street recreation facility. The Facilities Management Department is consistently reducing energy use in Town-owned facilities. Support for solar installation and net metering terms, free energy audits, and rebates for the purchase of energy efficient appliances are also available.

Transportation emissions are the most difficult for the SEC to measure and, in general, the most difficult to change. The state goals for GHG emissions are a 25% reduction from 1990 levels by 2020 and an 80% reduction by 2050. In 2014, the state had reached a 21% decline and was stalling in further reductions. Cars and trucks are now the top single source of GHG emissions in the state. Many observers say that a more aggressive transition to electric vehicles may be the best short-term solution to further significant reduction in GHG.

Because of its stewardship of Wellesley’s streams, ponds, and wetlands, the Natural Resources Commission has long been concerned about the impacts of pesticides in nonpoint-source pollution—stormwater runoff. The NRC has a small “eco-landscaping” program that works with residential property owners and successfully pushed for use of organic integrated pest management on Town property. The Department of Public Works has been preparing for more stringent federal stormwater regulations that were initially expected to become law in July 2017. Those regulations have now been postponed.

The Unified Plan surveys and planning process indicate that for most residents, concepts of sustainability are related to preservation of natural open space and, for a somewhat smaller group, to GHG emissions reduction and energy efficiency. The Natural Resources Commission has programs to raise public awareness about nonpoint source pollution and promote ecologically sensitive landscape practices. Public awareness of green practices, such as low-impact development, is less prevalent.

Supporting town government concepts

The Unified Plan’s emphasis on making town government more customer-centric, data-driven and strategic, and transparent drives several of this chapter’s goals and strategies, including identification of better data on transportation emissions for the SEC; more transparency about SEC data and reports; and raising public awareness about green practices.

A. Sustainability, Resilience and Green Practices in the Vision and Values



VISION

In 2040, Wellesley is a town recognized for... its respect for the environment and support for sustainability, conservation, and protection of physical and historical assets...



VALUES

Conservation and Sustainability: Make resource-efficient choices to conserve energy, water, and materials; improve water and air quality and reduce carbon emissions; develop and implement sustainable practices to adjust to changing environmental conditions

B. Goals And Policies

GOALS	POLICIES FOR DECISION MAKERS
<i>Wellesley reduces greenhouse gas (GHG) emissions consistent with state goals.</i>	<ul style="list-style-type: none"> Publicize Wellesley GHG emissions targets and performance to town residents and other energy users and promote opportunities to cut emissions.
<i>The Town of Wellesley implements practices to conserve energy and use renewable energy.</i>	<ul style="list-style-type: none"> Continue to support energy conservation and use of renewable energy in Town facilities and operations and the Town fleet. Promote energy conservation and renewable energy use to town residents.
<i>The Town of Wellesley implements and promotes resource conservation, waste reduction, and elimination of toxic products.</i>	<ul style="list-style-type: none"> Support and maintain “green” operations and procurement practices. Continue waste reduction and sustainable materials management practices
<i>Wellesley is preparing for the impacts of extreme weather events and climate change.</i>	<ul style="list-style-type: none"> Support development of a vulnerability assessment and resilience plan. Participate in regional climate change planning efforts.
<i>Wellesley is a Massachusetts “Green Community,” and pursues grants for sustainability projects.</i>	<ul style="list-style-type: none"> Actively pursue opportunities through the Green Communities program to obtain grants to support energy efficiency initiatives.

C. Findings And Challenges

Findings

Overview: Sustainability and Resilience

- Sustainability is a set of policies and practices that result in meeting the needs of present generations without compromising the ability of future generations to meet their own needs. It includes promoting healthy environmental systems and habitats and supporting conditions for continued ecosystem services. Ecosystem services are the benefits to humans provided by a healthy ecosystem—for example, food and water, flood and disease control, and nutrient cycling.
- Resilience is the ability of a community to adapt and thrive in the face of extreme events and stresses. Resilient communities anticipate risks, plan to limit their impacts, and adopt strategies that integrate all community systems—civic, environmental, social and economic—to support recovery and growth.

Energy conservation and reduction of greenhouse-gas (GHG) emissions

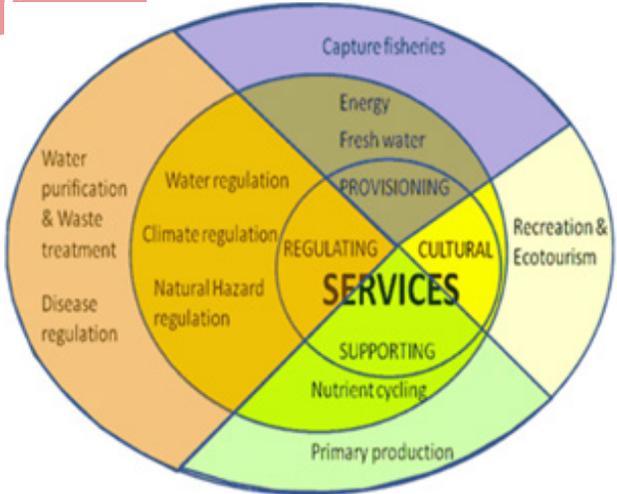
- There is scientific consensus that the increase in average temperatures since the 19th century is the

result of human activities’ emitting growing amounts of carbon dioxide and other gases that trap heat in the atmosphere and are therefore known as greenhouse gases.¹ The majority of greenhouse gas emissions result from buildings and transportation.

- Wellesley’s Sustainable Energy Committee (SEC) has responsibility for town-wide energy conservation and efficiency policies.
- 2014 Annual Town Meeting established a goal of reducing GHG emissions 25% below 2007 levels by 2020.
- The Municipal Light Plant (MLP) manages electricity to work toward the Town’s goal. The MLP commissioned an independent study that found that MLP carbon emissions will be reduced by 29% from 2007 to 2018. Another two-part study, projected to be complete by fall 2018, will outline strategies for further emissions reduction during the periods 2018-2030 and 2031-2050.
- SEC presents annual reports to Town Meeting on GHG emission levels (in recent years). Data on building emissions is more readily available than on transportation emissions. The report to 2017 ATM appears in Exhibit 12.1.

¹ <https://climate.nasa.gov/evidence/>

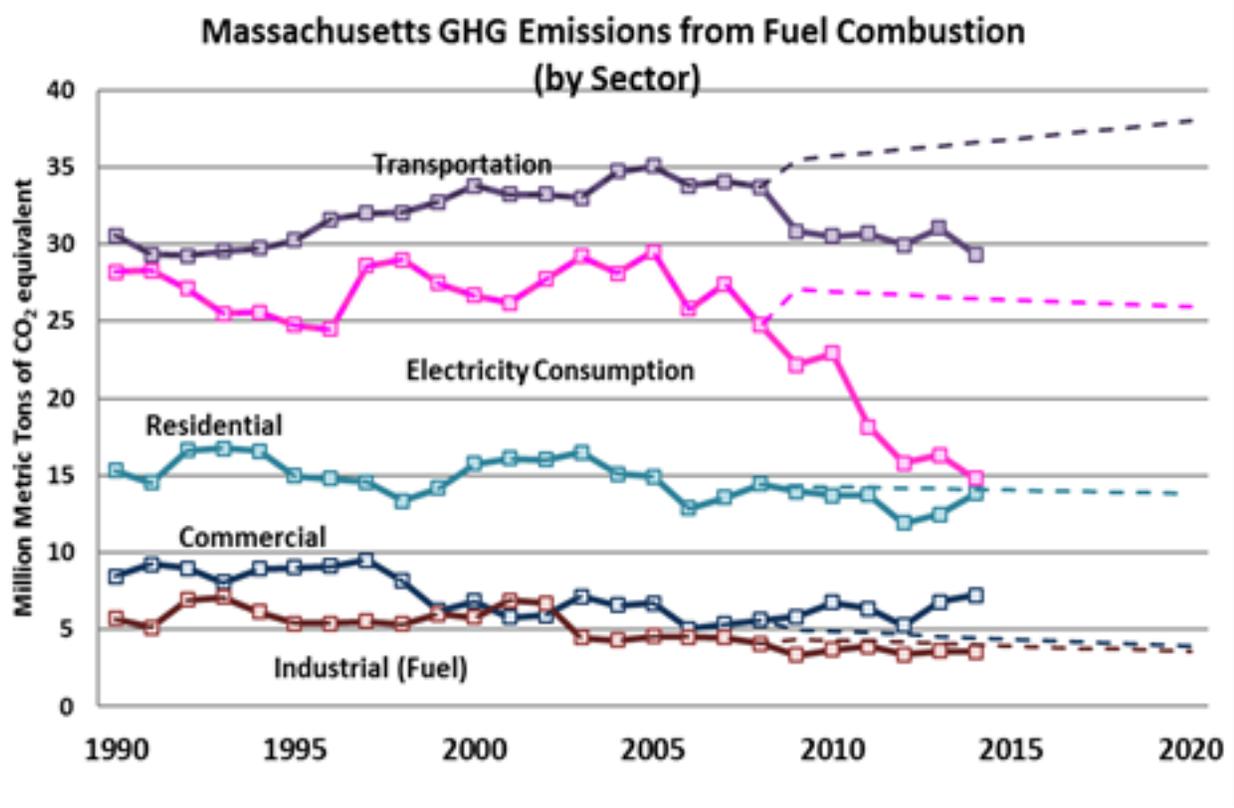
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Healthy ecosystems provide benefits to humans, including water, flood and disease control, and nutrient cycling. [Source–Project Nereida at nereidas-tech.eu/millennium-ecosystem-assessment/]



Source: <http://bnac.ca/consumer-education/triple-bottom-line/>



Dotted lines represent “business as usual” projections.
 EOEEA: www.mass.gov/eea/agencies/massdep/climate-energy/climate/ghg/greenhouse-gas-ghg-emissions-in-massachusetts.html#2

Greenhouse Gas Emissions (eCO₂) in metric tons						
	Share of Total 2016 Emissions	2016 Emissions	2015 Emissions	2015-2016 Percent Change	2007 Emissions	2007-2016 Percent Change
Electricity/Natural Gas/Fuel Oil						
Residential	29.7%	105,879	112,341	-5.8%	132,862	-20.3%
Commercial	13.3%	47,406	48,457	-2.2%	57,922	-18.2%
Colleges	10.9%	38,970	39,250	-0.7%	45,886	-15.1%
Municipal	2.0%	6,994	7,816	-10.5%	9,87	-24.7%
Building Subtotal	56.0%	199,248	207,863	-4.1%	245,957	-19%
Waste	0.5%	1,853	1,756	5.5%	2,027	-8.6%
Gas/Diesel	43.5%	155,001	153,502	-0.3%	160,468	-3.4%
Total Emissions	100.0%	356,102	365,121	-2.5%	408,452	-12.8%

Exhibit 12.1 Change in GHG emissions in Wellesley 2007–2016 (Sustainable Energy Committee)

- Solar panels have been installed at 94 residences, 2 municipal facilities (WHS and WMLP), 2 houses of faith (Temple Beth Elohim and Friends Meeting House), 2 businesses (Whole Foods and Drs. Ali, DMD) and at Dana Hall School. The Municipal Light Plant (MLP) is working with the 900 Worcester developer to lease rooftop space for MLP-owned and operated solar panels.
- The MLP replaced all ornamental streetlights with LED lights in 2010-2011 (MLP funded \$397,700) and will replace all high-pressure sodium cobra heads (3,100) by June 2018 (MLP funded \$512,400 with additional funding through a state grant and Town funds). As a result of the purchase of 5% of the town’s annual electricity consumption in renewable energy (through both Town government and the voluntary renewable energy program), Wellesley was designated a 2017 EPA Green Power Community.
- The Facilities Management Department has incorporated energy-conservation systems and practices into its management of town-owned facilities, resulting in significant reductions in GHG emissions.
- Through the efforts of the SEC, the Town has just been designated a Green Community, which makes it eligible for grants to advance energy-efficiency policies, measures, services and facilities.
- Electric vehicle (EV) charging stations are located at the colleges and Whole Foods. The Town now requires installation of charging stations as part of new projects.
- Discussions are underway to develop sustainable building guidelines for Wellesley. At the request of the School Committee, the SEC developed sustainable criteria for use in site evaluation of the HHU alternatives. This work provides the basis for further development of sustainable building guidelines for all municipal building projects.
- Wellesley’s Green Collaborative, initiated and facilitated by the SEC, has more than 30 participants including municipal departments, grassroots climate action groups, houses of faith, land conservation activists, garden clubs and others.

Sustainable materials management

- In 2016, Town Meeting passed a plastic bag ban.
- The 3R Working Group (Department of Public Works, Natural Resources Commission, and SEC) created WasteWise Wellesley, a townwide program to identify and capitalize on win-win opportunities for sustainable materials management (SMM). WasteWise’s SMM goals are rooted in a systems-based approach to understanding greenhouse gas (GHG) emissions created by the production, consumption, and disposal of materials. Initiatives include food recycling and food waste diversion pilots at three elementary schools and the middle school and a pilot at the RDF to collect residential food waste that, in its early phase, is already removing more than 1 ton/week from trash and sending it to be used to power the generation of electricity.
- DPW is beginning to use green infrastructure best practices in stormwater management design.

Climate change

- Wellesley, like all Massachusetts communities, is already experiencing some climate change impacts.
- While not expected to be directly affected by more dramatic impacts such as coastal sea level rise, Wellesley will experience impacts such as intense precipitation and more extreme storm events, which could result in flooding, increasing heat and the number of days above 90 and 100 degrees, more extreme storm events, and more frequent droughts.
- Massachusetts has already seen more warming than global averages, a 10% increase in precipitation over the last 50 years, and increased frequency of severe storms and flooding.
- In the coming decades, expected changes include significant increases in temperature, both in summer and winter; increased annual average precipitation, though with important seasonal differences, such as more frequent and damaging ice storms and floods; earlier peak spring streamflow; more frequent droughts; and a longer growing season.¹

Challenges

- Accelerating the current rate of emissions reduction, which is not sufficient to meet the Town goal.
- Organizing town-wide systems to support goals for energy- and resource-efficiency and green practices.

¹ For details see MAPC, *Metro Boston Regional Climate Change Adaptation Strategy Report, 2014*, (http://www.mapc.org/sites/default/files/RCCAS_full_report_rev_8-28-14.pdf)

- Raising public awareness about town government and private practices that promote energy- and resource-efficiency.
- Increasing resilience by preparing for climate change impacts.

D. What The Community Said

Themes:

- Incorporate sustainability values into town decision making and operations and reduce GHG emissions
- Open space preservation and maintenance are key aspects of sustainability supported by the vast majority of participants in surveys and workshops.

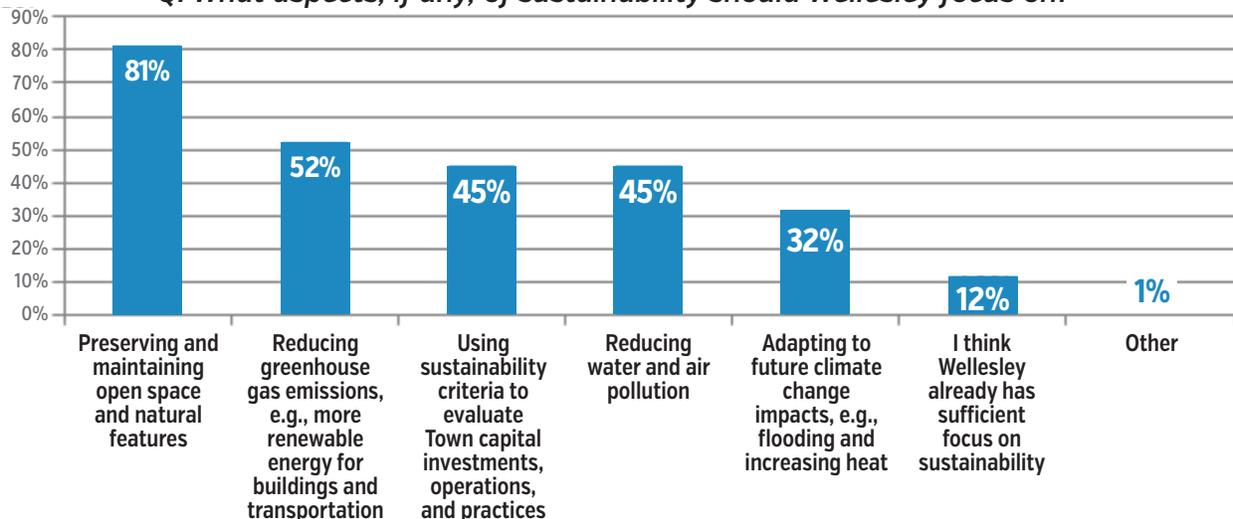
Survey

Please see the bottom of this page.

Workshop themes:

- Town decision-making, policies and activities should be evaluated through a sustainability “lens,” with participation from all Town departments and attention to resource-efficiency, GHG emissions reduction, waste reduction, and use of non-toxic materials.
- Move towards a goal of 100% renewable energy.
- Raise public awareness about energy efficiency, waste management, alternatives to single occupant vehicles.
- Establish more electric vehicle charging stations.
- Protect aquifers and maintain clean water.

Q: What aspects, if any, of sustainability should Wellesley focus on?



Vision and Values Survey (N=1,056)

- Protect natural landscapes and habitat for resilience.

E. Strategies And Actions To Achieve The Goals

GOAL 1: WELLESLEY WILL REDUCE GHG EMISSIONS CONSISTENT WITH STATE GOALS.

Policies:

- Publicize Wellesley GHG emissions targets and performance to town residents and other energy users and promote opportunities to cut emissions.

Massachusetts’ 2008 Global Warming Solutions Act requires the state to cut emissions 25 percent statewide from 1990 levels by 2020 and by 80 percent by 2050. Town Meeting set a goal of 25 percent emissions reduction from 2007 by 2020. Both the state and the Town have had more success in reducing emissions from buildings. Cutting transportation emissions continues to be more challenging.

STRATEGIES

A. Promote residential energy efficiency and renewable energy programs and alternatives to town residents.

The MLP offers several programs to residential customers that reduce the use of fossil fuels.

ACTIONS	WHEN	WHO
<i>i. Obtain better data on Wellesley GHG emissions, as available, especially for transportation.</i> Excise tax data can provide information on the number of vehicles garaged in Wellesley. Regional organizations such as MAPC and CTPS (the regional transportation planning organization) can also assist the SEC in developing better estimates.	2018-2020	Sustainable Energy Committee (SEC)
<i>ii. Develop a yearly campaign coordinated with the SEC, Town agencies, Green Collaborative organizations, and other groups, such as PTOs, to raise public awareness and look for new ways to create options for residents and businesses to live more sustainably.</i> Promote energy efficiency and renewable energy purchase initiatives offered by the MLP, DPW and others. Enhance the SEC presence on the Town website and communication channels, including posting SEC reports to Annual Town Meeting as separate documents and on a future open data platform.	2018-2022 and ongoing	Led by SEC
<i>iii. Coordinate the campaign with initiatives to promote safe and convenient walking and biking to town destinations and the proposed School Transportation Management Association.</i> (See Chapter 10.)	2018-20222	SEC collaboration with proposed Mobility Committee
<i>iv. Implement the recommendations for GHG emissions reduction 2018-2030 in the MLP study to be completed in 2018.</i>	2018 and ongoing	MLP

GOAL 2: THE TOWN OF WELLESLEY IMPLEMENTS PRACTICES TO CONSERVE ENERGY AND USE RENEWABLE ENERGY, AND IS A MODEL OF SUSTAINABLE FACILITIES AND PRACTICES.

Policies

- Continue to support energy conservation and use of renewable energy in Town facilities and operations and the Town fleet.

- Support use of a rating system, such as Envision, for sustainable infrastructure to evaluate and compare all proposed infrastructure projects.
- Incorporate “green” building design and practices into all Town facilities, including retrofits as well as new construction, using LEED or other building rating system.

A. Incorporate energy conservation and renewable energy sources into all existing and new Town facilities to reduce GHG emissions and work towards the maximum feasible and effective renewable electric energy use for town facilities by 2028.

Approximately 37 cities and towns in the US have committed to making the transition to 100% renewable electricity, typically by 2030 or 2035. Four communities, including Burlington, Vermont, which has a municipal utility, have already achieved 100% renewable electricity. Town facilities in Scituate, on the Soth Shore, are powered by solar and wind power.

ACTIONS	WHEN	WHO
<i>i. Incorporate sustainability and resilience, as appropriate, into the mission of every Town department and committee. The SEC can develop a set of questions or criteria help each group identify how sustainability is relevant to the mission.</i>	2020 and ongoing	SEC; boards, commissions, and departments
<i>ii. Continue and maintain energy-efficient systems in existing Town facilities through the Facilities Management Department.</i>	2018-2022	FMD
<i>iii. Establish a policy that all town new construction repairs, retrofits, and new construction will aim to incorporate sustainable building criteria into all phases of siting, design and construction. The SEC is prepared to lead the development of Town sustainable building criteria, building on the committee's work did for the HHU RFP. Many communities use the equivalent of LEED Silver standards (without requiring certification), or successor standards, as the minimum goal.</i>	2018-2022	Board of Selectmen; SEC; FMD
<i>iv. Use a sustainability rating system, such as the Envision system, for sustainable infrastructure, to evaluate proposed town projects. See Chapter 11 for more information on the Envision system and its benefits.</i>	2018-2022	SEC; FMD; DPW; possibly through bylaw
<i>v. Prepare a report on the path to achieving 100% renewable energy, including costs and benefits of all kinds (not only rates).</i>	2018-2022	MLP
<i>vi. Make a commitment to sustainability, energy efficiency and renewable energy part of the MLP mission statement.</i>	2018-2022	MLP
<i>vii. Explore developing a program that provides increasing amounts of renewable energy by default to customers of the MLP. Provide an opt-out option for those who do not want to participate. For example, the City of Cambridge in 2017 launched a community electricity aggregation program under MGL c.164, sec.134, the Massachusetts Load Aggregation Statute. The program increases the amount of renewable energy (currently 25%, not including nuclear energy) to customers by default and at competitive rates through bulk purchasing and offers 100% renewable energy sources as an option.¹</i>	2018-2020	MLP
<i>viii. Develop an information program and vote for Annual Town Meeting to extend GHG emissions reduction goals to 2030 and 2050 consistent with state goals.</i>	2021-2022	SEC

¹ www.masspowerchoice.com/cambridge and www.cambridgema.gov/-/media/Files/CDD/Climate/municipalaggregation/cambridgecommunitychoiceelectricityaggregationprogram.pdf?la=en

B. Expand the number of electric-vehicle (EV) charging stations in Wellesley.

ACTIONS	WHEN	WHO
i. Continue to require EV charging stations in large commercial projects and multifamily developments.	Ongoing	Planning Board
ii. Establish EV charging stations in Town-owned parking areas.	2018-2022	Board of Selectmen

C. Promote and create incentives for using “green” and sustainable building practices in the private sector.

ACTIONS	WHEN	WHO
i. Incorporate sustainable practices in a systematic way into the Town’s development standards and requirements for private development. [See Chapter 13]	2018-2022	Planning Board; SEC
ii. Develop an annual award for most sustainable building project, including retrofits. Develop criteria through a collaboration of the Planning Board, Design Advisory Board, Natural Resources Commission, Sustainable Energy Committee	2018-2022	Planning Board; DAB; NRC; SEC
iii. Develop a program to facilitate recycling of construction and demolition waste. The Massachusetts Department of Environmental Protection has implemented disposal bans on many of waste materials generated during construction and demolition. RecyclingWorks [recyclingworksma.com] provides guidance on this topic that goes beyond state requirements and includes information on reuse and donation of usable materials to nonprofits such as the Greater Boston Habitat for Humanity ReStore. Architectural elements can also be salvaged for sale to specialist businesses.	2018-2022	DPW-RDF

GOAL 3: THE TOWN OF WELLESLEY PROMOTES AND IMPLEMENTS RESOURCE CONSERVATION, WASTE REDUCTION, AND ELIMINATION OF TOXIC PRODUCTS.

Policies

- Support and maintain “green” operations and procurement practices.
- Continue waste reduction and sustainable materials management practices.

STRATEGIES

- A. Adopt policies to minimize adverse impacts of toxic products on the environment in Town operations and purchases.**

ACTIONS	WHEN	WHO
i. Develop a set of environmental factors to be considered in procurement such as durable, reusable, or recyclable; non-toxic or least toxic; energy-efficient; minimum packaging; and so on. The National Association of State Procurement Officials has developed a green purchasing guide, [www.naspo.org/green/index.html#top] and the State of Massachusetts has an environmentally preferable procurement program [www.mass.gov/anf/budget-taxes-and-procurement/procurement-info-and-res/procurement-prog-and-serv/epp-procurement-prog/]	2018-2022	Board of Selectmen; SEC
ii. Continue organic integrated pest management practices on all town properties.	Ongoing	Board of Selectmen

ACTIONS	WHEN	WHO
iii. Continue recycling programs through the RDF and the Waste-Wise Wellesley program.	Ongoing	DPW-RDF; SEC
iv. Provide recycling bins in public places, such as the commercial villages.	2018-2022	DPW

B. Raise public awareness and promote private landscape practices that are pesticide-free, avoid excess fertilizer runoff, avoid the use of invasive ornamental plants, and promote infiltration of stormwater

ACTIONS	WHEN	WHO
i. Expand the NRC’s eco-landscaping program.	2018-2022	NRC
ii. Create a simple list of eco-landscaping practices that residents can use to ask maintenance contractors for environmentally sensitive practices.	2018-2022	NRC
iii. Raise public awareness about the benefits of permeable pavement, rain gardens, rain barrels, lawn buffers at stream and pond shores, and other beneficial stormwater practices. There are many existing resources that could be modified to fit Wellesley.	2018–2028	NRC; DPW
iv. Work with contractors and landscape companies to promote environmentally-sensitive landscape practices for “high performance” landscapes.	2022-2028	NRC

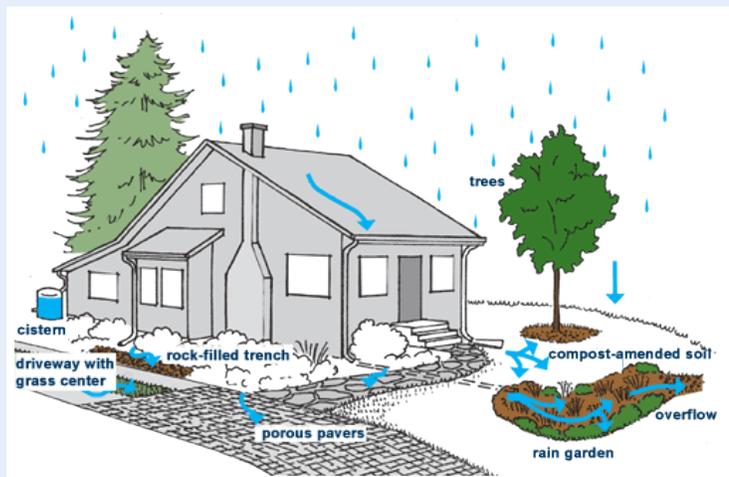
PUBLICIZE LANDSCAPE PRACTICES FOR “HIGH PERFORMANCE” LANDSCAPES

The Town can prepare a simple card with basic landscape practices to be distributed to developers, contractors, and residents. Residents who use landscape maintenance companies can ask them to follow these simple principles for more sustainable landscapes:

- Apply a 3-inch layer of mulch to all soil and amend the soil with 1 inch of compost.
- Divert 50% of landscape construction and demolition debris from the waste stream.
- Choose and locate plants to grow to their natural size.
- Don’t plant invasive species.
- Grow climate-adapted plants that require little water for 75% of all non-turf plants.
- Keep the turf area to no more than 25% of total irrigated area.
- Use weather-based irrigation controllers that include a moisture or rain sensor shutoff.
- Don’t use sprinkler and spray heads for areas less than 8 feet wide.

- Use permeable pavement, rain gardens, and other ways to keep stormwater on site.
- Use integrated pest management and organic fertilizers.

From the “Bay-Friendly Basics Checklist” at www.stopwaste.org/preventing-waste/bay-friendly-basics



Source: www.seattle.gov/util/EnvironmentConservation/Projects/GreenStormwaterInfrastructure/RainWise/index.htm

GOAL 4: WELLESLEY IS PREPARING FOR THE IMPACTS OF EXTREME WEATHER EVENTS AND CLIMATE CHANGE.

- Participate in regional hazard-mitigation and climate change planning efforts.

Policy

- Support development of a vulnerability assessment and resilience plan.

STRATEGIES

- A. Take advantage of state and regional programs to prepare for climate change.**

ACTIONS	WHEN	WHO
<i>i. Become a state-certified “Municipal Vulnerability Preparedness Community.” Apply for training to become an MVP community.</i> The state will provide funding to train a group of staff and residents in identifying climate change vulnerability and priority actions, and to complete vulnerability assessments and resiliency implementation plans.	2018-2022	Board of Selectmen
<i>ii. Continue participation in the Metrowest Hazard Mitigation Plan.</i>	Ongoing	Board of Selectmen; Fire Department
<i>iii. Raise public awareness about climate change issues and vulnerable populations.</i> The Board of Health, the Council on Aging, the Emergency Preparedness office (Fire Department), should include information on potential climate change impacts, such as extreme heat and intense storms, in addition to flooding, with special attention to senior citizens, disabled persons, and other vulnerable groups.	Ongoing	NRC; Board of Health; Council on Aging; Fire Department; SEC

GOAL 5: WELLESLEY IS A MASSACHUSETTS “GREEN COMMUNITY” AND PURSUES GRANTS FOR SUSTAINABILITY PROJECTS.

to support energy efficiency initiatives. Support fulfillment of requirements to be a state-designated Green Community

Policy

- Actively pursue opportunities through the Green Communities program to obtain grants

STRATEGIES

- A. Identify priority projects for sustainability**

ACTIONS	WHEN	WHO
<i>i. Apply for grants to finance energy-efficient improvements such as electric vehicles and charging stations, and additional building energy programs.</i>	2018-2022	Board of Selectmen