



**CREATING A SUSTAINABLE FUTURE**

**2021**

# WESTON

**CLIMATE ACTION AND RESILIENCE PLAN**



**WESTON AHEAD**

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Prepared for the Town of Weston by Kim Lundgren Associates, Inc. as part of a climate action grant from the Massachusetts Executive Office of Energy and Environmental Affairs Municipal Vulnerability Preparedness (MVP) Program.



We are pleased to release the Weston Ahead Climate Action and Resilience Plan. This document demonstrates our community's desire to come together to create a sustainable future for the next generation of Weston residents.

We cherish our small town's rural aesthetic, open spaces, and miles of trails. Weston is proud of its history of protection for natural resources, including its 2,000 acres of conservation land brimming with forests, meadows, wildlife, and water tributaries. Climate change is one of the biggest threats to our planet; the development of the Climate Action and Resilience Plan is our way of honoring our environmental heritage while acknowledging our vulnerabilities and the ways in which we are contributing to a changing climate. This plan identifies our opportunities to create positive change that will benefit our descendants: it is our roadmap toward a more sustainable future.

For the many people contributing to this project, the work was a labor of love. Dedicated committee members spent untold hours preparing this document, attending meetings held in person and, once the COVID-19 pandemic hit, virtually. We were pleased to be joined by many residents of the town, board & committee members, municipal staff, students, and even those who don't live here but still love Weston. We are grateful to the members of the talented and hard-working team at Kim Lundgren Associates, Inc., who helped us bring this community effort to life.

With warmest regards,

**LEON A. GAUMOND JR.**  
Weston Town Manager

**LAURIE A. BENT**  
Chair, Weston Select Board







# ACKNOWLEDGMENTS

## **TOWN OF WESTON LEAD**

**Leon Gaumond, Town Manager**

### **Volunteer Leads**

Phoebe Beierle, Sustainability Committee,  
Permanent Building Committee Representative

Katharina Wilkins, Sustainability Committee, Select Board Representative

### **Community Resilience Working Group**

Charles Young, Purchasing

Christopher Fitzgerald, Recreation Department

Dana Orkin, Planning

David Soar, Fire Department, Fire Chief

Gary Jarowski, Facilities

Jackie Liu, Weston High School

Jacquelyn Jackson, Public Works

Jeff Barz-Snell, Sustainable Weston Action Group, First Parish Church

Jim Polando, Permanent Buildings Committee

Joel Angiolillo, Weston Forest and Trail Association

Justin Woodside, Fire Department

Kara Fleming, Public Information Officer

Laurie Bent, Select Board Chair

Manuel Cifuentes, Regis College

Marilyn DelDonno, Cambridge School of Weston

Michael Goulding, Police Department, Chief of Police

Michele Grzenda, Conservation Commission

Mignonne Murray, Council on Aging

Pallavi Kalia Mande, Charles River Watershed Association

Pam Hess, Land's Sake Farm

Rachel Stewart, Weston School Committee

Rudy Ruggles, Weston Emergency Reserve Corps

Sandra Gonneville, Conservation Commission

Stephen Fogg, Public Works

Thomas Cullen, Public Works

Tony Flynn, Volunteer

Wendy Diotalevi, Board of Health

### **Branding Subcommittee**

Alyson Muzila, Sustainable Weston Action Group, School Committee

Laurie Bent, Select Board, Chair

Liz Steel, Sustainable Weston Action Group

Michele Grzenda, Conservation Commission

Sandy Kendall, Sustainability Committee

# INTRODUCTION

We cherish Weston for its historical character and open spaces—a place where residents can recharge on a walk in the woods or relax on the Town Green among our neighbors. The proximity to Boston and urban life paired with the pace of life and rural spaces draws people from across the region. The people form the foundation of a community filled with vibrant neighborhoods, great schools, and plentiful natural resources. Much of this is at stake with climate change.

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## Weston Ahead Vision & Goals

The Town of Weston will continue to flourish as a sustainable and resilient home to climate-smart residents, businesses, and institutions. In addition to preserving our natural resource assets, we will prioritize health and equity while adapting to changing climate conditions and reducing our own contribution of greenhouse gas emissions. In order to align with the state’s mid-century carbon neutrality goals, the Town is committed to:

**100%**

RENEWABLE ENERGY FOR  
MUNICIPAL OPERATIONS BY 2035

**50%**

REDUCTION IN GHG EMISSIONS  
BY 2035 IN THE RESIDENTIAL  
AND COMMERCIAL SECTORS

**ZERO**

NET CARBON EMISSIONS  
IN WESTON BY 2050





## WESTON AHEAD

Weston and the surrounding region are facing a future with more environmental and health disasters spurred by climate change. Extreme heat, drought conditions, intense storms, and flooding may lead to infrastructure damage, power outages, loss of biodiversity, higher risk of illness and disease, and compromised air and water quality. The COVID-19 public health crisis has laid bare many of the vulnerabilities our communities face, vulnerabilities that will be exacerbated by the types of impacts we expect to see from climate change. We know that climate change poses threats to the economy, our infrastructure, public health, and our social fabric. As we face these threats, it's clear that our Town needs to take bold action, both to reduce our contributions to climate change as well as to prepare our community for the impacts we know are coming. That bold action is encompassed in Weston Ahead. This Climate Action and Resilience Plan ("the

Plan") examines our greatest vulnerabilities, considers how we are contributing to the changing climate, and plots a course toward a more sustainable future.

Weston Ahead builds off a strong foundation of climate action in town. From the formation of Land's Sake Farm in 1980, to becoming a Green Community in 2011, to the creation of the Sustainable Weston Action Group in 2018, the Town and residents alike are engaged and ready to take the next step. Development of this Plan relied on that engagement and a collective commitment, leaning heavily on members of the community, key stakeholders, and Town department representatives to lend their ideas and expertise. Together we can and will ensure a safe, inclusive, thriving, climate-ready community for everyone who calls Weston home.



# ONGOING CLIMATE ACTION IN WESTON

**Weston Ahead** builds off the Town's existing foundation of climate action. These efforts are thanks in large part to dedicated community volunteers who will continue to be central in supporting implementation of the Plan's actions. The following timeline offers an overview of 21st century initiatives.

2006

## WESTON EMERGENCY RESERVE CORPS (WERC)

Volunteer organization that formed to strengthen the Town's public health infrastructure and improve emergency readiness

2010

## AQUIFER PROTECTION OVERLAY DISTRICT

Imposes additional protective constraints around the Town's groundwater recharge areas

2011

## HAZARD MITIGATION PLAN

Guides the Town's reduction of losses and vulnerabilities from natural hazards

2015

## NEW POLICE STATION

Built to meet LEED Silver criteria, a Permanent Building Committee requirement for new municipal buildings

2008

## ENVIRONMENTAL BASELINE COMMITTEE

Appointed to establish a baseline of the Town's environmental footprint; set goals for responsible environmental practices; gauge the financial feasibility of alternatives for achieving those goals; and record progress

Responsible for the Town's Green Community designation, renewable energy overlay district, stretch energy code, and solar and energy efficiency initiatives

## NEW DEPARTMENT OF PUBLIC WORKS (DPW) BUILDING

Built to meet Leadership in Energy and Environmental Design (LEED) Silver criteria, a Permanent Building Committee requirement for new municipal buildings

## GREEN COMMUNITY CERTIFICATION

Provides grants, technical assistance, and support for clean energy projects in municipal facilities and schools through the Massachusetts Department of Energy Resources

2016

## RAIL TRAIL ADVISORY COMMITTEE

Appointed to plan and advocate for the development of Mass Central Rail Trail

## STRETCH ENERGY CODE

Promotes cost-effective construction that is more energy efficient than that built to the "base" energy code

## RENEWABLE ENERGY OVERLAY DISTRICT

Provides as-of-right siting in designated locations for renewable/alternative energy generation, research and development, and manufacturing facilities

## SOLAR PV ARRAYS AT THE TRANSFER STATION

Constructed on former landfill. Brought in \$450,000 in solar credits in fiscal year 2019





2017

#### PLASTIC BAG BAN

Prohibits the use of plastic bags by most stores in Weston

#### SOLAR PV ARRAY AT THE PUBLIC WORKS BUILDING

Installed on the building roof. Brought in \$15,000 in solar credits in fiscal year 2019

2018

#### SUSTAINABLE WESTON ACTION GROUP (SWAG)

Concerned citizens who educate and engage residents on local sustainability issues formed SWAG

#### SUSTAINABILITY COMMITTEE

Approved by the Select Board to ensure sustainability issues and opportunities in Weston are proactively managed, advise the Select Board, and collaborate with Town departments and committees

2019

#### MASS CENTRAL RAIL TRAIL IN WESTON

Culmination of a three-year effort by the Rail Trail Advisory Committee to complete the Weston portion of the Mass Department of Conservation & Recreation-owned mixed-use path that aims to connect Boston to Northampton. The effort also connected Weston to the Bay Circuit Trail & Greenway, which opened access to an additional 230 miles of multi-use recreation trails and 57 parks and open spaces in eastern Massachusetts

#### COMMUNITY CHOICE AGGREGATION (CCA) PROGRAM AUTHORIZATION

Approved by voters at Town Meeting. Allows the Town to purchase electricity supply in bulk for Weston residents and small businesses, and integrate additional renewable energy into the power supply\*



\* Weston is targeting 2021 for program launch, depending on the duration of the State regulatory review and approval process.

2020

#### SOLAR PV ARRAY AT FIELD SCHOOL

Installed with the projection of providing approximately 3/4 of the school's electricity on an annual basis, saving the Town about \$20,000 in the first year alone. It is projected to save the Town nearly \$600,000 over 20 years

#### GAS INFRASTRUCTURE AUDIT

Proposed by the Sustainable Weston Action Group (SWAG), the audit was initiated and completed in 2019 with ongoing gas leak repairs coordinated by the Department of Public Works

#### MUNICIPAL VULNERABILITY PREPAREDNESS (MVP) COMMUNITY

Provides State support and funding for climate change resiliency planning and priority project implementation

#### HAZARD MITIGATION PLAN UPDATE

Revisited the Town's reduction of losses and vulnerabilities from natural hazards, including climate change-induced hazards, based on input from municipal staff, private stakeholders, and the public

#### COMPOSTING PILOT PROGRAM

Launched at the transfer station with the aim of reducing household waste and providing composting education

# STATE & REGIONAL CONTEXT

Progress on climate change at the state and regional levels will have an important impact on local efforts to curb greenhouse gas (GHG) emissions and enhance resilience in Weston. Shifting to clean energy, electrification of buildings and transportation, grid modernization and resilience – these will all be dependent on state, regional, and federal efforts.

Furthermore, Weston recognizes that many of the actions proposed as part of Weston Ahead come with a cost. While it was not within the scope of this planning effort to identify the specific costs of each individual action, cost ranges have been identified for key actions. Additionally, to support implementation of Weston Ahead, the Town will leverage funding opportunities that are anticipated to follow from the many recent state and federal efforts. Weston cannot achieve its climate targets without these broader efforts, nor can our region achieve our broader goals without each community doing its part. Recent efforts in 2020 and 2021 include:



## **Massachusetts 2050 Decarbonization Roadmap.<sup>1</sup>**

This plan details several strategies and planning scenarios that would enable Massachusetts to achieve net-zero carbon emissions by 2050, based on sector-specific modeling efforts. The Roadmap emphasizes an equitable and affordable transition away from fossil fuels through electrification, efficiency, a decarbonized energy supply, and carbon sequestration.

## **Interim Clean Energy and Climate Plan (CECP)**

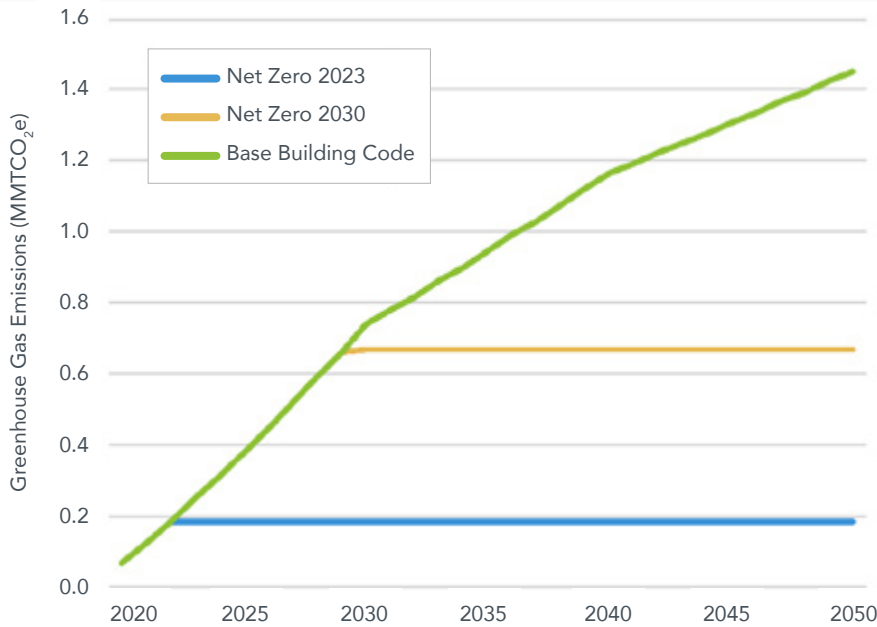
**for 2030.<sup>2</sup>** Emerging from the scenarios modeled in the Decarbonization Roadmap, the CECP provides specific strategies for how the State will achieve emissions reductions in the coming decade. The Plan is anticipated to be released in spring of 2021.

## **An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy (Bill S.9/S.2995).<sup>3</sup>**

Signed into law immediately prior to the publication of Weston Ahead, this Act provides a legally binding framework for the goals and strategies specified in the Decarbonization Roadmap and CECP, including binding GHG reduction targets, an opt-in net-zero energy code, and the purchase of clean energy.<sup>4</sup> This law could set in motion subsequent policies and funding levers to facilitate Weston's climate initiatives.



## Emissions from New Buildings With and Without a Net Zero Code



Source: Executive Office of Energy and Environmental Affairs, MA Decarbonization Roadmap, 2020, <https://www.mass.gov/info-details/ma-decarbonization-roadmap>.

**Net-Zero Stretch Energy Code.** One provision of the recently passed climate Act directs the Department of Energy to amend the State's stretch building energy code to include net-zero. Municipalities, like Weston, could then opt to adopt this code, which would require more stringent energy standards for buildings in their jurisdictions.<sup>5</sup> As the graph above demonstrates, the adoption of this building code would have a significant impact on the Commonwealth's ability to curb GHG emissions from new buildings.

**Transportation Climate Initiative (TCI).** TCI is a collaborative effort among states in the Mid-Atlantic and Northeast that prioritizes clean transportation investment and emissions reduction from motor vehicles. A key feature will be the establishment of a pollution "allowance" and trading system among fuel suppliers. Furthermore, the TCI members pledged that 35% of the proceeds in each jurisdiction would go toward environmental and transportation justice causes, ensuring that historically underserved groups have access to transportation systems and are not overburdened by transportation pollution.<sup>6</sup>

### The Regional Greenhouse Gas Initiative (RGGI).

RGGI is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia to cap and reduce power sector CO<sub>2</sub> emissions. RGGI is composed of individual CO<sub>2</sub> Budget Trading Programs in each participating state that limit emissions of CO<sub>2</sub> from electric power plants, issue CO<sub>2</sub> allowances, and establish participation in regional CO<sub>2</sub> allowance auctions. It is the first mandatory, market-based CO<sub>2</sub> emissions reduction program in the United States.<sup>7</sup>

In the coming weeks and months, the implementation and/or adoption of these plans, laws, and programs could significantly impact the technical, financial, and political support that municipalities like Weston have to achieve decarbonization and resilience goals.

# COMMUNITY SNAPSHOT

The Weston Ahead Plan is designed with the specific social, economic, and physical characteristics of our community in mind. The following section provides a brief overview of some of these key characteristics. Unless otherwise specified, all data are from the 2015-2019 American Community Survey 5-year estimates.<sup>8</sup>

## DEMOGRAPHICS

**12,124\***

2019 POPULATION ESTIMATE

**82.8%**

OF WESTON RESIDENTS 25 AND OLDER HAVE A BACHELOR'S DEGREE OR HIGHER

**17.6%**

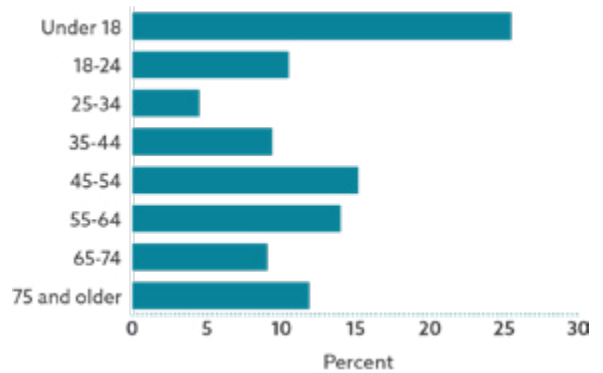
OF WESTON'S POPULATION IS FOREIGN-BORN

**20.1%**

OF THE POPULATION SPEAKS A LANGUAGE OTHER THAN ENGLISH AT HOME

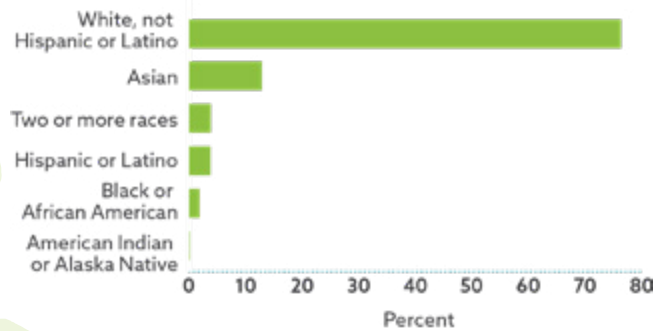
\* U.S. Census Bureau, Population Estimates Program (PEP), 2019, <https://www.census.gov/quickfacts/westontownmiddlesexcountymassachusetts>

### Age of Weston Residents\*



\* U.S. Census Bureau, Population Estimates Program (PEP), 2019, <https://www.census.gov/quickfacts/westontownmiddlesexcountymassachusetts>

### Race of Weston Residents





## Income



**\$207,702**

MEDIAN HOUSEHOLD  
INCOME



**7.6%**

OF WESTON RESIDENTS  
ARE LIVING IN POVERTY

## Housing

**85.8%**

OF HOUSING UNITS ARE  
OWNER-OCCUPIED

**3.82%**

OF HOUSING MEETS 80% AREA  
MEDIAN INCOME (AMI)  
AFFORDABILITY LEVELS



**\$1.3 M**

MEDIAN VALUE OF OWNER-  
OCCUPIED HOUSING UNITS



# CLIMATE CHANGE IN WESTON

Like most Massachusetts communities, Weston has seen an increase in the frequency and severity of intense storm events, flooding, drought, and extreme heat. These trends, which are predicted to worsen in the coming years, affect the health of the Town's residents, its natural resources, and its infrastructure.



## INTENSE STORMS

AT-A-GLANCE	
FROM 1958-2012	BY 2050
<b>71%</b> INCREASE IN STORM INTENSITY	<b>6"</b> INCREASE IN PRECIPITATION PROJECTED



With increased storm intensities comes increased clean up costs.

More intense rain and wind from increased severe weather can lead to property damage.



Nor'easters, ice storms, blizzards, hurricanes, and heavy rain events lead to downed trees, power outages, and property damage.

### TRENDS

The Northeast has already seen a **71% increase** in the intensity of storm events from 1958-2012.<sup>9</sup>

### PROJECTIONS

Climate science indicates that intense storms will continue to increase in both frequency and intensity. Overall, annual precipitation is expected to increase by up to **6 inches by 2050**.<sup>10</sup>

### IMPACTS

Power outages leading to school and business closures.

Increased risk for populations that are dependent on power for cooling/heating and medical equipment.

## FLOODING

AT-A-GLANCE	
MARCH 2010	BY 2050
<b>\$35.2 M</b> FLOOD DAMAGE	<b>10+</b> EXTRA DAYS OF RAINFALL OF OVER 1"



Weston's Southside Drainage Project will reduce flooding and flood damage.



Flooded transfer station access road after March 2010 storm.



A single intense downpour can cause serious flooding, which can damage critical facilities and infrastructure or close essential roads.

### TRENDS

Middlesex County saw \$35.2 million worth of damage from flooding in March 2010.<sup>11</sup> The Town has already invested \$3 million of a total \$5.9 million for the Southside Drainage Project, just one of the many efforts underway to upgrade Weston's stormwater infrastructure.<sup>12</sup>

### PROJECTIONS

Climate projections indicate that by 2050, we can expect up to **10 more days per year** with precipitation of more than 1 inch. The increase in the frequency of high-intensity rainfall events will result in an increased risk of flooding.<sup>13</sup>

### IMPACTS

Flooding of roads and areas along local tributaries and ponds.

Property damage from flooded basements.





## DROUGHT

### AT-A-GLANCE

IN 2016

**90%**

OF MASS WAS IN A SEVERE DROUGHT

**52%**

OF MASS WAS IN AN EXTREME DROUGHT



Weston has the highest water consumption rates in the state.



Drought conditions in Mass in 2016.

Precipitation will be concentrated in fewer storm events. This can lead to water supply shortages, crop damage, and habitat stress.

### TRENDS

In 2016, Massachusetts faced its most severe drought since the 1960s. Several other severe droughts occurred in the intervening years, including four categorized at the “watch” level and two at the “warning” level.

### PROJECTIONS

Extended periods of little to no precipitation coupled with rising temperatures are projected to increase the frequency of short-term droughts.<sup>14</sup>

### IMPACTS

Stress on local wetlands, which currently make up 18% of Town land.

Effects of **drought exacerbated by Weston’s high water consumption** rates.



## HEAT WAVES

### AT-A-GLANCE

BY 2050

**10-35**

MORE DAYS OVER 90° F

**17-39**

FEWER DAYS UNDER 32° F



Weston summers are projected to feel more like those of South Carolina.

Without greenhouse gas emissions reductions driven by climate action initiatives, the Mass climate will continue to heat up.



An increase in the number of days with high temperatures—particularly days over 90° F—will lead to heat-related illnesses and higher energy demand in the summer.

### TRENDS

There were **11.5 days per year above 90°F** between 2010 and 2014—the highest number since 1950.<sup>15</sup>

### PROJECTIONS

Increase in the number of days over 90°F by 2050: **10-35**.

Decrease in the number of days under 32°F by 2050: **17-39**.<sup>16</sup>

### IMPACTS

Disruption to kids’ focus on hot days in schools without A/C.

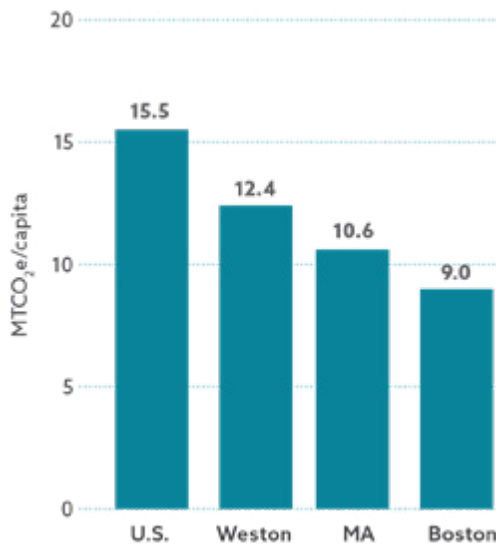
Heat-related illnesses in elderly residents.

Increase in vector-borne diseases, like Eastern equine encephalitis (EEE) and Lyme disease.

# GREENHOUSE GAS INVENTORY SUMMARY

A central component of Weston Ahead is the identification of actions that will mitigate the Town’s contribution to climate change and reduce greenhouse gas (GHG) emissions. As part of the planning process, the Town completed a GHG Inventory for a baseline year of 2018 to understand the key sources and quantities of emissions. The inventory serves as a baseline for identifying areas where additional actions may have the greatest potential for reducing GHGs and as a benchmark for tracking reductions over time. The full GHG Summary Report can be found in **Appendix B**.

## Local, State, and U.S. GHG Emissions Per Person

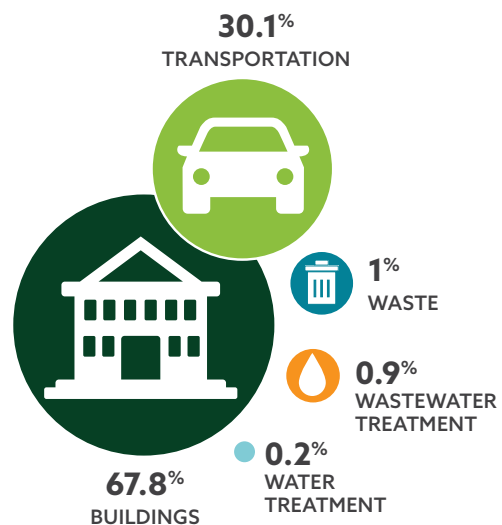


At 12.4 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e)/person, Weston’s community-wide per capita emissions were lower than the national average, but higher than both the Massachusetts state average and that of Boston. While Boston is expected to have a lower per capita emissions rate due to its density and proximity to transit, Weston’s above-average rate compared to the rest of the state demonstrates a need for community emissions reductions.

Portion of community GHG emissions that come from buildings.

68%

## Weston Community GHG Emissions by Sector



Community greenhouse gas emissions are those created through the activities by residents, visitors, and workers in Weston. The majority of community GHG emissions—nearly 68%—come from buildings. Of total building emissions, the majority (coincidentally also 68%) come from the residential sector. For Weston to achieve its goal of net zero carbon emissions by 2050, reduction measures will need to target Weston’s homes.

- 68% RESIDENTIAL
- 32% COMMERCIAL, MUNICIPAL, INSTITUTIONAL

Transportation is the second-largest sector contributor, accounting for approximately 30% of emissions in 2018. Private vehicle use is the primary culprit—especially older, non-electric vehicles. A shift towards more use of mass transit and electrified vehicles could have a significant impact on Weston’s overall emissions.

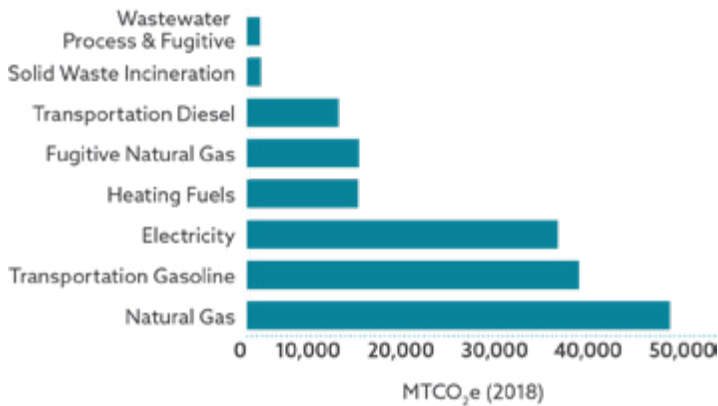


TOTAL EMISSIONS  
IN 2018

**150,142**  
MTCO<sub>2</sub>e



**Weston Community GHG Emissions by Source**



\* Fugitive natural gas refers to the direct releases of natural gas from leaking infrastructure. The level of fugitive natural gas in Weston was estimated based on the average leakage rate for the region.

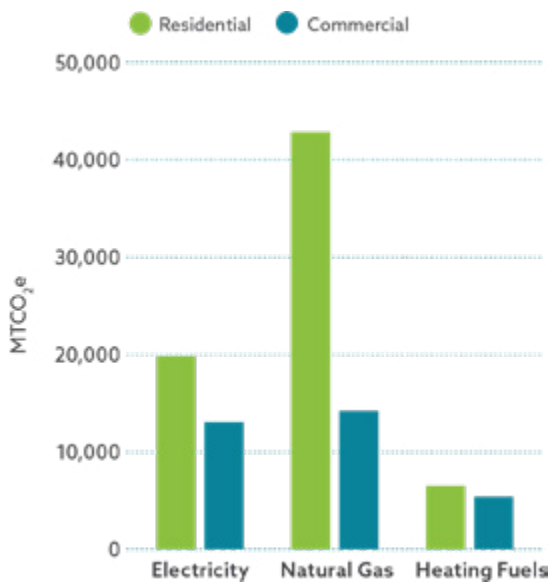
Natural gas was the single largest source of GHG emissions in the community. Switching from natural gas, propane, and fuel oil to electric heating, cooling and other equipment powered by 100% clean electricity would reduce 38% of total GHG emissions!

Total GHG emissions would be reduced by

**38%**

if buildings and equipment were powered by 100% electricity.

**Weston Residential (R) and Commercial (C) MTCO<sub>2</sub>e by Fuel**



The residential sector accounted for

**75%**

of natural gas usage in 2018, underscoring the importance of strategies to reduce GHGs in Weston's homes.

# DEVELOPING WESTON AHEAD

## Engaging the Community

Community engagement and input were critical to the success of the Weston Ahead planning process. While the COVID-19 public health crisis meant engagement looked a bit different than we were used to, creative solutions kept the Project Team in close communication with the public throughout the process. Online survey responses, interviews with stakeholders, and discussions with focus groups all helped shaped the Plan's goals, actions, and implementation steps. Community education—through fact sheets, trainings, social media posts, and a Climate Action Toolkit for residents—was also a core component of the planning process, building a culture and capacity for climate action throughout Weston. **Appendix C** contains additional details and materials for all engagement activities.





## Planning Process

Weston Ahead is the result of a collaborative effort involving residents, Town officials, and technical experts.

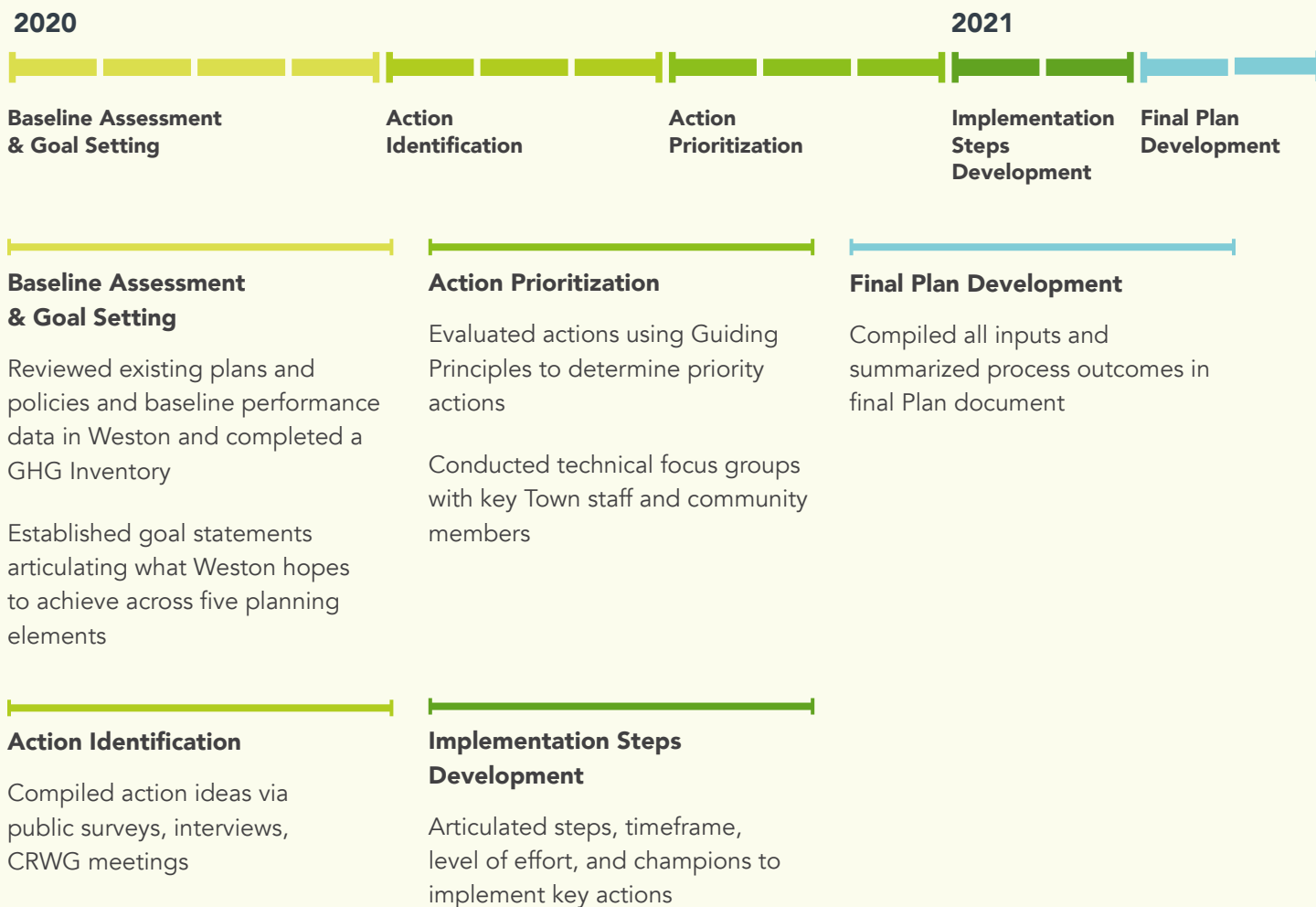
Project leaders included:

- Climate Resilience Working Group (CRWG):** Group of technical experts and community leaders who advised and supported the climate action planning process, and provided guidance on goals, priority actions, and implementation steps.
- Town Project Team:** Town management, volunteers, and consultant team who organized the planning process and synthesized all public feedback to develop the final Plan.



### Weston Ahead Planning Approach and Timeline

The Project Team took the following steps to develop Weston Ahead, beginning in spring 2020:





## Weston Ahead Vision

The Weston Ahead team developed the following vision to serve as the guidepost for the planning process.

The Town of Weston will continue to flourish as a sustainable and resilient home to climate-smart residents, businesses, and institutions. In addition to preserving our natural resource assets, we will prioritize health and equity while adapting to changing climate conditions and reducing our own contribution of greenhouse gas emissions. In order to align with the state's mid-century carbon neutrality goals, the Town is committed to:

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## PLANNING ELEMENTS & GUIDING PRINCIPLES

To pursue this vision, Weston Ahead focuses on five Planning Elements.



### HEALTHY NATURAL ECOSYSTEMS

Preserving and enhancing the health of Weston's waterways, plants, wildlife, and open spaces.



### CONNECTED MOBILITY

Creating a safe, connected, and accessible transportation system that prioritizes low-carbon transportation methods and seeks to reduce greenhouse gas emissions.



### SMART & EFFICIENT BUILDINGS

Encouraging the shift to resilient and efficient buildings that minimize the greenhouse gas emissions required to heat, cool, and power them.



### RESILIENT INFRASTRUCTURE & SERVICES

Enhancing Weston's infrastructure, utilities, and critical services to be resilient to the impacts of climate change.



### SUSTAINABLE RESOURCE CONSUMPTION

Promoting processes that reduce the amount of waste sent to the landfill, encourage reduced water usage, and support locally sourced products.

Each action identified in the Plan was evaluated based on its ability to help Weston meet six Guiding Principles. These Guiding Principles represent Weston's priorities as a community, helping to ensure that the Plan meets our values and expectations.



### REGENERATION



### RESILIENCE



### GOOD GOVERNANCE



### REGIONAL COLLABORATION



### GREENHOUSE GAS EMISSIONS REDUCTIONS



### EDUCATION & COMMUNITY AWARENESS



# THE PATH AHEAD

## Summary Table of Goals and Actions

The following matrix summarizes, for each Planning Element, Weston’s goals and proposed actions. Additional details on the actions in the Plan can be found within each Element section.

ID	ACTION	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	LEVEL OF EFFORT	OTHER PLAN ELEMENTS SUPPORTED
----	--------	------------------------------------	------------	-----------------	-------------------------------



### CONNECTED MOBILITY

CM.1: Everyone has access to low-carbon or zero-carbon multi-modal transportation options to commute and get around Weston.					
CM.1.1	Implement an educational campaign for residents about the benefits of electric vehicles	+	/	LOW	
CM.1.2	Transition the municipal fleet, including public safety vehicles and school buses, to electric vehicles through a vehicle replacement policy and transition plan.	+	+	HIGH	
CM.1.3	Enlarge parking lots at MBTA stations to encourage use of the commuter rail	+	/	MEDIUM	
CM.1.4	Explore the feasibility of expanding the use of existing Town shuttle services to create connections to existing transit stations and frequently visited town locations	+	+	MEDIUM	
CM.1.5	Expand and improve bicycle and pedestrian facilities, connectivity, convenience, and/or safety in a manner that significantly increases the % of trips taken by walking or biking	+	+	MEDIUM	
CM.1.6	Encourage electric vehicle adoption by residents and businesses by prioritizing EV infrastructure in all future public projects and at Town buildings	+	/	LOW	
CM.2: Future development in Weston prioritizes walkability, bikeability, accessibility, and connectivity, while fostering affordability and inclusivity.					
CM.2.1	Support regional transportation planning and implementation efforts.	+	/	LOW	
CM.2.2	Make popular transportation corridors and recreation spaces age-friendly and accessible	/	+	MEDIUM	
CM.2.3	Promote connectivity between housing, employment centers, open space, and transit options	+	+	MEDIUM	



HEALTHY NATURAL ECOSYSTEMS



CONNECTED MOBILITY



SMART & EFFICIENT BUILDINGS



RESILIENT INFRASTRUCTURE & SERVICES



SUSTAINABLE RESOURCE CONSUMPTION

+ POSITIVE / NEUTRAL - NEGATIVE

Level of Effort Anticipated to Complete the Action

LOW: can be implemented with existing internal resources (existing budget/staff time)

MEDIUM: requires additional staff time, training, or one-time newly contracted technical services

HIGH: will require new hire(s) (FTE or long-term contracted services) and/or permanent change to job description(s)



ID	ACTION	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	LEVEL OF EFFORT	OTHER PLAN ELEMENTS SUPPORTED
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## HEALTHY NATURAL ECOSYSTEMS

HNE.1: Natural resources are preserved and enhanced through sustainable management practices and regulations.					
HNE.1.1	Implement an educational campaign on low-impact landscaping strategies and options for native and pollinator friendly habitats in partnership with homeowners and landscapers	/	+	MEDIUM	
HNE.1.2	Successfully manage Weston's public and private trees through a Tree Management Plan and a tree bylaw based on public outreach and education.	/	+	MEDIUM	
HNE.1.3	Educate and engage residents about invasive species and how to manage them	/	/	LOW	
HNE.1.4	Explore the interest in and feasibility of expanding Weston's community garden	/	+	LOW	
HNE.2: Trails and protected open space create a connected network of healthy habitats and accessible recreation options.					
HNE.2.1	Acquire or protect important environmental, recreational, historic, or scenic parcels	/	+	LOW	
HNE.2.2	Increase the promotion, accessibility, and equitable use of open spaces through targeted recreational programs and compliance with ADA standards	/	/	MEDIUM	
HNE.3: Air and water quality meet or exceed state and federal standards.					
HNE.3.1	Establish a Dark Sky Ordinance (to limit light pollution, protect the health of humans and wildlife, and save energy)	/	/	LOW	
HNE.3.2	Implement a wetlands bylaw to protect Weston's wetland ecosystem	/	+	LOW	
HNE.3.3	Develop a Watershed Protection Plan	/	+	MEDIUM	



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# THE PATH AHEAD CONTINUED

ID	ACTION	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	LEVEL OF EFFORT	OTHER PLAN ELEMENTS SUPPORTED
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## RESILIENT INFRASTRUCTURE AND SERVICES

RIS.1: Weston's critical infrastructure and services are resilient to the impacts of climate change.					
RIS.1.1	Pilot a solar and battery backup system to ensure resilient Town government operations in the event of a big storm and develop a plan to expand pilot to more buildings	+	+	HIGH	
RIS.1.2	Coordinate with Eversource to develop tree trimming standards to minimize power outages and ensure tree health	/	+	LOW	
RIS.1.3	Expand the Town's capacity to reach all residents with emergency and routine communications	/	+	LOW	
RIS.1.4	Collaborate with communities within our watershed on climate resilience	/	+	LOW	
RIS.1.5	Pilot a GeoMicro District (a community-scale underground system that uses a ground-source heat pump to supply hot water to homes, in lieu of natural gas use)	+	+	HIGH	
RIS.2: All future projects incorporate green infrastructure and low impact development best practices where appropriate.					
RIS.2.1	Research and consider incentives to reduce the amount of impervious surface on a property	/	+	LOW	
RIS.3: Weston is equipped with efficient and well-maintained utilities.					
RIS.3.1	Continue identifying and eliminating gas leaks	+	+	LOW	
RIS.3.2	Conduct a survey of the water distribution system and establish a routine monitoring system with real-time leak detection	/	+	MEDIUM	
RIS.3.3	Promote Weston Power Choice to residents and encourage opting up to 100% clean electricity	+	/	LOW	
RIS.3.4	Develop a culvert master plan to understand key vulnerabilities and replace or daylight aging culverts	/	+	MEDIUM	
RIS.3.5	Create a roadmap to power Town operations with 100% renewable energy	+	+	LOW	



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ID	ACTION	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	LEVEL OF EFFORT	OTHER PLAN ELEMENTS SUPPORTED
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## SMART AND EFFICIENT BUILDINGS

SEB.1: Existing buildings are energy efficient and utilize renewable energy, while preserving historic features.					
SEB.1.1	Install solar on or around municipal buildings and schools	+	/	MEDIUM	
SEB.1.2	Refine and adopt more stringent green building and energy standards for Town buildings	+	+	LOW	
SEB.1.3	Develop a local strategy and enact programs to drive replacement of fossil fuel-fired space and water heating systems with high efficiency electric heat pump and similar technologies in new and existing buildings	+	+	HIGH	
SEB.1.4	Create and promote voluntary home energy assessment, education, and upgrade program(s) that will achieve deep energy savings in homes	+	/	LOW	
SEB.1.5	Create and promote a voluntary solar education and installation program for homeowners and businesses	+	/	LOW	
SEB.1.6	Require energy upgrades at trigger events for all buildings (e.g., time of sale, change of occupancy)	+	+	MEDIUM	
SEB.1.7	Advocate at the state level for significant renewable energy and building energy efficiency standards and funding	+	/	LOW	
SEB.2: All new buildings meet net zero energy building standards.					
SEB.2.1	Adopt green building and energy standards for new private buildings, with a target to achieve net zero energy	+	/	LOW	
SEB.3: New development minimizes negative impacts on the environment.					
SEB.3.1	Update building code to require water conservation measures (e.g., grey water infrastructure, drought resistant landscaping) in new construction and renovations	+	+	LOW	
SEB.4: Both municipal and community energy use prioritizes the significant reduction of greenhouse gas emissions.					
SEB.4.1	Require commercial, multi-family and large institutions (schools, churches) to benchmark and report their energy performance once a year	+	/	MEDIUM	



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SMART &  
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SUSTAINABLE  
RESOURCE  
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# THE PATH AHEAD CONTINUED

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## SUSTAINABLE RESOURCE CONSUMPTION

SRC.1: Efficient systems and consumption practices minimize indoor and outdoor water use.					
SRC.1.1	Improve tracking of water use with smart water meters, and make data available and actionable	/	+	MEDIUM	
SRC.1.2	Implement an educational and incentive program to prevent excessive water consumption at Town sites, residences, and local institutions (schools, churches, etc.)	/	+	LOW	
SRC.2: Weston implements and promotes resource conservation, waste reduction, and elimination of toxic products.					
SRC.2.1	Establish zero waste goals and expanded waste reduction programs (education/incentives for waste prevention, composting, and recycling) in all municipal buildings, starting with schools	+	/	MEDIUM	
SRC.2.2	Incentivize and educate about opportunities for recycling and upcycling of household materials, and construction and demolition waste	+	/	LOW	
SRC.2.3	Implement regulations for private haulers to reduce household trash	+	/	MEDIUM	
SRC.2.4	Implement new programs at the Transfer Station to reduce household trash (e.g. permanent composting, Pay As You Throw, expanded reuse and swap services)	+	/	MEDIUM	
SRC.2.5	Develop waste minimization strategies for all large-scale, public events on municipal property	+	/	LOW	
SRC.2.6	Implement a sustainable purchasing policy for Town government and develop an enforcement plan to ensure EPP is followed by all Town departments	+	/	LOW	
SRC.2.7	Ban single use plastics in businesses and other local establishments	+	/	LOW	
SRC.3: All residents have access to locally produced food and products.					
SRC.3.1	Establish a farm-to-school program that connects local farms to school food supply chains	/	+	MEDIUM	
SRC.3.2	Educate residents and businesses on the benefits on buying locally-sourced products	/	+	LOW	



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## Cross-Cutting Actions

Throughout the planning process, several sustainability and resilience strategies emerged that apply to multiple Plan Elements. The following actions represent broader approaches to sustainability and resilience, such as improved coordination across existing sustainability efforts, funding for sustainability measures, and enhanced engagement and education of Weston residents.

ID	ACTION	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	LEVEL OF EFFORT	OTHER PLAN ELEMENTS SUPPORTED
CC.1	Establish a high school program to support sustainability research, green job exploration, and student led initiatives throughout Town	/	/	MEDIUM	
CC.2	Foster collaboration between all the environmental advocacy groups in Town	/	+	LOW	
CC.3	Create a revolving loan/grant fund for sustainability projects	/	+	MEDIUM	
CC.4	Integrate sustainability into K-12 curricula	/	/	MEDIUM	
CC.5	Integrate sustainability into all Town administrative processes by greening operations, providing regular trainings for staff, and funding for special programs	/	/	MEDIUM	
CC.6	Establish an inter-town climate action competition to encourage regional mobilization to reach climate goals	/	/	MEDIUM	
CC.7	Create a partnership with Weston Media Center to regularly report on resilience and sustainability success stories within Weston	/	/	LOW	



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# CONNECTED MOBILITY

Creating a safe, connected, and accessible transportation system that prioritizes low-carbon transportation methods and seeks to reduce greenhouse gas emissions.



## GOAL STATEMENTS

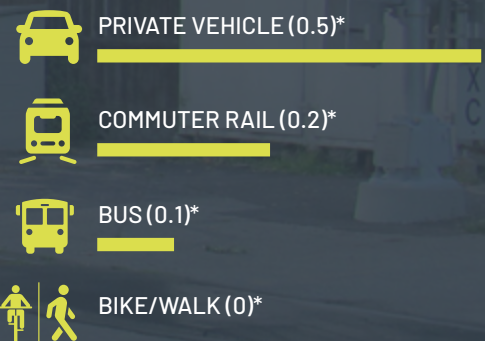
- Everyone has access to low-carbon or zero-carbon multi-modal transportation options to commute and get around Weston.
- Future development in Weston prioritizes walkability, bikeability, accessibility, and connectivity, while fostering affordability and inclusivity.



### Why Does This Matter in Weston? What Are the Opportunities?

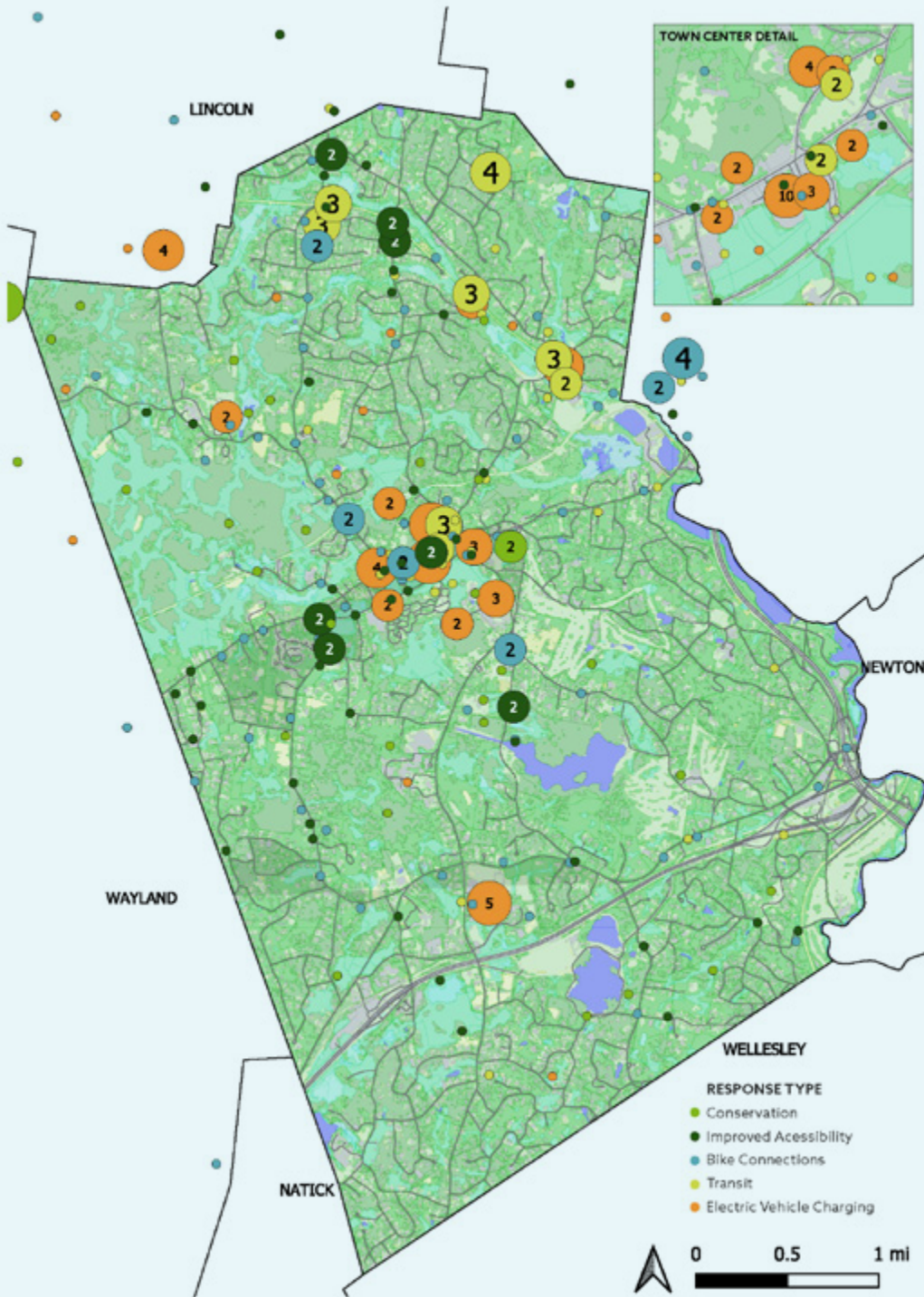
In 2018, 30% of Weston's greenhouse gas emissions came from the transportation sector, and nearly all of those emissions came from private vehicles.<sup>17</sup> Making adjustments to how we get around will allow us to greatly reduce our emissions and create a happy, healthier community. A mix of low-carbon, multi-modal transportation options makes us more resilient to economic, health, and climate impacts that may limit certain transportation options.

Driving a private vehicle is more carbon intensive than riding the Commuter Rail or a bus.



\* kgCO<sub>2</sub>e/miles traveled





An **online survey** asked the public to use a map marking tool to show where they would like to see conservation efforts, improved pedestrian accessibility, bike connections, transit improvements, and electric vehicle charging stations. There was great demand for electric vehicle charging in the Town center, safer pedestrian and bike routes along major roads, and more connections to public transit stops.

### what we heard



I would like to see a connection between the Rail Trail and Kendal Green to encourage biking rather than driving to the Commuter Rail.



Having a bike rack near Brothers would be great since I get my groceries there and don't have time to bike to Hannaford's or Russo's.



I think public chargers are a great idea—wherever there are stores or public parking areas.



I wish my kids could bike to school but crossing Route 20 isn't safe.



It would be great if there was a shuttle service that could go from the center of town to the various nearby transit stops.







## MOVING AHEAD

### Mass Central Rail Trail

Once complete, the Mass Central Rail Trail will be a 104-mile mixed-use path, connecting Boston to Northampton. The Rail Trail Advisory Committee spent three years diligently preparing for the Mass Department of Conservation & Recreation (DCR)-owned recreational asset in Weston. The trail has made Weston a more walkable and bikeable community and promotes health and wellness options for residents and neighbors alike.

## Actions

The following actions map our path towards meeting our mobility goals. Feedback from the online surveys and meetings with the CRWG stressed the importance of safer walking and biking routes, particularly safe crossings across major roads. We also heard the desire for more connectivity in our transportation options—a connected rail trail, a local shuttle, and easier access to the MBTA. The actions further address the need to reduce our greenhouse gas emissions from the transportation sector by encouraging the adoption of electric vehicles and electrifying the Town’s municipal fleet.

+ POSITIVE / NEUTRAL – NEGATIVE    \$ UP TO \$100K    \$\$ \$100K-\$300K    \$\$\$ \$300K OR MORE

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ID	ACTION	ESTIMATED COST TO IMPLEMENTER	LEVEL OF EFFORT	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	EDUCATION & COMMUNITY AWARENESS	GOOD GOVERNANCE & FISCAL RESPONSIBILITY	REGENERATION	REGIONAL COLLABORATION
<b>CM.1:</b> Everyone has access to low-carbon or zero-carbon multi-modal transportation options to commute and get around Weston.									
CM.1.1	Implement an educational campaign for residents about the benefits of electric vehicles	\$	LOW	+	/	+	/	/	/
CM.1.2	Transition the municipal fleet, including public safety vehicles and school buses, to electric vehicles through a vehicle replacement policy and transition plan	\$\$\$	HIGH	+	+	/	+	/	/

ID	ACTION	ESTIMATED COST TO IMPLEMENTER	LEVEL OF EFFORT	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	EDUCATION & COMMUNITY AWARENESS	GOOD GOVERNANCE & FISCAL RESPONSIBILITY	REGENERATION	REGIONAL COLLABORATION
CM.1.3	Enlarge parking lots at MBTA stations to encourage use of the commuter rail	\$\$\$	MEDIUM	+	/	/	/	-	+
CM.1.4	Explore the feasibility of expanding the use of existing Town shuttle services to create connections to existing transit stations and frequently visited town locations	\$	MEDIUM	+	+	/	/	/	/
CM.1.5	Expand and improve bicycle and pedestrian facilities, connectivity, convenience, and/or safety in a manner that significantly increases the % of trips taken by walking or biking	\$\$\$	MEDIUM	+	+	+	/	/	/
CM.1.6	Encourage electric vehicle adoption by residents and businesses by prioritizing EV infrastructure in all future public projects and at Town buildings	\$\$	LOW	+	/	+	+	/	/
<b>CM.2:</b> Future development in Weston prioritizes walkability, bikeability, accessibility, and connectivity, while fostering affordability and inclusivity.									
CM.2.1	Support regional transportation planning and implementation efforts	\$	LOW	+	/	/	+	/	+
CM.2.2	Make popular transportation corridors and recreation spaces age-friendly and accessible	\$\$	MEDIUM	/	+	/	/	/	/
CM.2.3	Promote connectivity between housing, employment centers, open space, and transit options	\$\$	MEDIUM	+	+	/	/	/	+



## Measuring Success

Tracking our progress is essential to successful achievement of Weston Ahead's goals for Connected Mobility. We have identified several metrics and associated targets, listed below. We anticipate this list will continue to evolve as data tracking improves. The Town will report on progress against these metrics at least every two years.

METRIC	BASELINE	2035 TARGET	2050 TARGET
GHG emissions from transportation	45,181 MTCO <sub>2</sub> e (2018) <sup>1</sup>	50% reduction (22,590 MTCO <sub>2</sub> e)	Zero emissions
Percent of registered private vehicles that are electric	<1% (26 vehicles in 2014) <sup>2</sup>	45%	100%
Total Commuter Rail passenger miles	761,834 (2018) <sup>3</sup>	Upward Trend	
Percent of municipal fleet that is electric	0%	100%	
Miles of bike paths	3.1	Upward Trend	

**Notes:**

- 1 Weston Community and Municipal 2018 Greenhouse Gas Emissions Inventory, Town of Weston, 2020
- 2 Massachusetts Vehicle Census: Municipal Summary 2009-2014, MAPC. Recommendation to track this target in the future via Town excise records.
- 3 Commuter Rail Counts: Franklin Line 2018, MassDOT, 2018





# HEALTHY NATURAL ECOSYSTEMS

Preserving and enhancing the health of Weston’s waterways, plants, wildlife, and open spaces.

## GOAL STATEMENTS

- Natural resources are preserved and enhanced through sustainable management practices and regulations.
- Trails and protected open space create a connected network of healthy habitats and accessible recreation options.
- Air and water quality meet or exceed state and federal standards.

### Why Does This Matter in Weston? What Are the Opportunities?

From the Charles River to Cat Rock Conservation Area, Weston’s natural resources are a defining feature of our Town’s character. Not only do these assets provide aesthetic and recreational benefits, but they also play a critical role in mitigating and adapting to climate change. Weston Ahead seeks to protect our natural resources from the impacts of climate change and maximize their ability to mitigate flooding, reduce heat island effect, and improve air and water quality.

#### WESTON HAS<sup>18</sup>:

**~2,000**

ACRES OF CONSERVATION LAND

**~90**

MILES OF TRAILS AND FIRE ROADS MAINTAINED FOR PUBLIC USE





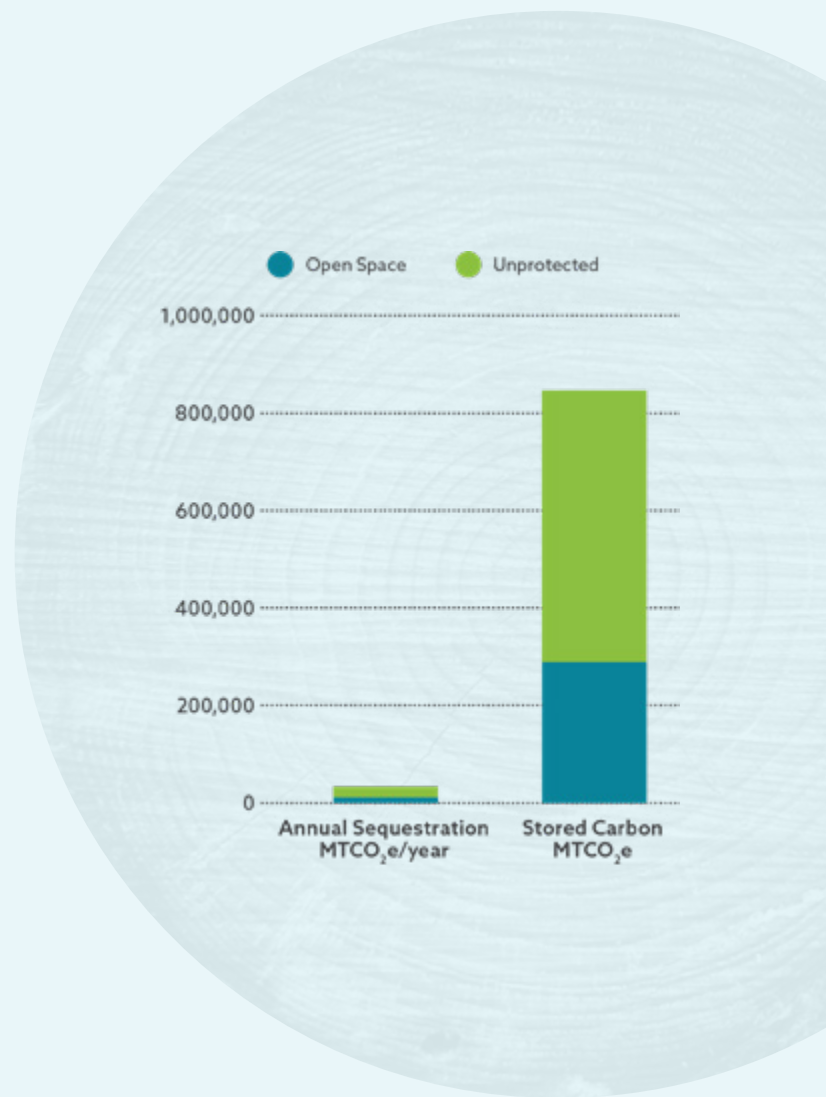


## Weston Annual Sequestration and Carbon Storage

Trees and tree cover are increasingly recognized for their dual role in climate mitigation and adaptation: both providing cooling benefits, stormwater management, wildlife habitat, and carbon storage and sequestration.

Trees in Weston store approximately 5.6 years' worth of the Town's carbon emissions and continue to absorb the equivalent of roughly 22% of the Town's annual emissions each year.<sup>19</sup>

For further information, see [Appendix D: Carbon Sequestration Analysis of Tree Cover in Weston, MA.](#)





## MOVING AHEAD

### Weston Tree Inventory

In 2019, Weston published the results of a three-year tree study that inventoried 15,437 trees within the public right-of-way. The study included species identification, tree condition, and maintenance recommendations. The inventory will be a valuable resource as the Town moves ahead in its efforts to fortify its public trees.

Source: Davey Resource Group, Tree Inventory Summary Report, October 2019.

## Actions

Town stakeholders and the public alike stressed the importance of maintaining and protecting Weston’s natural resources. Through discussions with the Conservation Commission, Weston Forest & Trail Association, and others, the Project Team compiled a key set of actions to protect and enhance those resources. Actions in this section combine education, existing efforts, and additional plans and policies to ensure the continued health of Weston’s ecosystems.

+ POSITIVE / NEUTRAL – NEGATIVE    \$ UP TO \$100K    \$\$ \$100K-\$300K    \$\$\$ \$300K OR MORE

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<b>HNE.1:</b> Natural resources are preserved and enhanced through sustainable management practices and regulations.									
HNE.1.1	Implement an educational campaign on low-impact landscaping strategies and options for native and pollinator friendly habitats in partnership with homeowners and landscapers	\$	MEDIUM	/	+	+	/	+	/
HNE.1.2	Successfully manage Weston’s public and private trees through a Tree Management Plan and a tree bylaw based on public outreach and education	\$	MEDIUM	/	+	/	/	+	/



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HNE.1.3	Educate and engage residents about invasive species and how to manage them	\$	LOW	/	/	+	/	+	/
HNE.1.4	Explore the interest in and feasibility of expanding Weston's community garden	\$	LOW	/	+	+	/	+	/
<b>HNE.2: Trails and protected open space create a connected network of healthy habitats and accessible recreation options.</b>									
HNE.2.1	Acquire or protect important environmental, recreational, historic, or scenic parcels	\$\$	LOW	/	+	/	/	+	/
HNE.2.2	Increase the promotion, accessibility, and equitable use of open spaces through targeted recreational programs and compliance with ADA standards	\$\$	MEDIUM	/	/	/	/	+	/
<b>HNE.3: Air and water quality meet or exceed state and federal standards.</b>									
HNE.3.1	Establish a Dark Sky Ordinance (to limit light pollution, protect the health of humans and wildlife, and save energy)	\$	LOW	/	/	+	/	+	/
HNE.3.2	Implement a wetlands bylaw to protect Weston's wetland ecosystem	\$	LOW	/	+	/	+	+	/
HNE.3.3	Develop a Watershed Protection Plan	\$	MEDIUM	/	+	/	+	+	+



## Measuring Success

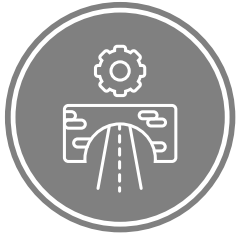
Tracking our progress is essential to successful achievement of Weston Ahead's goals for Healthy Natural Ecosystems. We have identified several metrics and associated targets, listed below. We anticipate this list will continue to evolve as data tracking improves. The Town will report on progress against these metrics at least every two years.

METRIC	BASELINE	2035 TARGET	2050 TARGET
Acres of conservation land	2000 (2017) <sup>1</sup>	Upward Trend	
Miles of trails/fire roads for public use	90 (2017) <sup>1</sup>	Upward Trend	
Percent of tree canopy that is protected	34% (2016) <sup>2</sup>	42%	50%
# of trees on public land	15,437 (2019) <sup>3</sup>	Upward Trend	
Percent of trees in "good", "very good", or "excellent health"	28% <sup>3</sup>	38%	50%

**Notes:**

- 1 Weston Open Space and Recreation Plan, Town of Weston, 2017
- 2 Land Cover/Land Use data layer, MassGIS, 2016; Carbon Sequestration Analysis of Tree Cover in Weston, MA, KLA, 2020
- 3 Weston Tree Inventory, Town of Weston, 2019





# RESILIENT INFRASTRUCTURE & SERVICES

Enhancing Weston's infrastructure, utilities, and critical services to be resilient to the impacts of climate change.



## GOAL STATEMENTS

- Weston's critical infrastructure and services are resilient to the impacts of climate change.
- All future projects incorporate green infrastructure and low impact development best practices where appropriate.
- Weston is equipped with efficient and well-maintained utilities.

## What is Green Infrastructure?

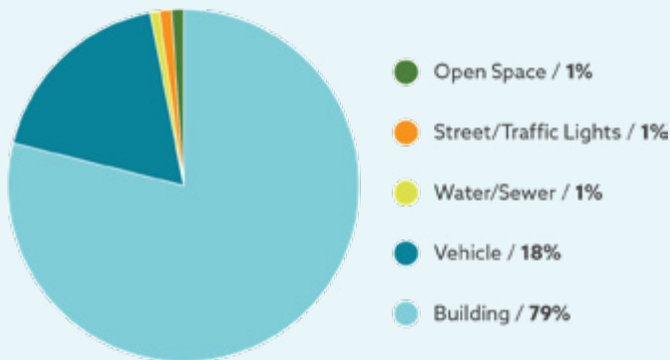
Green infrastructure is a category of cost-effective, nature-based solutions to manage stormwater and provide additional community benefits. Strategies such as rain gardens, bioswales, and permeable pavements increase stormwater infiltration, reducing flooding and harmful runoff that pollutes our water resources. As opposed to the more conventional piped drainage systems, green infrastructure reduces and treats stormwater at its source while delivering environmental, social, and economic benefits.<sup>20</sup> Weston Ahead incorporates these strategies in actions across multiple plan elements.



## Why Does This Matter in Weston? What Are the Opportunities?

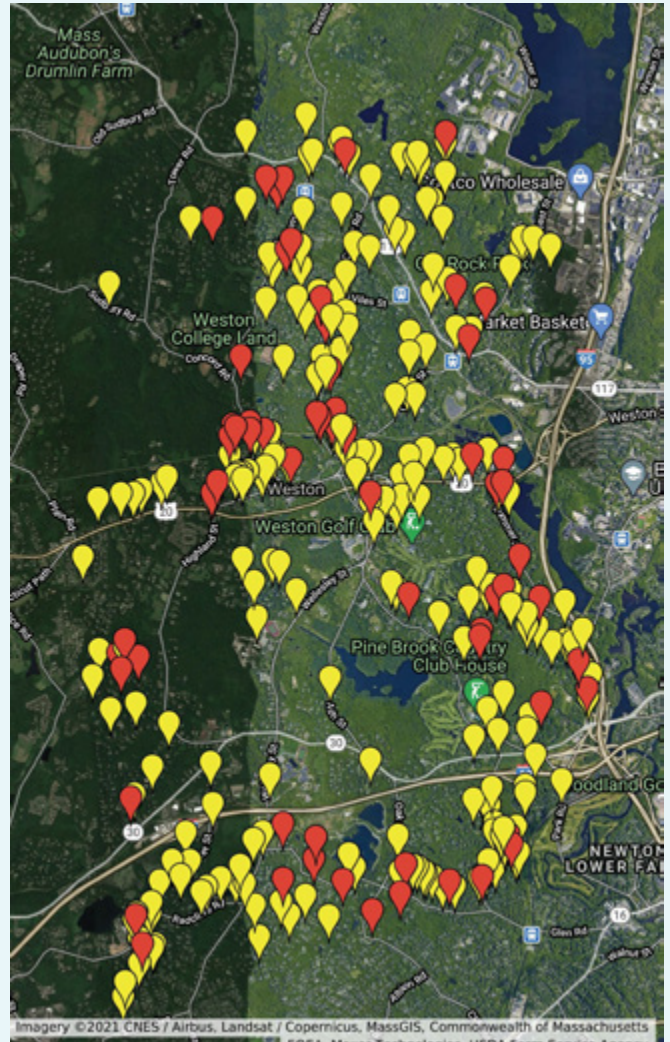
From energy to power our homes, to water to drink, we all depend on efficient and reliable infrastructure to provide our most basic needs. Climate change—in the form of intense storms, heavy precipitation events, extreme heat and prolonged drought—puts a strain on the infrastructure and services on which we rely. Aging pipes, culverts, and water distribution systems can lead to gas leaks, water contamination, and general inefficiencies that are exacerbated by extreme weather events. Developing routine maintenance systems and incorporating green infrastructure are effective ways to proactively prevent damage. Weston Ahead aims to increase the resilience of the Town’s infrastructure and services, while also reducing its impact on the environment by switching to renewable energy sources, bolstering communication systems, and upgrading critical infrastructure.

### Total Municipal Energy Consumption, FY 2019



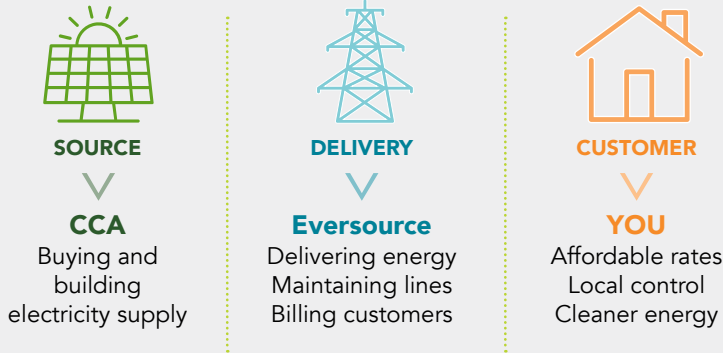
Source: Town of Weston Energy Analysis Summary, MAPC, 2021

Much of the Town’s municipal energy consumption occurs within the Town’s buildings and from its fleet vehicles. Transitioning to renewable energy and installing battery backup systems will not only reduce our greenhouse gas emissions, but will also reduce our vulnerability to power outages caused by extreme weather. Ensuring Town buildings are smart, reliable, and efficient is critical to providing continuity of operations throughout Weston and is discussed further in the Smart and Efficient Buildings chapter.



National Grid Reported Gas Leaks, 2020.

# WestonPower CHOICE



## MOVING AHEAD Weston Power Choice\*

Weston is working to implement Weston Power Choice, an electricity aggregation program that will offer electricity supply options with more renewable energy than currently offered by Eversource. This program can also require higher percentages of local and regional renewable projects in order to decrease reliance on clean energy produced far away. All Weston Eversource Basic Service customers will be automatically enrolled in the program.

\* Program expected to launch in late 2021, pending final State approval.

## Actions

Throughout the planning process, improving the resilience of the electric grid and shifting to renewable energy surfaced as a top priority. In the final public survey, investing in renewable energy systems and enhancing the resilience of essential infrastructure were the most popular areas upon which the public wanted to see Town leadership act. The following actions incorporate those key themes along with eliminating gas leaks, expanding emergency preparedness capacity, increasing subscriptions to Town alerts and news, and protecting our watershed.

+ POSITIVE / NEUTRAL - NEGATIVE \$ UP TO \$100K \$\$ \$100K-\$300K \$\$\$ \$300K OR MORE

Level of Effort Anticipated to Complete the Action

LOW: can be implemented with existing internal resources (existing budget/staff time)

MEDIUM: requires additional staff time, training, or one-time newly contracted technical services

HIGH: will require new hire(s) (FTE or long-term contracted services) and/or permanent change to job description(s)

ID	ACTION	ESTIMATED COST TO IMPLEMENTER	LEVEL OF EFFORT	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	EDUCATION & COMMUNITY AWARENESS	GOOD GOVERNANCE & FISCAL RESPONSIBILITY	REGENERATION	REGIONAL COLLABORATION
<b>RIS.1: Weston's critical infrastructure and services are resilient to the impacts of climate change.</b>									
RIS.1.1	Pilot a solar and battery backup system to ensure resilient Town government operations in the event of a big storm and develop a plan to expand pilot to more buildings	\$\$\$	HIGH	+	+	/	+	/	/
RIS.1.2	Coordinate with Eversource to develop tree trimming standards to minimize power outages and ensure tree health	\$	LOW	/	+	/	+	/	/
RIS.1.3	Expand the Town's capacity to reach all residents with emergency and routine communications	\$	LOW	/	+	+	+	/	/
RIS.1.4	Collaborate with communities within our watershed on climate resilience	\$	LOW	/	+	/	+	+	+



ID	ACTION	ESTIMATED COST TO IMPLEMENTER	LEVEL OF EFFORT	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	EDUCATION & COMMUNITY AWARENESS	GOOD GOVERNANCE & FISCAL RESPONSIBILITY	REGENERATION	REGIONAL COLLABORATION
RIS.1.5	Pilot a GeoMicro District (a community-scale underground system that uses a ground-source heat pump to supply hot water to homes, in lieu of natural gas use)	\$\$\$	HIGH	+	+	+	/	/	/
<b>RIS.2:</b> All future projects incorporate green infrastructure and low impact development best practices where appropriate.									
RIS.2.1	Research and consider incentives to reduce the amount of impervious surface on a property	\$	LOW	/	+	/	/	+	/
<b>RIS.3:</b> Weston is equipped with efficient and well-maintained utilities.									
RIS.3.1	Continue identifying and eliminating gas leaks	\$	LOW	+	+	/	+	/	/
RIS.3.2	Conduct a survey of the water distribution system and establish a routine monitoring system with real-time leak detection	\$\$	MEDIUM	/	+	/	+	/	/
RIS.3.3	Promote Weston Power Choice to residents and encourage opting up to 100% clean electricity	\$	LOW	+	/	+	/	/	/
RIS.3.4	Develop a culvert master plan to understand key vulnerabilities and replace or daylight aging culverts	\$\$\$	MEDIUM	/	+	/	/	+	/
RIS.3.5	Create a roadmap to power Town operations with 100% renewable energy	\$	LOW	+	+	/	+	/	/



## Measuring Success

Tracking our progress is essential to successful achievement of Weston Ahead's goals for Resilient Infrastructure & Services. We have identified several metrics and associated targets, listed below. We anticipate this list will continue to evolve as data tracking improves. The Town will report on progress against these metrics at least every two years.

METRIC	BASELINE	2035 TARGET	2050 TARGET
% of eligible customers in Town enrolled in Weston Power Choice	New metric	100%	
% of municipal electricity from renewable sources	19% (2017) <sup>1</sup>	100%	
% of community electricity from renewable sources	19% (2017) <sup>1</sup>	100%	
% of critical facilities with backup power redundancy	New metric	100%	
# of power outages per year	224 (2020) <sup>2</sup>	Downward Trend	
# of Significant Environmental Impact (SEI) gas leaks	103 (2019) <sup>3</sup>	0	

### Notes:

- 2017 ISO New England Electric Generator Air Emissions Report, ISO New England Inc. System Planning, 2019. Municipal and community baselines reflect percent of renewable energy on the grid as documented in Weston 2018 GHG Inventory. Community baseline reflects lack of community choice aggregation program in 2018.
- MA Outage Report, Eversource, 2020
- Weston Gas Audit, 2019



# SMART & EFFICIENT BUILDINGS

Encouraging the shift to resilient and efficient buildings that minimize the greenhouse gas emissions generated by heating, cooling, and powering them.



## GOAL STATEMENTS

- Existing buildings are energy efficient and utilize renewable energy, while preserving historic features.
- All new buildings meet net zero energy building standards.
- New development minimizes negative impacts on the environment.
- Both municipal and community energy use prioritizes the significant reduction of greenhouse gas emissions.





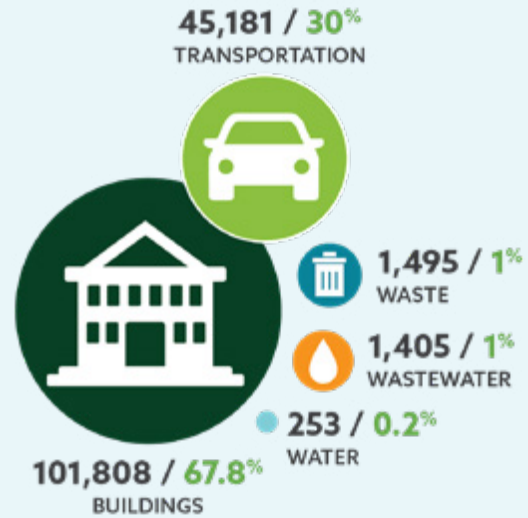
## Why Does This Matter in Weston? What Are the Opportunities?

Weston’s buildings—our homes, offices, historic structures, and institutions—present a tremendous opportunity when it comes to climate action.

**Buildings generate the majority (67.8%) of Weston’s community GHG emissions,<sup>21</sup> so targeting sustainability efforts in this sector will be key to mitigating the Town’s impacts on the climate.**

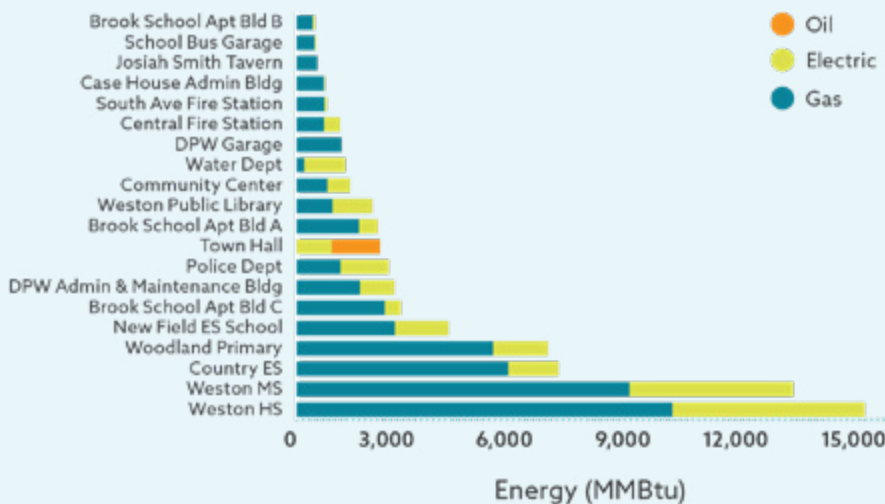
Buildings are also a crucial site for the transition to clean energy. Here, the Town can demonstrate leadership through widespread electrification of its operations, facilitating increased reliance on renewable energy sources as the grid gets cleaner. Furthermore, installing distributed, clean energy to power our buildings while also strengthening our structures has an added benefit of protecting us against the impacts of acute and prolonged climate stressors. All of these activities will be crucial as the Town builds a roadmap to power its operations with 100% clean energy.

### Weston Community Greenhouse Gas Emissions by Sector (MTCO<sub>2</sub>e)



Source: Weston Community and Municipal 2018 Greenhouse Gas Emissions Inventory, 2020.

### Town Facility Energy, FY2019 (Top 20 Facilities)



Source: Town of Weston Energy Analysis Summary, MAPC, 2021.

Town-operated facilities use a lot of energy. As the graph here demonstrates, Weston’s top 20 energy-using facilities rely heavily on gas, and in some cases, oil (both fossil fuels that emit GHGs). Weston schools have some of the highest energy usages, presenting a significant opportunity for efficiency improvements and fuel-switching. Across its facilities, the Town can expand its energy efficiency efforts; electrify appliances and space and water heating/cooling systems; and install more solar power.





## MOVING AHEAD

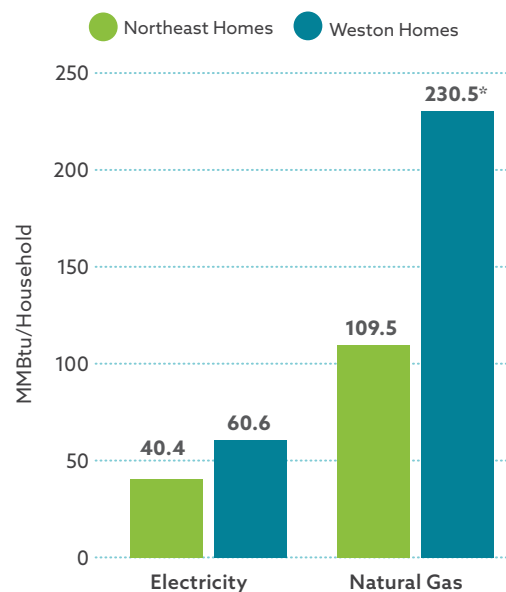
### Field School Rooftop Solar

Solar PV arrays installed on the rooftops of buildings in Weston have the potential to save the Town money while offsetting GHG emissions. A 300kW installation on the roof of the Field School will provide clean electricity to the school, covering approximately 75% of the schools' electricity demand each year. This project is projected to save the Town \$598,000 over 20 years.

Source: Weston Schools, 2020, "Solar Panels Being Installed on Field School Roof." <https://www.westonschools.org/field/blog/2020/02/24/solar-panels-being-installed-on-field-school-roof/>.

The Town's leadership, as well as the introduction of incentives and standards for green development and energy-efficiency, can support residents in taking the initiative in their own homes. Residential buildings make up nearly 70% of community building emissions. Homes in Weston use energy at a higher rate compared to neighboring communities.

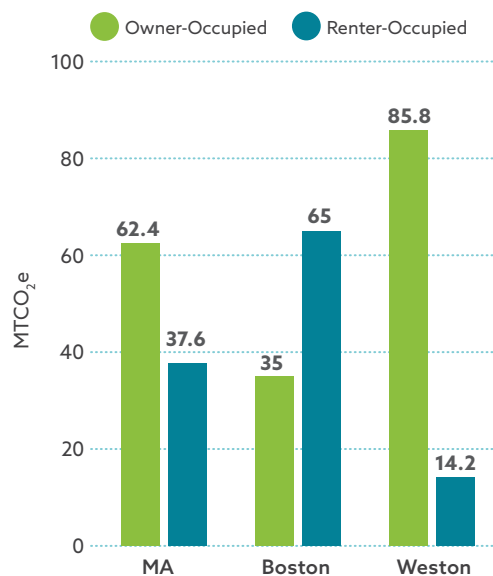
#### Energy Use in Weston Homes vs. the Northeast Average



Source: EIA Residential Energy Consumption Survey (RECS), 2015.  
\*Previously reported as 219.5 MMBtu/Household. Updated to reflect the average among households with gas as primary heating.

The vast majority of homes in Weston are owner-occupied—86%. That's more than the state average of 62%, and over double Boston's 35%. Comparatively speaking, Weston residents have a significant amount of control over the buildings they live in, opening the door for widespread energy use reduction and electrification initiatives. Town-supported education and incentive programs can help homeowners take the first steps.

#### Housing Tenure in Weston



Source: U.S. Census Bureau, American Community Survey (ACS), 5-Year Estimate, 2015-2019.

## Actions

Given the resources required to power buildings in Weston, actions in this Plan Element have the potential for high impact when it comes to reducing energy use and GHG emissions, and promoting a more resilient community. Residents agreed; survey participants emphasized the importance of green municipal buildings and net-zero commercial and residential properties. When asked to indicate the likelihood of pursuing specific sustainability practices, the majority of participants prioritized home energy retrofits. The following actions specify various mechanisms that the Town can leverage—from standards, to incentives, to education programs—to pursue green and net-zero buildings, energy efficiency, and distributed, decarbonized energy resources.

+ POSITIVE / NEUTRAL - NEGATIVE    \$ UP TO \$100K    \$\$ \$100K-\$300K    \$\$\$ \$300K OR MORE

### Level of Effort Anticipated to Complete the Action

LOW: can be implemented with existing internal resources (existing budget/staff time)

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HIGH: will require new hire(s) (FTE or long-term contracted services) and/or permanent change to job description(s)

ID	ACTION	ESTIMATED COST TO IMPLEMENTER	LEVEL OF EFFORT	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	EDUCATION & COMMUNITY AWARENESS	GOOD GOVERNANCE & FISCAL RESPONSIBILITY	REGENERATION	REGIONAL COLLABORATION
<b>SEB.1: Existing buildings are energy efficient and utilize renewable energy, while preserving historic features.</b>									
SEB.1.1	Install solar on or around municipal buildings and schools	\$\$\$	MEDIUM	+	/	+	/	/	/
SEB.1.2	Refine and adopt more stringent green building and energy standards for Town buildings	\$	LOW	+	+	/	+	/	/
SEB.1.3	Develop a local strategy and enact programs to drive replacement of fossil fuel-fired space and water heating systems with high efficiency electric heat pump and similar technologies in new and existing buildings	\$\$\$	HIGH	+	+	/	/	/	/
SEB.1.4	Create and promote voluntary home energy assessment, education, and upgrade program(s) that will achieve deep energy savings in homes	\$	LOW	+	/	+	/	/	/
SEB.1.5	Create and promote a voluntary solar education and installation program for homeowners and businesses	\$	LOW	+	/	+	/	/	/
SEB.1.6	Require energy upgrades at trigger events for all buildings (e.g., time of sale, change of occupancy)	\$	MEDIUM	+	+	/	+	/	/
SEB.1.7	Advocate at the state level for significant renewable energy and building energy efficiency standards and funding	\$	LOW	+	/	/	+	/	+
<b>SEB.2: All new buildings meet net zero energy building standards.</b>									
SEB.2.1	Adopt green building and energy standards for new private buildings, with a target to achieve net zero energy	\$	LOW	+	/	/	/	/	/

ID	ACTION	ESTIMATED COST TO IMPLEMENTER	LEVEL OF EFFORT	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	EDUCATION & COMMUNITY AWARENESS	GOOD GOVERNANCE & FISCAL RESPONSIBILITY	REGENERATION	REGIONAL COLLABORATION
<b>SEB.3:</b> New development minimizes negative impacts on the environment.									
SEB.3.1	Update building code to require water conservation measures (e.g., grey water infrastructure, drought resistant landscaping) in new construction and renovations	\$	LOW	+	+	/	+	+	/
<b>SEB.4:</b> Both municipal and community energy use prioritizes the significant reduction of greenhouse gas emissions.									
SEB.4.1	Require commercial, multi-family and large institutions (schools, churches) to benchmark and report their energy performance once a year	\$	MEDIUM	+	/	+	+	/	/



## Measuring Success

Tracking our progress is essential to successful achievement of Weston Ahead's goals for Smart & Efficient Buildings. We have identified several metrics and associated targets, listed below. We anticipate this list will continue to evolve as data tracking improves. The Town will report on progress against these metrics at least every two years.

METRIC	BASELINE*	2035 TARGET	2050 TARGET
Total GHG emissions from municipal buildings (MTCO <sub>2e</sub> )	4,469 (2018)	2,234 (50% reduction)	Net Zero
Average annual emissions per household (MTCO <sub>2e</sub> )	40.87 (2018)	20.4 (50% reduction)	10.2 (75% reduction)
Residential Natural Gas Use (therms)	6,371,667	4,465,000 <sup>2</sup>	0
Commercial Natural Gas Use (therms)	2,113,263	1,760,000 <sup>2</sup>	880,000
Installed solar capacity	3,400 kW (2021) <sup>1</sup>	7,500 kW	12,000 kW <sup>3</sup>
% of new buildings meeting net zero energy building standards	New metric	100%	
% of homes that are all-electric	1% (44 of 3,706) (2020) <sup>4</sup>	50% (~130 homes electrified per year)	100% (~130 homes electrified per year)

### Notes:

- \* Source for all baseline data, unless otherwise specified: Weston Community and Municipal 2018 Greenhouse Gas Emissions Inventory, Town of Weston, 2020
- 1 Production Tracking System, MassCEC
- 2 Values selected to achieve total 50% reduction in building related GHGs while using 100% clean electricity
- 3 Maximum Capacity estimated with Google Project Sunroof using viable roof % from Wellesley, applied to Weston structures
- 4 Assessor's Database, Town of Weston









# SUSTAINABLE RESOURCE CONSUMPTION

Promoting processes that reduce the amount of waste sent to the incinerator, encourage reduced water usage, and support locally sourced products.



## GOAL STATEMENTS

- Efficient systems and consumption practices minimize indoor and outdoor water use.
- Weston implements and promotes resource conservation, waste reduction, and elimination of toxic products.
- All residents have access to locally produced food and products.





## Why Does This Matter in Weston? What Are the Opportunities?

Reducing resource consumption and disposal, appropriately reusing what we no longer need, and making smart choices about what we consume can have important impacts on the planet and public health. Much of our solid waste in Weston ends up in incinerators, which emit toxic pollutants. Furthermore, buying new products instead of recycling demands the use of additional raw material.

Relying on goods that must travel long distances adds another layer of resource-intensity. Buying local foods, for example, reduces the need for cross-country (or international) shipping. Those foods are fresher and often healthier, too, requiring less processing before

they reach us. Weston is fortunate to be surrounded by a number of local farms and farm stands, such as Land's Sake Farm, Bush Hill Farm, and Viles Farm Stand (which sources from farms in New England). Land's Sake Farm, in particular, intends to scale up production in the coming years to better serve the community.

Finally, with the highest water use rates in the state, mostly from residents, Weston is in an important position to protect this valuable resource that supports our ecosystems, as much as it does our own well-being.





The average Weston household generates approximately

**0.8 tons of trash per year**

(not including recyclables)!  
That's about the weight of a Clydesdale horse!



# Recycling Fast Facts\*

\*Source: Town of Weston, Recycling & Solid Waste, <https://www.westonma.gov/747/Recycling-Solid-Waste>

**50%**  
of the plastic we use globally is used just once and then thrown away

**4x**  
Enough plastic is thrown away globally each year to encircle the earth four times

**17 trees**  
Every ton of paper recycled saves 17 trees and 380 gallons of oil

**70 lbs.**  
The average U.S. citizen throws away 70 lbs. of clothing every year

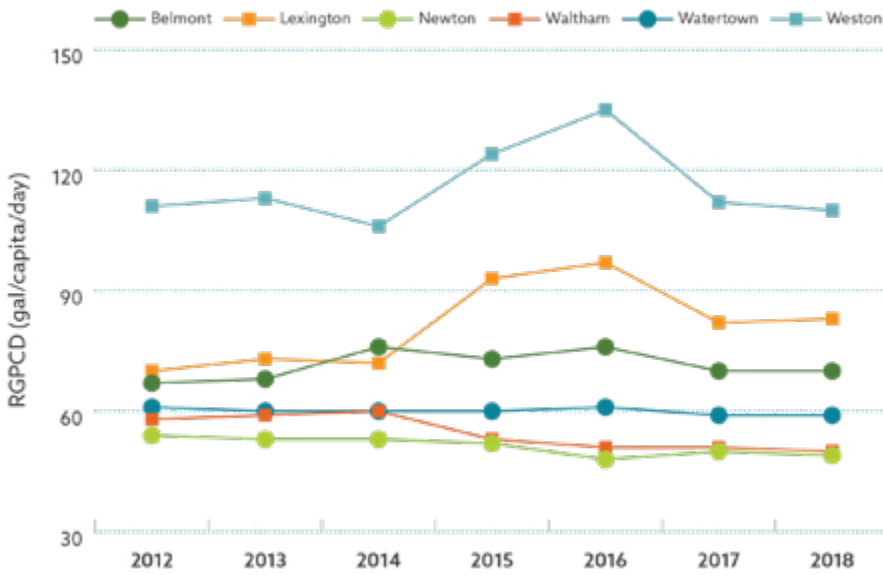
**\$17,000**  
In 2017, Weston saved over \$17,000 in disposal fees by recycling paper

**95%**  
of clothing can be recycled

Most electronics can be recycled at the Weston Transfer Station!

Weston produces approximately 1.76 tons of waste (including trash and recyclables) per household, per year.<sup>22</sup> In 2019, this value was larger than the average household waste of many neighboring Towns. The Town has made some progress in the past several years, however. Weston has its own Transfer Station that allows residents to recycle a vast amount of materials, from cardboard to ink cartridges,<sup>23</sup> keeping recyclables and reusables out of the incinerator/landfill. There are still opportunities to further reduce the amount that we throw away and make strides to achieve zero waste by 2050.

### Historical Water-Use Trends (Residential Gallons Per Capita Per Day)



Source: MassDEP, Water Demand Analysis and Forecast, 2012-2018, <https://www.mass.gov/doc/residential-gallons-per-capita-day-spreadsheet-0/download>.

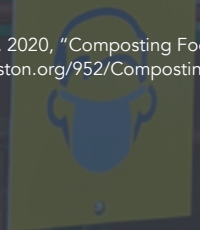
Weston has the highest water use per capita rate in the state and 90% of the Town’s water use comes from residents. Reducing our water consumption is critical, not only because of the importance of clean water to our health, but also because water treatment and distribution requires significant amount of energy—an estimated 840 MWh per year.<sup>24</sup> Actions like improved tracking and educational programs can target residential use to help curb consumption.



### MOVING AHEAD Composting at the Transfer Station

To make composting easier for residents, Weston has initiated a pilot composting program at the Transfer Station. Residents can bring a wide range of food scraps, including many items (like dairy and meat scraps) that often cannot go in backyard composting systems.

Source: Town of Weston, 2020, “Composting Food Waste.” <https://www.weston.org/952/Composting-Food-Waste>





## Actions

When it comes to resource sustainability, progress will require a combination of top-down leadership and engagement on the part of all Weston residents. In the final public survey, waste reduction was among the most prioritized areas for Town action, with water conservation close behind. The following actions provide a pathway for the Town to lead by example, improving consumption data tracking and establishing policies to more effectively manage waste, all while educating residents, students, and businesses on steps they can take to reduce their own resource consumption and buy local.

+ POSITIVE / NEUTRAL - NEGATIVE \$ UP TO \$100K \$\$ \$100K-\$300K \$\$\$ \$300K OR MORE

### Level of Effort Anticipated to Complete the Action

LOW: can be implemented with existing internal resources (existing budget/staff time)

MEDIUM: requires additional staff time, training, or one-time newly contracted technical services

HIGH: will require new hire(s) (FTE or long-term contracted services) and/or permanent change to job description(s)

ID	ACTION	ESTIMATED COST TO IMPLEMENTER	LEVEL OF EFFORT	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	EDUCATION & COMMUNITY AWARENESS	GOOD GOVERNANCE & FISCAL RESPONSIBILITY	REGENERATION	REGIONAL COLLABORATION
<b>SRC.1: Efficient systems and consumption practices minimize indoor and outdoor water use.</b>									
SRC.1.1	Improve tracking of water use with smart water meters, and make data available and actionable	\$\$\$	MEDIUM	/	+	+	/	/	/
SRC.1.2	Implement an educational and incentive program to prevent excessive water consumption at Town sites, residences, and local institutions (schools, churches, etc.)	\$	LOW	/	+	+	/	+	/
<b>SRC.2: Weston implements and promotes resource conservation, waste reduction, and elimination of toxic products.</b>									
SRC.2.1	Establish zero waste goals and expanded waste reduction programs (education/incentives for waste prevention, composting, and recycling) in all municipal buildings, starting with schools	\$	MEDIUM	+	/	+	+	+	/
SRC.2.2	Incentivize and educate about opportunities for recycling and upcycling of household materials, and construction and demolition waste	\$	LOW	+	/	+	/	+	/
SRC.2.3	Implement regulations for private haulers to reduce household trash	\$	MEDIUM	+	/	/	/	+	/
SRC.2.4	Implement new programs at the Transfer Station to reduce household trash (e.g. permanent composting, Pay As You Throw, expanded reuse and swap services)	\$\$\$	MEDIUM	+	/	+	+	+	/
SRC.2.5	Develop waste minimization strategies for all large-scale, public events on municipal property	\$	LOW	+	/	/	+	+	/
SRC.2.6	Implement a sustainable purchasing policy for Town government and develop an enforcement plan to ensure EPP is followed by all Town departments	\$	LOW	+	/	/	+	+	/
SRC.2.7	Ban single use plastics in businesses and other local establishments	\$	LOW	+	/	+	/	+	/

ID	ACTION	ESTIMATED COST TO IMPLEMENTER	LEVEL OF EFFORT	GREENHOUSE GAS EMISSIONS REDUCTION	RESILIENCE	EDUCATION & COMMUNITY AWARENESS	GOOD GOVERNANCE & FISCAL RESPONSIBILITY	REGENERATION	REGIONAL COLLABORATION
<b>SRC.3: All residents have access to locally produced food and products.</b>									
SRC.3.1	Establish a farm-to-school program that connects local farms to school food supply chains	\$	MEDIUM	⊘	+	+	⊘	+	⊘
SRC.3.2	Educate residents and businesses on the benefits on buying locally-sourced products	\$	LOW	⊘	+	+	⊘	+	⊘



## Measuring Success

Tracking our progress is essential to successful achievement of Weston Ahead’s goals for Sustainable Resource Consumption. We have identified several metrics and associated targets, listed below. We anticipate this list will continue to evolve as data tracking improves. The Town will report on progress against these metrics at least every two years.

METRIC	BASELINE	2035 TARGET	2050 TARGET
Diversion rate (tons recycled/total waste)	53% (2019) <sup>1</sup>	80%	100%
Waste generation per household (tons/household)	1.76 (2019) <sup>1</sup>	0.94	0.47
Potable water used per capita (gallons/capita)	49,473 (2018) <sup>2</sup>	36,595	23,725 (2015 State Average) <sup>3</sup>

**Notes:**

- 1 Recycling & Solid Waste Data for Massachusetts Cities & Towns, MassDEP, 2019. Includes recycled material and trash.
- 2 Weston Community and Municipal 2018 Greenhouse Gas Emissions Inventory, Town of Weston, 2020
- 3 Water Demand Analysis and Forecast 2013-2019, MassDEP, 2021





# ENDNOTES

- 1 Executive Office of Energy and Environmental Affairs, MA Decarbonization Roadmap, 2020, <https://www.mass.gov/info-details/ma-decarbonization-roadmap>.
- 2 Executive Office of Energy and Environmental Affairs, Interim Clean Energy and Climate Plan for 2030, 2020, <https://www.mass.gov/info-details/massachusetts-clean-energy-and-climate-plan-for-2030>.
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- 4 Colin A. Young, "Baker Sends Climate Bill Back With Amendments," 2021, <https://www.wbur.org/earthwhile/2021/02/07/baker-sends-climate-bill-back-with-amendments>.
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- 21 Weston Community and Municipal 2018 Greenhouse Gas Emissions Inventory, 2020.
- 22 MassDEP, 2019, Recycling & Solid Waste Data for Massachusetts Cities & Towns. <https://www.mass.gov/lists/recycling-solid-waste-data-for-massachusetts-cities-towns>.
- 23 Town of Weston, 2020, "Recycling & Solid Waste," <https://www.westonma.gov/747/Recycling-Solid-Waste>
- 24 Estimate reflects energy use across the MWRA water supply system.

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# APPENDICES

A. Implementation Blueprints





## SMART & EFFICIENT BUILDINGS

**ACTION:** Green building/energy standards for Town buildings

Refine and adopt more stringent green building and energy standards for Town buildings.

**CHAMPION:** Sustainability Coordinator

**EST. START DATE:** Fall 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Research green buildings and energy efficiency standards at the state level and within other comparable communities to understand best practices.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Permanent Building Committee</li> <li>› Mass Climate Action Network</li> <li>› Green Communities Municipal Coordinator</li> </ul>
2. Assess the Town's existing standards against best practices and identify opportunities to take Town building standards beyond existing LEED Silver certifiable requirements. Consider net zero energy or higher levels of LEED certifiable.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Weston School leadership</li> <li>› Sustainability Committee</li> <li>› Permanent Building Committee</li> <li>› Possible consultant</li> </ul>
3. Conduct outreach to groups directly impacted by changes to standards to gauge challenges and opportunities.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Building Inspector</li> <li>› Historical Commission</li> <li>› Conservation Commission</li> <li>› Select Board</li> <li>› Possible consultant</li> </ul>
4. Develop and adopt revised green building standards for Weston.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Building Inspector</li> <li>› Sustainability Committee</li> <li>› Select Board</li> <li>› Town Manager</li> <li>› Possible consultant</li> </ul>
5. Offer trainings for contractors on compliance with new requirements of the green building standards.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Building Inspector</li> <li>› Contractors</li> </ul>
6. Re-evaluate standards after a period of 3-5 years to keep up to date on technological advancements and account for any necessary changes.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Sustainability Committee</li> <li>› Select Board</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



## SMART & EFFICIENT BUILDINGS (CONTINUED)

### GREEN BUILDING/ENERGY STANDARDS FOR TOWN BUILDINGS

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› Town budget/staff time</li> </ul>	<ul style="list-style-type: none"> <li>› Massachusetts Department of Energy Resources Green Communities Division</li> <li>› <a href="#">Net Zero Energy Playbook, Metropolitan Area Planning Council (2020)</a></li> <li>› <a href="#">Article 22 Green Building Requirements &amp; Dashboard, City of Cambridge</a></li> <li>› <a href="#">Article 37 Green Building and Climate Resilience Guidelines, City of Boston</a></li> <li>› <a href="#">Green Building Standards and Certification Systems, Whole Building Design Guide (2019)</a></li> <li>› <a href="#">Green Building Standards, US EPA</a></li> </ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› <b>SEB.2:</b> All new buildings meet net zero energy building standards</li> <li>› <b>SEB.3:</b> New development minimizes negative impacts on the environment</li> <li>› <b>RIS.1:</b> Weston's critical infrastructure and services are resilient to the impacts of climate change</li> <li>› <b>CM.2:</b> Future development in Weston prioritizes walkability, bikeability, accessibility, and connectivity, while fostering affordability and inclusivity</li> </ul>	<ul style="list-style-type: none"> <li>› Ensure that requirements do not disproportionately hurt minority and small contractors by providing trainings and/or incentives</li> </ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Sustainable and resilient design standards for all new municipal construction and major renovations</li> <li>› Guidelines/checklists to assist developers/designers/architects in implementing standards</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Decrease in building energy use intensity (KBtu/sq. ft.)</li> <li>› Decrease in Town greenhouse gas emissions (MTCO<sub>2</sub>e)</li> <li>› Improved indoor air quality</li> </ul>	<ul style="list-style-type: none"> <li>› Lead by example; demonstrate the Town's commitment to bring the private sector along in the transition to decarbonized, green buildings</li> <li>› Highlight the Town's green building success stories to prime the community for widespread green building development and benefits</li> </ul>





## SMART & EFFICIENT BUILDINGS

**ACTION:** Green building/energy standards for private development

Adopt green building and energy standards for new private buildings, with a target to achieve net zero energy.

**CHAMPION:** Sustainability Coordinator

**EST. START DATE:** Fall 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Research net zero energy and green building design regulations at the state level and in other Massachusetts communities to understand how they are implementing and enforcing new standards.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Sustainability Committee</li> <li>› Planning Board</li> <li>› Mass Climate Action Network</li> <li>› Green Communities Municipal Coordinator</li> <li>› Possible consultant</li> </ul>
2. Hold a discussion with key representatives from Town staff and the development community to educate them on the crucial role of buildings in reducing community greenhouse gas emissions and understand challenges/opportunities that accompany net zero development.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Planning Board</li> <li>› Zoning Board of Appeals</li> <li>› Building Inspector</li> <li>› Various Town departments</li> <li>› Developers</li> <li>› Residents</li> <li>› Rotary Club of Wayland &amp; Weston</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Possible consultant</li> </ul>
3. Evaluate the Town’s zoning bylaws to identify opportunities to integrate incentives and/or design standards that encourage or require high energy performance and green building design.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Planning Board</li> <li>› Zoning Board of Appeals</li> <li>› Sustainability Committee</li> <li>› Building Inspector</li> <li>› Possible consultant</li> </ul>
4. Actively track and advocate for the State’s Net Zero Stretch Code.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Planning Board</li> <li>› Town Manager</li> </ul>
5. Adopt State’s Net Zero Stretch Code, upon finalization.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Select Board</li> <li>› Town Manager</li> <li>› Town voters (Town Meeting)</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



## SMART & EFFICIENT BUILDINGS (CONTINUED)

### GREEN BUILDING/ENERGY STANDARDS FOR PRIVATE DEVELOPMENT

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› Town budget/staff time</li> </ul>	<ul style="list-style-type: none"> <li>› <a href="#">Massachusetts’ Governor Must Act to Secure Clean, Affordable Buildings, Claire McKenna &amp; Stephen Mushegan, RMI (2021)</a></li> <li>› <a href="#">Zero Energy Buildings in Massachusetts, USGBC Massachusetts (2019)</a></li> <li>› <a href="#">Codes and Policy Resources, Getting to Zero (n.d.)</a></li> <li>› <a href="#">Article 22 Green Building Requirements &amp; Dashboard, City of Cambridge</a></li> <li>› <a href="#">Article 37 Green Building and Climate Resilience Guidelines, City of Boston</a></li> </ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› <b>SEB.3:</b> New development minimizes negative impacts on the environment</li> <li>› <b>RIS.1:</b> Weston’s critical infrastructure and services are resilient to the impacts of climate change</li> <li>› <b>CM.2:</b> Future development in Weston prioritizes walkability, bikeability, accessibility, and connectivity, while fostering affordability and inclusivity</li> </ul>	<ul style="list-style-type: none"> <li>› Ensure that requirements do no disproportionately hurt minority and small contractors by providing trainings and/or incentives</li> <li>› Ensure that education campaign is widespread and inclusive of all stakeholders</li> </ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Net zero guidelines for all new private construction and major renovations</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Decrease in building energy use intensity (kBtu/sq. ft.)</li> <li>› Decrease in Town greenhouse gas emissions (MTCO<sub>2</sub>e)</li> <li>› Increase in number of new buildings meeting net zero energy building standards</li> </ul>	<ul style="list-style-type: none"> <li>› Publicize availability of rebates/incentives</li> <li>› Prioritize community engagement around anticipated cost savings and health benefits of green buildings</li> </ul>





## SMART & EFFICIENT BUILDINGS

**ACTION:** Building electrification

Develop a local strategy and enact programs to drive replacement of fossil fuel-fired space and water heating systems with high efficiency electric heat pumps and similar technologies in new and existing buildings.

**CHAMPION:** Sustainability Coordinator

**EST. START DATE:** Spring 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Complete an inventory of all gas/oil-fired equipment for each Town building, including data from the Town Capital Plan.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> </ul>
2. Develop a priority list of facility and equipment upgrades based on cost, availability of/eligibility for rebates, and feasibility of replacement. Identify an appropriate pilot location based on replacement cycles and efficiency improvement potential.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Sustainability Committee</li> <li>› Departments corresponding with buildings in which upgrades will occur</li> </ul>
3. Secure funding and then conduct a pilot study of a select Town building (potentially Fire Headquarters or Town Hall) to understand the cost of equipment replacements, changes to power load, anticipated payback, etc.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Sustainability Committee</li> <li>› Departments corresponding with buildings in which upgrades will occur</li> <li>› Green Communities Municipal Coordinator</li> </ul>
4. Secure funding and complete upgrades for pilot building.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Sustainability Committee</li> <li>› Green Communities Municipal Coordinator</li> <li>› Town voters (Town Meeting)</li> </ul>
5. Secure funding to expand electrification assessments and upgrades to all municipal facilities.	<b>LONG</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Sustainability Committee</li> <li>› Departments corresponding with buildings in which upgrades will occur</li> <li>› Green Communities Municipal Coordinator</li> <li>› Town voters (Town Meeting)</li> </ul>
6. Track costs, savings, greenhouse gas reductions, and lessons learned based on pilot and other Town facilities to share with broader community as part of effort to drive electrification of buildings throughout Weston.	<b>LONG</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Public Information Officer</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



**SMART & EFFICIENT BUILDINGS (CONTINUED)**  
**BUILDING ELECTRIFICATION**

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› Massachusetts Department of Energy Resources Green Communities Competitive Grant Program</li> <li>› Town budget</li> </ul>	<ul style="list-style-type: none"> <li>› Massachusetts Department of Energy Resources Green Communities Division</li> <li>› Massachusetts Clean Energy Center</li> <li>› <a href="#">Regulatory Solutions for Building Decarbonization, Rocky Mountain Institute (2020)</a></li> </ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› <b>SEB.2:</b> All new buildings meet net zero energy building standards</li> <li>› <b>HNE.1:</b> Natural resources are preserved and enhanced through sustainable management practices and regulations</li> </ul>	<ul style="list-style-type: none"> <li>› Ensure that assessments and proposed upgrades consider and are mindful of areas without adequate electrical service and in need of infrastructure upgrades (transformer upsizing, electrical switch gear, etc.)</li> </ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Electrification assessments for all municipal buildings</li> <li>› Prioritized list of facilities and buildings for electrification</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Decrease in building energy use intensity (MMBtu/sq. ft.)</li> <li>› Decrease in Town greenhouse gas emissions (MTCO<sub>2</sub>e)</li> <li>› Increase in number of facilities and equipment relying on electricity</li> <li>› Improved indoor air quality</li> </ul>	<ul style="list-style-type: none"> <li>› Launch an education campaign to explain what electrification means and why it matters, as well as to convey actual (versus perceived) costs of shifting technologies</li> <li>› Communicate rebates and resource availability and affordability to residents and businesses (ahead of community roll-out)</li> </ul>





## RESILIENT INFRASTRUCTURE & SERVICES

**ACTION:** Roadmap to 100% renewable energy

Create a roadmap to power Town operations with 100% renewable energy.

**CHAMPION:** Facilities Department & Department of Public Works

**EST. START DATE:** Fall 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Research best practices from other municipalities who have developed and implemented 100% clean energy roadmaps.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Sustainability Coordinator</li> <li>› Sustainability Committee</li> <li>› Mass Climate Action Network</li> <li>› Metropolitan Area Planning Council</li> </ul>
2. Establish a core team for roadmap development.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Sustainability Coordinator</li> <li>› Weston Schools leadership</li> <li>› Sustainability Committee</li> <li>› Purchasing and Bidding</li> <li>› Town Manager</li> </ul>
3. Inventory equipment and facility upgrade and maintenance cycles, as well as available technologies.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Sustainability Coordinator</li> </ul>
4. Conduct an ASHRAE level 2 or level 3 energy audit in all buildings to identify energy conservation measures that will reduce overall Town energy demand.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Sustainability Coordinator</li> <li>› Permanent Building Committee</li> </ul>
5. Develop a draft clean energy roadmap and circulate to appropriate Town staff for input/modifications.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Sustainability Coordinator</li> <li>› Sustainability Committee</li> <li>› Town Manager</li> <li>› Weston Schools leadership</li> <li>› Town Engineer</li> <li>› Historical Commission</li> <li>› Conservation Commission</li> <li>› Permanent Building Committee</li> <li>› Select Board</li> </ul>
6. Finalize clean energy roadmap and implementation framework.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Sustainability Coordinator</li> <li>› Weston Schools leadership</li> <li>› Town Manager</li> <li>› Select Board</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



## RESILIENT INFRASTRUCTURE & SERVICES (CONTINUED)

### ROADMAP TO 100% RENEWABLE ENERGY

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› Massachusetts Department of Energy Resources Green Communities Competitive Grant program</li> </ul>	<ul style="list-style-type: none"> <li>› <a href="#">Net Zero Energy Playbook , Metropolitan Area Planning Council (2020)</a></li> <li>› <a href="#">Guide to Community Energy Strategic Planning, US Department of Energy (n.d.)</a></li> <li>› Clean Energy Workforce Training Capacity Building Curricula, Massachusetts Clean Energy Center (n.d.)</li> <li>› Massachusetts Department of Energy Resources Green Communities Division</li> <li>› <a href="#">Community Energy Strategies, Massachusetts Clean Energy Center (2014)</a></li> <li>› <a href="#">Massachusetts Decarbonization Roadmap, Massachusetts Executive Office of Energy and Environmental Affairs (2021)</a></li> <li>› <a href="#">Clean Energy and Climate Plan for 2030 (draft), Massachusetts Executive Office of Energy and Environmental Affairs (2021)</a></li> </ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› <b>SEB.1:</b> Existing buildings are energy efficient and utilize renewable energy, while preserving historic features</li> <li>› <b>SEB.2:</b> All new buildings meet net zero energy building standards</li> <li>› <b>SEB.3:</b> New development minimizes negative impacts on the environment</li> </ul>	<ul style="list-style-type: none"> <li>› Consult long-standing vendors/contractors – in early phases, the pursuit of greener technologies might limit participation of these partners</li> <li>› Leverage workforce development programs to perform upgrades in Weston</li> </ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Completed 100% clean energy roadmap</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Increase in percent of municipal energy from renewable sources</li> </ul>	<ul style="list-style-type: none"> <li>› Articulate how the roadmap will lead to efficiency gains and savings for the Town</li> <li>› Highlight measures the Town is already taking (e.g., geothermal and solar, building to LEED standard)</li> </ul>



## RESILIENT INFRASTRUCTURE & SERVICES

**ACTION:** Improved Town-resident communications

Expand the Town's capacity to reach all residents with emergency and routine communications.

**CHAMPION:** Public Information Officer

**EST. START DATE:** Winter 2021-2022

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Develop a comprehensive inventory of existing communications services and channels.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Fire Department</li> <li>› Police Department</li> <li>› Department of Public Works, Water Division</li> <li>› Council on Aging</li> <li>› Weston Emergency Reserve Corps</li> <li>› Weston Schools leadership</li> <li>› Health Department</li> <li>› Town Manager</li> </ul>
2. Survey members of the public to understand the reach and value of existing communications, as well as any gaps in existing services/systems. Work with key partner agencies to ensure survey reaches all populations, particularly vulnerable populations (e.g., the elderly, non-English speakers, students).	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Elderly Housing Committee</li> <li>› Weston Emergency Reserve Corps</li> <li>› Town residents</li> <li>› Faith-based organizations</li> <li>› Other town groups (League of Women Voters, Rotary Club of Wayland &amp; Weston, SWAG, etc.)</li> </ul>
3. Identify key gaps based on results of inventory and outreach activities (e.g., insufficient reach to non-English speakers, individuals without cell phones or computers, those who rely on paper versus digital communications, etc.).	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Fire Department</li> <li>› Police Department</li> <li>› Council on Aging</li> <li>› Weston Emergency Reserve Corps</li> <li>› Weston Schools leadership</li> <li>› Health Department</li> <li>› Town Manager</li> </ul>
4. Enhance existing or create new components of communications program in accordance with gap analysis.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Fire Department</li> <li>› Police Department</li> <li>› Council on Aging</li> <li>› Weston Emergency Reserve Corps</li> <li>› Weston Schools leadership</li> <li>› Health Department</li> <li>› Town Manager</li> </ul>
5. Offer trainings for contractors on compliance with new requirements of the green building standards.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Building Inspector</li> <li>› Contractors</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE





**RESILIENT INFRASTRUCTURE & SERVICES (CONTINUED)**  
**IMPROVED TOWN-RESIDENT COMMUNICATIONS**

<p>6. Re-evaluate standards after a period of 3-5 years to keep up to date on technological advancements and account for any necessary changes.</p>	<p><b>SHORT</b></p>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Sustainability Committee</li> <li>› Select Board</li> </ul>
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FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› Town budget/staff time</li> </ul>	<ul style="list-style-type: none"> <li>› <a href="#">Best Practices for Municipal Communications: A Report to the Town of Lexington, MA Select Board, Lexington 20/20 Vision Committee (2020)</a></li> <li>› <a href="#">Ensuring Emergency Preparedness Planning is Inclusive: Serving Individuals with Disabilities and Access and Functional Needs, FEMA (2018)</a></li> </ul>

LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› None</li> </ul>	<ul style="list-style-type: none"> <li>› Consider the needs of elderly populations, many of whom may have landlines instead of cell phones</li> <li>› Expand non-digital methods of awareness-raising, such as door-knocking, flyers, and public announcements via fire trucks</li> <li>› Ensure all communications are accessible to non-English speakers</li> <li>› Engage students, including Regis College students, by coordinating with appropriate administrators</li> </ul>

MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Emergency preparedness, communications, and response program inclusive of all residents</li> <li>› Non-digital, multimedia, and multilingual communications channels</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Increase in percent of residents enrolled in Weston Alerts</li> </ul>	<ul style="list-style-type: none"> <li>› Convey clearly the “why” behind emergency and routine communications</li> <li>› Publicize existing alerts and communications channels</li> <li>› Consider signage around town, situated centrally, including message boards</li> <li>› Engage community groups, like social services organizations and faith institutions, to spread the word</li> </ul>



## RESILIENT INFRASTRUCTURE & SERVICES

**ACTION:** Culvert master plan

Develop a culvert master plan to understand key vulnerabilities and replace or daylight aging culverts.

**CHAMPION:** Department of Public Works, Engineering Division

**EST. START DATE:** Spring 2022

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Inventory the scope and status of existing and past culvert vulnerability assessments.	<b>SHORT</b>	› Conservation Administrator
2. Evaluate gaps in past vulnerability assessments in terms of their inclusion of up-to-date climate impact projections and scope.	<b>SHORT</b>	› Conservation Administrator › Floodplain Manager
3. Model stormwater infrastructure omitted from past assessments, as well as those included in out-of-date assessments, against projected climate impacts.	<b>MEDIUM</b>	› Water resources consultant › Floodplain Manager › Charles River Watershed Association
4. Develop and prioritize list of upgrades to stormwater infrastructure.	<b>MEDIUM</b>	› Conservation Administrator › Floodplain Manager
5. Secure funding for culvert replacement/upgrade work to start in FY 23.	<b>SHORT</b>	› Town Manager › Select Board › Town voters (Town Meeting)

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



## RESILIENT INFRASTRUCTURE & SERVICES (CONTINUED)

### CULVERT MASTER PLAN

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› <a href="#">Municipal Vulnerability Preparedness Action Grant Program, Massachusetts Executive Office of Energy and Environmental Affairs</a></li> <li>› <a href="#">Culvert Replacement Municipal Assistance Grant Program, Massachusetts Division of Ecological Restoration</a></li> <li>› <a href="#">Asset Management Planning Grant Program, Massachusetts Clean Water Trust &amp; Massachusetts Department of Environmental Protection</a></li> <li>› <a href="#">State Revolving Fund (SRF), Massachusetts Department of Environmental Protection</a></li> <li>› <a href="#">Statewide Water Management Act Grant, Massachusetts Department of Environmental Protection</a></li> </ul>	<ul style="list-style-type: none"> <li>› Southeast New England Program Network</li> <li>› Recommendations for Improving the Efficiency of Culvert and Small Bridge Replacement Projects, Massachusetts Culverts and Small Bridges Working Group for Senator Hinds and the Massachusetts Legislature, 2020</li> <li>› Massachusetts Division of Ecological Restoration</li> <li>› Charles River Watershed Association</li> </ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› HNE.1: Natural resources are preserved and enhanced through sustainable management practices and regulations</li> <li>› HNE.3: Air and water quality meet or exceed state and federal standards</li> </ul>	<ul style="list-style-type: none"> <li>› Ensure the scope of the assessment accounts for potential impacts to all populations (e.g., include infrastructure along evacuation routes)</li> <li>› Prioritize improvements that support vulnerable populations and neighborhoods with historically neglected infrastructure</li> </ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Culvert master plan</li> <li>› List of prioritized projects</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Increased number of right-sized culverts</li> <li>› Reduced flooding during storm events</li> </ul>	<ul style="list-style-type: none"> <li>› Integrate education on the importance of culverts to stormwater management into existing low-impact landscaping education program</li> <li>› Ensure transparency with the Weston community on culvert repair prioritization and progress</li> </ul>





## HEALTHY NATURAL ECOSYSTEMS

**ACTION:** Sustainable landscaping education

Implement an educational campaign on low-impact landscaping strategies and options for native and pollinator-friendly habitats in partnership with homeowners and landscapers.

**CHAMPION:** Sustainability Coordinator, Weston Plant Pollinator Alliance

**EST. START DATE:** Summer 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Research sustainable landscape best practices and existing resources through interviews with experts in the field and exploring efforts in surrounding towns.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Weston’s garden clubs</li> <li>› Pollinator Pathways</li> <li>› Land’s Sake Farm</li> <li>› Weston Forest &amp; Trail Association</li> <li>› Conservation Commission</li> <li>› Surrounding towns</li> <li>› Landscapers</li> </ul>
2. Develop sustainable landscaping guidelines for capital projects and residents that covers native plants, pollinator-friendly plants, pesticide use reduction, lawn alternatives, leaf blower restrictions, water management and conservation, and provide a list of landscapers committed to sustainable practices.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Town Departments</li> <li>› Conservation Commission</li> <li>› Planning Board</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Residents</li> </ul>
3. Establish a pilot program at the new Habitat for Humanity affordable housing development.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Habitat for Humanity</li> <li>› Conservation Commission</li> <li>› Weston’s garden clubs</li> </ul>
4. Host a workshop for local landscape architects, developers, and Town staff on sustainable landscaping practices.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Town departments</li> <li>› Conservation Commission</li> <li>› Planning Board</li> <li>› Developers</li> </ul>
5. Publicize the sustainable landscaping guidelines through demonstration gardens, K-12 education, Weston Forest & Trail Association’s talk series, and Town communication channels.	<b>ONGOING</b>	<ul style="list-style-type: none"> <li>› Weston’s garden clubs</li> <li>› Weston schools</li> <li>› Planning Board</li> <li>› Weston Forest &amp; Trail Association</li> <li>› Lands Sake Farm</li> <li>› Public Information Officer</li> <li>› Residents</li> </ul>
6. Re-evaluate standards after a period of 3-5 years to keep up to date on technological advancements and account for any necessary changes.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Permanent Building Committee</li> <li>› Sustainability Committee</li> <li>› Select Board</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



**HEALTHY NATURAL ECOSYSTEMS (CONTINUED)**  
SUSTAINABLE LANDSCAPING EDUCATION

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› <a href="#">Massachusetts Executive Office of Energy and Environmental Affairs Municipal Vulnerability Preparedness (MVP) Action Grant</a></li> <li>› <a href="#">Toxic Use Reduction Institute Community Grants</a></li> </ul>	<ul style="list-style-type: none"> <li>› <a href="#">Native Plant and Pollinator Toolkits, Lincoln Land Conservation Trust and Rural Land Foundation (2020)</a></li> <li>› <a href="#">Ecological Design, Construction &amp; Maintenance Handbook, Town of Lincoln</a></li> <li>› <a href="#">Sustainable Concord Landscape Handbook, Town of Concord (2019)</a></li> <li>› <a href="#">MCA Pollination Preservation Garden Toolkit, Sudbury Valley Trustees</a></li> <li>› <a href="#">Ecological Landscape Alliance (ELA)</a></li> <li>› <a href="#">Grow Native Massachusetts</a></li> <li>› <a href="#">Massachusetts Horticultural Society</a></li> <li>› <a href="#">Harvard University Organic Landscaping Protocol</a></li> </ul>

LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› <b>HNE.1:</b> Natural resources are preserved and enhanced through sustainable management practices and regulations</li> <li>› <b>HNE.3:</b> Air and water quality meet or exceed state and federal standards</li> <li>› <b>RIS.2:</b> All future projects incorporate green infrastructure and low impact development best practices where appropriate</li> <li>› <b>SEB.3:</b> New development minimizes negative impacts on the environment</li> <li>› <b>SRC.3:</b> Weston implements and promotes resource conservation, waste reduction, and elimination of toxic products</li> </ul>	<ul style="list-style-type: none"> <li>› Expand engagement with a pilot program at the new Habitat for Humanity development</li> <li>› Emphasize the benefits to landscape worker health</li> <li>› Provide fair compensation for landscapers' extra efforts</li> </ul>

MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Completion of a resource-filled handbook</li> <li>› Number of workshops and engagement efforts</li> <li>› Number of properties with sustainable landscaping</li> <li>› Several pilot educational projects created in Town</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Reduction in pesticide/herbicide use</li> <li>› Improvement in water quality in local waterways</li> <li>› Increase in native species and pollinator plantings</li> </ul>	<ul style="list-style-type: none"> <li>› Emphasize education through schools and Land's Sake Farm to engage youth and families</li> <li>› Create a Town webpage dedicated to sustainable landscaping</li> <li>› Host a workshop with residents, landscapers, and local businesses about how they can incorporate sustainable landscaping into their operations</li> </ul>



## HEALTHY NATURAL ECOSYSTEMS

**ACTION:** Tree Management Plan and bylaw

Successfully manage Weston’s public and private trees through a Tree Management Plan and a tree bylaw based on public outreach and education.

**CHAMPION:** Private Tree Working Group & Public Tree Working Group

**EST. START DATE:** Spring 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Research and prioritize tree risk mitigation measures, such as preventative maintenance, planting trees which are climate resilient and site appropriate, and managing tree cutting during development. Collect tree care and planting information suitable for distribution to residents.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Public Tree Working Group</li> <li>› Private Tree Working Group</li> <li>› Consultant</li> </ul>
2. Craft research findings into a Public Tree Management Plan and a potential tree bylaw with preliminary budgets and potential funding sources for recommendation to the Select Board.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Public Tree Working Group</li> <li>› Private Tree Working Group</li> <li>› Consultant</li> </ul>
3. Develop a complementary tree guide and/or incorporate this guidance into the proposed sustainable landscaping guide (as part of HNE.1.1).	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Tree Advisory Group</li> <li>› Planning Board</li> <li>› Department of Public Works</li> </ul>
4. Publish and publicize the tree guide and provide education about the benefits of the tree bylaw through workshops, tree planting events, and Town communication networks.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Select Board</li> <li>› Tree Advisory Group</li> <li>› Planning Board</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Garden clubs</li> <li>› Weston schools</li> <li>› Public Information Officer</li> <li>› Developers</li> <li>› Landscape architects</li> </ul>
5. Bring the proposed tree bylaw to a vote at Town Meeting.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Town Manager</li> <li>› Select Board</li> <li>› Planning Board</li> </ul>
6. Implement new requirements in budget, staffing, and scheduling as required by new management practices and the potential bylaw.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Town Manager</li> <li>› Town Planner</li> <li>› Department of Public Works</li> </ul>
7. Review new management practices and bylaw annually.	<b>ON-GOING</b>	<ul style="list-style-type: none"> <li>› Private Tree Working Group</li> <li>› Public Tree Working Group</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE





**HEALTHY NATURAL ECOSYSTEMS (CONTINUED)**  
 TREE MANAGEMENT PLAN AND BYLAW

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› Community Preservation Act Funds</li> <li>› <a href="#">Community Forest Grant Program, US Forest Service</a></li> <li>› <a href="#">Urban and Community Forestry Challenge Grants, DCR Massachusetts</a></li> </ul>	<ul style="list-style-type: none"> <li>› <a href="#">Tree Removal Policy for Landowners, Town of Weston (2020)</a></li> <li>› <a href="#">Tree/Shrub Replacement Guidelines, Town of Weston</a></li> <li>› <a href="#">Guide to Local Tree Ordinances in Massachusetts, DRC Massachusetts (2017)</a></li> <li>› <a href="#">Urban and Community Forestry Resources, Mass.gov</a></li> </ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› <b>HNE.1:</b> Natural resources are preserved and enhanced through sustainable management practices and regulations</li> <li>› <b>HNE.3:</b> Air and water quality meet or exceed state and federal standards</li> <li>› <b>RIS.1:</b> Weston’s critical infrastructure and services are resilient to the impacts of climate change</li> <li>› <b>RIS.2:</b> All future projects incorporate green infrastructure and low impact development best practices where appropriate</li> </ul>	<ul style="list-style-type: none"> <li>› Ensure equitable distribution of tree coverage across town</li> <li>› Target youth and low-income residents in educational campaign</li> </ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Approved Tree Management Plan</li> <li>› Tree Planting Guide</li> <li>› Approved tree bylaw</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Increased number of healthy trees on public land</li> <li>› Maintained or increased percent tree canopy coverage</li> <li>› Increased number of people reached with information about tree protection</li> </ul>	<ul style="list-style-type: none"> <li>› Include information on the Tree Management Plan and accompanying guidance in the Welcome to Weston package</li> <li>› Publicize in Town newsletters, community group newsletters, water bill inserts, etc.</li> <li>› Collaborate with the high school conservation club to promote the Plan and accompanying guidance</li> </ul>



## HEALTHY NATURAL ECOSYSTEMS

**ACTION:** Wetlands Bylaw

Implement a wetlands bylaw to protect Weston's wetland ecosystem.

**CHAMPION:** Conservation Commission

**EST. START DATE:** January 2022

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Review existing Town wetlands protection regulations and shortcomings through interviews with Town experts.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Planning Board</li> <li>› Department of Public Works, GIS Division</li> <li>› Stormwater Permitting Authority</li> <li>› Floodplain Manager</li> </ul>
2. Research municipal wetlands regulations in other Massachusetts communities to understand how they are integrating climate resilience to provide protection beyond the State Wetland Protection Act requirements.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Planning Board</li> <li>› Sustainability Coordinator</li> <li>› Sustainability Committee</li> <li>› Surrounding towns</li> </ul>
3. Analyze climate change and flooding projections to update Town wetlands and floodplain boundaries. Propose additional wetland protections based on interviews, projections, and best practices from surrounding communities.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Department of Public Works, GIS Division</li> <li>› Floodplain Manager</li> <li>› Stormwater Permitting Authority</li> <li>› Sustainability Coordinator</li> </ul>
4. Compose a final wetlands bylaw based on findings and bring to a vote at Town meeting.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Town Manager</li> <li>› Select Board</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



## HEALTHY NATURAL ECOSYSTEMS (CONTINUED)

### WETLANDS BYLAW

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"><li>› <a href="#">Massachusetts Environmental Trust Grants</a></li></ul>	<ul style="list-style-type: none"><li>› <a href="#">Regulations for Wetlands Protection, Town of Arlington (2018)</a></li><li>› <a href="#">Protecting Wetlands in Massachusetts, Mass.gov</a></li><li>› <a href="#">Wetlands Protection Act, Commonwealth of Massachusetts (2017)</a></li></ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"><li>› <b>HNE.1:</b> Natural resources are preserved and enhanced through sustainable management practices and regulations</li><li>› <b>HNE.3:</b> Trails and protected open space create a connected network of healthy habitats and accessible recreation options</li><li>› <b>RIS.1:</b> Weston’s critical infrastructure and services are resilient to the impacts of climate change</li><li>› <b>RIS.2</b> All future projects incorporate green infrastructure and low impact development best practices where appropriate</li></ul>	<ul style="list-style-type: none"><li>› Evaluate what populations will be most impacted by increased flooding risk and include protective provisions in the bylaw</li></ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"><li>› Adoption of a wetlands protection bylaw</li></ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"><li>› Increase in acres of protected wetlands</li><li>› Maintained or improved water quality</li><li>› Reduced flooding risk</li></ul>	<ul style="list-style-type: none"><li>› Develop wetlands educational programs through the schools and through Weston Forest and Trail</li><li>› Install educational placards by key wetland areas</li></ul>





## SUSTAINABLE RESOURCE CONSUMPTION

**ACTION:** Private hauler regulations

Implement regulations for private haulers and encourage residents to use the Town transfer station in order to improve waste diversion efforts among private homeowners.

**CHAMPION:** Board of Health & Sustainability Coordinator

**EST. START DATE:** Winter 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Research best practices for private hauler regulations in comparable communities and guidance from the Massachusetts Department of Environmental Protection. Regulations should include requirements regarding recycling separation, consistency, and enforcement mechanisms, and consider enabling composting.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Board of Health Director</li> <li>› Sustainability Committee</li> <li>› MassDEP Municipal Assistance Coordinator</li> </ul>
2. Convene a Waste Diversion Working Group to review best practices and draft regulation.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Board of Health Director</li> <li>› Select Board</li> <li>› Department of Public Works</li> <li>› Sustainability Committee</li> <li>› MassDEP Municipal Assistance Coordinator</li> <li>› Resident volunteers</li> </ul>
3. Alongside development of hauler regulations, identify opportunities for improved information-sharing regarding use of the transfer station in place of private haulers among residents. This may include information regarding cost savings, recycling/composting options, and plans for re-opening the swap shed.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Department of Public Works</li> <li>› Public Information Officer</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Waste Diversion Working Group</li> </ul>
4. Develop timeframe for tiered launch of regulation (e.g., notice for haulers, resources/workshops, education).	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Board of Health Director</li> <li>› Select Board</li> <li>› Department of Public Works</li> <li>› MassDEP Municipal Assistance Coordinator</li> <li>› Waste Diversion Working Group</li> </ul>
5. Launch an education campaign in advance of regulation roll-out to frame the purpose and anticipated benefits of the regulations as well as information on benefits of utilizing the Town transfer station as identified in Step 3.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Public Information Officer</li> <li>› Haulers</li> <li>› Residents</li> <li>› Local businesses</li> <li>› Waste Diversion Working Group</li> </ul>
6. Enact regulation.	<b>LONG</b>	<ul style="list-style-type: none"> <li>› Town Manager</li> <li>› Select Board</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



## SUSTAINABLE RESOURCE CONSUMPTION (CONTINUED)

### PRIVATE HAULER REGULATIONS

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"><li>› Sustainable Materials Recovery Program (SMRP) Municipal Grants</li><li>› SMRP Municipal Technical Assistance Grants</li></ul>	<ul style="list-style-type: none"><li>› <a href="#">Implementing Mandatory Recycling &amp; Private Hauler Regulations, Massachusetts Department of Environmental Protection</a></li><li>› <a href="#">Best Practices for Municipalities Developing Private Hauler Regulations, Massachusetts Department of Environmental Protection (2017)</a></li><li>› <a href="#">Rules and Regulations for Removal, Transport, And Disposal of Solid Waste or Recyclables In The Town Of Harvard, Town of Harvard (2017)</a></li><li>› <a href="#">MassDEP Waste &amp; Recycling Grants &amp; Assistance, Massachusetts Department of Environmental Protection</a></li></ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"><li>› <a href="#">HNE.1</a>: Natural resources are preserved and enhanced through sustainable management practices and regulations</li></ul>	<ul style="list-style-type: none"><li>› Ensure that sufficient resources and notice of new regulations are provided to private haulers, particularly smaller haulers.</li><li>› Emphasize potential cost savings associated with use of the transfer station vs. private hauling service.</li></ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"><li>› Private hauler regulation</li><li>› Educational materials for haulers and residents</li></ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"><li>› Increase in percentage of residents using the transfer station versus private haulers</li><li>› Increased diversion rate (percent)</li></ul>	<ul style="list-style-type: none"><li>› Ensure that educational materials articulate the impacts of revitalizing the use of the transfer station in terms of cost savings and other benefits to the Town</li></ul>



## SUSTAINABLE RESOURCE CONSUMPTION

**ACTION:** Water consumption education and incentives

Implement an educational and incentive program to prevent excessive water consumption at Town sites, residences, and local institutions (schools, churches, etc.).

**CHAMPION:** Sustainability Coordinator

**EST. START DATE:** Summer 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Inventory Weston’s education efforts and existing resources around water consumption.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Department of Public Works Water Division</li> <li>› Town Planner</li> <li>› Public Information Officer</li> <li>› Sustainability Committee</li> <li>› Planning Board</li> </ul>
2. Review water consumption data, including the Metropolitan Area Planning Council’s recent water study, to understand target opportunities for reduction and education. Establish better use baseline, if needed.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Department of Public Works, Water Division</li> <li>› Facilities</li> <li>› Sustainability Committee</li> </ul>
3. Design and launch a multimedia residential education campaign that creatively communicates the issue (i.e., illustrate Weston’s water use relative to neighboring communities) and opportunities for reduction.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Department of Public Works</li> <li>› Water Division</li> <li>› Weston Schools</li> <li>› Council on Aging</li> <li>› Public Information Officer</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> </ul>
4. With the input of large users (e.g., institutions, Town facilities) via a collaborative workshop or survey, design an incentive program to encourage reduction through friendly competition at key sites.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Department of Public Works Water Division</li> <li>› Facilities</li> <li>› Public Information Officer</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Faith institutions</li> <li>› Weston private schools</li> <li>› Weston golf clubs</li> </ul>
5. Evaluate the education and incentive program against water use metrics.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Department of Public Works Water Division</li> <li>› Sustainability Committee</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE





**SUSTAINABLE RESOURCE CONSUMPTION (CONTINUED)**  
 WATER CONSUMPTION EDUCATION AND INCENTIVES

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› <a href="#">Statewide Water Management Act Grant, Massachusetts Department of Environmental Protection</a></li> <li>› Municipal Vulnerability Preparedness Action Grant Program, Massachusetts Executive Office of Energy and Environmental Affairs</li> </ul>	<ul style="list-style-type: none"> <li>› <a href="#">Water Conservation and Rebate Program, Dedham-Westwood Water District</a></li> <li>› <a href="#">Climate Action Toolkit for Homeowners, Town of Weston (2020)</a></li> <li>› <a href="#">Tips to Save Water in the Garden, Town of Weston</a></li> <li>› <a href="#">CZ-Tip: Save Water, Massachusetts Office of Coastal Zone Management</a></li> </ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› <b>SRC.2:</b> Weston implements and promotes resource conservation, waste reduction, and elimination of toxic products</li> <li>› <b>SEB.3:</b> New development minimizes negative impacts on the environment</li> <li>› <b>HNE.1:</b> Natural resources are preserved and enhanced through sustainable management practices and regulations</li> </ul>	<ul style="list-style-type: none"> <li>› Ensure financial assistance/rebate information is widely advertised to residents and businesses</li> <li>› Quickly identify property owners where leaks are likely</li> <li>› Partner with the Council on Aging to ensure program is accessible to seniors</li> </ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Workshop materials or survey (for development of incentive program with input of large users)</li> <li>› Water reduction incentives</li> <li>› Updated educational materials</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Decrease in potable water use per capita</li> </ul>	<ul style="list-style-type: none"> <li>› Emphasize the cost saving opportunities of water reduction</li> <li>› Play up friendly competition to generate excitement</li> <li>› Find ways to make education across the community fun and creative (involve artists, students, etc.)</li> </ul>



## SUSTAINABLE RESOURCE CONSUMPTION

**ACTION:** Zero waste goals and education

Establish zero waste goals and expanded waste reduction programs (education incentives for waste prevention, composting, and recycling) in all municipal buildings, starting with the schools.

**CHAMPION:** Sustainability Coordinator

**EST. START DATE:** Spring 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Convene group of Town staff and community members from target facilities/operations to identify appropriate waste reduction strategies and technologies.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Weston Schools leadership</li> <li>› Weston School Committee</li> <li>› PTO Sustainability Team</li> <li>› Facilities</li> <li>› Department of Public Works</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› MassDEP Municipal Assistance Coordinator</li> </ul>
2. Perform an audit of school waste streams and sources.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Weston Schools leadership</li> <li>› Green Team leaders &amp; students</li> <li>› PTO Sustainability Team</li> <li>› Facilities</li> <li>› Department of Public Works</li> <li>› Possible consultant</li> </ul>
3. Based on waste audit, prioritize key opportunities for reduction of landfilled material and improved diversion for recycling and reuse.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Weston Schools leadership</li> <li>› Weston School Committee</li> <li>› PTO Sustainability Team</li> <li>› Green Team leaders &amp; students</li> <li>› Department of Public Works</li> <li>› Facilities</li> <li>› Possible consultant</li> </ul>
4. Conduct a pilot for waste reduction practices, alongside an education campaign to ensure participation.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Weston Schools leadership</li> <li>› Weston School Committee</li> <li>› Green Team leaders &amp; the HS Students for Environmental Action group</li> <li>› PTO Sustainability Team</li> <li>› Facilities</li> <li>› Department of Public Works</li> <li>› Possible consultant</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



**SUSTAINABLE RESOURCE CONSUMPTION (CONTINUED)**  
**ZERO WASTE GOALS AND EDUCATION**

<p>5. Expand pilot activities to additional Town facilities, as appropriate, with a focus on creating permanent, ongoing systems.</p>	<p><b>LONG</b></p>	<ul style="list-style-type: none"> <li>› Facilities</li> <li>› Department of Public Works</li> <li>› Purchasing</li> <li>› Directors from Town departments</li> <li>› Town Manager</li> <li>› Sustainability Committee</li> </ul>
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FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› Sustainable Materials Recovery Program (SMRP) Municipal Grants</li> <li>› SMRP Municipal Technical Assistance Grants</li> <li>› MassDEP School Green Team program</li> </ul>	<ul style="list-style-type: none"> <li>› <a href="#">MassDEP Recycling IQ Kit, Massachusetts Department of Environmental Protection</a></li> <li>› <a href="#">MassDEP Waste &amp; Recycling Grants &amp; Assistance, Massachusetts Department of Environmental Protection</a></li> <li>› <a href="#">Paving the Way Toward a Zero Waste Philadelphia, City of Philadelphia</a></li> <li>› <a href="#">Guide to Conducting Student Food Waste Audits, USDA, U.S. EPA, &amp; University of Arkansas</a></li> </ul>

LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› <a href="#">HNE.1</a>: Natural resources are preserved and enhanced through sustainable management practices and regulations</li> </ul>	<ul style="list-style-type: none"> <li>› Ensure that educational materials are accessible to all (multilingual, multi-media, accommodating of individuals with disabilities)</li> </ul>

MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Zero waste standards for schools and municipal operations</li> <li>› Waste audit report</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Increased diversion rate (percent)</li> <li>› Decrease in total waste generation per capita</li> <li>› Increased student engagement around waste reduction and diversion</li> <li>› Enhanced community literacy around appropriate waste and recycling practices</li> </ul>	<ul style="list-style-type: none"> <li>› Leverage student creativity to educate peers and the community</li> <li>› Involve students in waste audit and waste reduction program design implementation, and maintenance</li> </ul>





## CONNECTED MOBILITY

**ACTION:** **Electric Vehicle Educational Campaign**

Implement an educational campaign for residents about the benefits of electric vehicles.

**CHAMPION:** Sustainability Coordinator

**EST. START DATE:** Winter 2021-2022

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Through conversations with neighboring towns and a review of State and local resources, assemble a list of resources about electric rebates, incentives, benefits, and guides.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> </ul>
2. Create an informational Town webpage to direct residents to information about electric vehicles.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Public Information Officer</li> <li>› Sustainable Weston Action Group</li> </ul>
3. Host an informational fair showcasing electric vehicles and educate attendees about the benefits of going electric.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Car dealerships</li> <li>› MetroWest Climate Solutions</li> <li>› Sustainable Weston Action Group</li> <li>› Rotary Club of Wayland &amp; Weston</li> </ul>
4. Interview local electric vehicle owners and publish testimonials in the newspaper, on social media, and through Town communication channels.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Town Crier</li> <li>› Weston Patch</li> <li>› Weston Media</li> <li>› Sustainability Committee</li> <li>› Sustainable Weston Action Group</li> <li>› Public Information Officer</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE



## CONNECTED MOBILITY (CONTINUED)

### ELECTRIC VEHICLE EDUCATION CAMPAIGN

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"><li>› <a href="#">Green Energy Consumers Alliance – Drive Green program</a></li></ul>	<ul style="list-style-type: none"><li>› <a href="#">Massachusetts Clean Cities Coalition</a></li><li>› <a href="#">Green Energy Consumers Alliance – Drive Green program</a></li><li>› <a href="#">Electric Vehicle Educational Resources, Town of Concord</a></li><li>› <a href="#">EV Programs and Incentives, Massachusetts Department of Energy Resources</a></li></ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"><li>› <b>CM.1:</b> Everyone has access to low-carbon or zero-carbon multi-modal transportation options to commute and get around Weston</li><li>› <b>SEB.4:</b> Both municipal and community energy use prioritizes the significant reduction of greenhouse gas emissions</li></ul>	<ul style="list-style-type: none"><li>› Share information about affordable electric vehicles that are accessible to a broader range of income levels</li><li>› Translate resources into additional languages</li></ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"><li>› Educational campaign materials</li></ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"><li>› Increase in the number of registered electric vehicles</li><li>› Reduction of greenhouse gas emissions from transportation</li></ul>	<ul style="list-style-type: none"><li>› Track the adoption of electric vehicles and the associated benefits on a public dashboard</li><li>› Post testimonials and interviews with local electric vehicle owners on the Town website and social media accounts</li><li>› Further spread resources and announcements through community advocacy groups</li></ul>



## CONNECTED MOBILITY

**ACTION:** Improved bicycle and pedestrian infrastructure

Expand and improve bicycle and pedestrian facilities, connectivity, convenience, and safety in a manner that significantly increases the % of trips taken by walking or biking.

**CHAMPION:** Traffic and Sidewalk Committee

**EST. START DATE:** Fall 2021

IMPLEMENTATION STEPS	PLANNING CONSIDERATIONS	
	DURATION OF EFFORT	KEY PARTNERS
1. Host an interactive public workshop and/or distribute a public survey to identify top pedestrian and biker priorities and specific desired improvements.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Sustainability Coordinator</li> <li>› Public Information Officer</li> </ul>
2. Host targeted focus groups with youth, seniors, and residents with disabilities to understand their unique mobility needs.	<b>SHORT</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Sustainability Coordinator</li> <li>› Weston Public Schools</li> <li>› Council on Aging</li> </ul>
3. Update the 2010 Sidewalk Master Plan based on public input, making recommendations for connecting existing recreational resources, safe road crossings, road-sharing amenities for pedestrians and cyclists, and additional bike lanes.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Department of Public Works</li> <li>› Transportation for Massachusetts (T4MA)</li> <li>› Metropolitan Area Planning Council</li> <li>› Possible consultant</li> </ul>
4. Negotiate with private landowners for additional easements to connect open space with sidewalks.	<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Residents/Landowners</li> <li>› Weston Forest &amp; Trail Association</li> </ul>
5. Complete ongoing connectivity and mobility projects, such as the Route 30 reconstruction project.	<b>LONG</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Town Manager</li> <li>› Sustainability Coordinator</li> <li>› MassDOT</li> <li>› Metropolitan Area Planning Council</li> </ul>
6. Connect the Rail Trail to Waltham and establish a maintenance procedure to maximize commuting on the path.	<b>LONG</b>	<ul style="list-style-type: none"> <li>› Town Planner</li> <li>› Sustainability Committee</li> <li>› Friends of the Legacy Rail Trail</li> <li>› Town Manager</li> <li>› Department of Public Works</li> <li>› Metropolitan Area Planning Council</li> </ul>

**SHORT:** LESS THAN 1 YEAR    **MEDIUM:** 1-3 YEARS    **LONG:** 3 YEARS OR MORE





## CONNECTED MOBILITY (CONTINUED)

### IMPROVED BICYCLE AND PEDESTRIAN INFRASTRUCTURE

FUNDING RESOURCES	TECHNICAL RESOURCES
<ul style="list-style-type: none"> <li>› Complete Streets Funding Program, MassDOT</li> <li>› Community Preservation Funds</li> <li>› Transportation Finance Recommendations, MAPC (2019)</li> </ul>	<ul style="list-style-type: none"> <li>› <a href="#">Landline, MAPC (2018)</a></li> <li>› <a href="#">MetroCommon 2050, MAPC</a></li> <li>› <a href="#">Transportation Best Practices, Weston Planning Board (2019)</a></li> </ul>
LINKS TO OTHER GOALS	EQUITY CONSIDERATIONS
<ul style="list-style-type: none"> <li>› <b>CM.2:</b> Future development in Weston prioritizes walkability, bikeability, accessibility, and connectivity, while fostering affordability and inclusivity</li> <li>› <b>SEB.4:</b> Both municipal and community energy use prioritizes the significant reduction of greenhouse gas emissions</li> </ul>	<ul style="list-style-type: none"> <li>› Prioritize improvements that will benefit those with the least access to safe walking and biking options</li> <li>› Consider accessibility of mobility options throughout all planning stages</li> </ul>
MEASURING SUCCESS	ENGAGING THE COMMUNITY
<p><b>Outputs:</b></p> <ul style="list-style-type: none"> <li>› Improved bicycle and pedestrian facilities</li> </ul> <p><b>Outcomes:</b></p> <ul style="list-style-type: none"> <li>› Reduction of greenhouse gas emissions from transportation</li> <li>› Reduction of percent of commuters who drive</li> <li>› Increase in miles of sidewalks; miles of connected sidewalk</li> <li>› Increase in miles of bike lanes</li> </ul>	<ul style="list-style-type: none"> <li>› Rely heavily on community input for the formulation of the updated Sidewalk Master Plan</li> <li>› Allow for multiple modes of community input (i.e. workshops, online surveys, interviews)</li> </ul>



# APPENDICES

B. Greenhouse Gas Inventory Summary

# **Weston Community and Municipal 2018 Greenhouse Gas Emissions Inventory Results Summary**

**Prepared by Kim Lundgren Associates**  
*October 2020*



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This report was funded by the Massachusetts Executive Office of Energy and Environmental Affairs Municipal Vulnerability Preparedness (MVP) program

## Section 1: An Assessment of Weston’s Greenhouse Gas Emissions

In early 2020, through an MVP Action Gant award, the Town of Weston committed to completing a Climate Action and Resilience Pan to identify and target policies that will mitigate the Town’s contribution to climate change and reduce greenhouse gas (GHG) emissions.

This GHG inventory report provides a summary of community wide and government operations-level emissions in 2018 and a discussion of target areas and strategies to reduce emissions from key sectors. This report lists GHG emissions outputs in metric tons carbon dioxide equivalent (MTCO<sub>2e</sub>). This report covers GHGs from municipal operations as well as those resulting from activities of residents and business at the community scale.

This GHG inventory report was created to follow reporting guidance outlined in the *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (U.S. Community Protocol, ICLEI, 2019)*<sup>1</sup> and *The Local Government Operation Protocol (LGOP, (California Air Resources Board [CARB], 2010).*<sup>2</sup> Calculations for GHGs at the community and government operations scales are performed independently. The data used in the community inventory is generally drawn from sources that capture all activity, such as building energy use from across the community, whereas government operations data was provided by the Town of Weston for sources and activities the Town manages directly.

This inventory covers calendar year 2018, primarily due to it being the most recent year of energy utility data currently available. The inventory includes the three primary GHGs; carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) and are presented in terms of CO<sub>2e</sub> or CO<sub>2</sub> equivalent throughout this document, calculated using the IPCC 4<sup>th</sup> Assessment Global Warming Potential values for CH<sub>4</sub> and N<sub>2</sub>O<sup>3</sup>.

This assessment summarizes the GHG inventory conducted for the Town of Weston and serves as a guide for identifying areas where additional actions may have the greatest potential for reducing GHGs.

## Section 2: Weston Community Greenhouse Gas Emissions Inventory

The Weston community greenhouse gas (GHG) emission inventory was developed to include the sources and activities required under the “Basic” reporting level defined by the Global Protocol for Community Scale Greenhouse Gas Emissions Inventories, (GPC).<sup>4</sup> The GPC Basic reporting level provides an inventory of the GHGs released as a result of the energy use and waste material generated within each city. The GPC provides guidance on what activities need to be included in the inventory and a framework for how to calculate the GHG emissions

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<sup>1</sup> <https://iclei.usa.org/publications/us-community-protocol/>

<sup>2</sup> <https://ww2.arb.ca.gov/local-government-operations-protocol-greenhouse-gas-assessments>

<sup>3</sup> [https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29\\_1.pdf](https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf)

<sup>4</sup> [GHG Protocol. Global Protocol for Community-Scale Greenhouse Gas Emission Inventories.](#)

associated with various activities. Specific calculation methods for sources listed by under the GPC BASIC reporting framework were obtained from ICLEI’s U.S. Community Protocol. In some cases like transportation, emissions were not able to be separated into the in-boundary and out-of-boundary way specified by the GPC. Here, reporting guidance from the U.S. Community Protocol was used.

Below is a summary of community-wide GHG inventory findings.

### Overall Community Greenhouse Gas Emissions

Activities by residents, visitors, and workers in Weston resulted in GHG emissions of 150,142 MTCO<sub>2</sub>e in 2018. Per capita emissions were 12.4 MTCO<sub>2</sub>e/ person.

Emissions per person were lower than the national average but higher than both the Massachusetts state average and from the dense urban area of Boston. While Weston is expected to have a higher per capita emissions rate than Boston, the high rate in comparison to the state average highlights the need for emission reduction measures to make Weston a leader in the sustainability field.

Figure 1. Local, State and U.S. MTCO<sub>2</sub>e Benchmarks



Buildings make up 67.8% of community emissions and reduction measures will need to target the residential sector since approximately 85.5% of building square feet and 67.9% of building emissions come from the residential sector. Energy efficiency, retrofits and renovation programs in partnership with local power utilities can effectively target residential energy use.

Emissions by sector are shown in **Figure 2** and **Table 1**.



Figure 2. Weston’s GHG Emissions by Sector (MTCO<sub>2</sub>e)

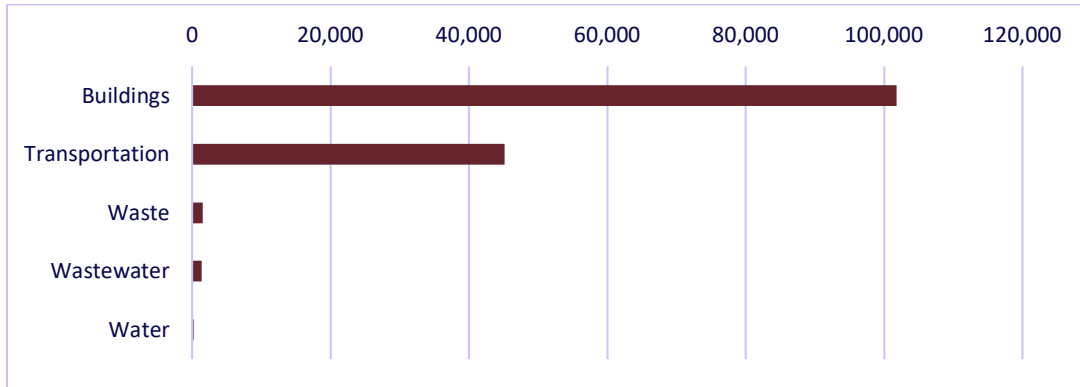


Table 1. Weston Community Greenhouse Gas Emissions by Sector

Sector	2018 (MTCO <sub>2</sub> e)	Percent of Total 2018
Buildings	101,808	67.8%
Transportation	45,181	30.0%
Waste	1,495	1.0%
Wastewater Treatment	1,405	0.9%
Water Treatment	253	0.2%
<b>Total</b>	<b>150,142</b>	<b>100%</b>

### Buildings

As shown in **Table 1**, the majority of Weston’s emissions, 67.8%, came from the use of electricity, natural gas, and other heating fuels in buildings. **Table 2** shows that natural gas was this single largest source of GHG emissions in the Town. Electrification of natural gas usage, coupled with a conversion of heating fuels to electricity, could reduce 37.9% of total GHG emissions over time as grid electricity gets cleaner through the expansion of the State Renewable Portfolio Standard. **Figure 3** shows the relative contribution of each source to total emissions while **Figure 4** shows the contributions of electricity, natural gas and heating fuels to GHG emissions by residential or commercial sector.

Table 2. Weston Community Greenhouse Gas Emissions by Source (MTCO<sub>2e</sub>)

Source	2018 (MTCO <sub>2e</sub> )	Percent of Total 2018
Natural Gas	45,078	30.0%
Transportation Gasoline	35,406	23.6%
Electricity	33,159	22.1%
Heating Fuels	11,889	7.9%
Fugitive Natural Gas	11,987	8.0%
Transportation Diesel	9,775	6.5%
Solid Waste Incineration	1,495	1.0%
Wastewater Process and Fugitive	1,413	0.9%
<b>Total</b>	<b>150,142</b>	<b>100%</b>

Figure 3. Weston Community GHG Emissions (MTCO<sub>2e</sub>) by Source

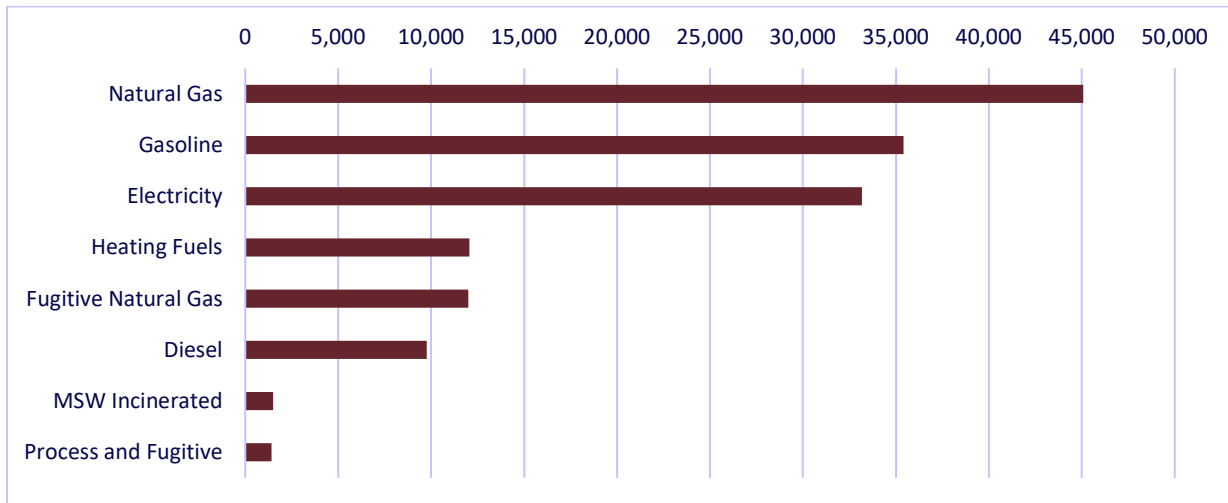
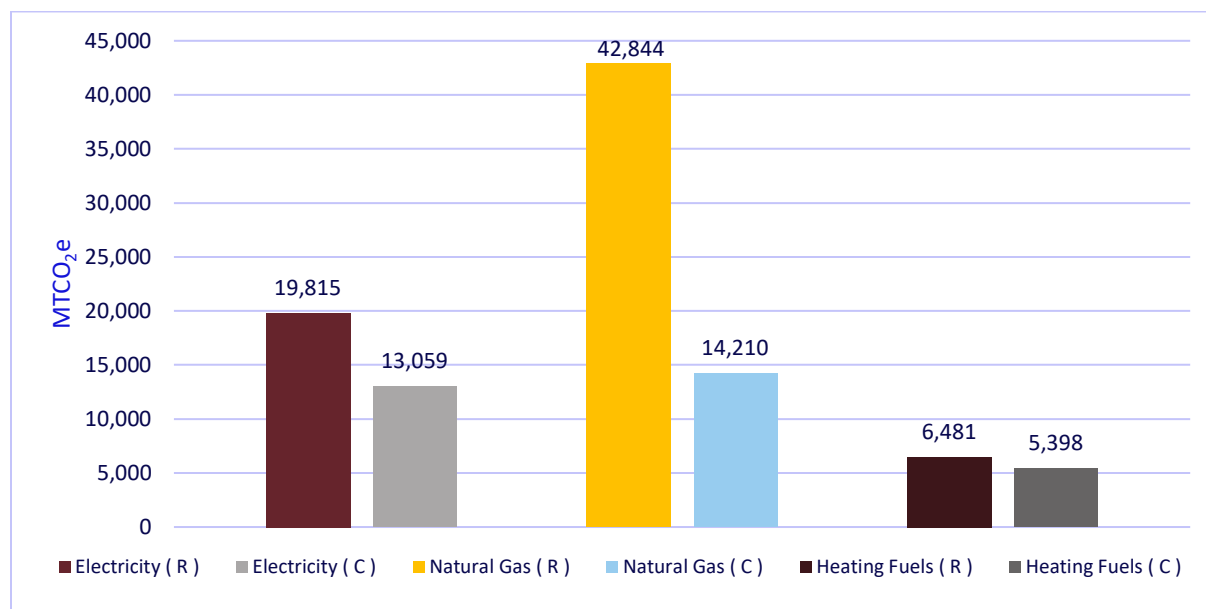


Figure 4. Weston Residential and Commercial MTCO<sub>2</sub>e by Fuel



### Transportation

Transportation was the second largest emitting sector in Weston (45,181 MTCO<sub>2</sub>e). The Transportation sector was a mix of on-road vehicle VMT by vehicles registered in the Town as reported by the Metropolitan Area Planning Council’s MAPC’s *Massachusetts Vehicle Census: Municipal Summary 2009-2014* and commuter railway emissions from the MBTA Fitchburg line. On-road private VMT from vehicles registered in Weston accounted for the vast majority of emissions, 99.9%. Assuming all on-road miles from MAPC are from single occupancy trips, these private vehicle miles generate approximately 2.5 times the emissions per mile as commuter railway passenger miles. Bus emissions per passenger mile are approximately one-fifth that of private vehicles. Converting on-road miles to the MBTA commuter rail or building out bus infrastructure will significantly reduce emissions in the Transportation sector. Creating more first/last mile connections to these services may encourage a mode shift from private vehicles to commuter rail and buses.

Weston resides approximately 15 miles outside of Boston and has numerous transportation options for commuting residents, including the MBTA Fitchburg line. Other nearby stations include the Green Line D Branch rapid transit station and MBTA bus route 70. Maximizing the existing public transportation options may be the most direct way for Weston to reduce its transportation-related emissions in the short/medium term. According to 2020’s *Weston Planning Board Study on Transportation Best Practices*<sup>5</sup>, 87.4% of survey respondents drive during peak commuting time. While barriers to entry to public transportation such as proximity to stations and perceived reliability are issues to be addressed, many residents appear interested in pilot programs to improve public transportation access such as shuttles to MBTA stations (40.2% of survey respondents reported being “very interested” or “interested”).

<sup>5</sup> <https://weston.org/1344/Projects-and-Planning-News>



**Table 3** shows the reductions in kgCO<sub>2</sub>e/mile possible from mode shifting to railway and bus transit. considering the wide disparity in GHGs from each of these modes, where private vehicles dominate at 45,072 MTCO<sub>2</sub>e, compared to 109 from commuter rail riders, a shift towards more use of mass transit could have a significant impact on Weston’s overall emissions.

*Table 3. MTCO<sub>2</sub>e per VMT of Passenger Mile for Private Vehicles and Transit Modes*

Source	kgCO <sub>2</sub> e/VMT or Passenger mile	Unit
Weston Private Vehicles	0.5	VMT
Commuter Rail	0.2	Passenger mile
Buses	0.1	Passenger mile

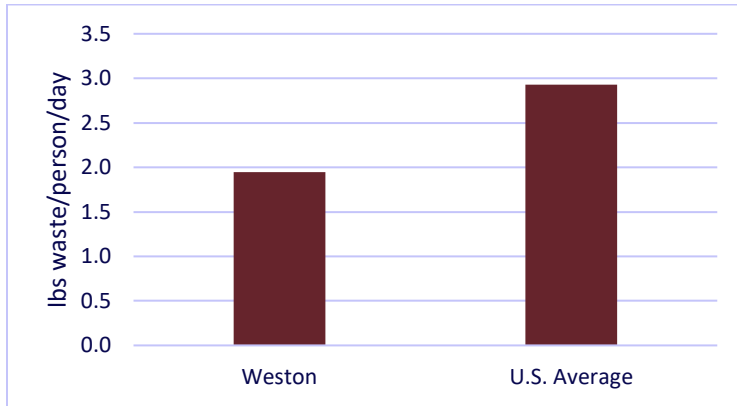
### **Waste, Wastewater, and Water**

The Waste, Wastewater and Water sectors are bundled together here because they account for approximately 2.1% of total emissions when summed together. Though they are not large contributors to the GHG inventory, there are opportunities to reduce emissions from these sectors through water efficiency measures and retrofits, compost/recycling and zero waste programs.

Waste disposed per resident per day in Weston is lower than the national average by approximately one pound per person per day. As illustrated in **Figure 6**, The national average is 2.9 lbs. waste/resident/day (US EPA. 2020).<sup>6</sup> It should be noted that this figure is estimated from disposal rates and number of households using the Weston Transfer Station. While it was scaled up to estimate all waste generated in the community, this figure assumes that Transfer Station households and non-Transfer Station households generate waste at the same rate. All waste disposed in Weston is incinerated and so reducing waste will have a direct effect on yearly GHG emissions.

<sup>6</sup><https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials#Generation>

Figure 5. Weston and U.S. Average Pounds Waste Disposed per Person per Day



Emissions from water consumption are generated from the extraction, conveyance, treatment and distribution of water to homes and businesses. Overall water consumption is 600,305,000 gallons per year. Residential water consumption accounts for 87% of this, the remaining water demand is from municipal, commercial, industrial and agricultural users. Average daily water use by Weston residents is higher than both the Massachusetts state average and the U.S. national average. The performance standard under the Massachusetts Water Management Act is 65 gallons per person per day (gpcd).<sup>7</sup> Though Water emissions are relatively low, reducing water use lowers electricity usage and therefore GHG emissions. Issues of water consumption are directly tied to residential home size and landscaping, as high water use in the Town is “entirely contributable to high summertime irrigation use” (Town of Weston Water Plan, 2019, ES-2).

Figure 6. Residential Water Use per Person per Day (Gallons)



The Town of Weston is served by three different wastewater treatment types. The Weston Highschool and Middle School are served by a facility-level stand-alone Amphidrome<sup>8</sup>

<sup>7</sup> From the 2019 Water System Master Plan – Exec Summary.

<sup>8</sup> <http://www.amphidrome.com/>

wastewater treatment facility. Regis College sends its wastewater to the Massachusetts Water Resources authority (MWRA) system which is ultimately treated at Deer Island, and the rest of the town residents are served by septic systems, which dominate wastewater related emissions at 1,316 MTCO<sub>2</sub>e from methane. Regis College and the system serving Weston Public Schools were estimates at 22 and 15 MTCO<sub>2</sub>e respectively in the form of N<sub>2</sub>O.

### Section 3: Weston Municipal Greenhouse Gas Emissions Inventory

The Weston municipal GHG inventory was prepared by KLA following the LGOP (CARB, 2010).<sup>9</sup> The LGOP has been adopted by communities around the United States to ensure that each report adheres to its principles is relevant, complete, consistent, transparent, and accurate. This report uses the operational control reporting level approach, providing an inventory of the GHGs released by those municipal activities where the Town of Weston has full authority to introduce and implement operating policies in the years of 2018.

Emissions from municipal operations were reported using the scopes framework. The scopes framework is a standard method of organizing emissions sources first developed by the World Resources Institute (WRI) in the GHG Protocol Corporate Standard. Scope 1 sources are direct emissions from sources like natural gas burned by the reporting entity in the inventory year. Scope 2 are indirect emissions from electricity use that typically occur outside the boundary as a result of activity by the reporting entity. Scope 3 are all other indirect emissions that generally occur outside the boundary or over a timeframe outside of the reporting year. Emissions from employee commute, which occur both inside and outside the community boundary, are an example of a Scope 3 source. Solid waste incineration, where it occurs outside the community boundary, is also considered a Scope 3 source.

#### Overall Municipal Greenhouse Gas Emissions

Weston's municipal operations released 6,879 MTCO<sub>2</sub>e in 2018.

All municipal operations emissions are captured within the community-wide total, however looking specifically at municipal operations can reveal opportunities for local government to pursue in order to both lead by example and become more efficient providers of public services. Weston GHGs from municipal operations represent about 4.6% of total community emissions.

Within municipal operations, natural gas was the largest source of municipal GHG emissions (37.3%). Gasoline and diesel combined to make up 30.7% of total emissions but this is split up between employee commute (15.6%) and vehicles owned and operated by the Town (15.0%). With more direct operational control of its fleet vehicles than employee commute, Weston can choose to reduce its vehicle fleet and purchase electric vehicles to reduce emissions. Encouraging Town employees to use transit or to telecommute will be effective at reducing emission from employee commute. At a Town department level, Weston Public Schools are the

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<sup>9</sup> [CARB et al., Local Government Operations Protocol, V 1.1, May 2010](#)



single largest emitter, accounting for 63.1% of emissions (excluding employee commute and waste which are not able to be divided by department) followed in distant second by Public Works with 10.1% of total emissions. The majority of emissions at Weston Public Schools (87.4%) are from building energy use, making energy efficiency and audit/retrofits particularly useful to reduce emissions from this department.

Emissions by sector can be seen in **Table 4** while emissions by sector and source are displayed in **Table 5**.

*Table 4. Municipal GHG Emissions by Sector in 2018*

<b>Sector</b>	<b>2018</b>	<b>Percent</b>
Facilities and Infrastructure	4,469	65.0%
Employee Commute	1,075	15.6%
Vehicle Fleet	1,035	15.0%
Solid Waste	115	1.7%
Water	108	1.6%
Streetlights and Traffic Signals	78	1.1%
<b>Total</b>	<b>6,879</b>	

*Table 5. MTCO<sub>2e</sub> Municipal GHG Emissions by Sector and Fuel in 2018*

<b>Sector and Source</b>	<b>2018</b>
<b>Employee Commute</b>	<b>1,075</b>
Diesel	0
Gasoline	1,075
<b>Facilities and Infrastructure</b>	<b>4,469</b>
Natural gas	2,557
Electricity	1,828
Fuel Oil No.2	83
<b>Solid Waste</b>	<b>115</b>
Waste Incinerated	115
<b>Streetlights and Traffic Signals</b>	<b>78</b>
Electricity	78
<b>Vehicle Fleet</b>	<b>1,035</b>
Diesel	606
Gasoline	428
<b>Water</b>	<b>108</b>
Electricity	97
Natural gas	11
<b>Grand Total</b>	<b>6,879</b>

## Facilities and Infrastructure

Facilities and Infrastructure owned and operated by the Town accounted for 65.0% of total emissions. Not surprisingly given the large square footage of school buildings, many public school buildings were among the highest contributors to emissions in the sector. Weston Middle School and Weston High School stand out as the highest energy users of the group. Natural gas accounted for 58.2% of total MTCO<sub>2e</sub> from the middle school and high school. Electrification of heating and cooking at the schools will significantly contribute to GHG reductions as RPS increases total renewable power in the grid. **Table 6** shows the 10 buildings with the highest GHG emissions in 2018.

*Table 6. Ten Highest Emitting Weston Town Buildings*

Building	MTCO <sub>2e</sub>	Percent of Facility Emissions
Weston MS	1,066	23.8%
Weston HS	907	20.3%
Country ES	446	10.0%
Woodland Primary	361	8.1%
New Field ES School	251	5.6%
DPW Admin and Maintenance Bldg	175	3.9%
Police Dept	167	3.7%
Town Hall	164	3.7%
Brook School Apt Bld C	158	3.5%
Weston Public Library	141	3.2%

## Vehicle Fleet and Employee Commute

Together, the Vehicle Fleet and Employee Commute sectors of the government operations inventory totaled 2,110 MTCO<sub>2e</sub>, 30.6% of total emissions. Each sector accounted for a very similar amount of emissions, 1,035, and 1,075 (respectively) but GHG reduction measures targeting each sector will be very different. The Town has operational control over the vehicle fleet and the ability to phase out older, less fuel efficient models for cleaner burning or electric vehicles. A vehicle fleet audit to isolate the highest emitting vehicles will be useful first step to reducing emissions from government owned vehicles. The two primary ways the Town can reduce emissions from employee commute are through offering telecommuting options and encouraging a mode shift from single occupancy vehicles to transit options through shuttles that serve railway transit lines and financial incentives to use transit. **Table 7** shows emissions from the Vehicle Fleet and Employee Commute sectors.

*Table 7. Vehicle Fleet and Employee Commute Emissions (MTCO<sub>2e</sub>)*

Transportation	Fuel	MTCO <sub>2e</sub>	Percent
Vehicle Fleet	Gasoline	428	20.3%
	Diesel	606	28.7%
Employee Commute	Gasoline	1,075	51.0%
	Diesel	0	0.0%
<b>Total</b>		<b>2,110</b>	

## **Solid Waste**

The Town of Weston disposed of 330 tons of waste from facilities it owns and operates in 2018. All of this waste was incinerated. Emissions for the waste sector are relatively small: 115 MTCO<sub>2</sub>e, accounting for 1.7% of total emissions. A Zero Waste program can reduce waste disposed and the resulting emissions from incineration. Though the waste incinerators are not located in the Town, regional air quality will improve with fewer tons incinerated.

## **Water**

Electricity and natural gas used to transport water to local government facilities accounted for 108 MTCO<sub>2</sub>e in 2018. Water saving fixtures and toilets will help reduce water demand at Town facilities.

## **Streetlights and Traffic Signals**

Emissions from streetlights and traffic signals accounted for 78 MTCO<sub>2</sub>e in 2018. LED conversion of light bulbs will be the most direct way of reducing emission from this sector.

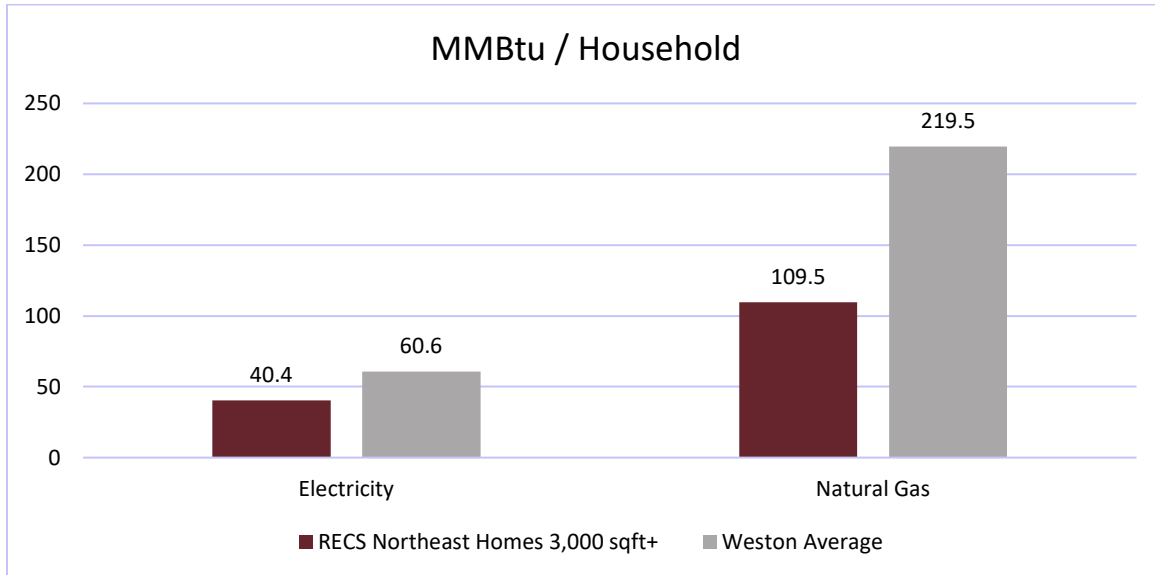
## **Conclusions**

In reviewing the high-level findings of this inventory, reducing natural gas consumption at the community scale provides the greatest opportunity for reducing GHGs from the Town of Weston. While natural gas leakage is a significant source and should also be a high priority for reductions since leak repairs are immediately effective when completed, consumption remains high, particularly in the residential sector. Further analysis of the consumption data from MassSave which is derived from billing records can illustrate the relative efficiency of household natural gas use. One useful comparison can be made to the expected energy use of comparable households. The EIA Residential Energy Consumption Survey (RECS)<sup>10</sup> provides a point of reference for energy consumption by homes greater than 3,000 square feet in the Northeast for electricity and natural gas. Figure 6. illustrates this comparison in terms of MMBtu per household.

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<sup>10</sup> <https://www.eia.gov/consumption/residential/data/2015/c&e/pdf/ce2.2.pdf>

Figure 7 Weston Household Energy Intensity



In aggregate, Weston homes use 50% more electricity than expected and 100% (double) the natural gas that would be expected according to the RECS survey. While this is done at the aggregate level and detail of individual home performance is lost, the results are compelling.

Resident transportation was the second highest source of emissions. The source data for this inventory, the Statewide Vehicle Census provided by MAPC<sup>11</sup> can be used to evaluate Weston’s performance in this area. In terms of VMT per household in 2014, Weston ranks 124 of the 351 Massachusetts communities which is in the top 35% of communities. However, there is room for improvement as many Metro-West communities have lower rates of VMT per household.

Within municipal operations the pattern is largely the same with energy use in buildings dominating the sources of emissions. Weston has maintained good record keeping of consumption in public facilities as well as energy conservation measures taken within them through the Mass Energy Insight tool. In a review of actions take to date, many of the conservation actions have been low-hanging fruit with lighting upgrades throughout most buildings. Substantial impacts were made with larger projects such as boiler upgrades in Weston Middle and High Schools in 2013. Deeper cuts in municipal consumption will require looking for similar opportunities in other facilities.

<sup>11</sup> <https://datacommon.mapc.org/browser/datasets/330>



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<https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials#Generation>



# APPENDICES

C. Public Engagement Materials

## Appendix C: Community Engagement Results Summary

### Interviews

Throughout June and July 2020, Weston stakeholders were asked to participate in a series of interviews and focus groups to provide a deeper understanding of the community’s priorities and concerns around climate action and resiliency as well as the work to-date on sustainability initiatives in Weston. Interviewees included the following groups:

- Brook School Apartment
- St. Julia's Catholic Church
- Students from Cambridge School of Weston, Rivers School, and Weston High School
- Sustainable Weston Action Group
- Weston Children’s Community Association
- Weston Council on Aging
- Weston Emergency Reserve Corps
- Weston Forest and Trail
- Weston Public Schools

The interviews included, but were not limited to, the following questions:

- What is your vision for Weston?
- What day-to-day challenges do you or people you work with face?
- How do shocks or extreme events impact your community?
- What are you already doing to advance climate resilience in Weston?
- What is the greatest barrier to making Weston more resilient?
- What resources or support can the Town provide?
- What actions do you think Weston could take today to become more resilient?
- What audiences are the most important to engage to successfully implement this project?

Key takeaways from the interviews are below.

Concerns	<ul style="list-style-type: none"> <li>• Effects of extreme weather</li> <li>• Invasive species and lack of biodiversity</li> <li>• Weston is not conducive to walking or biking</li> <li>• Public health issues (i.e. EEE)</li> <li>• Heat waves</li> <li>• Safety of vulnerable populations during emergencies</li> <li>• Power outages</li> <li>• Overdevelopment and traffic</li> <li>• Use of single-use plastics</li> <li>• Excessive water use</li> <li>• Lack of climate/sustainability education in schools</li> </ul>
Strengths	<ul style="list-style-type: none"> <li>• Residents are receptive to climate education</li> <li>• Motivated group of high schoolers working on climate issues</li> <li>• Youth are connecting the dots between climate change and equity</li> </ul>



	<ul style="list-style-type: none"> <li>• Weston Emergency Reserve Corps is working to prevent local crises through education and preparedness</li> </ul>
Proposed Actions	<ul style="list-style-type: none"> <li>• Partner with landscapers to encourage sustainable landscaping practices</li> <li>• Increase access to locally grown food</li> <li>• Establish an inter-town climate action competition to encourage regional mobilization to reach climate goals</li> <li>• Create an accessible town composting system</li> <li>• Create opportunities for collaboration between all the environmental advocacy groups</li> <li>• Integrate sustainability into K-12 curricula</li> <li>• Install solar on or around municipal buildings and schools and incentivize installation by homeowners</li> <li>• Educational campaign on how to reduce water use</li> <li>• Address gas leaks</li> <li>• Partner with real estate professionals on green building design/improvements</li> </ul>
Barriers to Action	<ul style="list-style-type: none"> <li>• Lack of collaboration between environmental groups</li> <li>• Cultural desire for big houses and expansive green lawns</li> <li>• Not enough opportunities for residents, organizations, and Town departments to interact and collaborate</li> <li>• Conflicting opinions about denser development partnered with more open space</li> <li>• Apathy/laziness or feeling too busy to take action</li> <li>• Lack of support for high school activists</li> <li>• Hard to know what initiatives to start with—individuals need more guidance</li> </ul>
Opportunities for Action	<ul style="list-style-type: none"> <li>• Town responds well to competition</li> <li>• Residents are receptive to taking small, tangible actions</li> <li>• Working with schools—school buildings are the top consumers of energy use in the Town</li> </ul>
Key Implementation Partners	<ul style="list-style-type: none"> <li>• Landscapers</li> <li>• Developers</li> <li>• Realtors</li> <li>• Land’s Sake Farm</li> <li>• High schoolers</li> <li>• Schools</li> </ul>

### Online Surveys

The *Weston Ahead* planning process included three surveys, the first and the last of which were distributed to the general public. The second survey asked for more specific feedback from stakeholders to gather information about potential implementation steps. The results from the stakeholder survey were used to finalize the list of actions and provide the details in the implementation blueprints. The results from the public surveys are below.



WESTON AHEAD  
Creating our Sustainable Future

# Survey 1 Results Summary

SEPTEMBER 2020

*Weston Ahead* is the Town’s Climate Action and Resilience Plan—an effort to prepare for the impacts of climate change that are already affecting the community. The plan will focus on 5 key areas: Healthy Natural Ecosystems, Connected Mobility, Smart and Efficient Buildings, Resilient Infrastructure and Services, and Sustainable Resource Consumption. Collective action in these specific areas will lay the groundwork to move Weston Ahead.

The Town is committed to an inclusive engagement process that will establish a vision for a resilient future and create an actionable plan for how to get there. The first survey was designed to capture residents’ priorities and concerns in order to ensure all voices are heard in the process. The results of the survey can be found on the following pages.

Weston Ahead

WELCOME

**Creating Our Sustainable Future**

With the *Weston Ahead* Climate Action and Resilience Plan, we’re taking a holistic approach as we consider climate change and how we plan for the future. Help us determine what is most important to include in the final plan and move Weston Ahead.

Begin

YOUR VISION

PLAN ELEMENTS

GUIDING PRINCIPLES

THANK YOU

Did You Know?

Weston is expected to have 10-35 more days over 90 degrees by 2050.

WESTON AHEAD  
Creating our Sustainable Future



## SURVEY RESULTS

Participants were asked to rank the importance of several subcategories in each of the 5 Plan Elements. Below are the top-rated categories. See the following pages for a more detailed breakdown of these rankings.



CONNECTED  
MOBILITY

Promoting active transportation (i.e. walking, biking)



HEALTHY NATURAL  
ECOSYSTEMS

Protecting water resources



RESILIENT INFRASTRUCTURE  
AND SERVICES

Creating clean and resilient energy systems



SMART & EFFICIENT  
BUILDINGS

Promoting energy efficiency and conservation in buildings



SUSTAINABLE RESOURCE  
CONSUMPTION

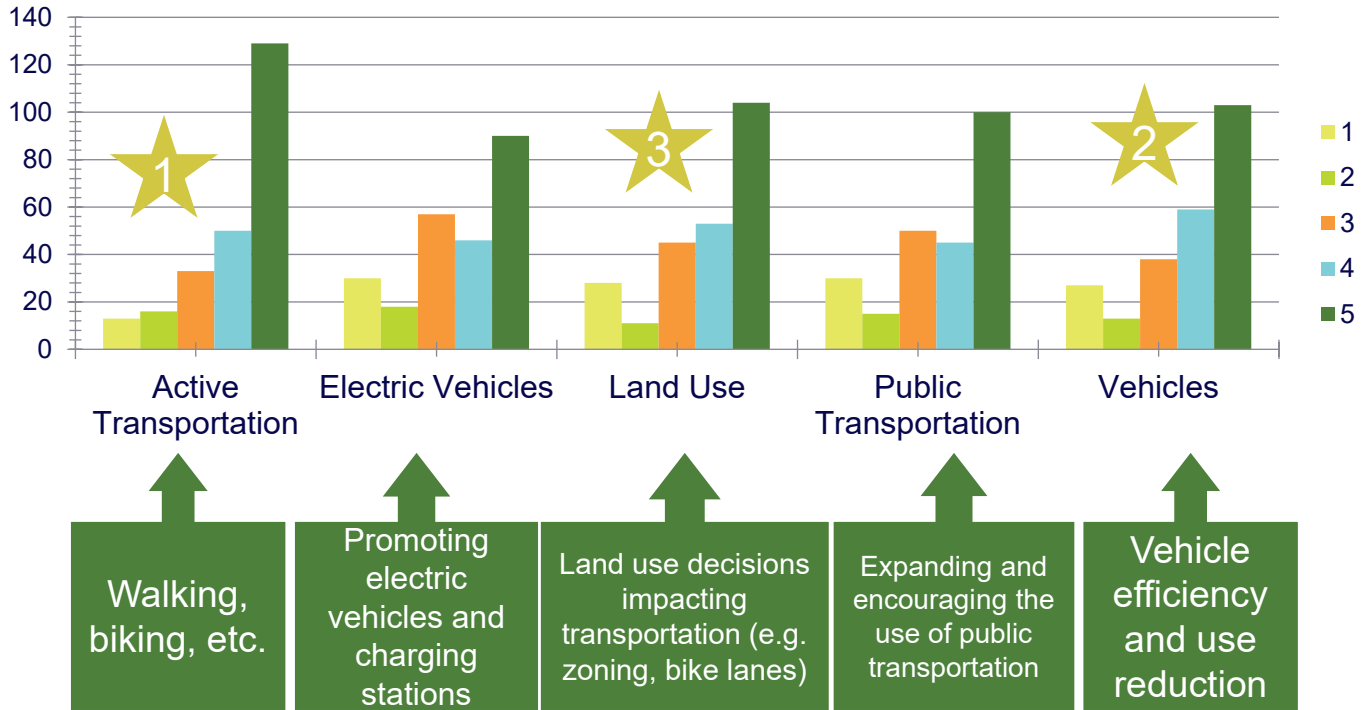
Waste reduction and diversion



# SURVEY RESULTS: PLAN ELEMENTS

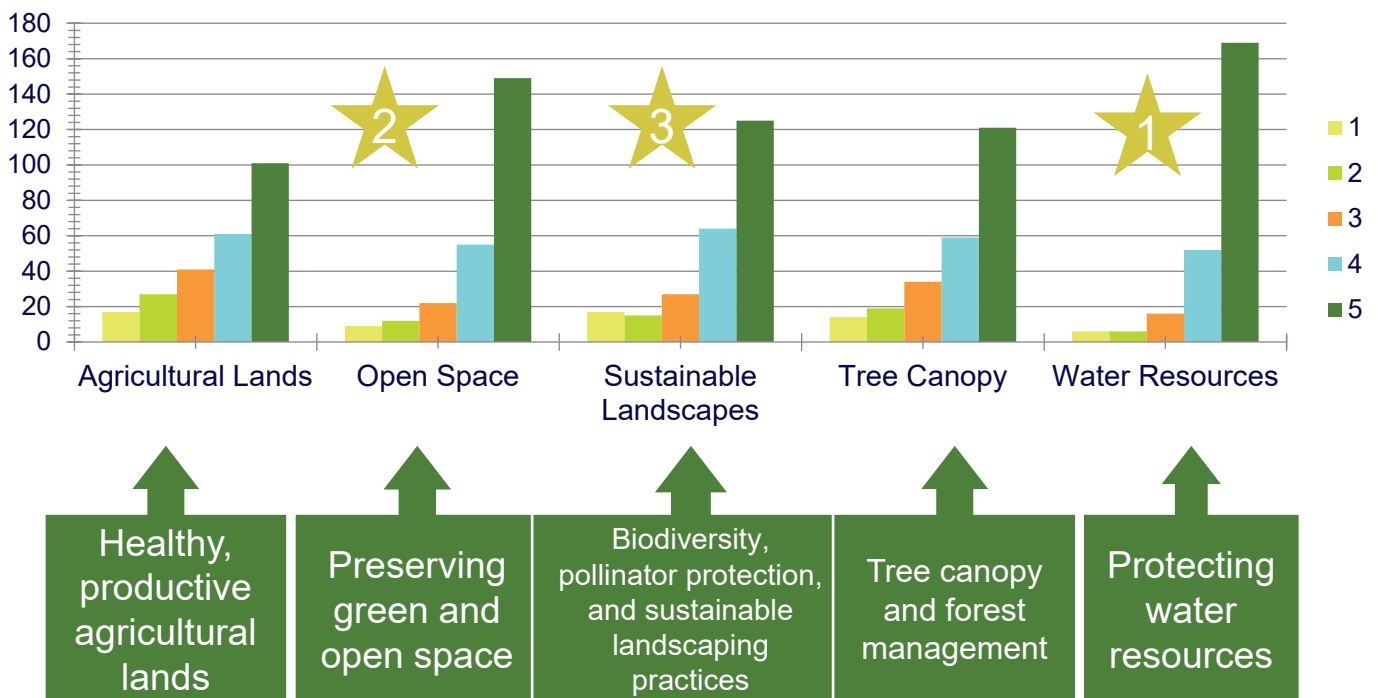
The following charts show the rankings of priority areas within each plan element. See the descriptions of each action below the charts for more details. Stars indicate the actions with the three highest average rankings.

## Connected Mobility



- Walking, biking, etc.
- Promoting electric vehicles and charging stations
- Land use decisions impacting transportation (e.g. zoning, bike lanes)
- Expanding and encouraging the use of public transportation
- Vehicle efficiency and use reduction

## Healthy Natural Ecosystem

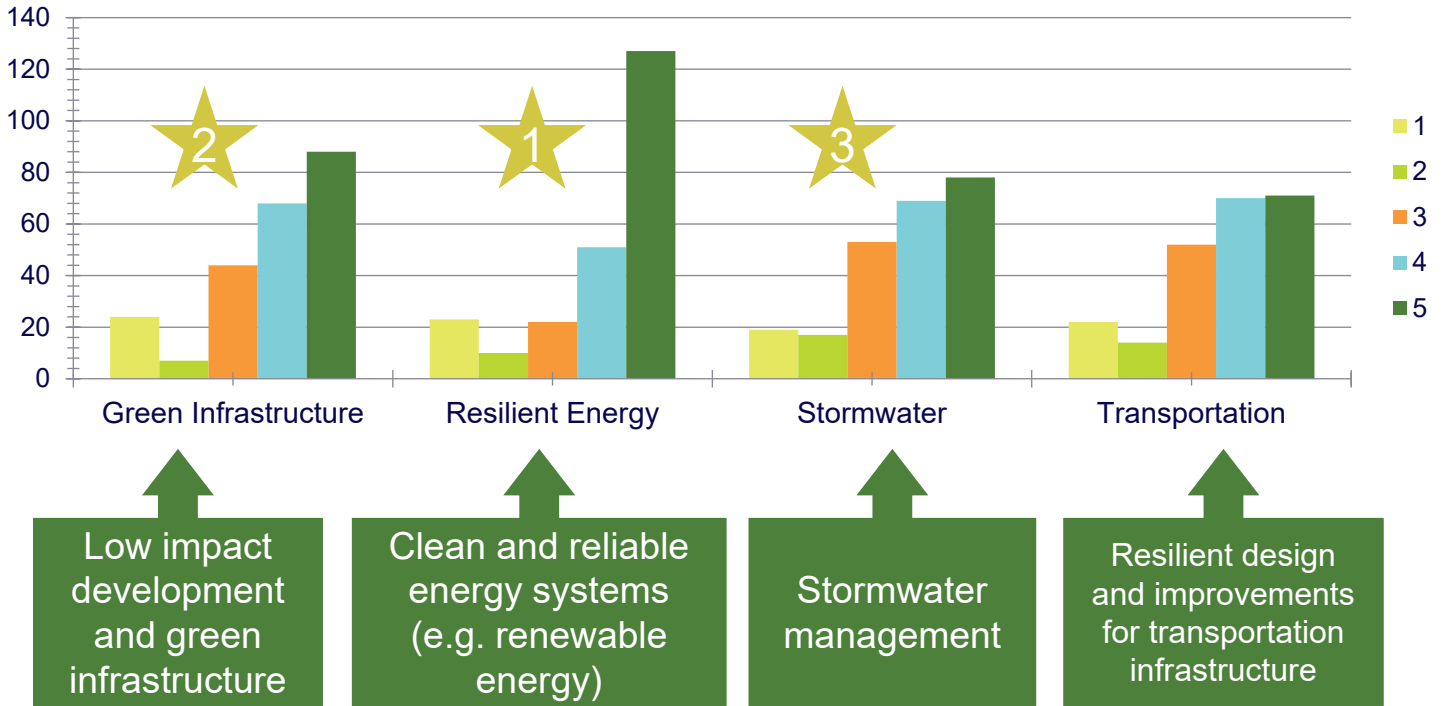


- Healthy, productive agricultural lands
- Preserving green and open space
- Biodiversity, pollinator protection, and sustainable landscaping practices
- Tree canopy and forest management
- Protecting water resources

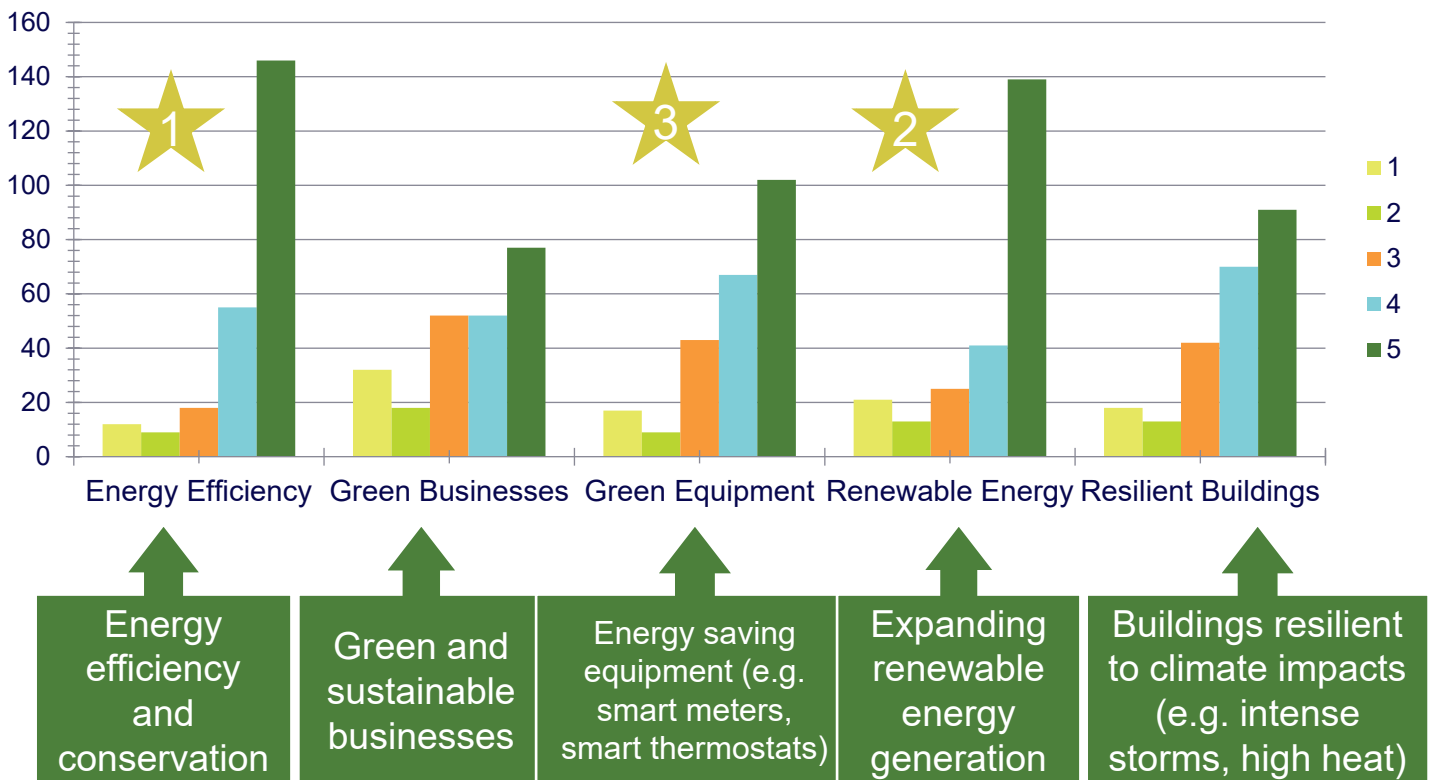
# SURVEY RESULTS: PLAN ELEMENTS

The following charts show the rankings of priority areas within each plan element. See the descriptions of each action below the charts for more details. Stars indicate the actions with the three highest average rankings.

## Resilient Infrastructure



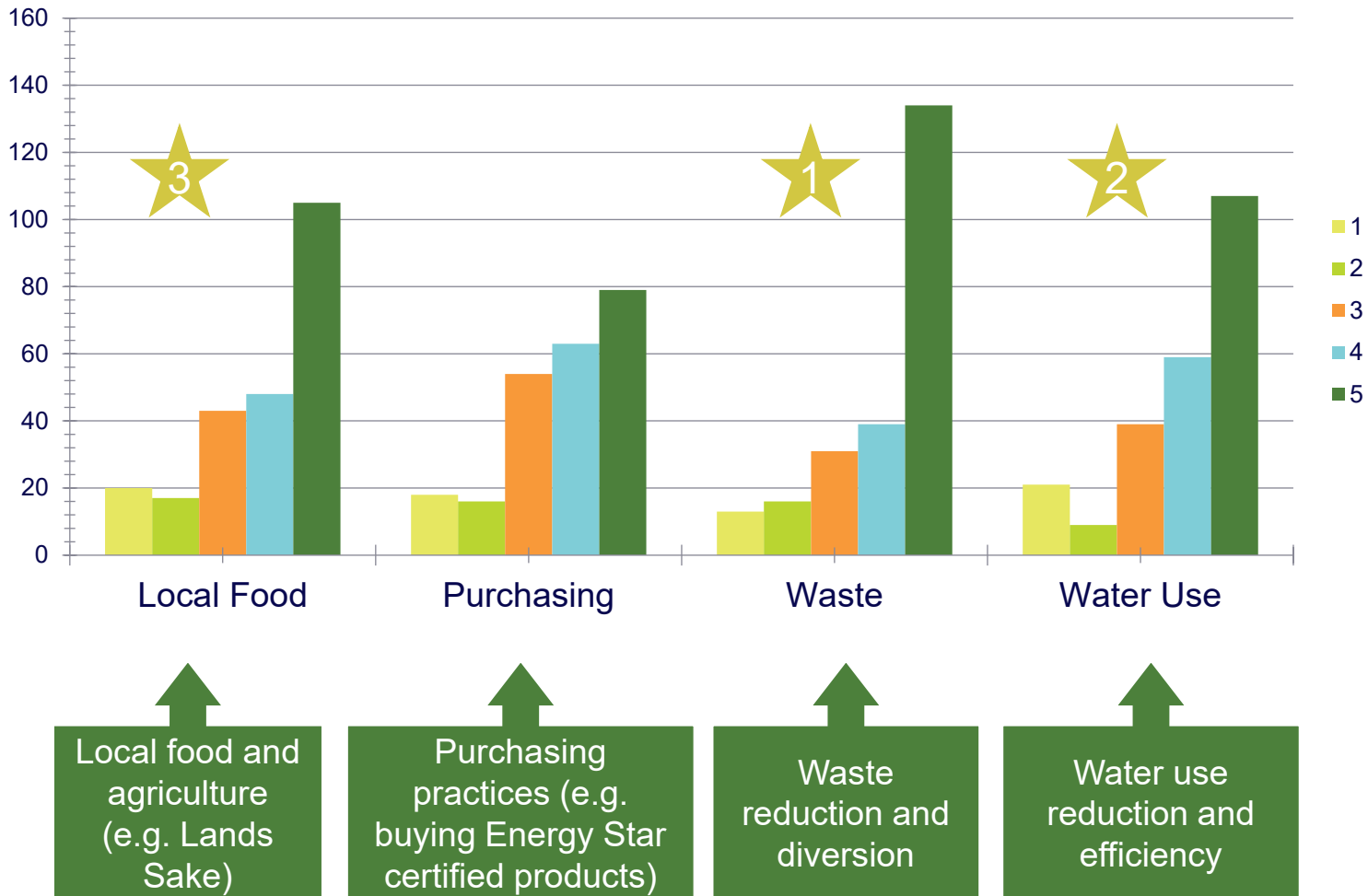
## Smart & Efficient Buildings



# SURVEY RESULTS: PLAN ELEMENTS

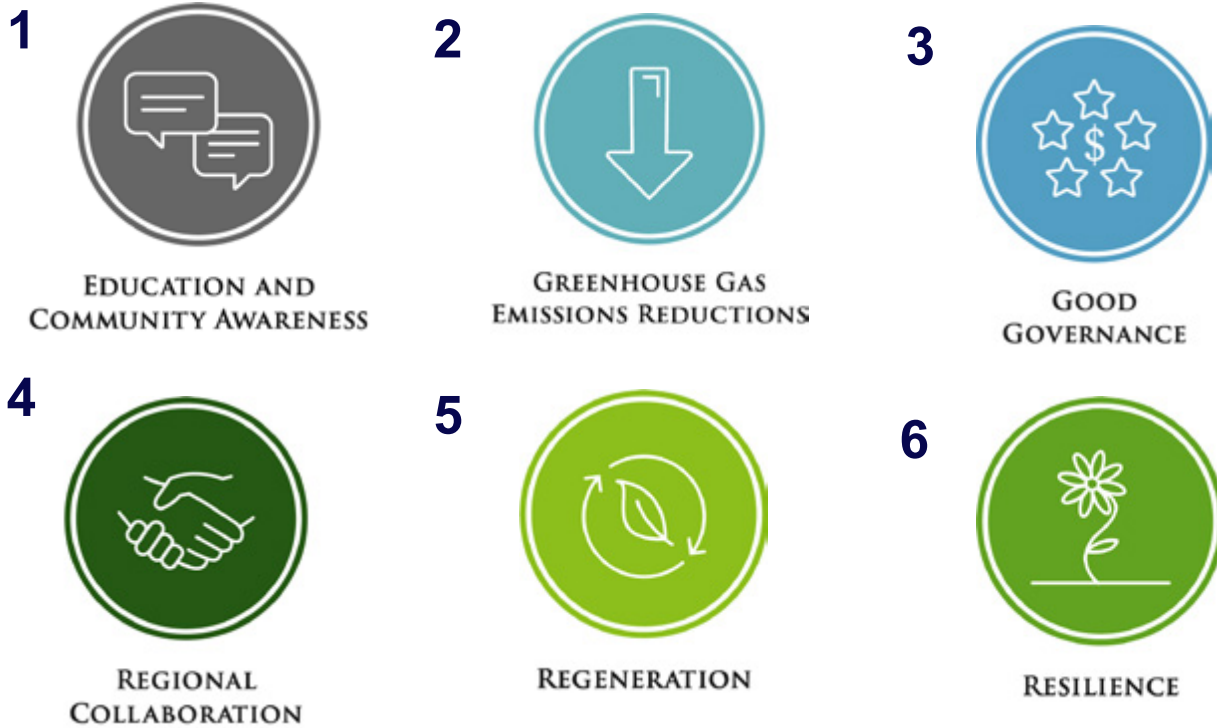
The following charts show the rankings of priority areas within each plan element. See the descriptions of each action below the charts for more details. Stars indicate the actions with the three highest average rankings.

## Sustainable Consumption

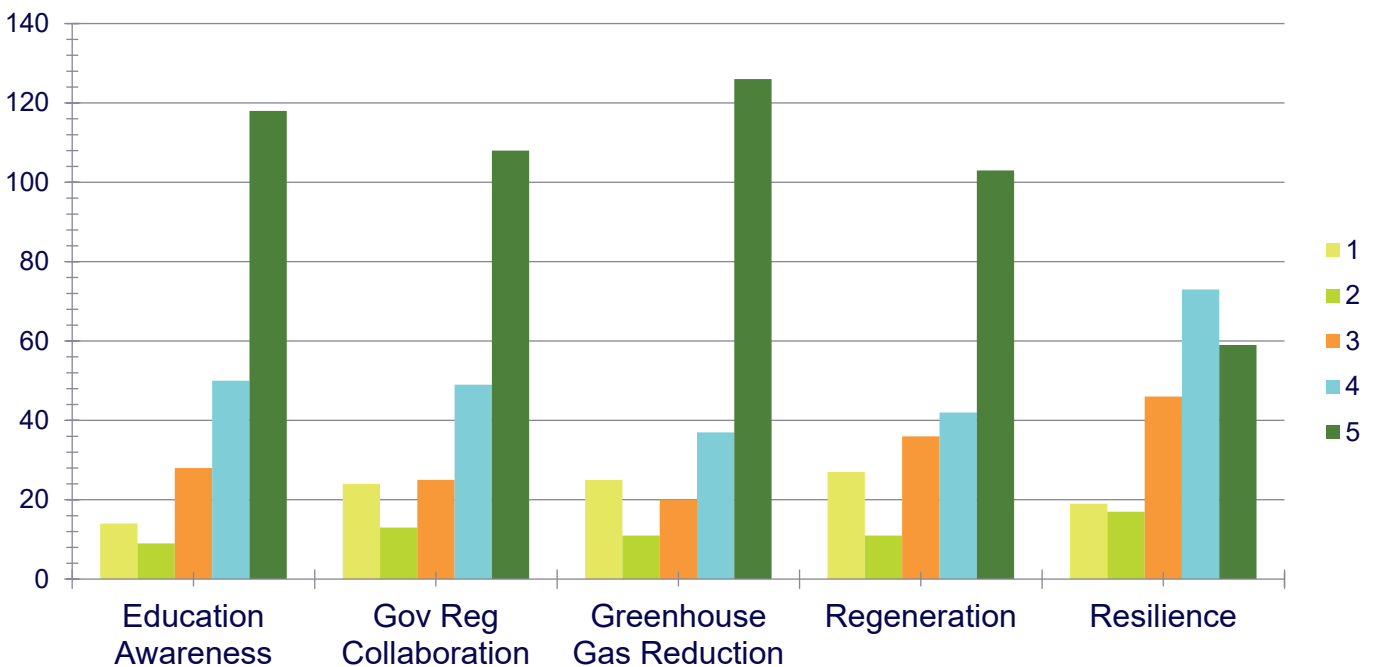


# SURVEY RESULTS

Participants were also asked to rank the importance of the Plan’s guiding principles that will be used to ensure the proposed actions align with core Town values. Below is the ranked list of guiding principles based on average rank. The chart below provides additional detail on the rankings.



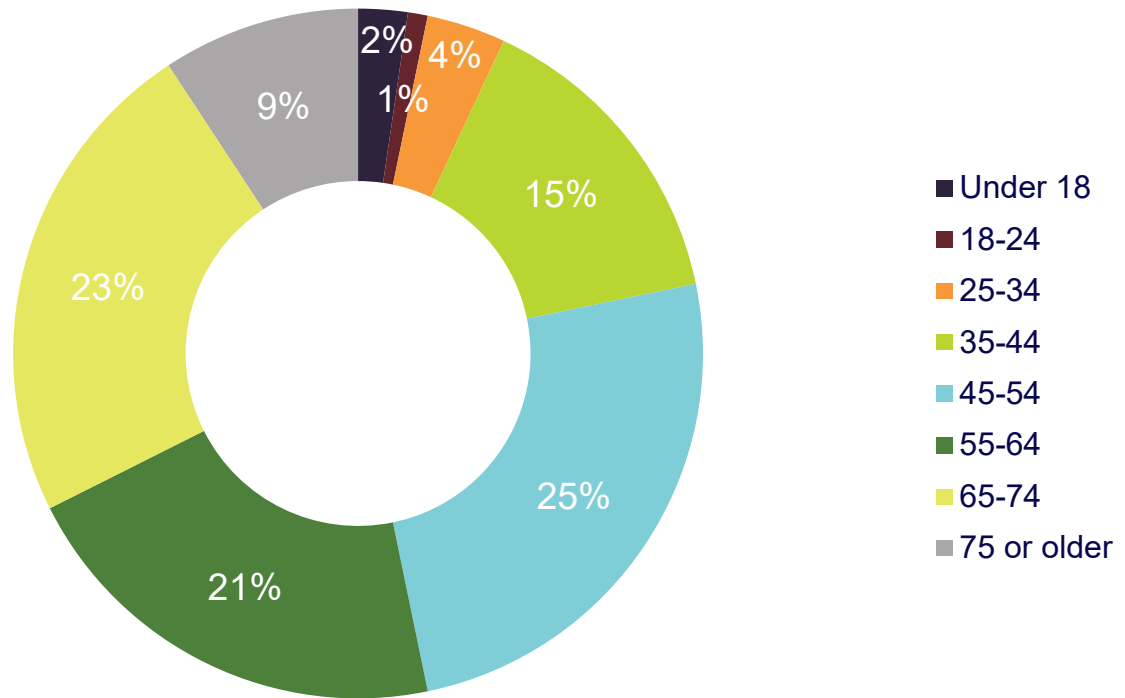
## What do you value?





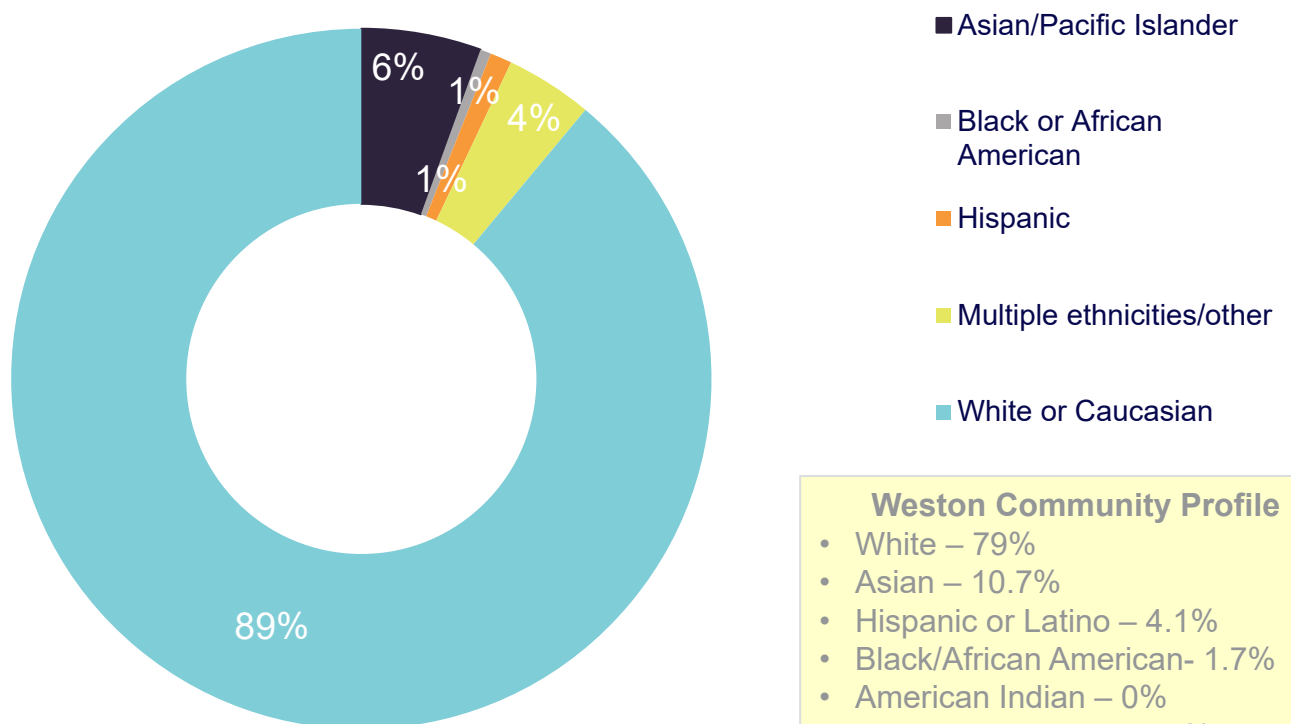
# SURVEY DEMOGRAPHICS

## Age of Participants



\* Based on the 216 people who reported their age on the survey.

## Race/Ethnicity of Participants



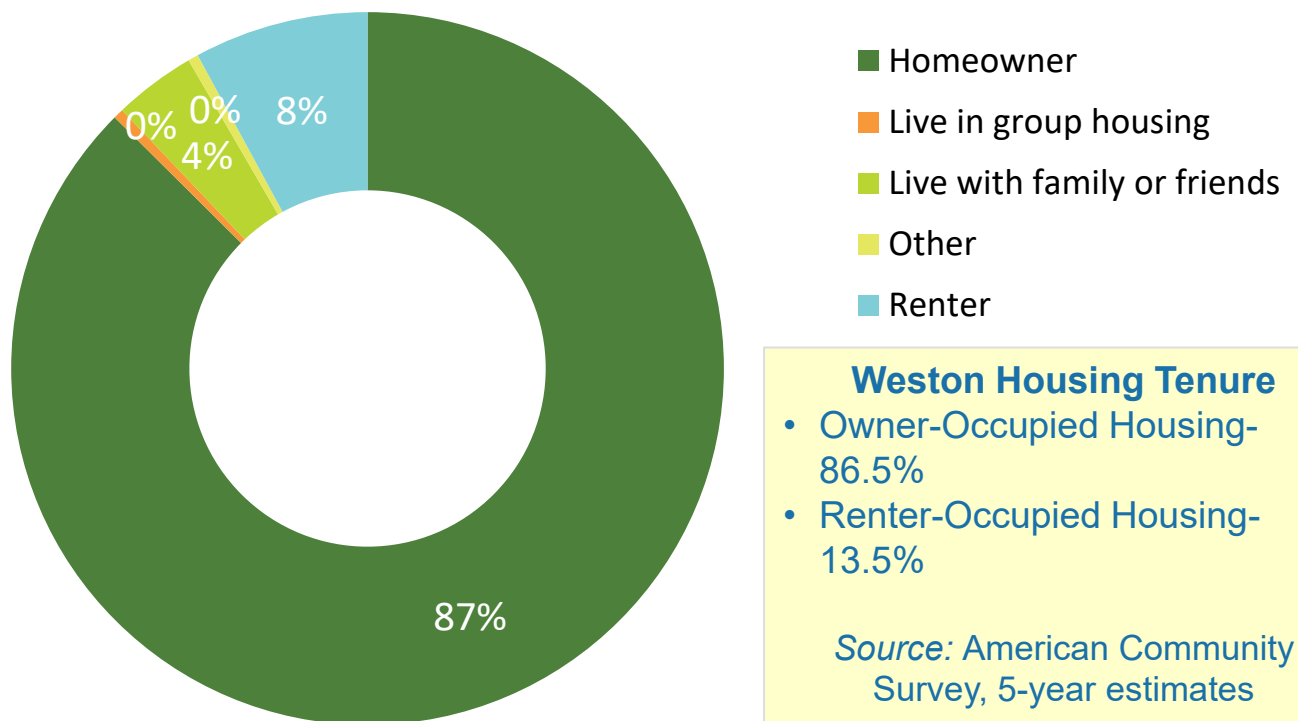
**Weston Community Profile**

- White – 79%
- Asian – 10.7%
- Hispanic or Latino – 4.1%
- Black/African American- 1.7%
- American Indian – 0%
- Multiple Ethnicities- 3.8%

Source: 2017 American Community Survey

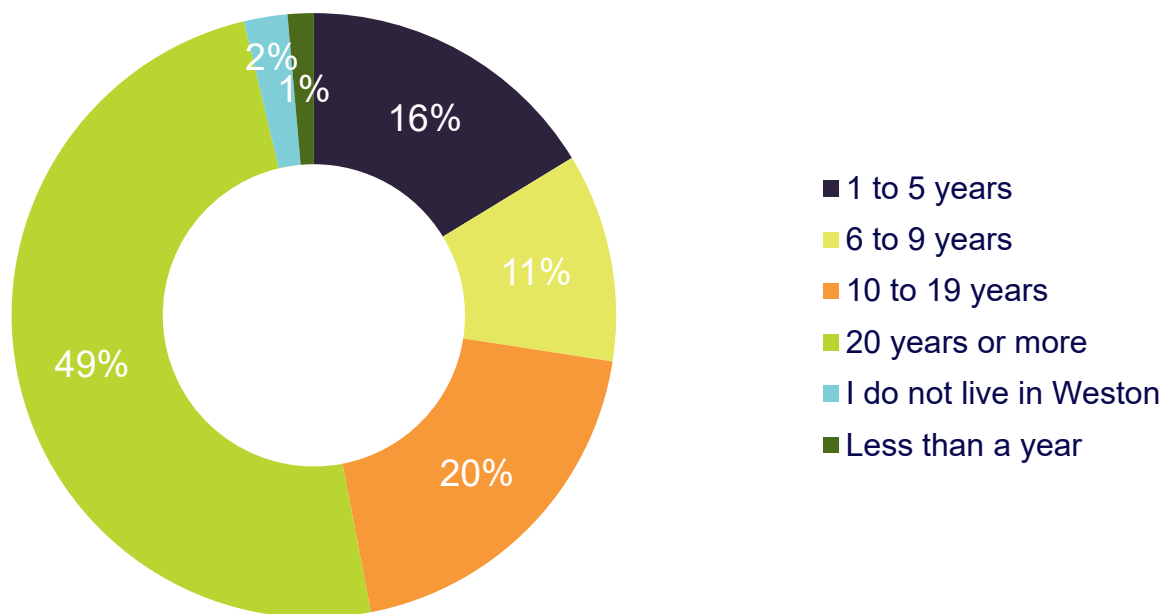
\* Based on the 199 people who reported their race on the survey.

## Housing Status of Participants



\* Based on the 215 people who reported their housing status on the survey.

## How long have you lived in Weston?



\* Based on the 215 people who reported their housing status on the survey.



WESTON AHEAD  
Creating our Sustainable Future

# Survey 3 Results Summary

FEBRUARY 2021

*Weston Ahead* is the Town's Climate Action and Resilience Plan—an effort to prepare for the impacts of climate change that are already affecting the community. The plan focuses on 5 key areas: Healthy Natural Ecosystems, Connected Mobility, Smart and Efficient Buildings, Resilient Infrastructure and Services, and Sustainable Resource Consumption. Collective action in these specific areas will lay the groundwork to move Weston Ahead.

The third survey in the planning process built off past engagement with stakeholders and the public and focused on implementation details of the plan's proposed actions. Questions asked participants to indicate their support for specific actions and to use an interactive map to show areas that would benefit from improvements, such as the installation of an electric vehicle charger or a bike lane. The survey was open for about three weeks—from February 2<sup>nd</sup> to February 21<sup>st</sup> and received 205 responses.

Weston Ahead  
Learn a bit about this initiative before you begin.

**WELCOME**

**Make Your Voice Heard**  
The Weston Ahead Climate Action and Resilience Plan will lay the groundwork for our sustainable future. As we iron out the final details of the plan, we need your input to refine the proposed actions to ensure they align with the priorities, past work, and right opportunities for change throughout the Weston community.

→ Next

**We've Heard Your Feedback**  
Community input has been a critical aspect of the Weston Ahead planning process from the beginning. The first survey garnered 267 responses that helped inform the goals and actions to be included in the plan.

WESTON AHEAD  
Creating our Sustainable Future

2 TOWN BUDGET  
3 PERSONAL BUDGET  
4 MAP MARKERS  
5 THANK YOU

## TOWN BUDGET ALLOCATION

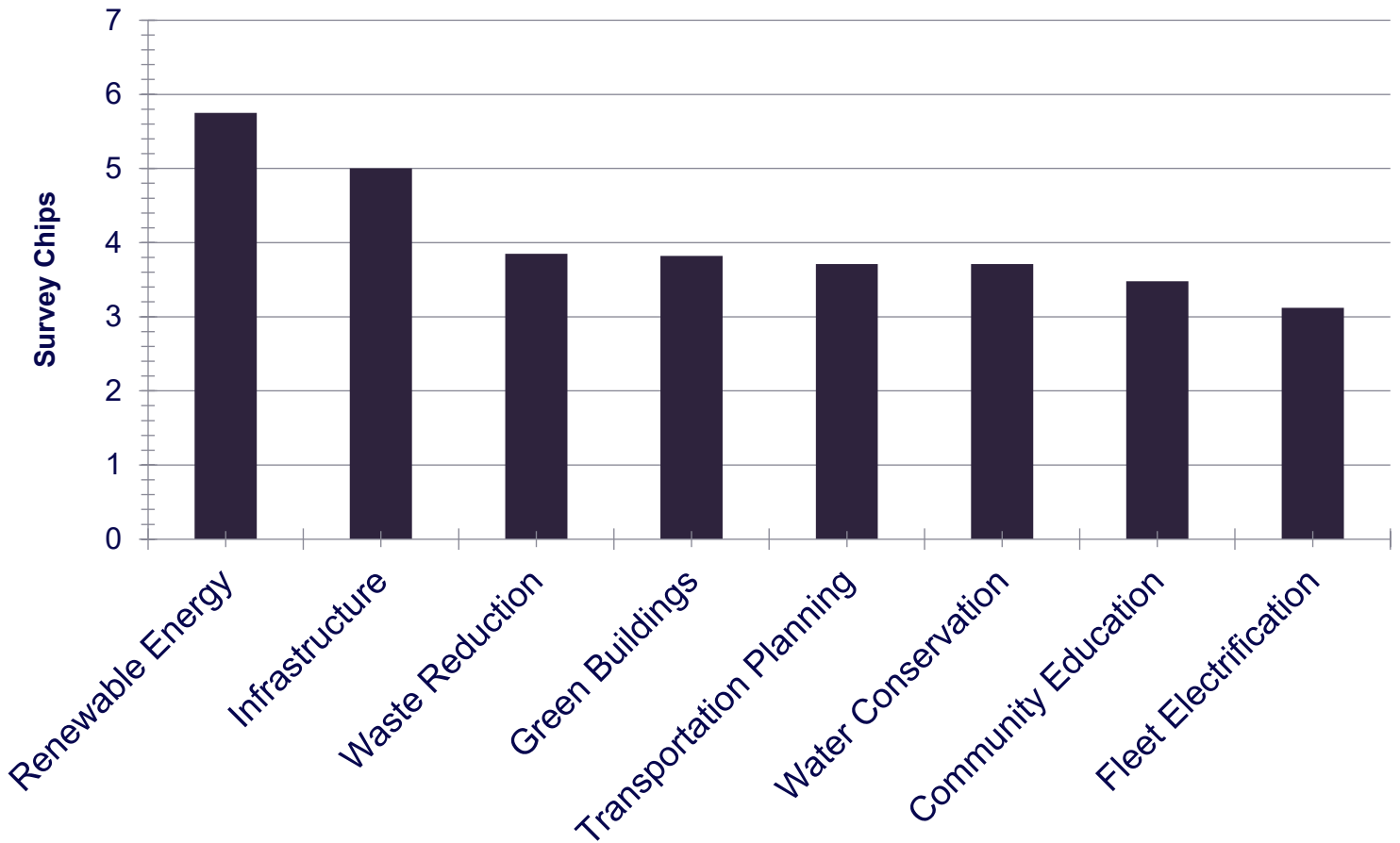
In order to have our climate and resilience actions to reflect the community's priorities, we had participants indicate with chips how they would allocate the Town's budget on certain climate action and resilience actions. The options (shown below) represent key areas of the Weston Ahead plan. **The results of the Town budget allocation exercise is on the next page.**

- Renewable Energy: Investing in renewable energy systems, promoting Weston Power Choice, and providing incentives for residential solar.
- Infrastructure: Enhancing the resilience of essential infrastructure (e.g., buildings, utility lines, roadways, culverts) to climate hazards (e.g., flooding, heat, storms).
- Waste Reduction: Expanding waste reduction programs, expanding services at the Transfer station, banning single-use plastics, and adopting zero-waste goals.
- Green Buildings: Upgrading municipal buildings to meet net-zero energy standards and promoting net-zero for commercial and residential properties.
- Transportation Planning: Enhancing regional and local connectivity, improving pedestrian and biking infrastructure, adding electric vehicle charging stations at public places.
- Water Conservation: Investing in water saving technologies, improving water use tracking systems, and educating the public about water conservation.
- Community Education: Expanding outreach about sustainability initiatives to the public and adding sustainability to school curriculum.
- Fleet Electrification: Replacing municipal vehicles with electric and/or hydrogen fuel-cell vehicles.



# TOWN BUDGET ALLOCATION

## Average Town Budget Allocation



From the survey






**2 What's Most Important to You?** ⓘ 💬 »  
 Show us below or leave a comment by clicking the speech bubble icon to the right.

**TOWN BUDGET**

We want our climate and resilience actions to reflect the community's priorities. Indicate with chips how you would allocate the Town's budget on the following proposed strategies from the Weston Ahead Plan. Click the "i" icon to learn more.

<p>Community Education</p> <p>0</p>	<p>Fleet Electrification</p> <p>0</p>	<p>Green Buildings</p> <p>0</p>	<p>Infrastructure</p> <p>0</p>
<p>Renewable Energy</p> <p>10</p>	<p>Transportation Planning</p> <p>0</p>	<p>Waste Reduction</p> <p>0</p>	<p>Water Conservation</p> <p>0</p>

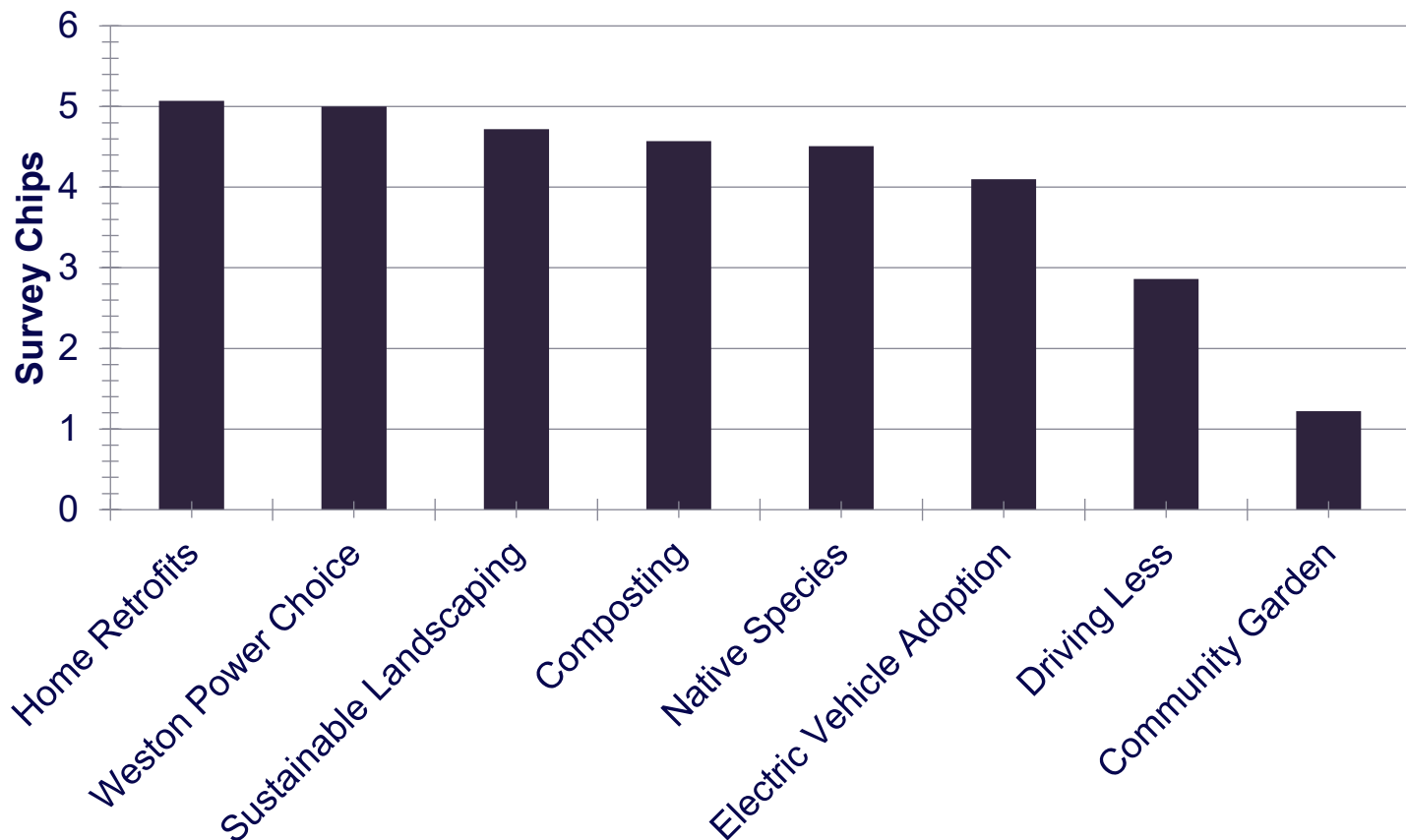
 10     
  25

## PERSONAL BUDGET ALLOCATION

Recognizing we all have limited time, energy, and money to commit to educating ourselves and adopting new habits, we asked participants to use chips to indicate their likeliness to pursue (or continue) the following sustainability choices or practices. The options (shown below) reflect actions in the plan that require individual action to have their full impact. **The results of the personal budget allocation exercise is on the next page.**

- Home Retrofits: Updating your home with energy-efficient systems (e.g., electric heat pumps), installing solar panels, or making other upgrades that lead to deep energy savings and greenhouse gas emissions reductions
- Weston Power Choice: Opting up to 100% clean energy through Weston Power Choice, the Town's community choice aggregation program.
- Sustainable Landscaping: Learning about and implementing low-impact and non-water-intensive landscaping strategies.
- Composting: Dropping compost off at the Transfer Station, starting your own backyard composting system, or paying for compost pickup.
- Native Species: Volunteering to remove invasive species, planting only native and pollinator-friendly species.
- Electric Vehicle Adoption: Replacing your car with an electric vehicle (or continuing to drive an EV).
- Driving Less: Committing to walking, biking, or taking transit whenever possible to reduce personal carbon emissions from driving alone, assuming there were safe sidewalks and bike infrastructure.
- Community Garden: Maintaining your own plot in a Weston community garden.

## Average Personal Budget Allocation



### 3 What Will You Commit To?

Show us below or leave a comment by clicking the speech bubble icon to the right.

**PERSONAL BUDGET**

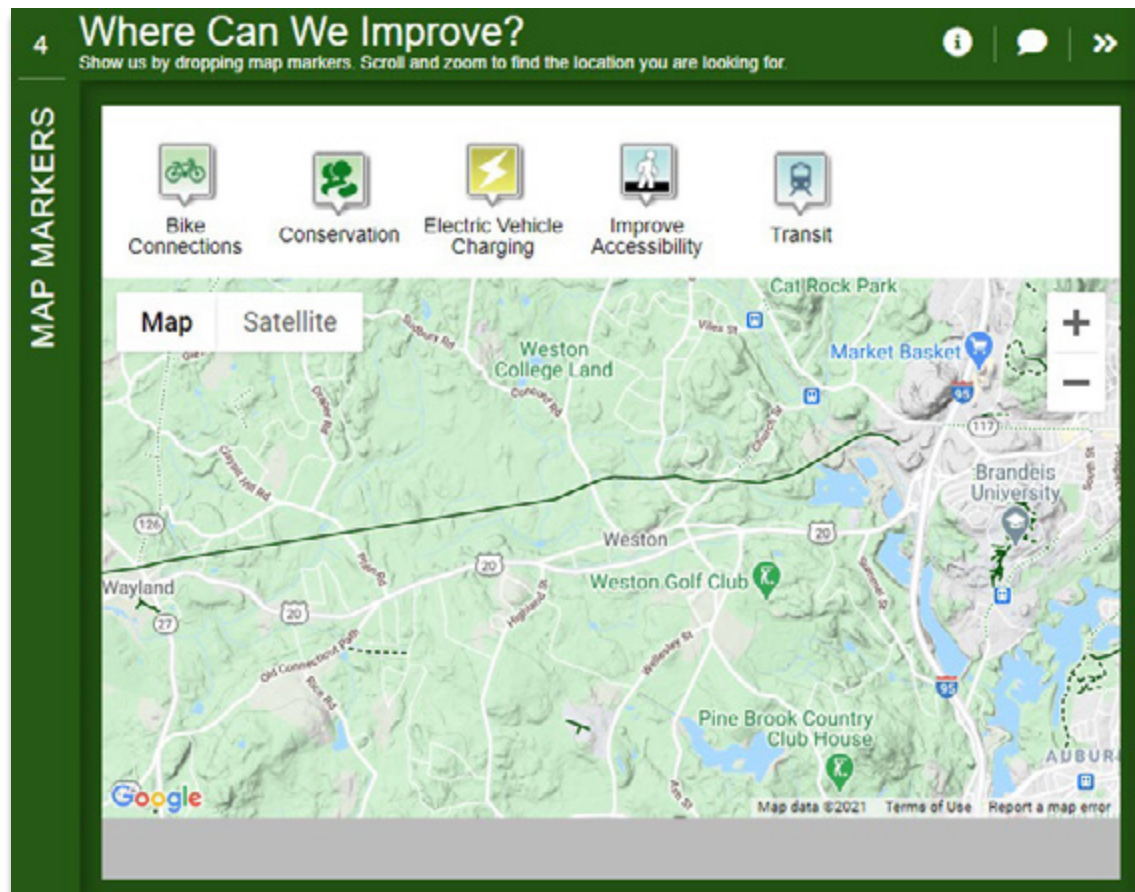
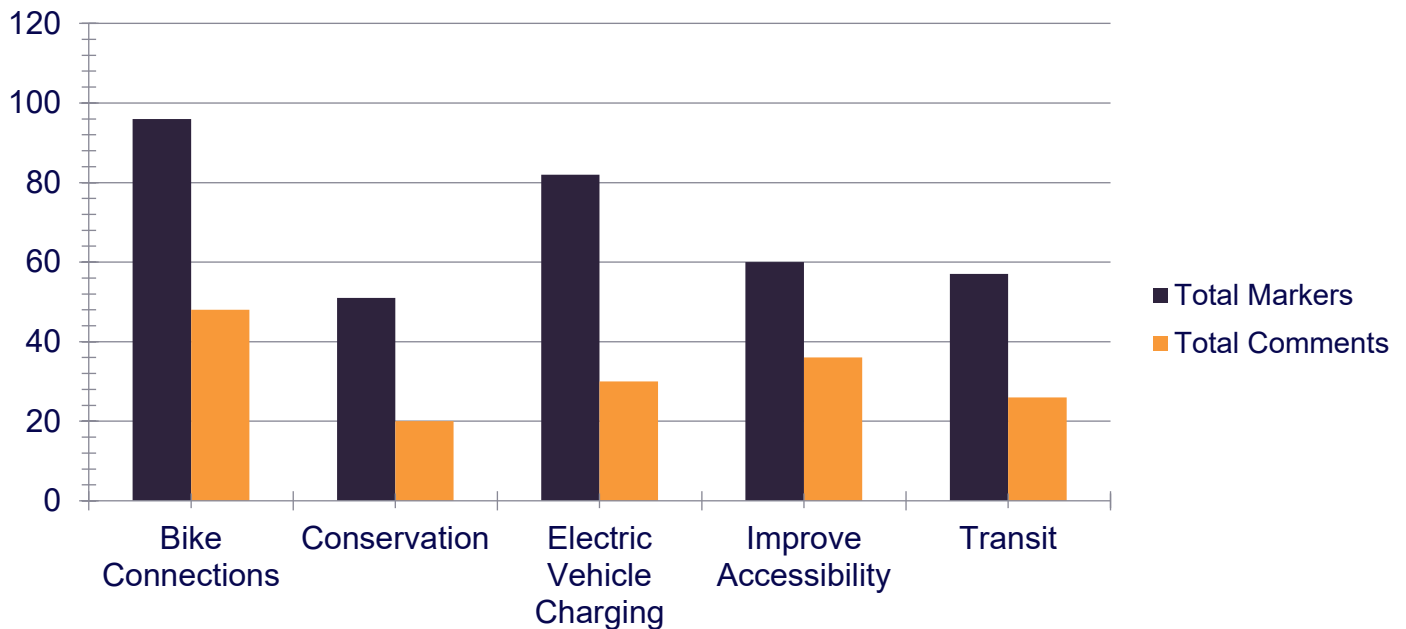
We all have limited time, energy, and money to commit to educating ourselves and adopting new habits. Use chips to indicate your likeliness to pursue (or continue) the following sustainability choices or practices. Click the "i" icon to learn more.

<p><b>i</b> Community Garden</p> <p>0</p>	<p><b>i</b> Composting</p> <p>0</p>	<p><b>i</b> Driving Less</p> <p>0</p>	<p><b>i</b> Electric Vehicle Adoption</p> <p>0</p>
<p><b>i</b> Home Retrofits</p> <p>10</p>	<p><b>i</b> Native Species</p> <p>0</p>	<p><b>i</b> Sustainable Landscaping</p> <p>0</p>	<p><b>i</b> Weston Power Choice</p> <p>0</p>

Legend: 1 chip = 10, 5 chips = 25

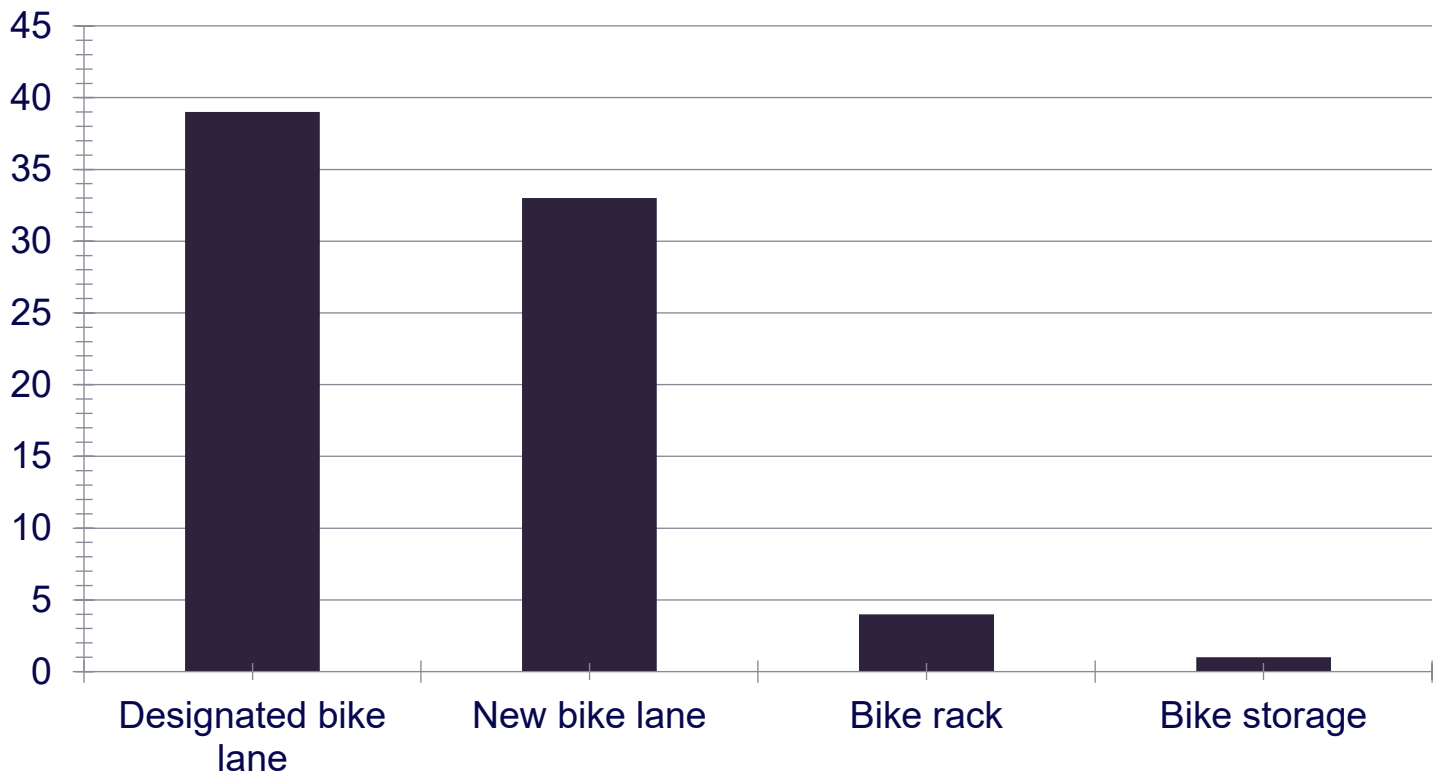
# MAP MARKERS

The survey had a mapping feature through which participants could indicate key areas for improvements. The graph below shows the number of map markers and comments left for each category. More detailed information for each category can be found on the following pages.





## Bike Connections - What kind of bike infrastructure would you like here?

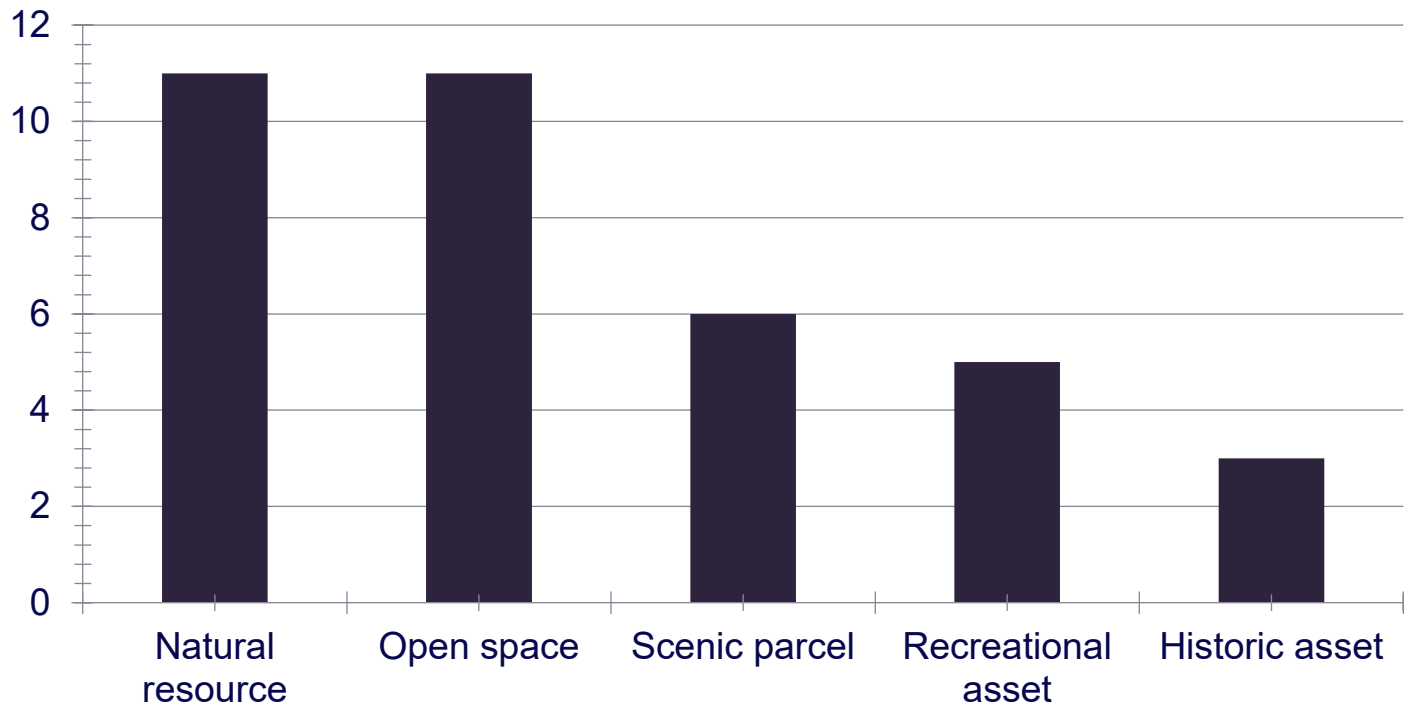


### Trends:

Below are some frequently shared desires for improved bike connections:

- Bike lanes on Route 20 and Route 30
- Rail trail connection into Waltham
- Bike racks around the town center (e.g., Brothers, post office)
- Bike lanes in the town center
- Safe bike routes to schools
- Better connections to neighboring towns and other multiuse paths
- Connections to transit stations
- Bike lanes more consistently present all around town

## Conservation - What kind of assets needs to be protected here?

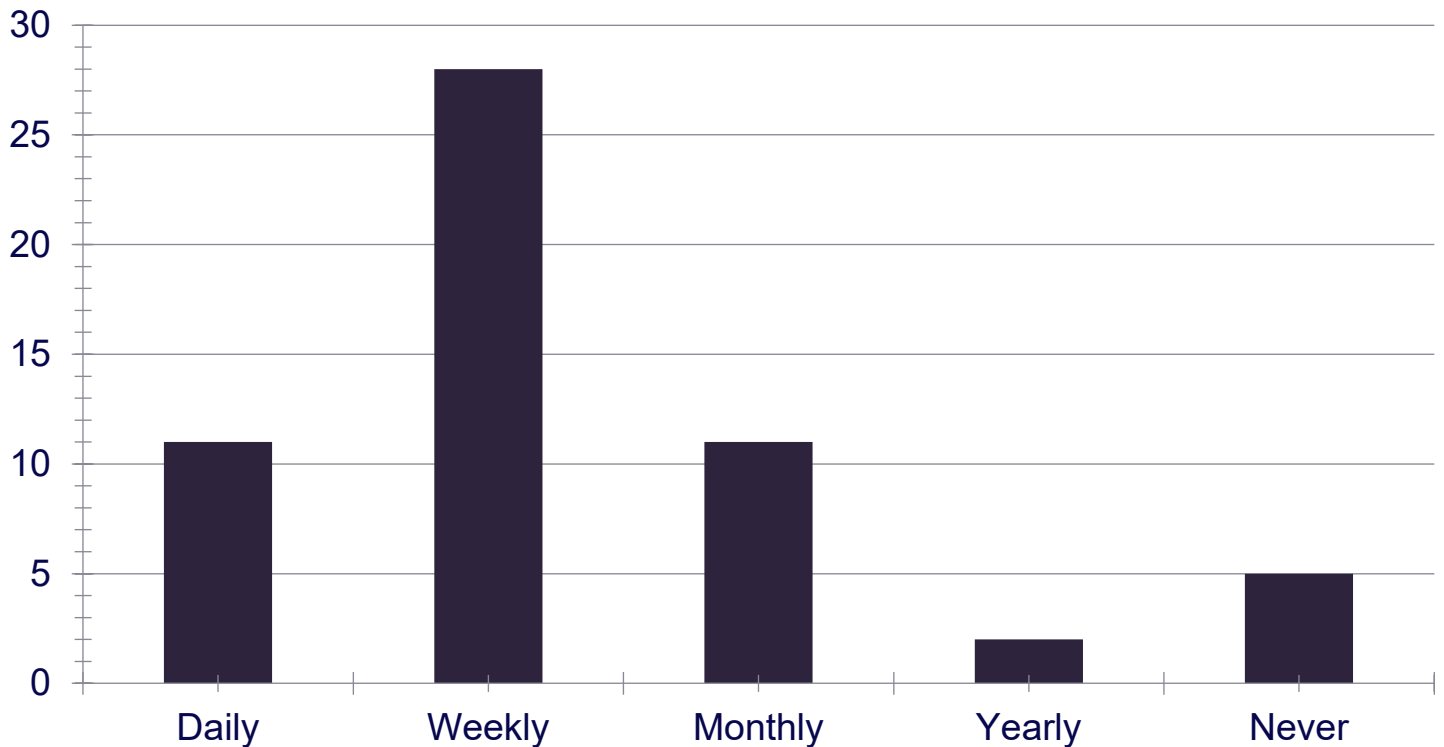


### Trends:

Below are some frequently shared desires for targeted conservation efforts:

- General protection of open space and natural resources all throughout town
- Protection of habitats around Case Estates
- Conservation of wetlands and wooded areas
- Invasive species control (e.g., along Highland Ave Properties and around ballfields)
- Preserve water quality

## Electric Vehicle Charging - If you had an EV, how often would you use this?

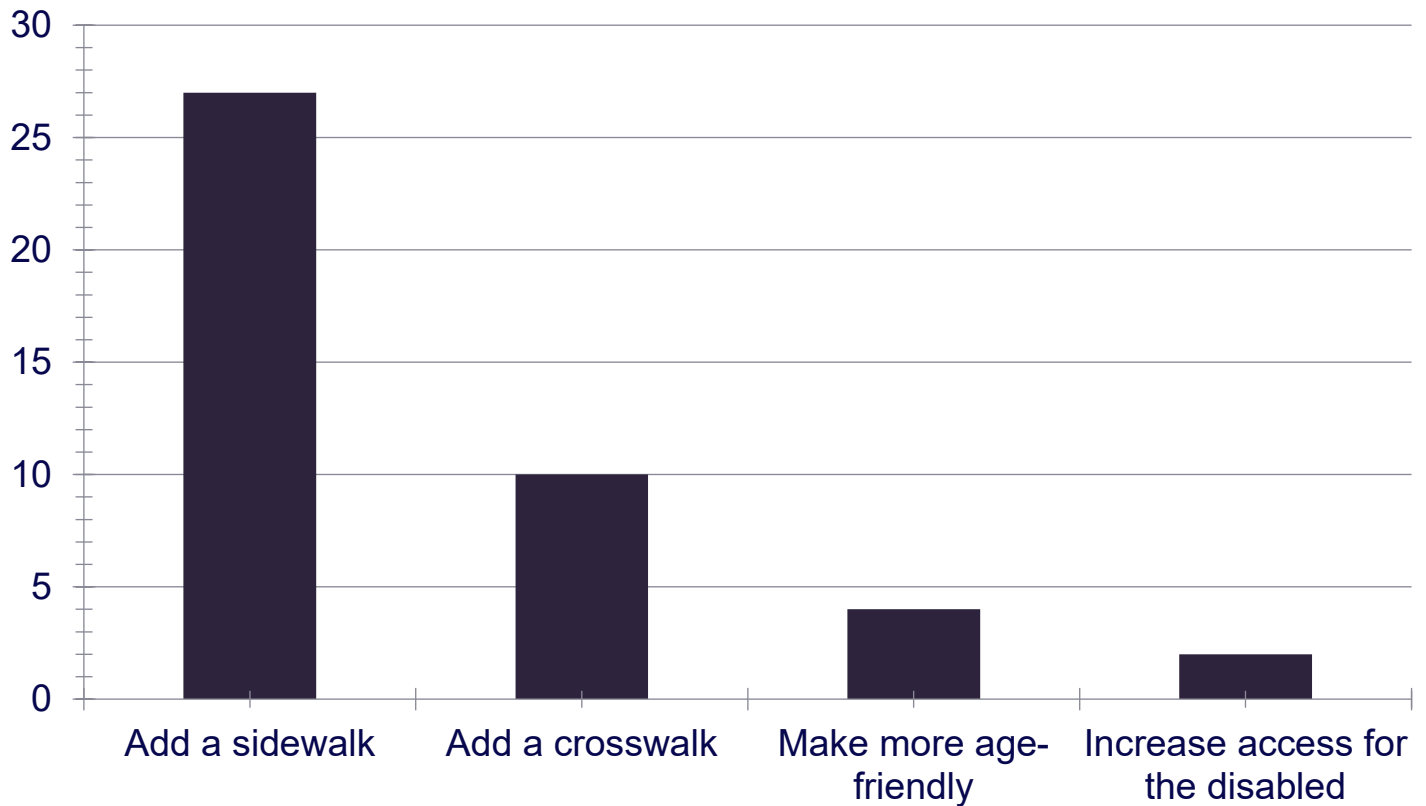


### Trends:

Below are some frequently proposed locations for electric vehicle charging stations:

- Town center (most popular response)
  - Brothers shopping center
  - Public library
  - Town Hall
- Schools (especially Weston High School)
- Transit stops
- Recreation centers
- Brook School Apartments

## Improve Accessibility - How can we improve access here?



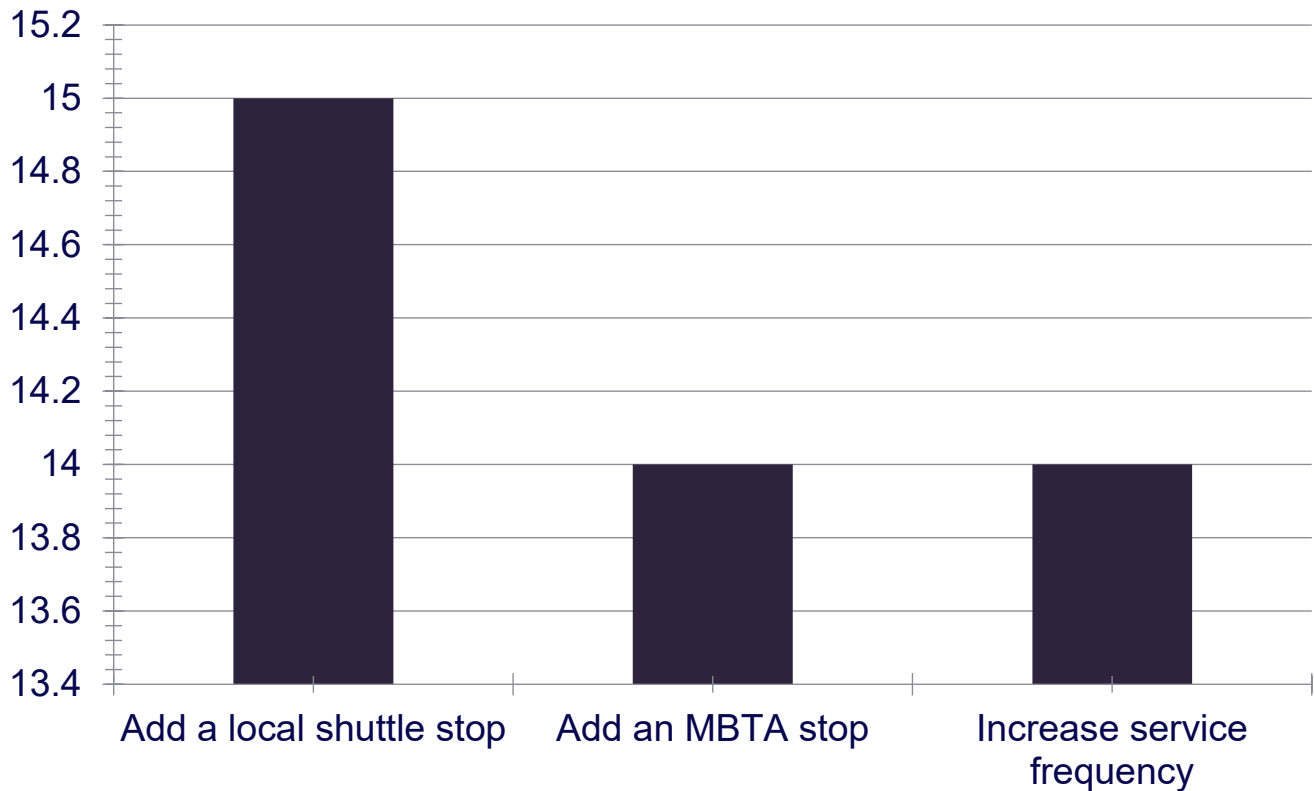
### Trends:

Below are some frequently shared desires for improving accessibility:

- Safe crosswalks across Route 20 (e.g., around town center, to trailhead, to schools)
- More sidewalks in the town center
- Sidewalks on Highland Street, Conant Road, and generally all throughout town
- Sidewalks around transit stops
- Safe connections to rail trail



## Transit - What kind of transit would you like to see here?



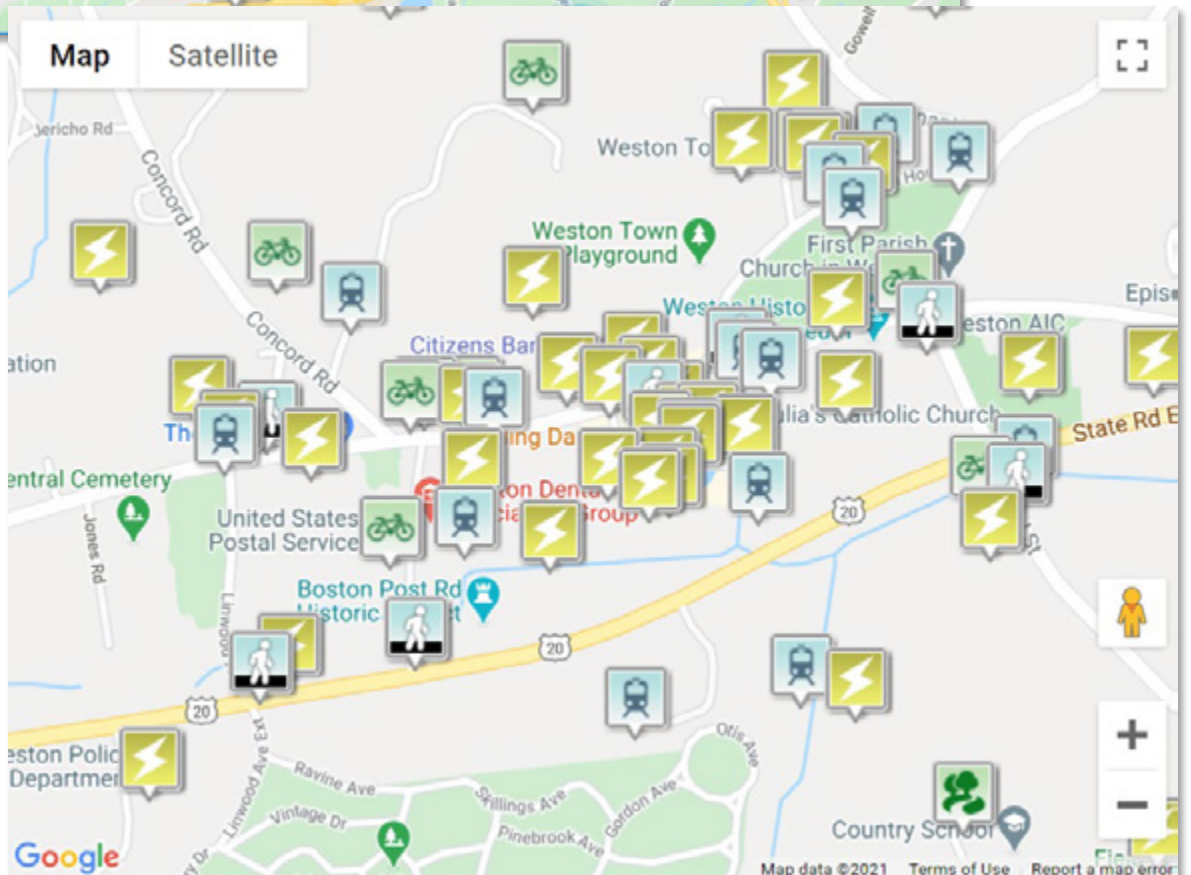
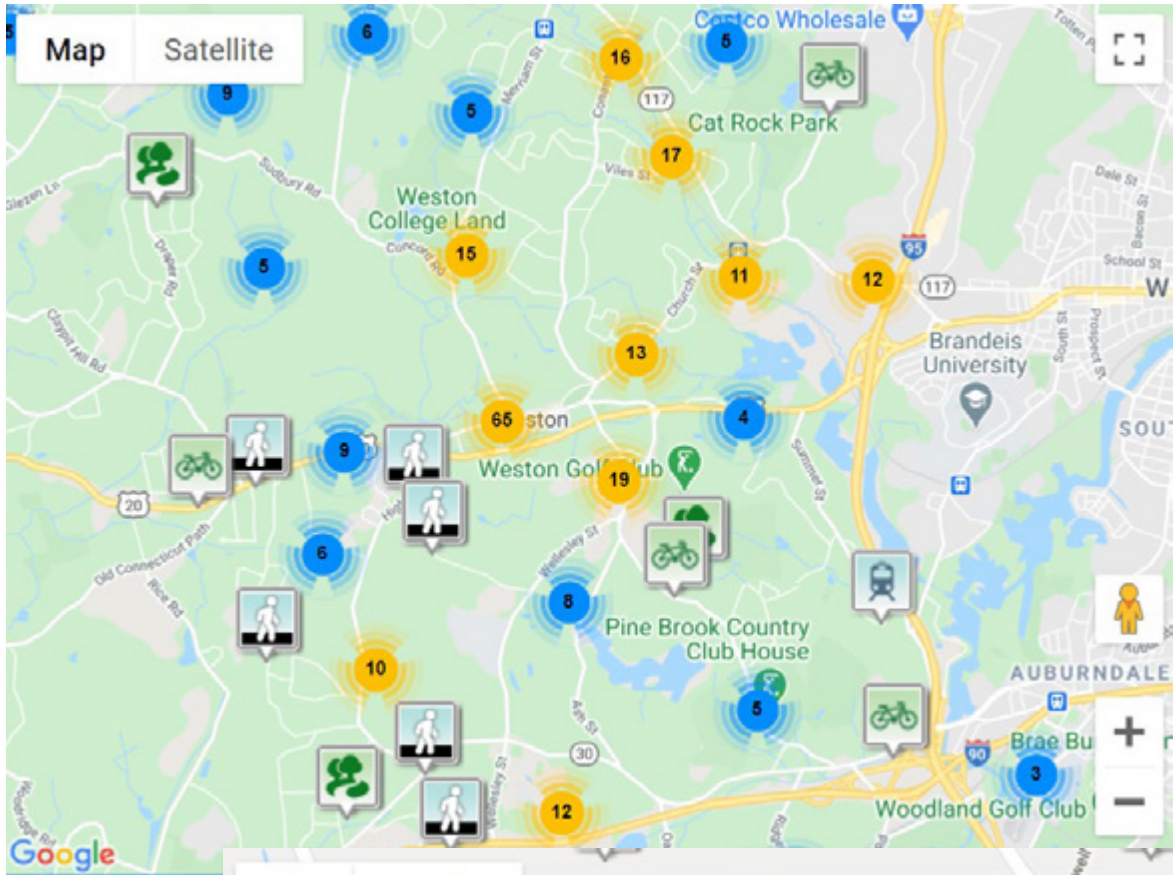
### Trends:

Below are some frequently shared desires for improved transit options:

- Local shuttle from town center to nearby transit stops and neighboring towns
- MBTA stop in town center
- More parking at commuter rail stations
- Increased commuter rail service
- Reopen MBTA service at Hastings and Silver Hill
- Shuttle stop at Merriam Village

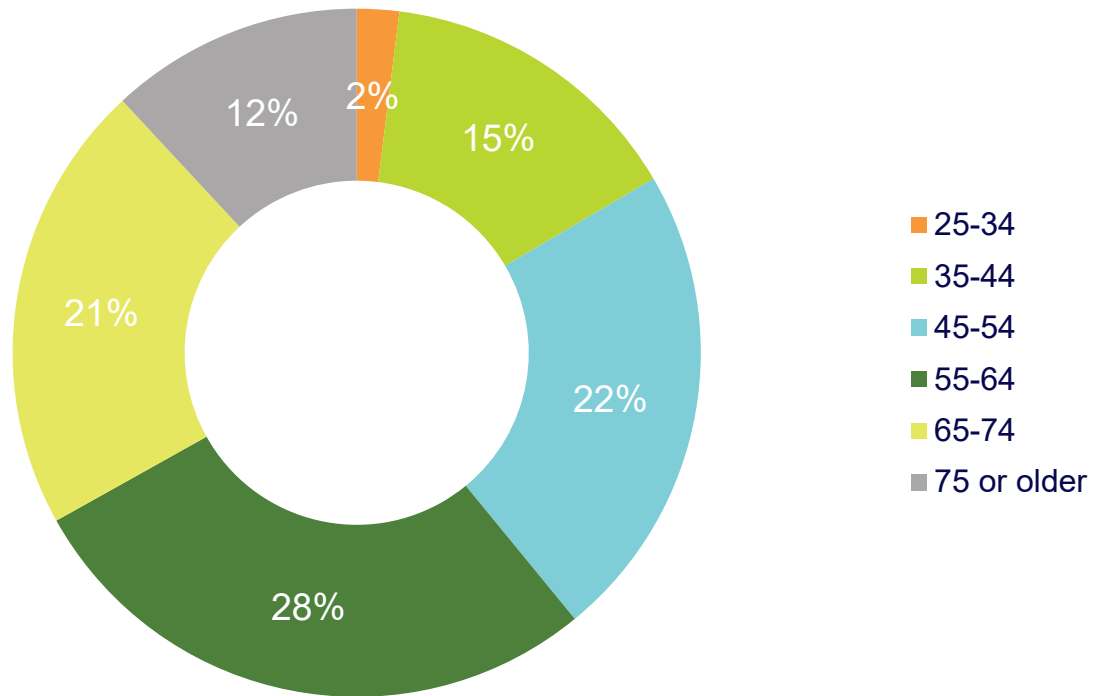
# MAP MARKERS

Full data from the map markers can be found in the raw data spreadsheets, but the following images show the general distribution of markers and a zoomed in view of the markers in the town center.



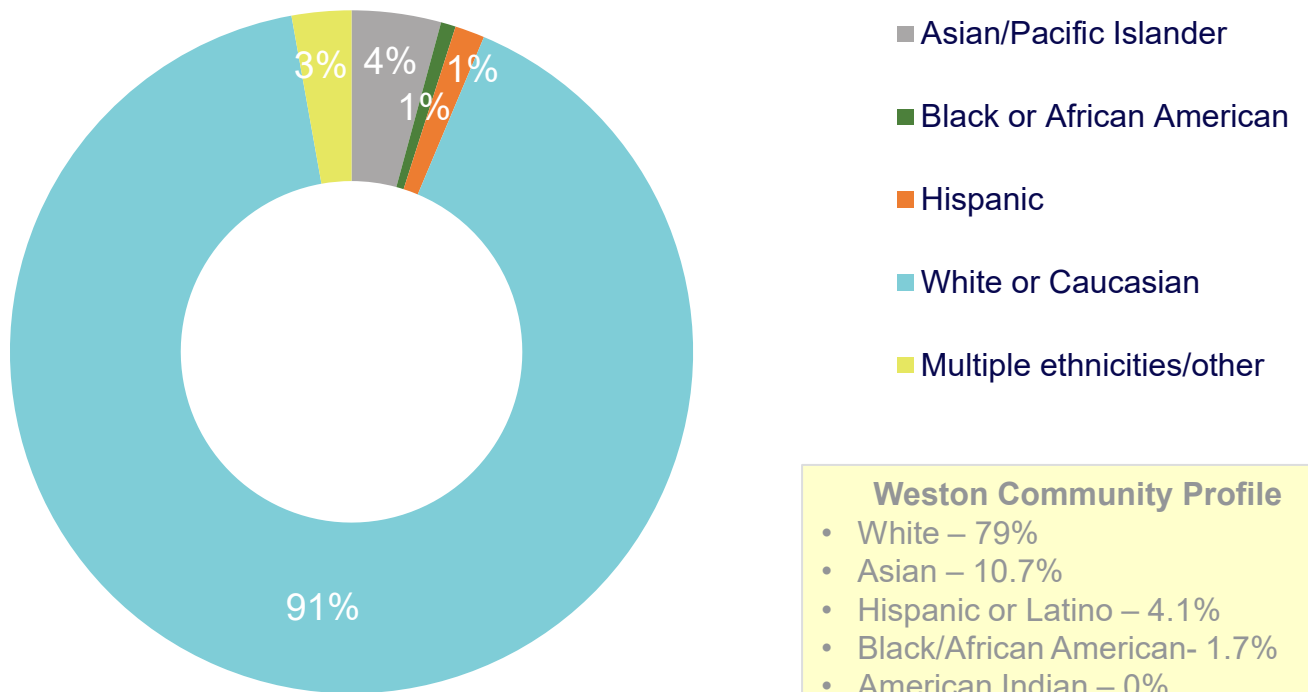
# SURVEY DEMOGRAPHICS

## Age of Participants



\* Based on the 151 people who reported their age on the survey.

## Race/Ethnicity of Participants



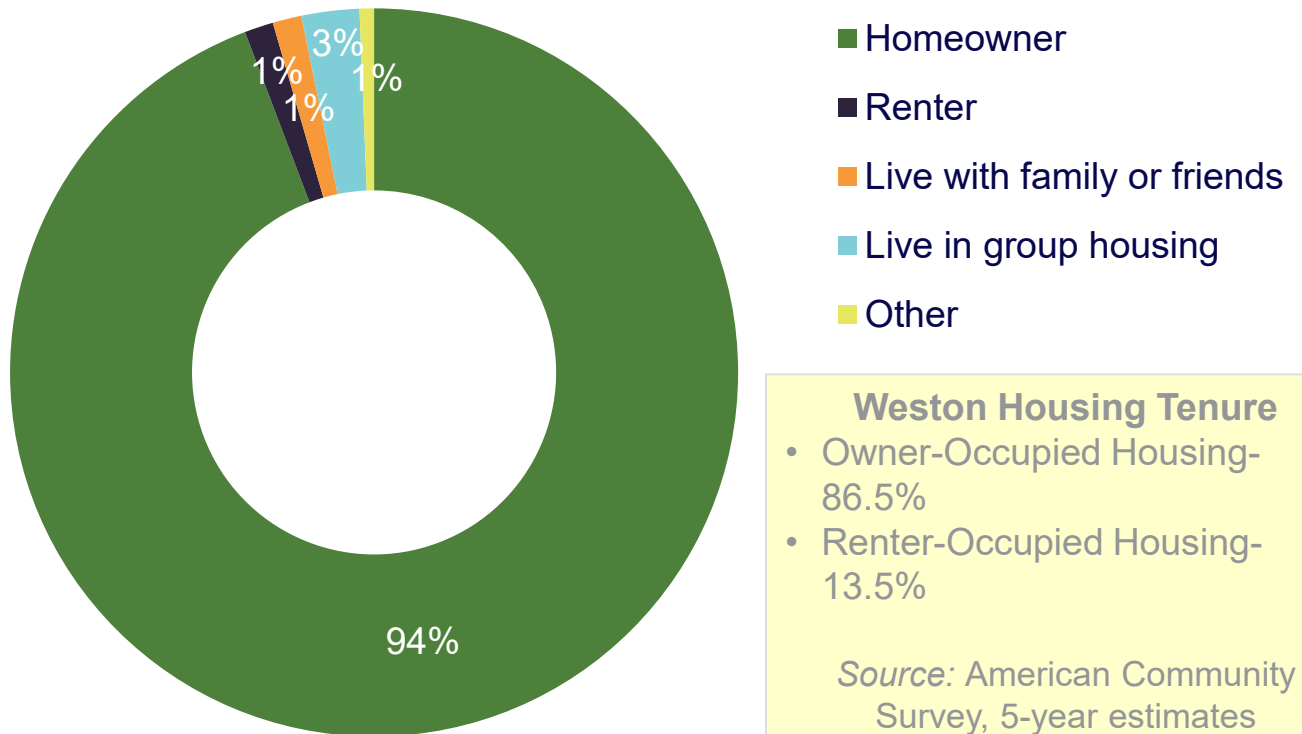
**Weston Community Profile**

- White – 79%
- Asian – 10.7%
- Hispanic or Latino – 4.1%
- Black/African American- 1.7%
- American Indian – 0%
- Multiple Ethnicities- 3.8%

Source: 2017 American Community Survey

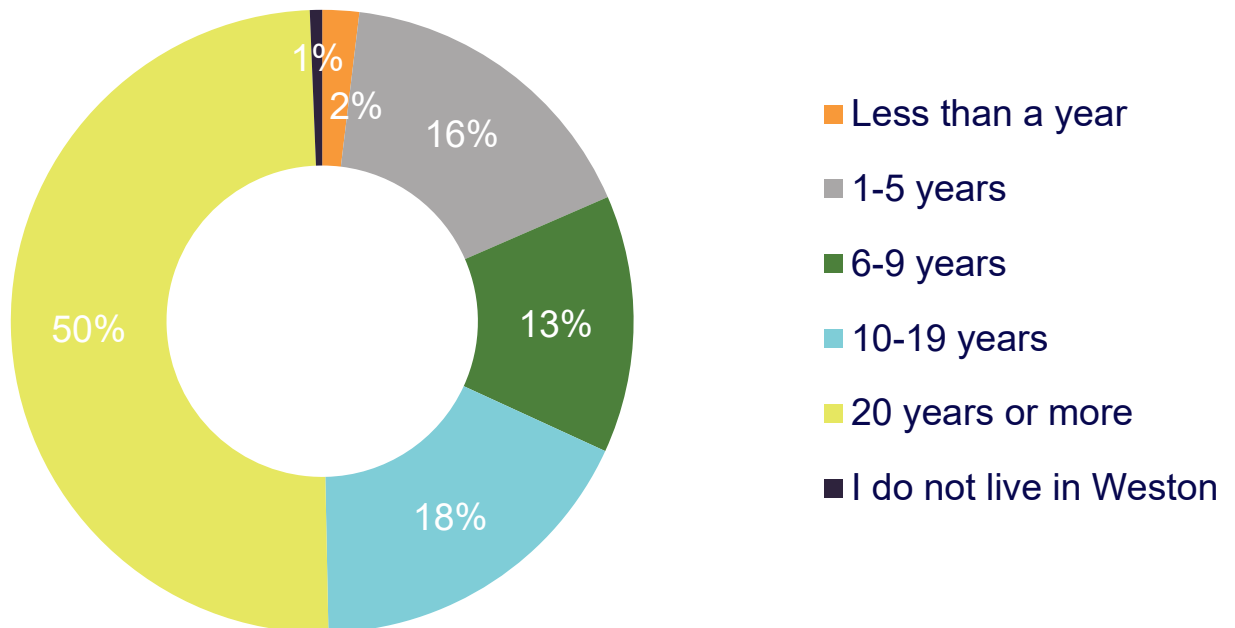
\* Based on the 142 people who reported their race on the survey.

## Housing Status of Participants



\* Based on the 157 people who reported their housing status on the survey.

## Length of Residency of Participants



\* Based on the 157 people who reported their housing status on the survey.





# APPENDICES

D. Carbon Sequestration Analysis of  
Tree Cover in Weston, MA

# Carbon Sequestration Analysis of Tree Cover in Weston, MA.

Prepared as part of the *Weston Ahead* Climate and Resilience Planning process and supported by the Massachusetts Executive Office of Energy and Environmental Affairs Municipal Vulnerability Preparedness (MVP) program.

Kim Lundgren Associates  
October 2020

## Introduction

Trees and tree cover are increasingly recognized for their dual role in climate mitigation and adaptation. A healthy tree canopy provides cooling and shade, stormwater interception, wildlife habitat, and restorative places for humans to recreate. While trees' ability to absorb and store carbon has been long recognized, the role of 'negative emissions' in avoiding the worst climate change scenarios is becoming more prominent as reductions in greenhouse gas emissions have been slow to materialize.

To complement the greenhouse gas inventory that was prepared for the Town of Weston, an analysis was made to estimate annual carbon sequestration from trees within the community. This analysis can inform future land use decisions and management of the tree covered land in Weston in order to maintain and enhance this community resource.

It should be noted that this analysis does not conform with a full inventory of carbon exchanges from the land. A full inventory would assess multiple 'pools' of carbon in the land including tree biomass, carbon in the soils, and in dead wood and litter on the forest floor. Another aspect of a complete inventory is an assessment of carbon released and sequestered over an inventory period due to changes in the land cover such as through development and loss of tree cover in addition to growth in tree cover and afforestation. Doing so requires having data that details tree coverage at two points in time in order to evaluate the change. This analysis is limited to a single-year snapshot of the quantity of carbon in standing trees and the rate of additional carbon those trees absorb on an annual basis. While it is useful to compare the magnitude of carbon absorbed by trees in Weston, these should not be considered a form of offsetting the GHGs emitted from other activities in the town, as the trees that exist today are not from a conscious effort at afforestation for the sake of carbon sequestration. Future GHG inventories may use these values as a starting point to calculate releases and/or sequestration over a time period to include as a component of a complete GHG inventory.

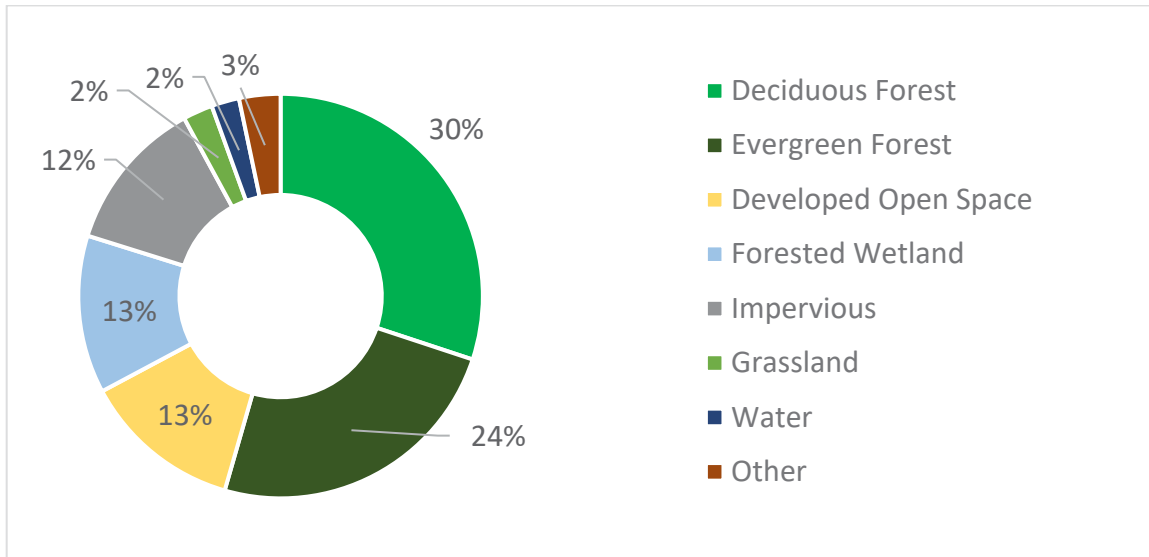
## Tree Coverage

The area of tree cover in Weston was obtained using the MassGIS 2016 Land Cover/Land Use data layer.<sup>1</sup> This layer was clipped to the Weston boundary and the three forest feature classes (Deciduous Forest, Evergreen Forest, Forested Wetland) were analyzed for annual sequestration and total carbon storage. Combined tree coverage in Weston adds up to 67% of the land area in the town. Figure 1 illustrates the percentages of landcover derived from the MassGIS data, with the "Other" category grouping everything that was smaller than 1% of area. Figure 3 at the end of this report shows a map of Weston's land cover.

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<sup>1</sup> <https://docs.digital.mass.gov/dataset/massgis-data-2016-land-coverland-use>

Figure 1. Weston Land Cover Percentages



In addition to the size of the feature, tree cover was also classified in terms of whether the land is under some form of protected status as defined by the MassGIS Protected and Recreational Open Space data layer.<sup>2</sup> Table 1 shows the total area in each classification in acres and Figure 2 illustrates the same data graphically. While the MassGIS data may not include all types of land protection in the community, only 34% of the tree coverage in the community is protected and the remaining 66% is potentially at risk from a range of land use decisions.

Table 1. Weston Tree Cover Area & Protection Status (Square Miles)

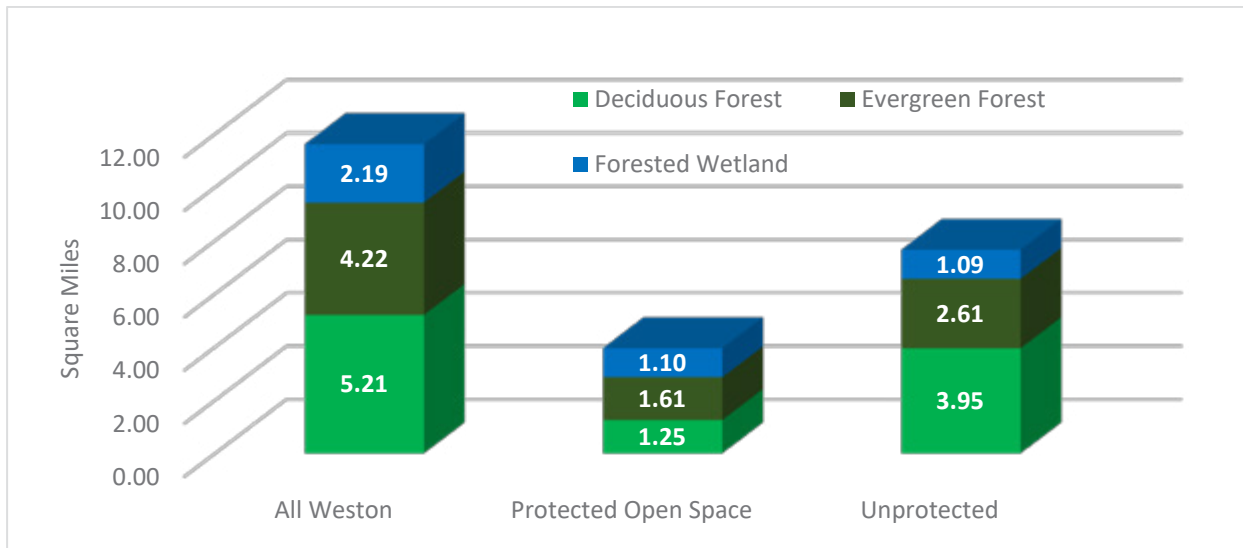
	All Weston	Protected Open Space	Unprotected
Deciduous Forest	5.21	1.25	3.95
Evergreen Forest	4.22	1.61	2.61
Forested Wetland	2.19	1.10	1.09
Total	11.61	3.96	7.65

<sup>2</sup> <https://docs.digital.mass.gov/dataset/massgis-data-protected-and-recreational-openspace>

This project was supported by the Massachusetts Executive Office of Energy and Environmental Affairs Municipal Vulnerability Preparedness (MVP) program



Figure 2. Weston Tree Cover Area & Protection Status (Square Miles)



### Standing Carbon and Sequestration Rates

Matching appropriate factors for this analysis required finding a source of data that was published at a scale that could be easily applied to the area of tree cover identified from the GIS layer. Key variables in estimating carbon with high resolution such as specific species mix, age of tree stands, and other field data were beyond the scope of this analysis. Ultimately values used in the i-Tree Canopy tool<sup>3</sup> were deemed most suitable for the analysis, recognizing they are coarsely estimated from US Forest Service Forest Inventory Analysis (FIA) data. The rates from i-Tree Canopy are designed for use at the “community scale” which i-Tree documentation describes as correcting for rates that may be more representative of tree covered areas in and around urbanized areas as opposed to predominantly within a contiguous forest. In addition, the i-Tree suite of tools is readily available to users such as Town staff and volunteers should they want to use other aspects of the suite to inform other tree and forest management decisions. Table 2 illustrates the multipliers obtained from i-Tree Canopy exports that were used in this analysis. The values in Table 2 are as they appear in the i-Tree application in units of thousands of short (US) tons per square mile. Results of the analysis are in terms of metric tons to align with the units of other GHG calculations in the Weston Ahead plan process.

Table 2. Carbon Storage and Sequestration Factors for Weston

Factor Type	Value	Units
Carbon Storage	80.446	kT CO <sub>2</sub> / mile <sup>2</sup>
Annual Carbon Sequestration	3.203	kT CO <sub>2</sub> / mile <sup>2</sup>

<sup>3</sup> <https://canopy.itreetools.org/>

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The i-Tree Canopy tool could have been used directly for the estimate of the carbon benefits of Weston’s trees. However, for this analysis KLA chose to combine the rates obtained with that tool to the areas of canopy cover from the MassGIS 2016 Land Cover / Land Use data layer. Because the Mass GIS layer is in a vector format, it allows for easily classifying tree cover with other GIS layers, such as protection status and land use classification which can be useful for further analysis of actions to protect or enhance coverage. KLA also considers the areas in MassGIS to be a more accurate source of tree cover area than the aerial image analysis performed by i-Tree Canopy.

## Results

Factors were converted to appropriate units and applied to each area providing results in terms of standing carbon and annual sequestration for different size groupings of tree cover under protection status or not. Results for both annual sequestration and total carbon stored are presented in Table 3.

*Table 3. Weston Annual Sequestration and Carbon Storage*

	Forest Type	All Weston	Open Space	Unprotected
Annual Sequestration (MTCO <sub>2</sub> e/Year)	Deciduous Forest	15,128	3,637	11,491
	Evergreen Forest	12,263	4,681	7,582
	Forested Wetland	6,350	3,188	3,162
	<b>Total</b>	<b>33,741</b>	<b>11,505</b>	<b>22,236</b>
Stored Carbon (MTCO <sub>2</sub> e)	Deciduous Forest	379,947	91,340	288,607
	Evergreen Forest	307,989	117,556	190,433
	Forested Wetland	159,491	80,065	79,426
	<b>Total</b>	<b>847,426</b>	<b>288,960</b>	<b>558,466</b>

For scale, these numbers can be compared to the 2018 GHG inventory which covered building energy, transportation, waste, and wastewater sources for the community; which totaled 150,142 MTCO<sub>2</sub>e. Standing carbon equates to approximately 5.6 years’ worth of Weston’s annual emissions. Each year trees in Weston absorb the equivalent of roughly 22% of the Town’s annual emissions.

The rates provided by i-Tree Canopy translate to approximately 114 metric tons CO<sub>2</sub> per acre. At that rate, the loss of 296 acres of tree cover would release the same amount of carbon as the rest of the trees in the community absorb in a year. Not only would the loss of an acre of canopy cover release 114

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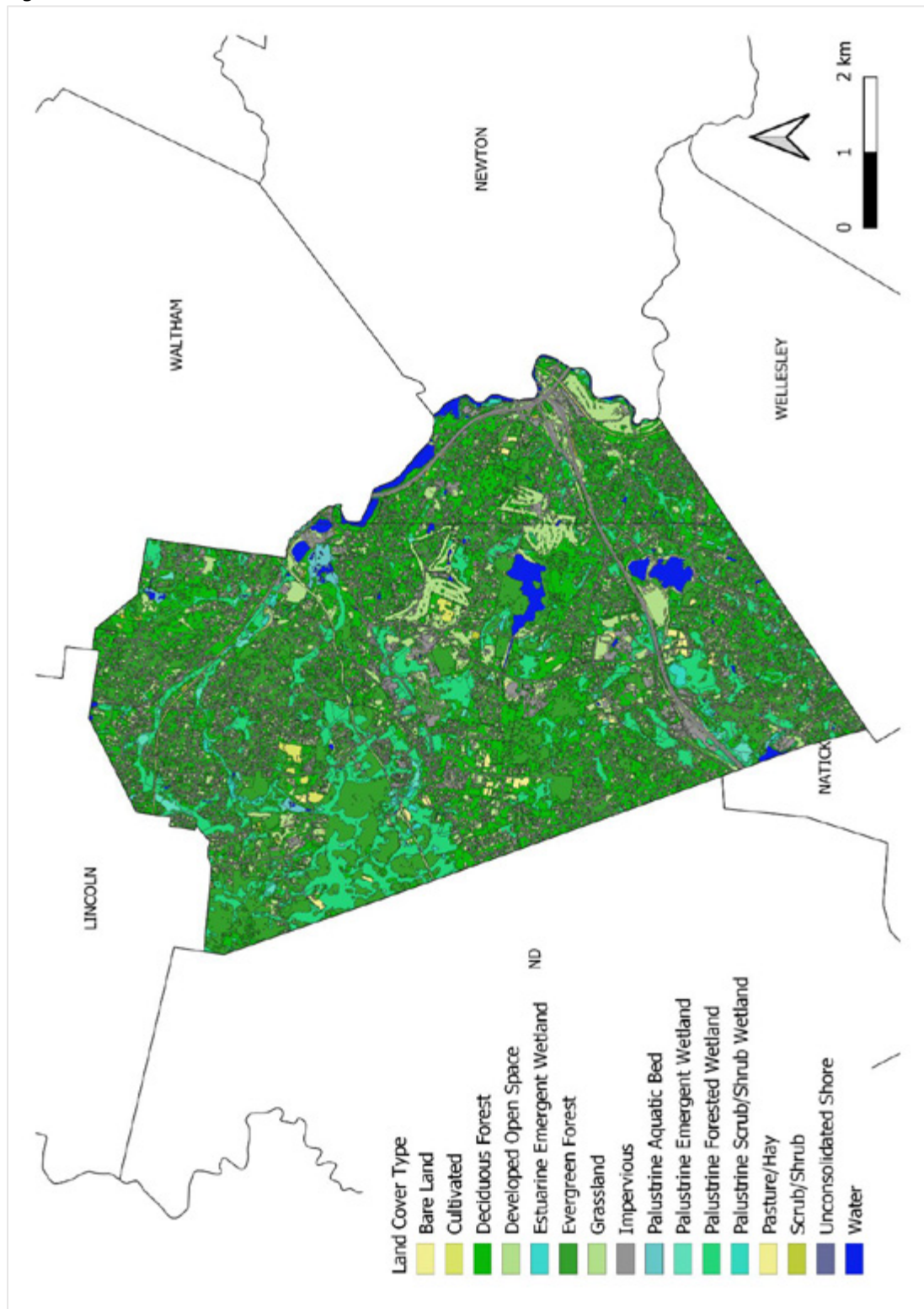


MTCO<sub>2</sub>e, it would also reduce the ongoing sequestration capacity of the town by a factor of 5 MTCO<sub>2</sub>e / year.

As noted earlier these estimates are high level with room for refinement, but they give a good indication of the overall carbon benefit of tree cover in Weston. Improvements to these estimates could be made through more specific field observations of the trees in Weston. Characterization of species mix, forest age, and condition could give more precise results for the standing carbon and sequestration in above-ground biomass. Additional study could also take measurements of other important pools of carbon in forests, such as in the soil and litter layers. The most critical update to understanding the carbon impact of Weston's tree canopy is to develop mechanisms to account for losses of canopy cover that accompany development activities. Aerial imagery and other data products to do this digitally are becoming more widely available, but documentation of some tree loss could be captured through development planning review processes and used to track changes and carbon released on an annual basis.

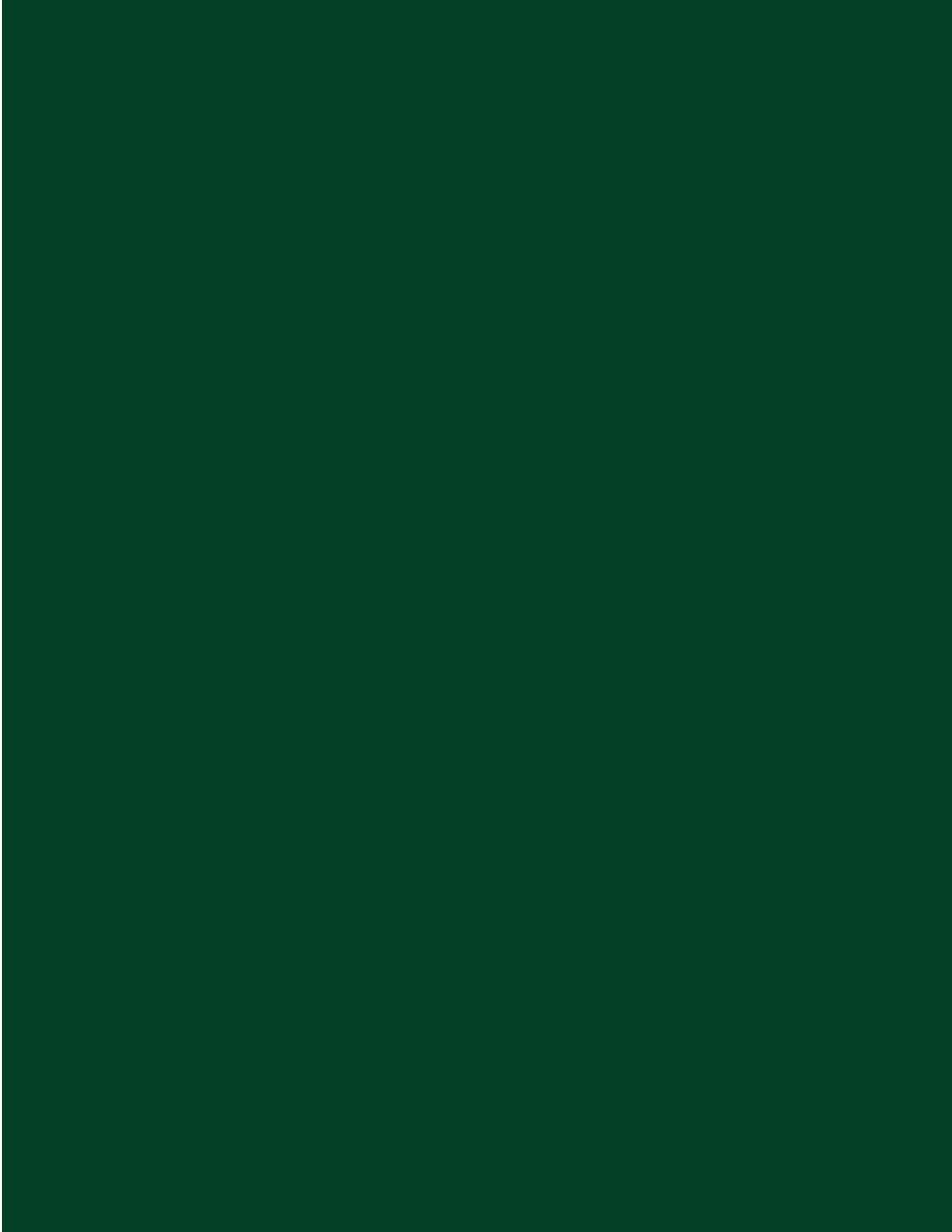
This project was supported by the Massachusetts Executive Office of Energy and Environmental Affairs Municipal Vulnerability Preparedness (MVP) program

Figure 3. Weston Land Cover



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