



Solar at Westwood High School



Target at University Station

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## Sustainability and Resiliency

### SUSTAINABILITY

#### BACKGROUND

Sustainable practices are those that allow present generations to meet their needs without compromising the ability of future generations to meet their needs. This concept has been imbedded throughout policies and recommendations of this plan along with a conscious attempt to balance social, economic, and environmental considerations incorporate equity and resilience, and link local actions to regional and global concerns, such as the climate change.<sup>i</sup>

This section complements the plan's policies and recommendations for sustainable land use, transportation, housing, natural resources, and infrastructure by prioritizing renewable energy and presenting specific strategies and steps to mitigate climate change by which is amplifying challenges to:

- the natural environment: water supply, food production, the health, distribution and abundance of plant and animal species;
- human health: vector-borne diseases, prevalence of oppressive heat and humidity; formation and dispersion of air pollutants; and
- public safety: damages from storms, floods, droughts and fires<sup>ii</sup>.

Many common practices are not sustainable long-term, including, most significantly, the burning of fossil fuels as the primary heat source for buildings, water, powering cars and generating electricity. The buildup of greenhouse gases in the atmosphere, primarily from the burning of fossil fuels, is causing the Earth to rapidly warm and has disrupted the relatively stable climate that humans depend upon. Billions of tons of CO<sub>2</sub> are released into the atmosphere from use of coal, oil, and gas.

Climate change is a global, regional, and local threat that has become an urgent matter and is now a global crisis requiring aggressive actions. All efforts, big and small, to

reduce greenhouse gasses over time will have measurable benefits. A significant reduction in fossil fuel use can be achieved through greater reliance on renewable energy sources such as photovoltaics, solar thermal systems, wind power, heat pumps, electric cars, and through conservation means such as net zero construction design. Some communities are working towards achieving 100% renewable electricity, which is necessary to prevent irreparable damage. Climate and weather related disasters have always existed but they have become more frequent and more intense as the earth warms.

Westwood has taken many important steps over the last few years to become more sustainable and has a number of committees and departments working on this objective. Public works has moved to single-stream recycling, added some electric vehicles and charging stations at the Carby Municipal Building, PV system installations for street and traffic lights, and made HVAC and lighting upgrades. The Town has participated in the state's Safe Routes to School program that assists with improvements for safe biking and walking to middle and elementary schools. A stormwater general bylaw was adopted by Town Meeting in 2015 requiring residential and commercial projects with any land disturbance over 5,000 sq. ft. to implement stormwater measures to capture and treat stormwater runoff. The Westwood Land Trust, School Department and Conservation Commission have been key players in implementing sustainable practices.

Westwood established an Environmental Action Committee (WEAC) in 2012, an advisory committee that identifies environmental concerns and proposes solutions to promote energy and resource conservation, renewable energy, water conservation, green building design, more efficient vehicles, recycling and environmental education in Westwood. WEAC sponsors cleanups and an electronic recycling event in the spring. In 2019, the Committee successfully brought forward to Town Meeting a Community Electricity Aggregation (CEA) program that allows the Town to enter a group electricity program which offers lower electricity rates and renewable energy options, which ultimately reduces reliance on carbon-producing fossil fuels.

WEAC was instrumental in helping Westwood become a Green Community, a state program offering cities and towns' energy efficiency and renewable energy opportunities. Westwood became a Green Community by meeting a number of criteria such as allowing by-right approvals for solar as an accessory use on the roof of structure, purchasing fuel efficient vehicles for municipal use, and adoption of the Stretch Code (780 CMR 115.AA) of the Massachusetts Building Code, which requires newly constructed buildings to use less energy by minimizing the life-cycle costs. The Town participates in an annual certification for compliance to be eligible for grants.

The Stretch Energy Code was passed in 2012 which enabled Westwood to become a Green Community. The Massachusetts Department of Energy Resources (DOER) includes a Green Communities Division that provides grants, technical assistance, and local support to municipalities with Green Community status to reduce energy use and

costs by implementing clean energy projects in municipal buildings, facilities, and schools. Since the Green Community designation, Westwood has hired an Energy Manager to seek and manage grants to reduce energy use in municipal facilities. The Energy Manager has implemented 50 projects using \$1.2 million in Green Communities funding and approximately \$500,000 in Eversource incentives. In 2018, the Energy Manager received the Leading by Example Award from the Massachusetts DOER. Recent highlights of projects awarded Green Community funding include converting all street lights to LED, LED lighting and new control systems at the Martha Jones Elementary School, conversion of lighting in the High School hallways, and at the High School's pool. Solar panels were installed at the High School, Thurston Middle School, and the Martha Jones and Downey Elementary schools. Westwood's schools are generally the largest municipal users of energy consumption emitting the largest amounts of CO2 given the size and number of buildings in Westwood. Most recently new energy efficient unit ventilators were installed at Thurston Middle School.

In 2008, Massachusetts became one of the first states to establish a regulatory program to address climate change and set economy-wide greenhouse gas emission reduction goals and outlined a regulatory framework.

## **GOALS AND OBJECTIVES**

The Town's sustainability goals are to:

- Align with State of Massachusetts goals for meaningful greenhouse gas reductions.
- Develop a solid foundation to foster a resilient, responsible, healthy, and equitable community.
- Strive to be more sustainable and encourage residents and businesses to do the same.
- Incorporate sustainability into the mission of every Town department, commission, board and committee.

Objective 1: Prioritize and invest in clean renewable energy to drastically reduce reliance on fossil fuels.

Objective 2: Work to instill a sense of urgency around climate change action and use the latest studies and science as a basis for decisions.

Objective 3: Prioritize actions that will have the greatest environmental impact such as CO2 reduction efforts.

Objective 4: Rely on and seek data on energy use and its environmental impacts.

Objective 5: Promote healthy living for a healthy and resilient community.

## STRATEGIC APPROACH

Sustainable practices are found throughout other elements of this Plan, but this section focuses on what the Town can do to directly influence long term efforts by integrating sustainability into the Town's operations, practices, policies and municipal facilities with a focus on renewable energy.

## IMPLEMENTING ACTIONS

The following actions are not formerly prioritized but are organized under topic categories related to the above overarching goals and objectives, followed by an informal order of significance.

S1. Pursue solar photovoltaics at existing municipal properties including existing buildings, parking areas, and school properties.

S2. Develop a combined Climate Action Resiliency Plan and Hazard Mitigation Plan that includes but is not limited to the following:

- Annual town-wide CO2 inventory
- Complete energy audit of all Town buildings and establish energy efficiency goals
- Establishment of CO2 reduction goals and an action plan to achieve those goals including:
  - Energy conservation plan
  - Energy purchasing plan - chart a path to 100% renewable
  - New Net Zero energy standards for new Town buildings
  - Promotion of residential solar
  - Phase out of fossil fuel use
- Review of all purchased supplies for opportunities for greener products – less plastics, recycle content, energy efficiency
- Sustainable transportation plan that facilitates electric vehicles, charging stations, and promotes walking and biking
- A water conservation and pollution prevention plan
- A community education plan focused on sustainability
- Waste reduction and recycling improvement plan
- A tree plan focused on preservation of natural areas plan
- A Zero Waste roadmap including waste reduction and recycling improvement plan and a curbside composting plan

S3. Create a sustainability manager position or expand the role of the energy manager's responsibilities.

S4. Continue to support energy conservation and the use of renewable energy in Town facilities, operations, and the town fleet.

- S5. Review the zoning bylaw to encourage sustainable actions and reconsider items that may discourage sustainable alternatives such as eliminating the special permit requirement for installation of ground-based solar panels. Expand the purview of Environmental Impact Design Reviews to include energy efficiency incentives, capturing and treatment of stormwater on-site, and climate change related actions such as Low Impact Development (LID), open space preservation, and tree plantings in Planning Board project reviews.
- S6. Evaluate Town decision-making, policies and activities through a sustainability “lens” by supporting energy conservation and the use of renewable energy in Town facilities, operations and vehicles.
- S7. Promote and incentivize sustainability, energy conservation and renewable energy use to town residents.
- S8. Support education of town employees, school aged-students, and citizens in regards to the urgency to combat climate change.
- S9. Establish high energy efficiency standards for new town buildings and retrofits.
- S10. Use WEAC, or other entity, to review and advise on sustainability elements of new municipal construction projects at the early design stages.
- S11. Consider requiring new construction of Town buildings to evaluate solar power and promote residential solar use by participating in state programs promoting residential solar power.
- S12. Install automobile electric charging stations for public use throughout Town.
- S13. Incentivize the transition to electricity to phase out the use of new natural gas and oil hookups by \_\_\_\_\_???
- S14. Review the cost/benefits and improvements or alternatives to the Town's single-stream recycling program to make it more effective and address the systemic problem of contamination and provide recycling opportunities in public spaces such as fields, playgrounds and commercial areas.
- S15. Partner with schools and extracurricular programs to children and residents about healthy lifestyle choices such as food, exercise, hygiene, mental health to improve the overall health of the community.
- S16. Actively pursue opportunities through the Green Communities program to obtain grants to support energy efficiency initiatives.
- S17. Provide incentives to encourage more walking or carpooling to work or school.

## **RESOURCES**

<http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=06182019>  
<https://climate.nasa.gov/evidence/>  
<https://www.mass.gov/service-details/global-warming-solutions-act-background>

4th National Climate Assessment <https://nca2018.globalchange.gov/>

Summary of Findings report entitled “Westwood, Massachusetts MVP Community Resilience Program, Resilience Building Workshop”, prepared by BETA Group for Town of Westwood, February 2020.

US Environmental Protection Agency (EPA) Sustainability Primer, 2015  
[https://www.epa.gov/sites/production/files/2015-05/documents/sustainability\\_primer\\_v9.pdf](https://www.epa.gov/sites/production/files/2015-05/documents/sustainability_primer_v9.pdf)

Massachusetts Vulnerability Preparedness Program: <https://www.mass.gov/municipal-vulnerability-preparedness-mvp-program>

## **RESILIENCY**

### **BACKGROUND**

Resiliency refers to the ability of a community to adapt to new circumstances and the ability to respond and recover from extreme events such as climate change and/or other man-made or natural disasters. Resiliency requires a clear understanding and acknowledgment of potential risks and vulnerabilities, planning, and preparedness to mitigate those risks.

Climate change related natural and human-caused disasters are a major force that will impact Westwood and is a focus of resiliency planning in this element. Westwood may not be directly affected by sea level rise like many coastal communities, but the Town is expected to experience more extreme weather events, more inland flooding due to intense precipitation, higher average temperatures and more summer days over 90 degrees and other weather related events such as droughts, hurricanes, snow and ice storms<sup>iii</sup>. The summer of 2020 was the warmest on record for Massachusetts and the fourth warmest in the United States<sup>iv</sup>. Westwood experienced periods of dry spells in and periods of heavy rainfall such as a storm in late June 2020 that dumped 4 inches of rain in 90 minutes, which caused severe flooding. The heavy rain in a short amount of time led to the closure of Norwood Hospital which serves many Westwood residents due to flooding and severe damage. As a result, heat related health impacts and higher risk of vector borne diseases such as Lyme disease, West Nile Virus, and Eastern Equine Encephalitis (EEE) are expected. Disruption of critical infrastructure such as water, sewer, energy, transportation and telecommunication will be impacted<sup>v</sup>. The severity and the rate of changes due to climate change depend on the global human response to this crisis and is a significant challenge all communities are facing.

Westwood has begun the process of resiliency planning by applying and receiving a state MVP (Municipal Vulnerability Preparedness) grant in 2019. The purpose of the grant is to complete a community-led planning process to designate Westwood as a Municipal Vulnerability Preparedness community. Once the designation is achieved, Westwood is eligible for further state resiliency funding for vulnerability assessments and action-oriented grants through the Municipal Vulnerability Preparedness (MVP) Program. A workshop held in late 2019 with community stakeholders identified flooding, high wind and winter storms, droughts and extreme temperatures, and invasive species as the top hazards facing Westwood.

Health concerns were also identified as a major concern impacting Westwood and the region. In summer 2019, the dangerous mosquito born disease EEE was prevalent and expected to begin a three year seasonal cycle. The outbreak of novel Coronavirus known as COVID-19 followed shortly after and became a public health pandemic in 2020 with far reaching economic and social impacts calling attention to the need for various resources and support. COVID-19 led to devastating economic impacts in the first six months as many industries have been significantly impacted. Public health impact with the contagious disease has led to fatalities and unknown long-term effects. Social services and regional healthcare systems are overwhelmed.

Overflowing dams both natural and beaver made have contributed to local flooding. Some areas that often experience flooding are the University Avenue train station, which is also a community groundwater source. A second area that frequently floods is the neighborhood between Pond Street and Edgewood Road. High wind and winter storms pose a threat as they lead to fallen trees and downed power lines, particularly in the area of Marth Jones elementary school.

The state MVP program provides a framework for developing a Resiliency Plan. Westwood has recently received a grant to start the planning process. Since resilience spans across many areas, a Resiliency Plan requires input from many governmental departments, officials, committees and boards in Town. A Resiliency Plan should also include public participation from the full community to be most effective to achieve sustained participation and support.

## **GOALS AND OBJECTIVES**

To better prepare for, manage, and respond to any disaster to minimize stress and cultivate a better quality of life.

Objective 1: Evaluate gaps to determine the existing and future vulnerabilities to the Town and its residents from natural and artificial hazards such as extreme weather, utility failures, industrial accidents, and climate change.

Objective 2: Create action plans to prevent and respond to these hazards.

Objective 3. Prioritize and pursue these actions to reduce risk and increase resilience.

Objective 4: Strengthen and promote access to public health and social services by strengthening Westwood's human services Departments such as the Division of Youth and Family Services and Health Division to develop partnerships with local healthcare organizations.

## **STRATEGIC APPROACH**

The strategic approach aims to improve Westwood's resiliency by focusing on how Westwood can best prepare for and respond to challenges by identifying possible weaknesses, threats, and having plans and procedures in place to serve as a foundation in emergency situations. The strategic approach emphasizes community empowerment and regional engagement to be able to respond and requires diligent direction and leadership from local and state officials. The strategic approach aims focuses on how Westwood can advance infrastructure and services with nature-based solutions that will have long term impacts on climate change and other natural disasters. Nature-based solutions use natural systems to simulate the natural process or work in combination with traditional approaches to address and respond to natural hazards.

## **IMPLEMENTING ACTIONS**

The following actions are not formerly prioritized but are organized under topic categories related to the above overarching goals and objectives, followed by an informal order of significance. [need to re-order]

R1. Develop a combined Climate Action Resiliency Plan and a Hazard Mitigation Plan that evaluates existing gaps, identifies solutions, and develops implementation strategies.

R2. Complete the process to become a state-certified Municipal Vulnerability Preparedness (MVP) community to allow Westwood to qualify for future grants and programs.

R3. Conduct a hydrologic study to identify weaknesses leading to flooding and make recommendations for culvert upgrades, roads and low-laying areas, and drainage infrastructure.

R4. Develop updated flood maps to show areas that are at risk and vulnerable for increased extreme weather flooding.

R5. Pursue MVP action grants to develop vulnerability assessments and action-oriented programs.



- R6. Strengthen and expand the Emergency Planning Committee to include human service leaders, local businesses, and community organizations.
- R7. Continue to review and improve the Town's emergency operations and communications system.
- R8. Replace the power lines surrounding Martha Jones School to be underground to prevent future power outages.
- R9. Educate, engage, and communicate the importance of Resiliency Planning to all Westwood residents, government officials, and board and committee members.
- R10. Identify local businesses and community partner entities such as local grocers, food suppliers, and transportation alternatives, housing services such as local hotels, to create a resource list and develop a relationship to be called on in emergency situations.
- R11. Remove barriers that interfere with providing immediate and frequent day to day care during emergencies.
- R12. Enhance the ability to share patient information from various hospitals and health care facilities.
- R13. Improve community engagement skills of Health, Police, and Fire departments to strengthen engagement process for health and wellness and disaster preparedness.
- R14. Build broad stakeholder networks that include social services, behavioral health, community organizations, businesses, academia, at-risk individuals, and faith-based stakeholders in addition to traditional public health, healthcare, and emergency management partners.
- R15. Engage individuals with potential vulnerabilities to take an active part in protecting their health and aiding their community's resilience strengthens the community as a whole. Assist programs that serve at-risk individuals to develop robust disaster and continuity of operations plans.
- R16. Develop a list of local volunteers to assist in the event of an emergency.
- R17. Aid all households in having a disaster kit to provide ability to shelter in place for up to 72 hours.
- R18. Facilitate strong social networks by promoting establishment of "neighbors helping neighbors" groups.

R19. Promote cooperation with nearby towns for effective regional resiliency planning.

R20. Proactively reach out to residences for seniors, disabled, assisted living facilities, and vulnerable populations to prepare evacuation and emergency response plans.

R21. Conduct semi-annual catch basin cleaning.

## REFERENCES

<sup>i</sup> Sustaining Places: The Role of the Comprehensive Plan. Planning Advisory Services Report Number 567.

<sup>ii</sup> Presentation by John P. Holdren on [Climate Science and Public Policy](#) (pdf) November 9, 2015.

<sup>iii</sup> Resilient MA A Climate Change Clearinghouse for the Commonwealth, Resilientma.org/changes

<sup>iv</sup> *Assessing the U.S. Climate in August 2020*, National Centers for Environmental Information NOAA, September 9, 2020 <https://www.ncei.noaa.gov/news/national-climate-202008>

<sup>v</sup> Fourth National Climate Assessment - Chapter 18: Northeast, <https://nca2018.globalchange.gov/chapter/18/>