MMA | Massachusetts Municipal Association

# Cleaning and Greening Up Municipal Buildings and Fleets

**Saturday, January 20, 2024**
**1:45 PM - 3:00 PM**

MMA Massachusetts Municipal Association

# Featured Speakers

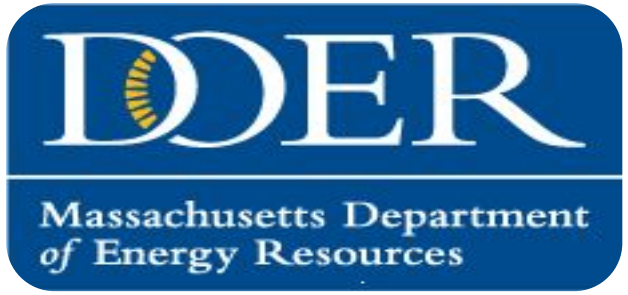
**Erina Keefe**
**Director of Sustainability**
**City of Beverly**

**Joanne Bissetta**
**Director, Green Communities Division**
**Massachusetts Dept. of Energy Resources**

**Hermayne Gordon**
**Director**
**Woburn Public Library**

**Julie Gagen**
**Sustainability Coordinator**
**Town of Weston**

*Creating A Clean, Affordable, Equitable and Resilient Energy Future For the Commonwealth*




**COMMONWEALTH OF MASSACHUSETTS**
**DEPARTMENT OF ENERGY RESOURCES**
*Elizabeth Mahony, Commissioner*

# Green Communities 2.0 (Climate Leader Communities)

**January 2024**

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# Green Communities Division - The energy hub for all Massachusetts cities and towns

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# Clean Energy in MA municipalities




- Authorizing legislation
- Evolution of policies to net zero goals
- Tools and Resources for MA municipalities
- Green Communities to Climate Leaders
- Looking to 2050

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# Climate Act Signed March 2021

The legislation signed into law updates the greenhouse gas emissions limits related to the 2008 Global Warming Solutions Act, commits Massachusetts to achieve **Net Zero emissions in 2050**, and authorizes the Secretary of Energy and Environmental Affairs (EEA) to establish an emissions limit of no less than **50% for 2030**, and no less than **75% for 2040**.

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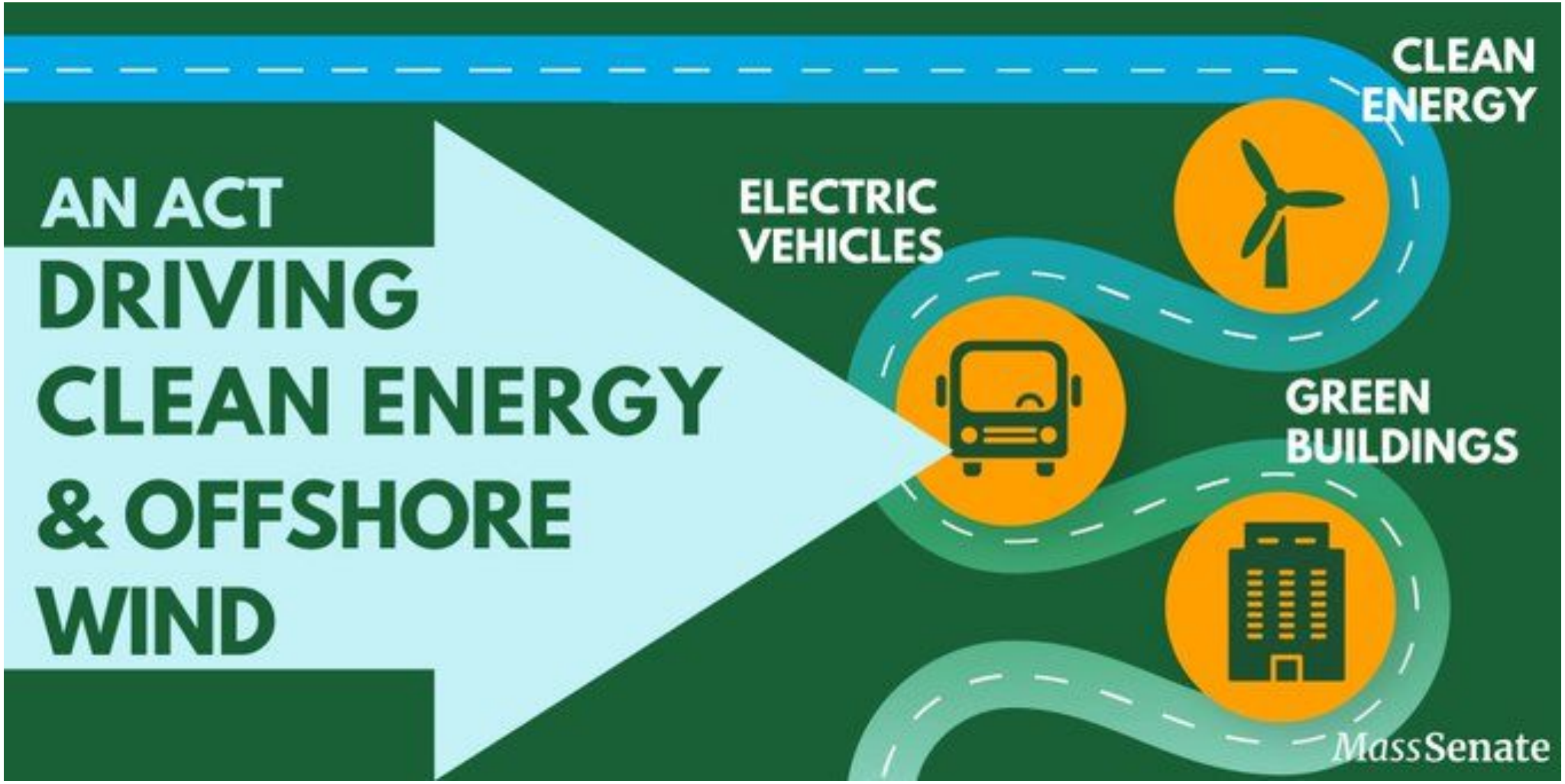
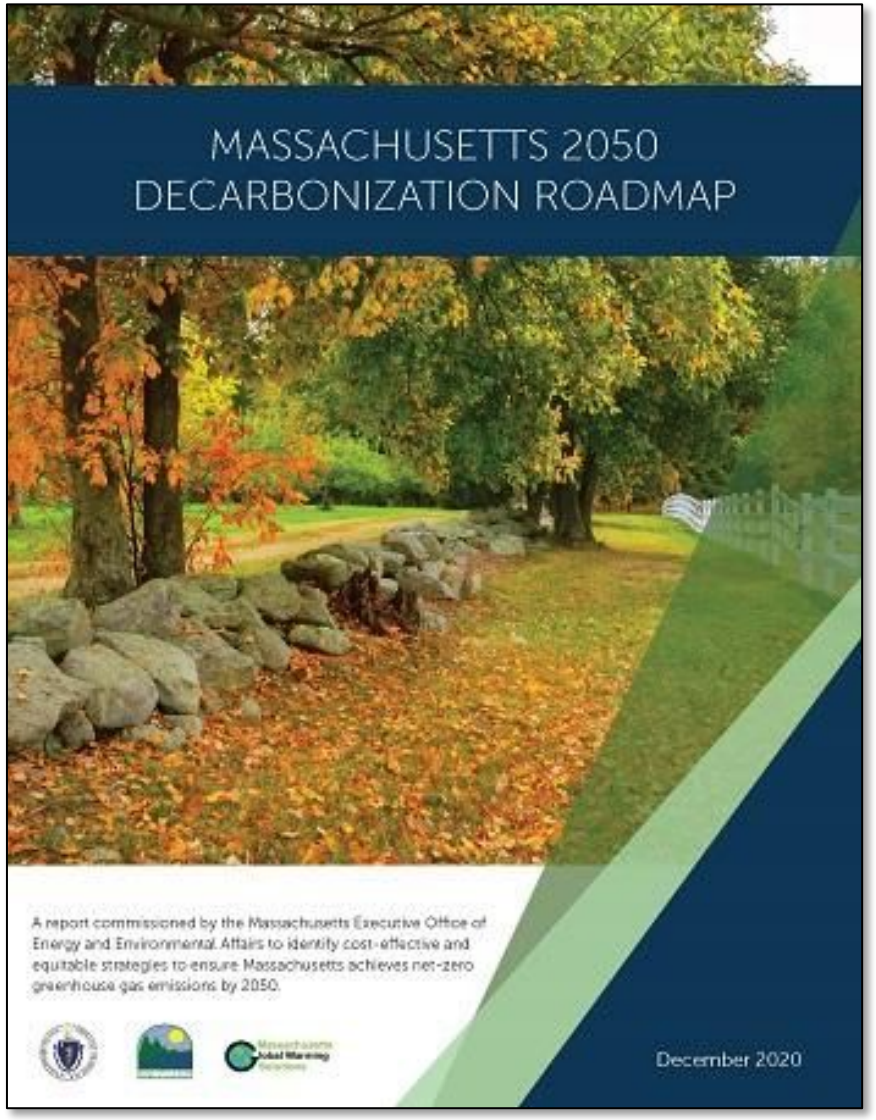
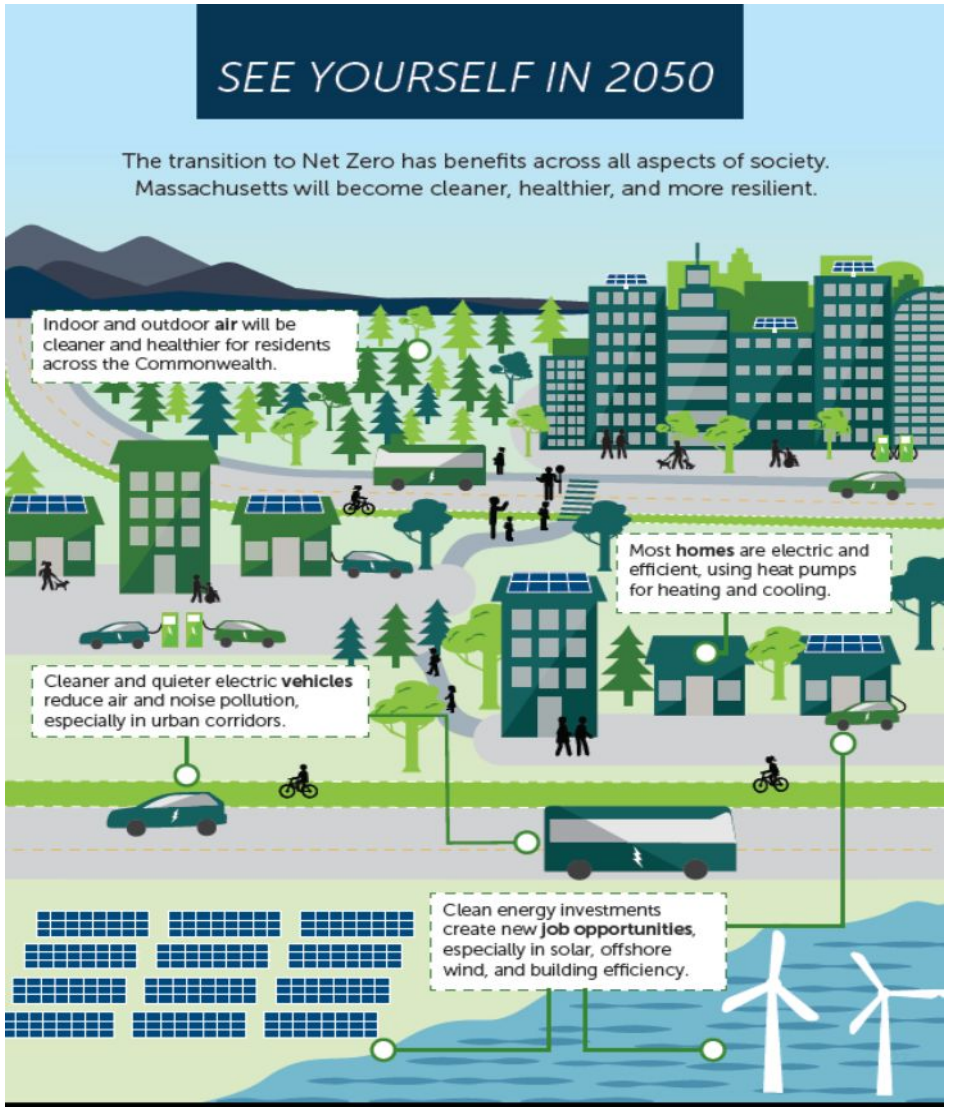
# *An Act Driving Clean Energy and Offshore Wind* – August 2022



# 2050 Roadmap



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# Pathways to Net Zero

## End Use Energy

Transitioning buildings, vehicles, and other end uses away from consuming fossil fuels

## Energy Efficiency and Flexibility

Aggressively pursuing energy efficiency and flexibility to enable cost-effective decarbonization

## Decarbonizing Energy Supply

Producing zero and low-carbon energy supplies to power our energy system

## Carbon Sequestration

Balancing remaining emissions by facilitating carbon dioxide removal

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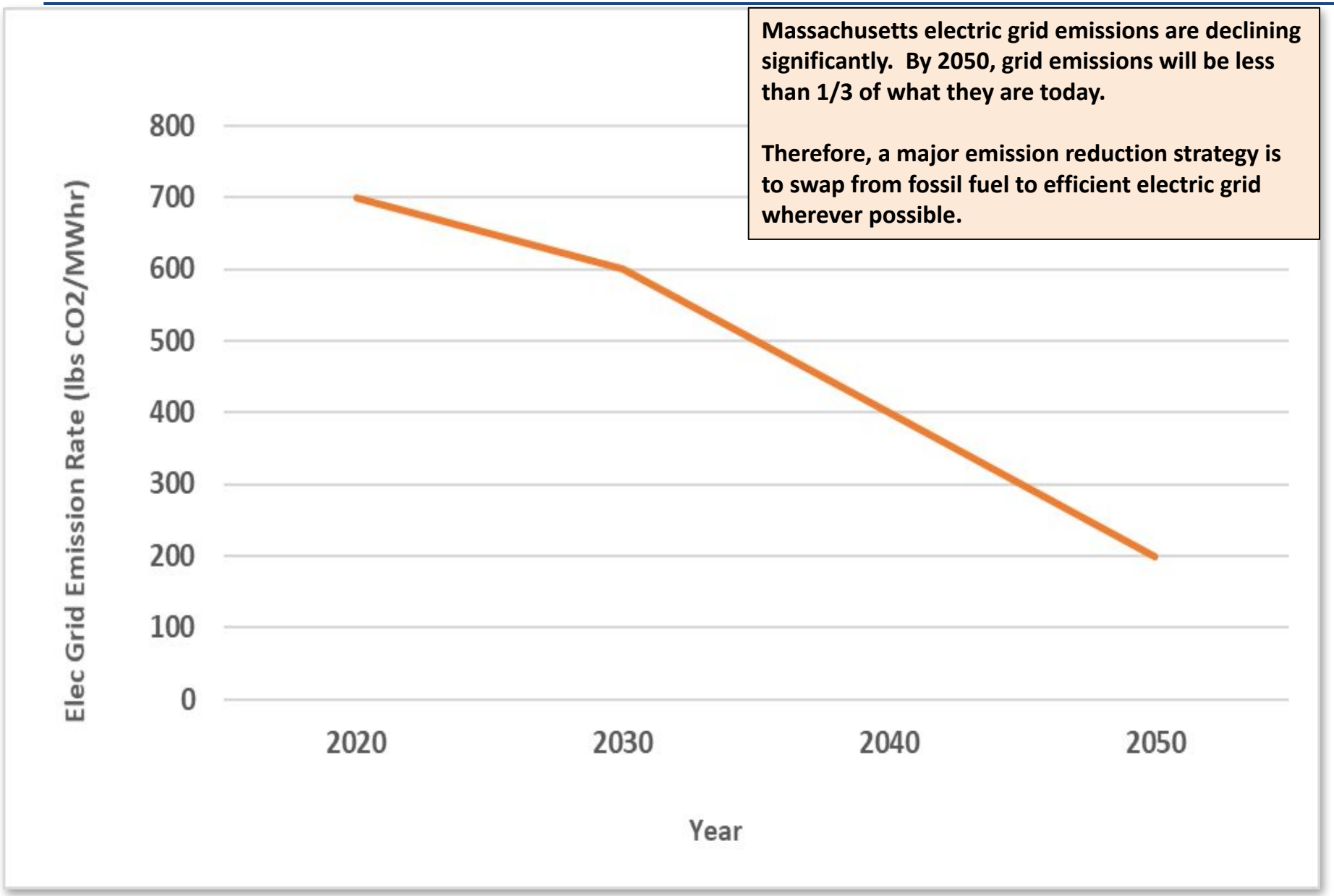
# How We'll Get There

**Massachusetts electric grid emissions are declining significantly. By 2050, grid emissions will be less than 1/3 of what they are today.**

**Therefore, a major emission reduction strategy is to swap from fossil fuel to efficient electric grid wherever possible.**



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# Green Communities Programs & Resources for Municipalities

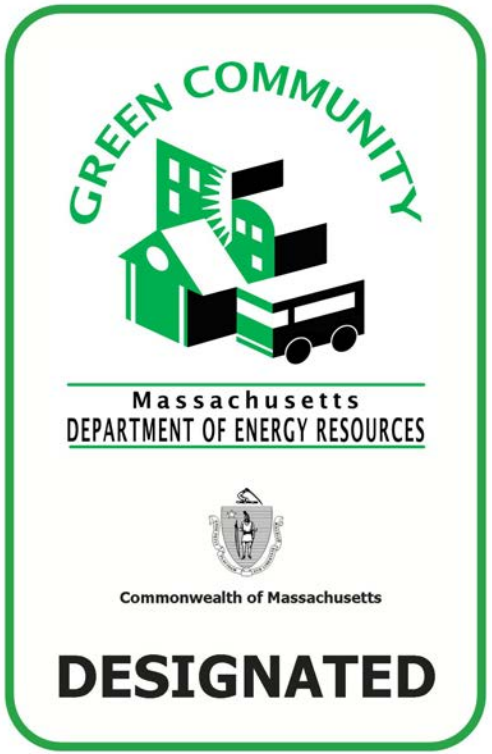
- MassEnergyInsight energy tracking and analysis tool
- Municipal Energy Technical Assistance
- ESPC model documents and templates
- Green Communities Designation and Grant Program
- Opportunities offered by other state agencies
- Website filled with tools & resources www.mass.gov/orgs/green-communities-division

# Green Communities Designation and Grant Program

**Established by the Green Communities Act of 2008**

## Designation Criteria

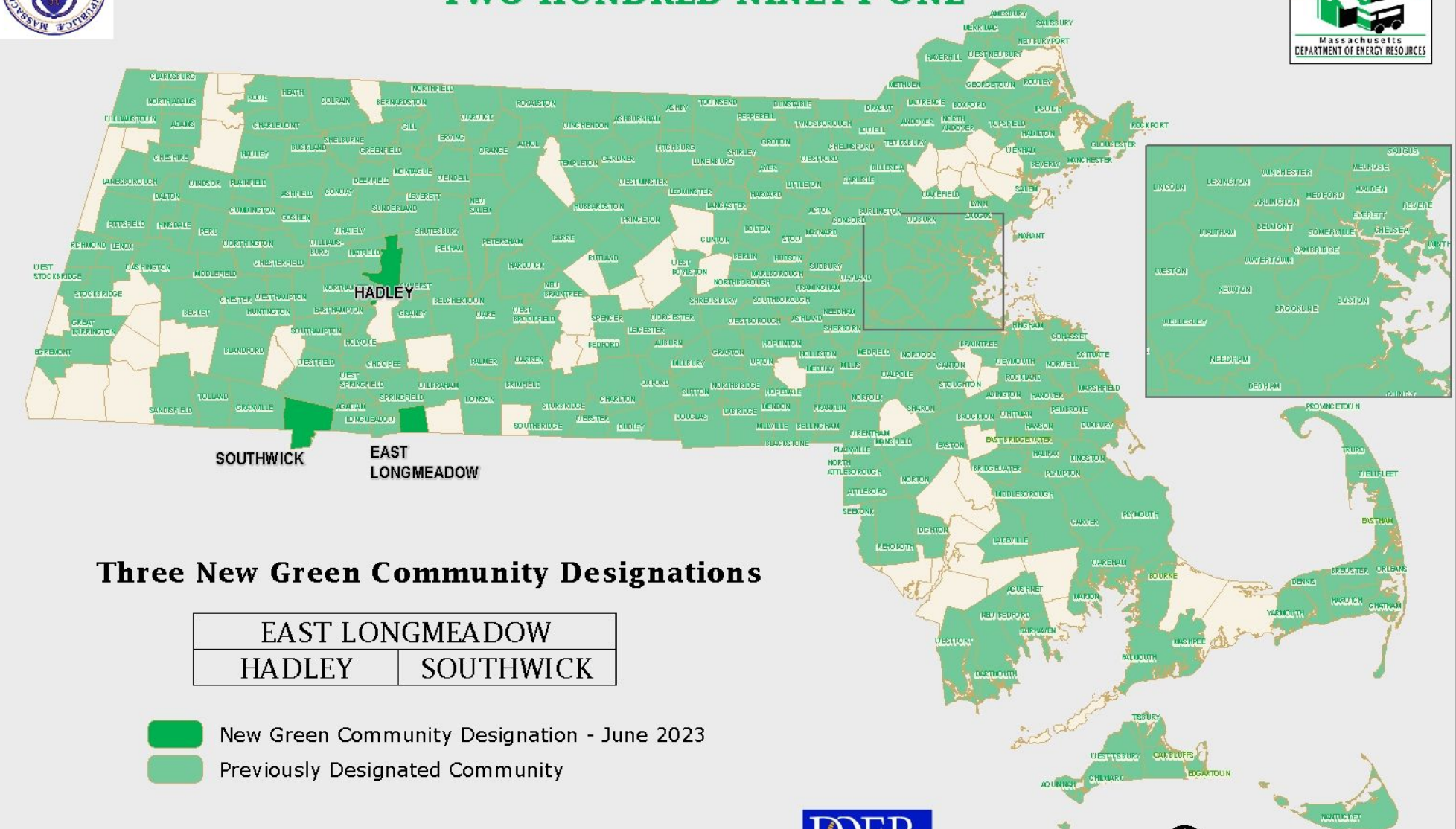
1. Adopt as-of-right siting for renewable/alternative energy generation, research and development, or manufacturing
2. Adopt expedited permitting process
3. Create an energy use baseline and a plan to reduce municipal energy use by 20% in 5 years
4. Purchase only fuel-efficient vehicles
5. Reduce life-cycle costs of new construction by adopting the stretch energy code




**Eligible for Grants on Municipal Property**

- Energy efficiency projects
- Renewable energy projects

# GREEN COMMUNITY DESIGNATIONS REACH TWO HUNDRED NINETY-ONE




## Three New Green Community Designations

| EAST LONGMEADOW | |
|---|---|
| HADLEY | SOUTHWICK |

New Green Community Designation - June 2023

Previously Designated Community

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*J.Pfister, 5-25-23*

20 Miles

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# Green Community Grant Results

Nearly $160M clean energy grant awards since 2010

Leveraging $36M Mass Save efficiency incentives

Estimated $26M annual cost savings

Estimated ghg reduction 66,000 metric tonnes

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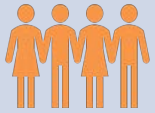
# Climate Leaders – Next iteration of Green Communities

Builds on success for Green Communities program

Aligns resources for municipalities with EEA energy and climate goals

Enhances engagement and forward progress with municipalities

Encourages adoption of climate/clean energy policies and programs



Expands opportunities for community engagement

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# Program Evolution:
# From Green Community to Climate Leader

| Green Communities Criteria | | Climate Leaders Criteria |
|---|---|---|
| Adopt as-of-right siting for RE/AE generation, R&D, or manufacturing | | Establish/maintain local committee to advise, coordinate, and/or lead clean energy and climate activities |
| Adopt expedited permitting process | | Municipal decarbonization commitment |
| Create an Energy Reduction Plan to reduce energy use by 20% in 5 years |  | Create Municipal Decarbonization Roadmap with 2030 & 2050 goals |
| Purchase only fuel-efficient vehicles |  | ZEV-First vehicle policy |
| Minimize life cycle cost in new construction – a.k.a adopt the Stretch Code |  | Specialized Stretch Code Adoption |

# Climate Leaders Conceptual Design

## Requirements for Certification

- Must be an existing Green Community in "good standing"
- Establish/maintain a local committee to advise, coordinate, and/or lead clean energy and climate activities
- Commit to municipal decarbonization by 2050 and formulate a roadmap for implementation
- ZEV-First vehicle policy
- Specialized Stretch Code Adoption

## Requirements for Recertification (every 3 years)

- Demonstrate meeting the Certification requirements
- Update Decarbonization Roadmap
- Implement one Community Engagement Climate Leader best practice

## *Potential* grant funding opportunities

- Implementing Climate Leader Best Practices
- Municipal building electrification/decarbonization
- Seed funds for a municipal clean energy/climate coordinator
- Support for on-site solar PV + storage for existing buildings and new construction
- Support for geothermal for existing buildings and new construction
- Other innovative projects

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# Proposed Climate Leaders– Best Practices Recommended

## Communities must implement one Community Engagement Activity for 1st recertification cycle

| Clean energy and climate policy/planning | Community Engagement – Equity Consideration Required | Clean transportation & mobility |
|---|---|---|
| Commercial Property Assessed Clean Energy (C-PACE) | Community Climate Action/Net Zero Plan | Incorporate EV charging stations in parking and/or zoning regulations |
| Tree City USA Certification | Community Choice Aggregation with 100% Class 1 renewable option | Deploy and/or actively promote the use of publicly accessible EV charging stations within community. |
| Building benchmarking/performance ordinance | Community Clean Energy Campaign (Solarize, HeatSmart, EV promotion, etc.) | Tier 3 Complete Streets certification **PLUS** implementation one policy/plan addressing bike/pedestrian safety and access |
| Streamline permitting for renewables | Youth outreach/education | Fleet electrification plan |
| Additional "Green Zoning" to promote smart growth, including walkability, reduce heat island effect, and reduction in water runoff | Targeted clean energy for historically marginalized and over-burdened populations. Can be in conjunction with MassSave Community First Partnership and/or Mass CEC's EmPower program | Deploy and/or actively promote EV/E-Bike or "regular" bike share * |
| Land Policies promoting carbon sequestration | Climate/clean energy event | School bus electrification plan |
| Electricity for municipal use purchased via competitive supply at least double the minimum RPS Class 1 requirements | **Participating in MVP 2.0** | Development and promotion of local mobility hub OR micro-mobility |

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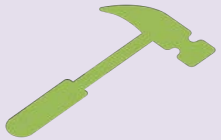
# Decarbonization Roadmap: Zero Over Time

Roadmaps to use the “Zero Over Time” approach that uses triggering events, such as the:

End of life of HVAC equipment



Building renovation

Roof replacement

Building replacement

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# Decarbonization Roadmap – new construction

Non-fossil fuel heating and cooling, coupled with onsite renewables

Implement energy storage wherever possible

Prioritize sites that provide access to public transportation and alternative modes of transportation

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# Focus on Eliminating on-site Fossil Fuels

| Targets | 2027 | 2030 | 2040 | 2050 |
|---|---|---|---|---|
| Reduce emissions from onsite fossil fuels | -20% | -35% | -60% | -100% |
| Zero emission vehicles (ZEVs) in light-duty fleet adoption | 5% | 20% | 75% | 100% |
| Zero emission vehicles (ZEVs) in heavy-duty fleet adoption | 0% | 20% | 50% | 100% |
| Energy Use Intensity reduction (deep energy retrofits/retro commissioning) | -20% | -25% | -25% | -30% |
| Total Emissions Reduction Goals (% of 2022 emissions) | **>15%** | **>35%** | **>65%** | **>95%** |

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# Zero Emission-First Vehicle Policy

- When a vehicle is identified for replacement, acquisitions of ZEVs must be prioritized
- Acquisitions must adhere to the following vehicle efficiency hierarchy:
  - Priority 1: BEVs (and FCEVs)
  - Priority 2: PHEVs
  - Priority 3: HEVs
  - Priority 4: Most fuel-efficient internal combustion or vehicles that run on alternative fuels in accordance with requirements of the Green Communities Fuel Efficient Policy

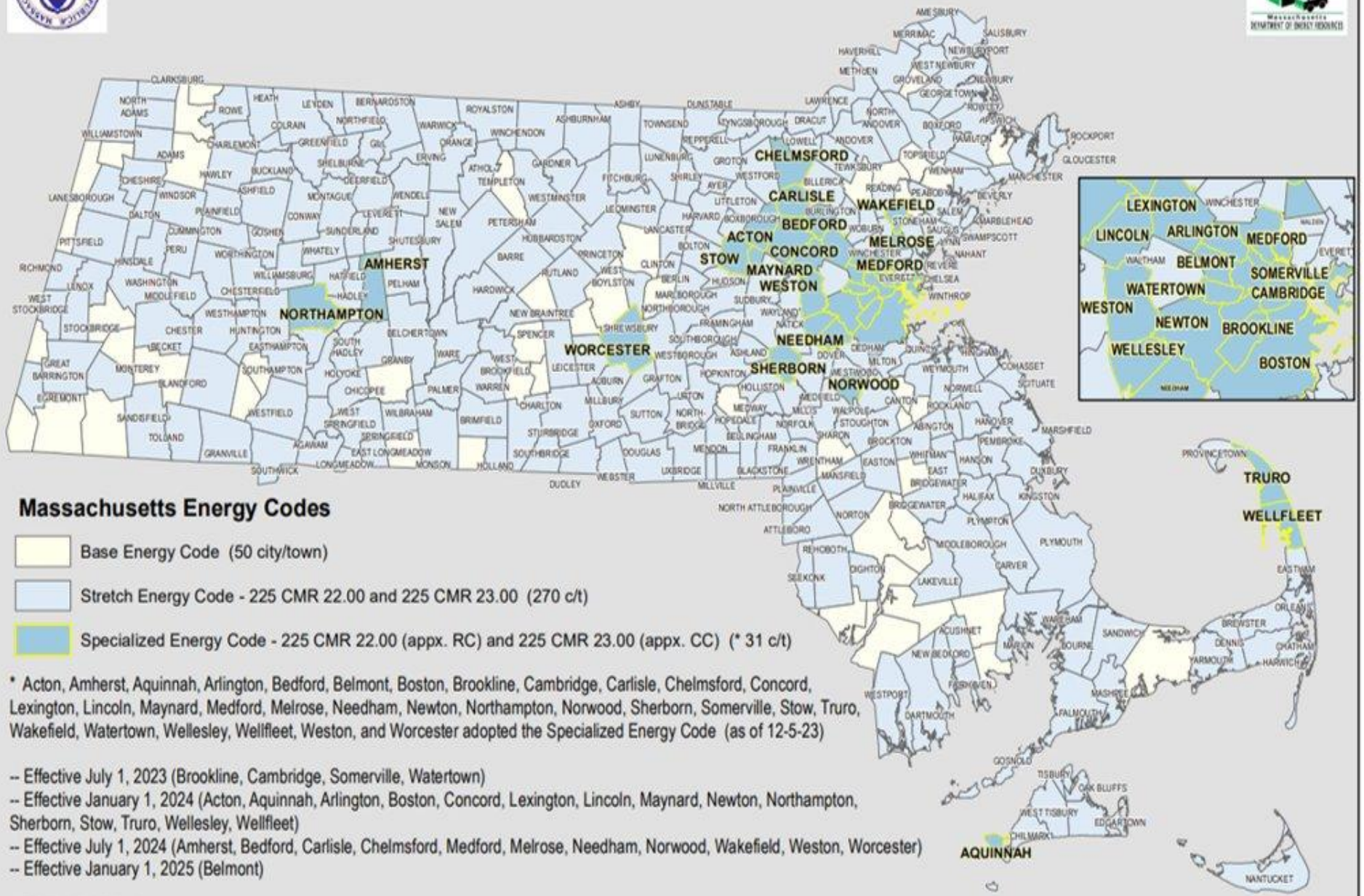
# Adopt the Opt-In Specialized Code

## Specialized Code: Adoption process & Timeline

Specialized code adoption at the local level, similar to prior stretch code process:

- Warrant article
- Town Meeting bylaw or City Council ordinance vote
- Effective date: Jan 1, or July 1
- Recommend 6-12 months after adoption

# Massachusetts Building Energy Code Adoption by Municipality




## Massachusetts Energy Codes

Base Energy Code (50 city/town)

Stretch Energy Code - 225 CMR 22.00 and 225 CMR 23.00 (270 c/t)

Specialized Energy Code - 225 CMR 22.00 (appx. RC) and 225 CMR 23.00 (appx. CC) (* 31 c/t)

* Acton, Amherst, Aquinnah, Arlington, Bedford, Belmont, Boston, Brookline, Cambridge, Carlisle, Chelmsford, Concord, Lexington, Lincoln, Maynard, Medford, Melrose, Needham, Newton, Northampton, Norwood, Sherborn, Somerville, Stow, Truro, Wakefield, Watertown, Wellesley, Wellfleet, Weston, and Worcester adopted the Specialized Energy Code (as of 12-5-23)

-- Effective July 1, 2023 (Brookline, Cambridge, Somerville, Watertown)
-- Effective January 1, 2024 (Acton, Aquinnah, Arlington, Boston, Concord, Lexington, Lincoln, Maynard, Newton, Northampton, Sherborn, Stow, Truro, Wellesley, Wellfleet)
-- Effective July 1, 2024 (Amherst, Bedford, Carlisle, Chelmsford, Medford, Melrose, Needham, Norwood, Wakefield, Weston, Worcester)
-- Effective January 1, 2025 (Belmont)

MA DOER, 12-5-2023, jpfister

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# DOER to Offer Technical Assistance

Online platform to establish ghg emission baseline and analytic tools to project emissions reduction

Technical Assistance to help with Roadmap development

Matching funds to MassSave's Deep Energy Retrofit studies on individual buildings

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# Access to Enhanced Grants

- Climate Leader Grants – under consideration:
  - On-site solar + storage and/or EVSE on fully electrified buildings
  - On-site solar + storage and/or EVSE on new construction
  - Support for ground source heat pumps for existing and new construction
  - Seed funds for energy/sustainability manager
  - Activities on best practices list
  - Other innovative projects
- Part of Competitive Grant application

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# Timeline

| Fall 2023 | Winter 23-24 | Spring 2024 |
|---|---|---|
| Finalize guidance docs | Issue PON and Award TA | Continue working with communities |
| Issue EOI | MassEnergyInsight updates | Support Specialized Code votes |
| Issue RFQ and contract for TA | If interest, organize co-horts of communities to work together | Start accepting applications: deadline 6/30 |

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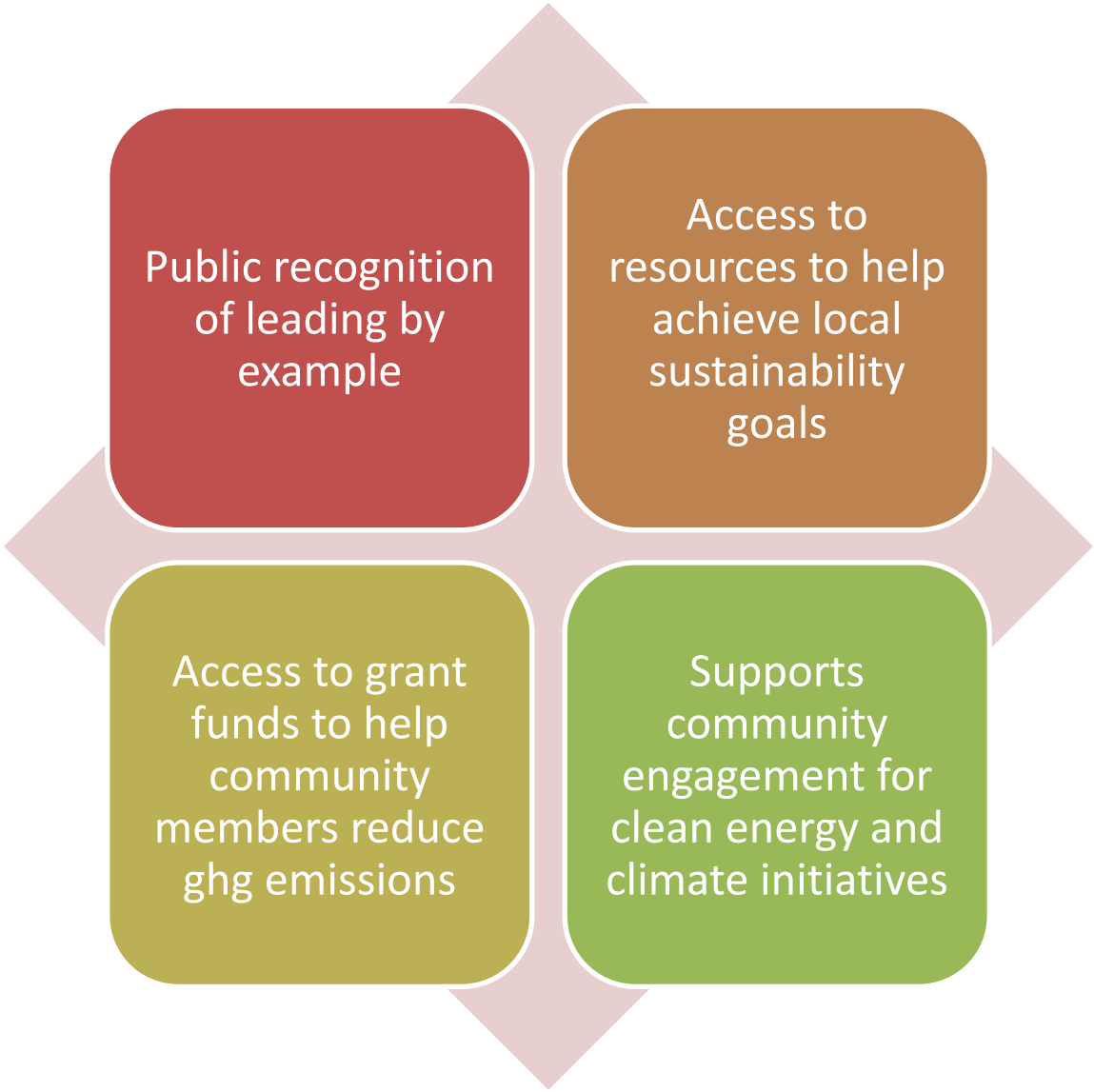
# Why Be a Climate Leader



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# Green Communities Contacts

Regional Coordinators act as direct liaisons with cities and towns

**Northeastern MA:**
**Dillan Patel**
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**Joanne Bissetta, Director** - Joanne.Bissetta@mass.gov
**Mark Rabinsky, Deputy Director** – Mark.Rabinsky@mass.gov

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# Questions?


# WOBURN PUBLIC LIBRARY SUSTAINABLE LIBRARY DESIGN

A TWENTY-FIRST CENTURY ADDITION TO A NINETEENTH CENTURY HISTORIC LIBRARY

# WOBURN PUBLIC LIBRARY BRIEF HISTORY

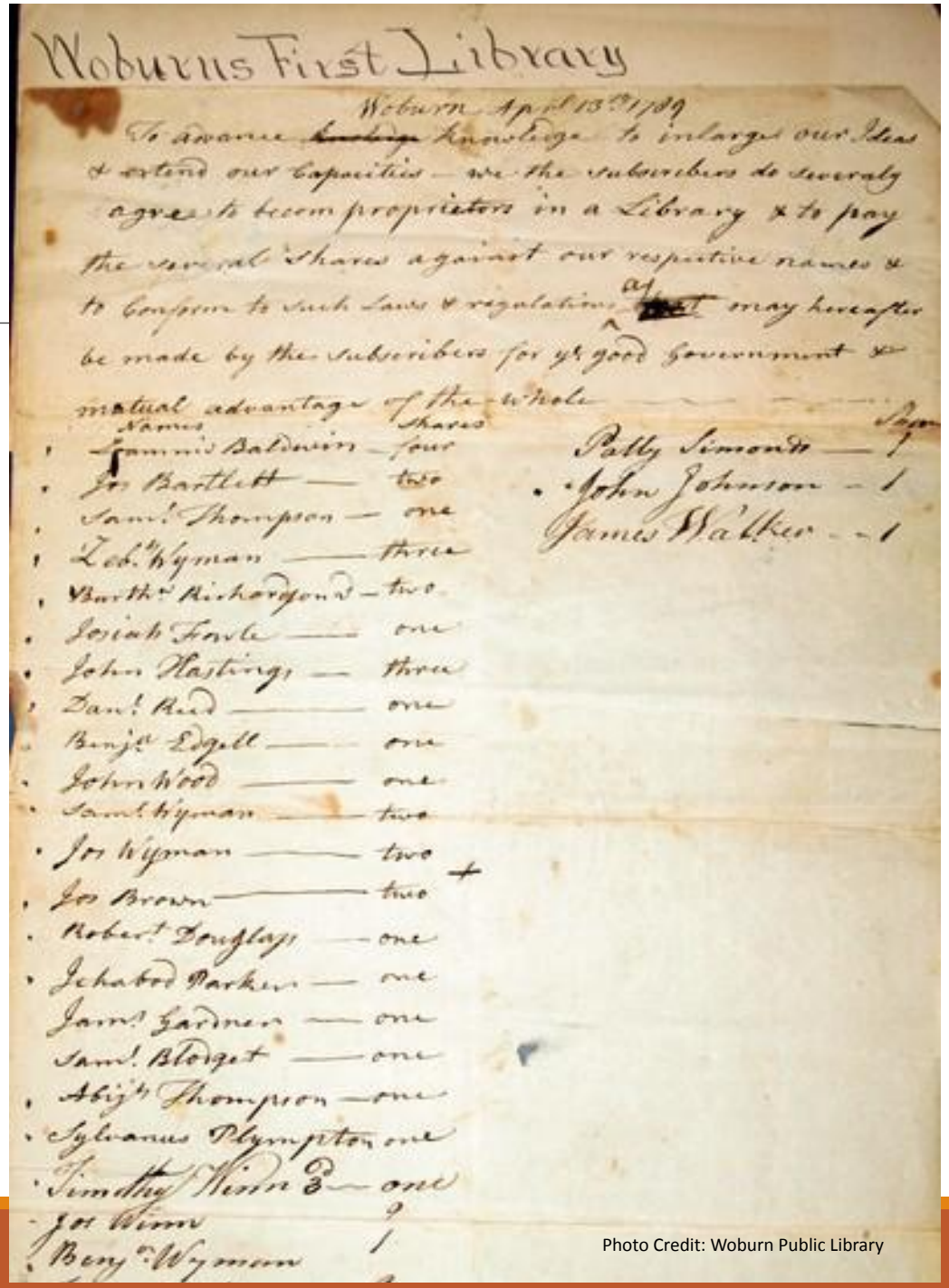
The library was established on April 13, 1789, just 17 days before George Washington's inauguration.

It was originally a social subscription library.

In 1854, Jonathan Bowers Winn offered $300 to found a free public library if it was matched by the Town and the library was founded.

In 1875, Charles Bowers Winn (son of J.B.) died and left a bequest of $140,000 to the library.

- At a 2.28% annual inflation rate, this is equivalent to $4,030,630 today.


Woburns First Library

Woburn April 13th 1789

To advance knowledge to inlarge our Ideas & extend our capacities — we the subscribers do severaly agree to become proprietors in a Library & to pay the several Shares against our respective names & to Conform to such Laws & regulations as may hereafter be made by the subscribers for yt good Government & mutual advantage of the whole

| Names | Shares |
|---|---|
| Jamis Baldwin | four |
| Jos Bartlett | two |
| Saml Thompson | one |
| Leb Wyman | three |
| Barthe Richardson | two |
| Josiah Fowle | one |
| John Hastings | three |
| Danl Reed | one |
| Benja Edgell | one |
| John Wood | one |
| Saml Wyman | two |
| Jos Wyman | two |
| Jos Brown | two |
| Robert Douglas | one |
| Jehabod Parker | one |
| Jams Gardner | one |
| Saml Blodget | one |
| Abijh Thompson | one |
| Sylvanus Plympton | one |
| Timothy Winn 2d | one |
| Jos Winn | 1 |
| Benj Wyman | 1 |

Patty Simonds — 1
John Johnson — 1
James Walker — 1

Photo Credit: Woburn Public Library

# The Historic H. H. Richardson Building

In 1877, Henry Hobson Richardson*, renowned 19th century architect, was chosen to design the original building.

Charles Bowers Winn had expressly stated that the building should be “an architectural ornament to the town.”

Richardson had recently finished Trinity Church in Copley Square.

*Richardson was the initiator of the Richardson Romanesque style.

Photo Credit: Woburn Public Library

# The H. H. Richardson Building

Opened to the public on May 1, 1879, on the grounds where the Winn family home once stood, with the agreement that the Town would care for this gift for perpetuity.

The Woburn Public Library was declared a National Historic Landmark on December 23, 1987.

Photo Credit: Woburn Public Library

# THE NEED FOR ADDITIONAL SPACE

The first need for additional space arose in 1900, when the library sought space for a children's area.

Over the course of 114 years, the Boards of Trustees and Library Directors petitioned for an addition.

Eventual success became achievable in the 1980s with a $1.9 million bequest to the library from John E. Frizzell's estate and the advent of the Massachusetts Public Library Construction Program (MPLCP).

In August of 2014, the Massachusetts Board of Library Commissioners (MBLC) awarded a provisional grant of $9.9 million to the City of Woburn for the much-needed restoration and expansion of this National Historic Landmark. It was a long time coming!

Photo Credit: Woburn Public Library

# FINALLY ON THE ROAD TO CONSTRUCTION

Remaining funding for the project was secured from several sources: the Board of Trustees, the Woburn Public Library Foundation, the Massachusetts Cultural Council's Cultural Facilities Fund and the City Council secured a bond of $31.5 million in September of 2015.

CBT Architects was retained as the architectural firm; Design Technique, Inc. was retained as the owner's project manager; and Consigli Construction Company was chosen as the general contractor for this Construction Manager at Risk project.

The generosity of many Woburn community members also made the Richardson restoration and the CBT addition possible.

# SUSTAINABLE DESIGN PLAN

The City of Woburn is a designated Massachusetts Green Community.

The goal of this project was a sustainable/green design in response to the City's objective to improve energy efficiency in public buildings.

The challenge to the design team was to achieve Leadership in Energy and Environmental Design (LEED)* certification.

A LEED engineering firm was engaged to evaluate which LEED checklist points were achievable to assist in the certification process.

The project attained LEED Gold certification for the addition.

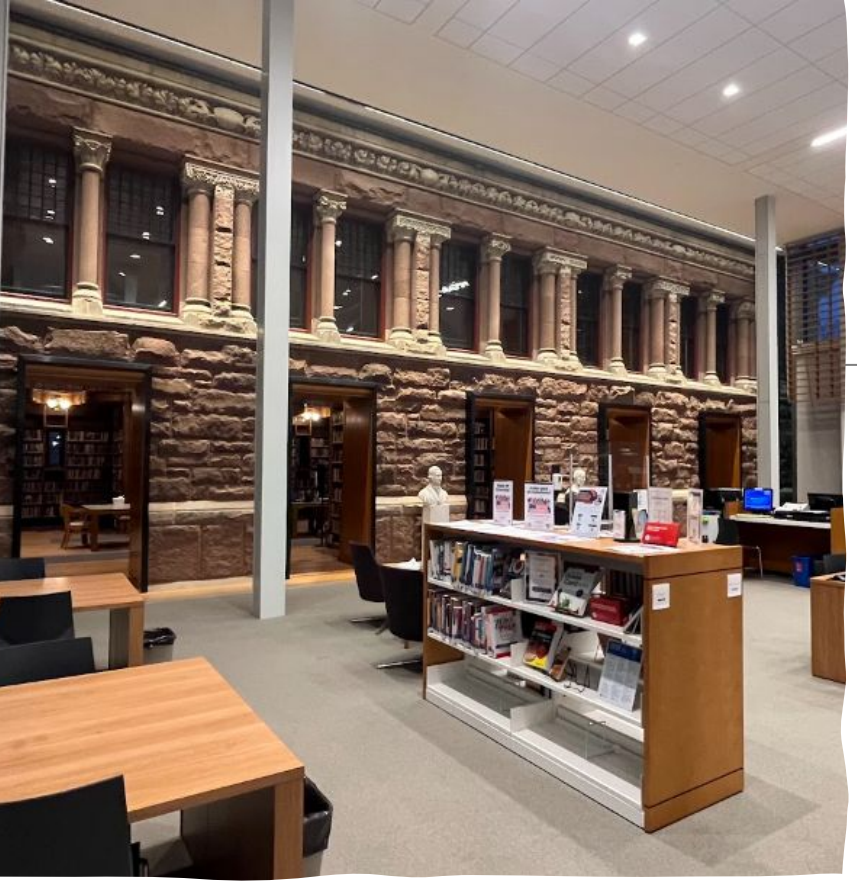
* www.usgbc.org/leed/

CBT Schematic July 2010

# SUSTAINABLE ATTRIBUTES HISTORIC BUILDING

The historic Richardson building was found to have inherent sustainable attributes:

- Its siting and building orientation – located in the heart of downtown close to transportation and amenities
- The generous daylighting of its stone walls and glass windows
- The thermal mass from its building envelope (30-inch-thick exterior walls) help to achieve energy savings by mitigating thermal swings in all seasons
- The approach to the existing structure included preserving 88% of the building's materials, minimizing the impact of embodied carbon.



# SUSTAINABLE ATTRIBUTES OF THE NEW ADDITION

The new addition connects to the historic structure by means of a glass curtain wall highlighting the intricate sandstone carvings on Richardson's exterior with the following attributes:

- Highly transparent façade maximizes daylight and clearly distinguishes old from new
- Fritted glass, brise-soleil shades at the curtain exterior wall, and wood screening on the interior were incorporated to control solar gain. These features were analyzed with energy and daylight modeling to offset the cooling loads of the mechanical system.

Energy modeling recommended separate mechanical systems to serve the old and new which resulted in a 28% energy cost savings.


# SUSTAINABLE FEATURES

- The oil burning furnace in the existing building was replaced with one fueled by natural gas.
- The library purchased renewable energy credits (RECs) for 70% of electricity use over two years.
- All plumbing fixtures allow for 27% less potable water use than plumbing code baseline.
- Attention was paid to local sourcing and environmental friendliness.
- 20% of building materials were procured within a 500-mile radius.
- 20% of materials used were manufactured with recycled content.


Photo Credit: CBT: https://www.cbtarchitects.com/project/woburn-public-library

# SUSTAINABLE FEATURES

- In both restoration and expansion, 100% LED lighting was installed.
- 100% adhesives, sealants, paints, coatings, flooring, and wood products used were compliant with LEED standards.
- The library administration and trustees also committed to a green cleaning policy to care for the materials and surfaces within the library.
  - Recently the glass in both the historic building and the addition were cleaned for the first time since construction. We were able to find a company that uses a water-only system, so no detergents or chemicals were used. In addition, cleaning was done from the ground, so no equipment needed to be brought to reach the highest walls.

# SUSTAINABLITY BEYOND THE WALLS

All landscaped plantings are drought tolerant for water conservation.

The parking lot has drainage systems underneath to reduce stormwater runoff.

The parking lot also includes designated parking for fuel efficient vehicles.


Photo Credit: CBT: https://www.cbtarchitects.com/project/woburn-public-library

# SUMMARY OF SUSTAINABILITY ACHIEVED

## Energy Performance:

- The project address the seemingly competing goals of a highly transparent façade with a high performing envelope, fritted glass, brise soleil shades and wood screening.

## Site Sustainability:

- Access to public transportation and community services
- Project achieved “Exemplary Performance” with site preservation
- 70% is preserved as open space
- Parking for fuel efficient vehicles is possible
- Stormwater runoff is reduced

Photo Credit: CBT: https://www.cbtarchitects.com/project/woburn-public-library

# SUMMARY OF SUSTAINABILITY ACHIEVED

## Water and Energy Efficiency:

- 27% less potable water use than code baseline
- Drought tolerant plantings
- Optimized energy performance with 28% energy savings

## Sustainable Materials:

- 88% of existing structural elements were reused as the historic building was nearly preserved in its entirety
- 20% building materials were manufactured with recycled content
- 100% LED lighting
- 100% compliant adhesives, sealants, paints, coatings, flooring and wood products

Photo Credit: CBT: https://www.cbtarchitects.com/project/woburn-public-library

# COMMUNITY IMPACT


| Jan-December | 2022 | 2023 | % | | 2022 | 2023 | % |
|---|---|---|---|---|---|---|---|
| Library Visits | 124,732 | 158,829 | 27% | Cardholders | 16,187 | 18,173 | 12% |
| Questions Answered | 73,056 | 80,421 | 10% | New Cardholders | 1,720 | 1,986 | 15% |
| Programs Offered | 797 | 1,189 | 49% | Materials Circulated | 307,030 | 358,398 | 17% |
| Program Attendees | 13,220 | 22,672 | 71% | Holdings | 88,241 | 90,328 | 2% |
| Program Room Reservations | 57 | 165 | 189% | Facebook Followers (Launched June 2022) | 657 | 990 | 51% |
| Study Room Reservations | 3,404 | 3,965 | 16% | Instagram Followers | 2,103 | 2,405 | 14% |
| Public Computer Usage | 10,197 | 27,403 | 169% | Twitter Followers | 1,882 | 1,877 | 0% |
| Public Print Jobs | 12,276 | 13,680 | 11% | Website Visits | 77,229 | 169,597 | 120% |
| Wireless Internet Users | 15,954 | 28,941 | 81% | Archives Requests | 1,094 | 260 | -76% |
| 3D Print Requests | 143 | 154 | 8% | Notary Services | 217 | 364 | 68% |
| Database Searches | 4,333* | 4,225* | -2%* | Volunteer Hours | 555 | 962 | 73% |

*Reporting Incomplete

The positive impact on the community has been tremendous.

The building has become a third space for many residents both locally and from surrounding communities.

People LOVE being in the space and LOVE the service they receive – we have amazing staff!

Services are up in all categories and are growing.

# REFERENCES


"Demystifying Sustainability in Library Buildings." *Libraries & Sustainability*, ALA Editions, Chicago, IL, 2022.

U.S. Green Building Council LEED Rating System: https://www.usgbc.org/leed

Woburn Public Library Guide to Spaces and Green Initiatives: https://woburnpubliclibrary.org/wp-content/uploads/2020/08/Library-Spaces-and-Green-Initiatives.pdf


WOBURN
PUBLIC LIBRARY
Hub of the Community

# THANK YOU

# Stakeholder Engagement, Sustainability Programs, and Community-led Decision Making

JULIE GAGEN

SUSTAINABILITY COORDINATOR, Town of Weston

# Overview

- Setting the stage
- Background: how this process started
- Learnings from Arlington, Beverly, Concord, Boston
- Conclusions + Next Steps
  - Planning Tools
  - School Policy
  - Decision making
  - Apply for grants + funding


Photo credit: Brian Foulds, Concord

# Background: Setting Stage

- The State of Massachusetts has committed to selling **all-electric consumer vehicles by 2035**
  - This commitment provides market certainty
  - We use that certainty to plan actions and steps needed to adapt to a changing market
  - To prepare for this, infrastructure needs to be installed, investments made, new systems started
  - <u>This is complicated</u>
- This presentation summarizes the findings of Weston staff following a one-year Technical Assistance Program (TAP) Grant with MAPC

Massachusetts State House, Boston
Photo credit: Violet Smirnova

# Background: Fleet, Climate Action

- The Town of Weston owns/operates its bus fleet
  - 2,000 students
  - 33 buses; replace 3 every year, with full fleet turnover every 11 years
  - Current budget: $300k-$350k per year
- Community interest in ESBs
  - Community is interested in electric buses
  - Weston is #1 in Electric Vehicle Adoption in Massachusetts
  - Air quality / diesel emissions concerns among parents
- Climate Action & Resilience Plan – 2021
  - 30% of all GHG emissions in Weston are a result of transportation
  - Goal: Full fleet electrification by 2035

WESTON AHEAD

Creating our Sustainable Future

# Background: Stakeholders, TAP Grant

- MAPC Technical Assistance Grant, 2022
  - Internal/external stakeholder coordinated education and engagement program to support bus fleet electrification in the Town of Weston
- Understanding Stakeholders: Internal, External
  - Internal: DPW, School Administration, School Department staff that manage day to day fleet operations
  - External, Schools: School Committee, with Superintendent + Admin, decides school related budget
  - External, Town: Sustainability Committee, under Select Board, is responsible for implementing the Climate Action Plan

# MAPC TAP Program, 2023

- In February 2023, stakeholders were brought together to begin this process
- Internal/External Stakeholders included:
  - Internal, Schools: Transportation Coordinator, School Business Manager, School Asst. Superintendent of Finance & Operations
  - Internal, Town: DPW, Asst. DPW Director, Town Procurement Officer, DPW Maintenance staff, Sustainability Coordinator
  - External, Schools: School Committee member
  - External, Sustainability: Sustainability Committee member
- Interviewed 4 Communities: Concord, Beverly, Arlington, Boston


Photo credit: Brian Foulds, Concord

# Stakeholder Feedback/Concerns

- Stakeholder Concerns
  - **Reliability**: Heavy skepticism on the performance of heavy-duty EVs, reliability, technological readiness, etc.
  - **Public process** is slow, requires detailed planning and clear cost estimating
  - **Systems change** is complicated
  - **Cost**: ESBs are 3x the cost of a diesel bus, plus infrastructure
  - **Funding**: non-priority communities have very limited options
- Engaging all affected departments and committees was essential to creating a reasonable, actionable plan


Photo credit: Brian Foulds, Concord

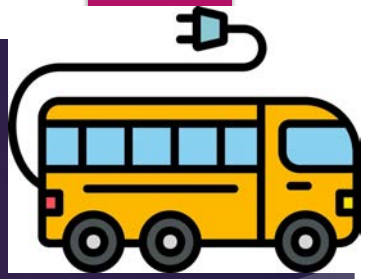
“Coming together is a beginning.
Keeping together is progress.
Working together is success.”

- Henry Ford

Learning from communities farther ahead in this process:

**Interviews with Concord, Beverly, Arlington, and Boston**

# Municipality: Concord



Electric School Bus Model: School District Ownership, Maintenance and Operation

# Electric Buses in Fleet/Total # School Buses: 3 ESB & 39 DSB = 42 Buses

Project Start Date: Nov. 2016 (First mass-produced ESB in the US)

Key Challenge: Every challenge you can imagine and more. Vehicle colors/labels, Wheelchair braking system, community expectation setting, mechanical issues, depot infrastructure and many other early adopter issues now resolved. Operating for 6 years, with 2.5 years issues free.

Success or Win: We took a risk in 2016 on a new school manufacture with new technology and in 2020 and 2022 we added to our ESB fleet. Each funded under different programs with all operating today. The community love them but is unwilling to buy without help reducing the upfront purchase price. The goal is an 80% ESB fleet with V2G changing in partnership with Concord Light.


Photo credit: Brian Foulds, Concord

# Municipality: Beverly

Electric School Bus Model: Charging-as-a-Service / Lease (buses 1&2); Lease to buy (buses 3-5)

# Electric Buses in Fleet/Total # School Buses: 5 Electric; 48 total (22 full size)

Project Start Date: October 2020

Key Challenge: Affordability; operational issues

Success or Win: First Vehicle-to-Grid school bus!

Photo credit: WBUR Coverage of Beverly Schools Announcement of ESBs – 1/23/23 https://www.wbur.org/news/2023/01/23/massachusetts-electric-school-buses

# Municipality: Arlington

Electric School Bus Model: Thomas Saf-T-Liner C2 Jouley

# Electric Buses in Fleet/Total # School Buses: 2 electric /13 total buses, 4 student transport vehicles

Project Start Date: October 2021

Key Challenge: Charging infrastructure – equipment delays, supply chain issues, utility coordination, siting of chargers; grant and rebate layering

Success or Win: Nearly $1M in grants and rebates secured, busses officially up and running as of Sept 2023


Arlington Sustainability Manager Talia Fox, MA State Representative Sean Garballey, Arlington Public Schools (APS) Superintendent Dr. Elizabeth Homan, and MA State Representative Dave Rogers at the electric bus ribbon cutting event. https://www.arlingtonma.gov/Home/Components/News/News/13606/16

# Municipality: Boston

Electric School Bus Model: City owned, operations and maintenance contracted out

# Electric Buses in Fleet/Total # School Buses: 20 Electric / 750 total (620 buses on the road daily)

Project Start Date: May 2022 kickoff (Buses active since February 2023)

Key Challenge: PRICE and school bus interoperability with software (eg, scheduled charging, pre-conditioning, and telematics)

Success or Win: Solid reliability and cold weather performance


Photo credit: WBUR Coverage of BPS Announcement of ESB Pilot 20 buses – 2/6/23 https://www.wbur.org/news/2023/02/06/boston-electric-school-bus-pilot-program

“Cooperation is the thorough conviction that nobody can get there unless everybody gets there.”

- Virginia Burden, Author

# Weston: Conclusions

- Weston needs a School/Community-wide approach
- Prioritize short- and long-term planning

Short-term:

- School Committee establishes a sub-committee jointly with Sustainability committee, School Dept, Facilities Staff, and relevant staff
- Establish a zero-emission vehicle policy
- Provide recommendations for a pilot program

Long-term:

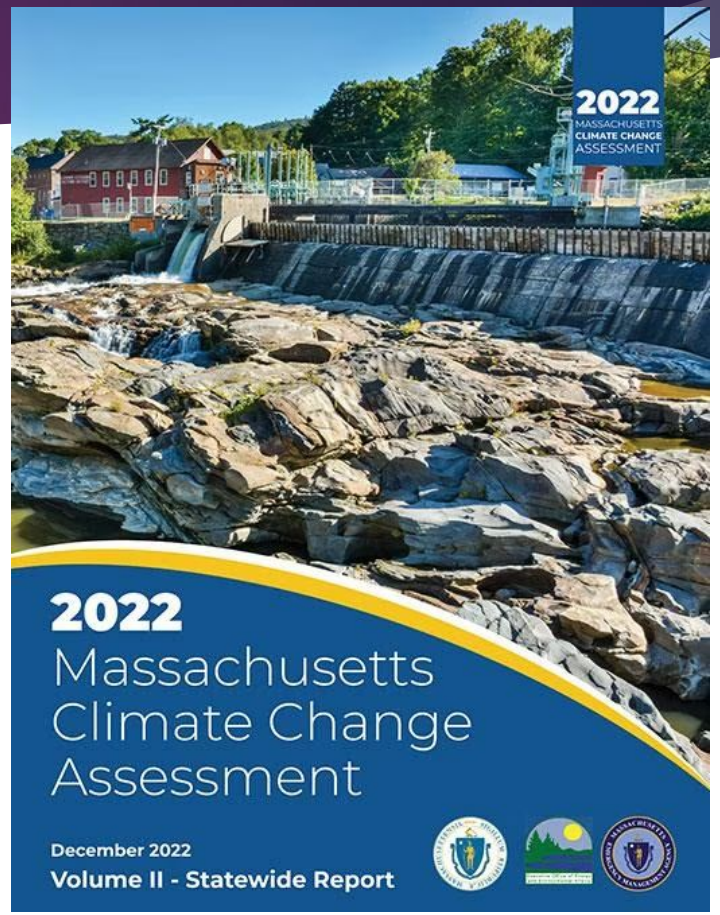
- Fleet electrification plan developed by committee, based on findings from pilot program


Photo credit: Brian Foulds, Concord

# Advice for Communities

- **Educate leaders** / decision-makers on risks / impacts of climate change
- Become informed about the systemic change communities will face over the next 10-25 years
  - Massachusetts Climate Change Assessment, Dec. 2022
  - MA Clean Cities Coalition
  - MA Municipal Vulnerability Program
  - DOER Green Communities Program

- **Start discussions now** to allow lead time for budget planning and prioritization
  - Fleet Electrification
  - Building Electrification, Renewable Energy Generation
  - Infrastructure planning
  - Hazard Mitigation Planning




Source:
https://www.mass.gov/info-details/massachusetts-climate-change-assessment

# Discussion

MMA Massachusetts Municipal Association

# Questions?

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MMA | Massachusetts Municipal Association

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