

## CASE STUDY OUTLINE

### Municipal Vulnerability Preparedness Program Action Grant Case Study

**Municipality:** Town of Acton (lead applicant); Acton-Boxborough Regional School District (partner)

**Project Title:** Climate Action Plan and Electrification Roadmap

**Award Year (FY):** FY2022

**Grant Award:** \$ 157,940

**Match:** \$ 55,080

**Match Source:** In-Kind Hours

**One or Two Year Project:** One year project

**Municipal Department Leading Project:** Town of Acton Sustainability Office

**Project Website URL:** <https://www.acton-ma.gov/732/Climate-Action-Plan>

#### Community Overview:

- **What is the population size of your community and where is it located?**
- **Do you have any [Environmental Justice](#) or other Climate Vulnerable communities? (Think about both those who live and work in your town.)**
- **Other unique traits of your municipality like who the top employers are, geography, history, etc.**

The population of Acton is 24,021; Acton is a town in Middlesex County.

According to Massachusetts's definition and designation for Environmental Justice (EJ) populations, Acton meets the criteria of 40% or more of the town's total population are minorities and the annual median household income of the municipality in which the neighborhood is located does not exceed 150% of the statewide annual median household income. Parts of Acton's EJ population experience English isolation, with the top language being simplified Chinese. In addition, nearly 30% of the Town of Acton is also made up of renters, which is relatively high compared to other similarly sized suburban cities and towns in Massachusetts.

The top employer in Acton is Insulet Corporation, a medical device company with headquarters in Acton. Acton is bordered by Westford and Littleton to the north, Concord and Carlisle to the east, Stow, Maynard, and Sudbury to the south and Boxborough to the west. Acton-Boxborough Regional High School, was named a Blue Ribbon School by the U.S. Department of Education in 2009. Acton has two primary stream systems: the Nashoba Brook system including the incoming streams Butter Brook, Wills Hole Brook and Conant Brook and the Fort Pond Brook system including the incoming streams Guggins Brook, Inch Brook, Grassy Pond Brook, Pratt's Brook and Coles Brook. Both stream systems empty into the Assabet River, which passes briefly through the town at its southern corner. Nagog Pond in the north, forms Acton's border with the Town of Littleton and provides drinking water to the Town of Concord. Acton was first settled by Native Americans who used the Assabet, Sudbury and Concord rivers for transportation and the fields for farming seasonal crops. There is evidence of Native American settlements in Acton which go back 7,000 years. When the colonists arrived in this area, the Native American population dropped dramatically due to European diseases for which they had no immunity. Acton was established as an independent town on July 3, 1735. Acton has held annual town meetings since 1735, the records of which are held at Acton's Memorial Library.

## Project Description and Goals:

- **Where was the project located?**
- **What climate change impacts did the project address?**
- **What were the specific goals and tasks of the project as stated in your application?**
- **Did your project meet the goals set forth in your application in terms of:**
  - Employing nature-based solutions
  - Providing regional benefits
  - Improving equitable outcomes for and fostering strong partnerships with EJ and other Climate Vulnerable Populations
  - Implementing the public involvement and community engagement plan set forth in your application
  - Finishing the project on time

Project 1) The **Climate Action Plan** addresses extreme heat, precipitation, and extreme storm events in Acton, MA. Eight actions address these impacts within two resilience strategies. They are summed up as follows:

### Resilience Strategy 1: Pair nature-based solutions with resilience

- Action 1: Explore opportunities to promote and/or pilot projects with natural carbon sinks and sequestration solutions.
- Action 2: Explore policies and programs to reduce impervious surfaces in line with the Municipal Separate Storm Sewer System (MS4) permit.
- Action 3: Support sustainable and resilient water management.
- Action 4: Provide emergency funds to low-income residents to manage climate change related disasters.
- Action 5: Explore opportunities to promote green roof installations.

### Resilience Strategy 2: Prepare the town for the impacts of climate change

- Action 1: Ensure town-wide planning efforts incorporate the latest available climate change data and include resilience-focused strategies.
- Action 2: Review and update bylaws and procedures to incorporate climate change and sustainability considerations.

Climate Action Plan goal as stated in application was to develop of a plan that effectively maps out the actions for realizing the 15-20 strategies in the next 5-10 years to tackle the Town's GHG emissions identified in the 2019 GHG Inventory Report and reach Net Town-wide carbon emissions to zero as quickly as possible and that enhances local resilience.

The Climate Action Plan goals led three nature-based themed workshops, including a "Nature Walk & Talk" with our Natural Resources Department. In one of our virtual nature-based solutions themed workshops an expert from The Nature Conservancy was invited to present sample solutions and actions to address climate mitigation

and adaptation through green infrastructure. At these workshops two goals were developed with input from the community:

1. Acton's natural resources are protected, managed, connected, and restored to increase carbon sequestration, equity, resilience, and biodiversity.
2. Local land use policy encourages affordable, diverse, transit-oriented and net zero housing while also enhancing nature-based solutions.

The following table summarized the CAP nature-based solutions strategies and actions:

<b>STRATEGY N1: Increase protection of existing open space and potential green spaces throughout town in line with the open space and recreation plan</b>
<ul style="list-style-type: none"><li>• <b>Action 1:</b> Prioritize increasing equitable access to green space and water table recharging areas.</li><li>• <b>Action 2:</b> Develop a tree planting plan.</li><li>• <b>Action 3:</b> Explore the opportunity to establish a municipal nursery.</li><li>• <b>Action 4:</b> Ensure development is paired with nature-based solutions.</li></ul>
<b>STRATEGY N2: Support sustainable agriculture</b>
<ul style="list-style-type: none"><li>• <b>Action 1:</b> Provide resources to support Community Supported Agriculture (CSA) memberships for low-income residents.</li><li>• <b>Action 2:</b> Explore opportunities to encourage agrophotovoltaics (APV).</li><li>• <b>Action 3:</b> Partner with organizations supporting sustainable agriculture.</li></ul>
<b>STRATEGY N3: Electrify municipal lawn mowing equipment and support residents to transition to electric mowing</b>
<ul style="list-style-type: none"><li>• <b>Action 1:</b> Transition to electric mowing equipment.</li></ul>
<b>STRATEGY N4: Advocate for policies that support nature-based solutions implementation in Acton</b>

- **Action 1:** Advocate for sustainable land management and landscaping practices that protect local natural resources.
- **Action 2:** Explore programs that support a no net loss policy for trees in the town.
- **Action 3:** Advocate for the restoration and protection of wetlands by incorporating future climate change projections and their potential impacts into the Massachusetts Wetlands Protection Act and regulations as well as Acton's local wetland bylaws.

Four focus group sessions were organized with the Housing & Climate Justice advocacy grassroots organization in Acton, a presentation was given to the Diversity, Equity & Inclusion Commission (DEIC), and an interview was conducted with the Chair and Co-Chair of the DEIC. The purpose of these sessions was to solicit specific input on actions that might positively or negatively impact low-income communities and vulnerable populations, and identify ways to enhance the positive impacts and address the negative impacts. In addition to developing new actions, equity concerns are addressed throughout the Climate Action Plan -- most of the actions include a section titled "equity considerations." For example, the equity considerations for Action 4 of Strategy B4 ("Explore pursuing an aggregated triple electrification model in Acton to decarbonize buildings while improving energy efficiency and adding onsite renewables") is "Engage a diverse range of residents in program design and ensure that the program offers zero- or low-cost financing that allows low- and moderate-income homeowners to participate. Work with landlords and renters to encourage program participation and to design anti-displacement mechanisms so costs are not passed on to renters."

Several methods of engagement were employed to capture a broad and diverse audience. Updates and notices on events were provided via: the Climate Action Plan Town blog; Town of Acton social media; the mailchimp newsletter; via the Town of Acton newsletter, Action Unlimited Ads (local newspaper delivered by mail). For major events, including the first Visioning Virtual Workshop, CAP Open House & CAP Festival outreach included all of the above plus: postcard mailings to every address in Acton, yard sign, ActonTV, flyers at restaurants, coffee shops and apartment units with translation to Simplified Chinese, Portuguese, and Spanish; in-person promotion at a table outside of the Donolan's Supermarket and Acton Coffee House; Town of Acton news flash.

- Updates were provided to the community via the Town of Acton CAP blog page and Mailchimp newsletter:
  - <https://www.acton-ma.gov/Blog.aspx?CID=15>
  - <https://us5.campaign-archive.com/home/?u=b272fbc532e57c495438af8d7&id=6d10887421>
- Updates were also provided via ActonTV; and workshops were also recorded on ActonTV:
  - <https://www.youtube.com/watch?v=jIUQglA2j4s>
  - <https://www.youtube.com/watch?v=CVPSbHCNuvI&t=0s>
  - <https://www.youtube.com/watch?v=MEwBfDxduxA>
  - <https://www.youtube.com/watch?v=OHdT3SX4F2E>
  - [https://www.youtube.com/watch?v=3\\_MhpXmGZ7U&t=0s](https://www.youtube.com/watch?v=3_MhpXmGZ7U&t=0s)
- Sample flyers, postcard, yard signs used to publicize CAP events:



Register here: [bit.ly/ActonCAPVision](http://bit.ly/ActonCAPVision)  
 | Andrea Becerra at [abecerra@actonma.gov](mailto:abecerra@actonma.gov) or  
 978-929-6611 for more information.

**POSTAL CUSTOMER**

*All welcome (FREE!)*



Will you need shuttle transport to the festival? Any other questions?  
Email [sustainability@actonma.gov](mailto:sustainability@actonma.gov) or call 978-929-6515 for more information  
如果您想翻译有关气候行动计划的这些信总，请通过电话或电子邮件与我们联系: [abecerra@actonma.gov](mailto:abecerra@actonma.gov) 或 978-929-6515

- Sample social media post & Town of Acton Newsletter:



## THIS MONTH IN SUSTAINABILITY

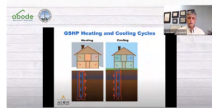
### CLIMATE ACTION PLAN BLUEPRINT NOW AVAILABLE

The Climate Action Plan (CAP) Blueprint is here! Together with the Metropolitan Area Planning Council (MAPC), the Sustainability Office presented the report to the Select Board on December 20th. The Blueprint contains a list of strategies to reduce greenhouse gas emissions in our buildings, energy, transportation and through nature-based solutions. You can find the Blueprint [here](#). The final CAP will be published in May – to stay up-to-date visit the Climate Action Plan blog [here](#).



### HAVE YOU JOINED THE CLEAN ENERGY CHALLENGE?

The Town of Acton is working with Abode Energy Management to advance air source and ground source heat pump adoption by providing FREE consultation to Acton residents and businesses. Abode connects residents and businesses with local, reputable contractors.



Through this program you can request, receive, and compare quotes through multiple contractors and discuss the project with an independent Energy Advisor every step of the way. Visit the Abode page for more information.

**Did you miss the heat pump webinars?** To learn about heat pumps check out the launch session [here](#). For a deep dive on ground source heat pumps you can click [here](#).

### ENERGIZE ACTON: A NEW PLATFORM TO TAKE ACTION ON CLIMATE

Are you looking for more ways to act on climate? The Energize Acton platform contains a list of actions you can take to reduce your carbon footprint and contribute to a more sustainable future. This initiative is a partnership between the Town of Acton and the Acton Climate Coalition. Join Energize Acton to reach the goal of 300 households taking action by the end of 2022! You can do this by taking action at home, at work, and in daily life — along with your family, neighbors, and Acton friends — to reduce your carbon footprint and help reduce climate impacts. Sign up and learn more here: <https://bit.ly/EnergizeActon>



Although there is one more opportunity for public feedback, at the request of residents, before the final report is published, over 20 events and all Climate Action Plan deliverables were completed as scheduled.

**Project 2) Electrification Roadmap:** Analyzing electrification of seven key existing municipal/school buildings in Acton was the focus of the Electrification Roadmap task. This collaborative project examined three Town of Acton buildings (Town Hall, library, PSF) and four Acton-Boxborough RSD school buildings (HS, JH, Parker Damon Building, Administration Building), a total of 800,000 s.f across two portfolios. The Town and the District were seeking to understand options, costs and timelines for electrifying these seven buildings, all of which will be fully occupied over the next several decades as the US shifts to a low-carbon economy. The project was finished on time, and resulted in the development of a thorough and well-researched report detailing the path forward on electrification.

## Results and Deliverables:

- Describe, and quantify (where possible) project results (e.g. square footage of habitat restored or created, increase in tree canopy coverage, etc.). Report out on the metrics outlined in your application.
- Provide a brief summary of project deliverables with web links, if available.

Project 1) Climate Action Plan: With support from the consultant, ERG, hired to conduct a cost-benefit analysis and greenhouse gas (GHG) modeling of strategies, the CAP contains estimated costs to implement each strategy, the avoided cost of inaction (social cost of carbon), and benefits in health cost savings. Acton has one of the most ambitious GHG emissions reduction target in Massachusetts -- a Climate Emergency Declaration was passed at the September Town meeting calling for net-zero emissions as quickly as possible, “with a target date of 2030.” For this reason, it was important to identify the current barriers to achieving net zero emissions, including both financial and policy challenges.

- The deliverables from the Climate Action Plan can be found on the Climate Action Plan page, including GHG emissions modeling, can be found here: <https://www.acton-ma.gov/732/Climate-Action-Plan>
- CAP cost-benefit strategy write-up can be found here: <https://www.acton-ma.gov/DocumentCenter/View/8044/ERG-Econ-Strategy-Write-ups>

Project 2) Electrification Roadmap: The engineering team from Salas O’Brien combined numerous inputs to create a Business as Usual (BAU) thermal profile for each of the seven buildings. Analysis was then done to identify the most efficient and cost-effective pathway for electrification of each building. A Life Cycle Cost Analysis was run to examine both capital costs and operating costs over time for each scenario considered. Reductions in GHG emissions and energy consumption were analyzed. Campus solutions were considered for developing a single system that would address two or more buildings. A variety of technologies was evaluated, including geothermal (GSHP) and Air Source Heat Pumps (ASHP).

The Electrification Roadmap final report is thorough and well-constructed. It details specific recommendations and timelines for electrification of each building.

- Final Report: <https://www.acton-ma.gov/DocumentCenter/View/8048/Acton-Electrification-Roadmap-Final-Report>.
- Master slide deck was also developed: <https://drive.google.com/file/d/1ACBPMBwddqNX5Gr71-SUpEsnkgTK14Ve/view?usp=sharing>

Significant outreach was done to enhance the impact of this project:

- The RFP ([https://drive.google.com/file/d/1p897\\_S1OZTAWbgIVJIZWHtO-c\\_ib82II/view?usp=sharing](https://drive.google.com/file/d/1p897_S1OZTAWbgIVJIZWHtO-c_ib82II/view?usp=sharing)) was distributed nationally, and ten proposals were received in reply.
- Presentations on the Electrification Roadmap study were given at a joint AEEE/ASHRAE meeting in March, and at NGRID’s Municipal Energy Summit in May. Numerous other avenues for sharing the process and results with municipal contacts have been fruitful as well.
- Nine utility staff members joined a working meeting in March to gather information about the project.
- The project was described at the Drawdown Festival on Long Island in January. A presentation for Acton residents was given in May. A presentation for elected officials is being coordinated shortly.
- Additional opportunities for sharing these results are anticipated in the months ahead.

#### **Lessons Learned:**

- What lessons were learned as a result of the project? Focus on both the technical matter of the project and process-oriented lessons learned.
- What is the best way for other communities to learn from your project/process?

### Project 1) Climate Action Plan:

Providing a free shuttle service, free food, and entertainment for children and families garnered diverse participation at our in-person events. Entertainment is not listed as an equitable modifier in the “MVP Toolkit: Environmental Justice & Equity.” Free entertainment in the form of face painting for kids, a raffle, music, and scavenger hunt attracted new and diverse audiences to our events. This was a key component for acquiring broader involvement in the climate action plan work and in soliciting input on the CAP strategies and actions.

The best way for other communities to learn about our process is by visiting the Town of Acton Climate Action Plan web page or by reaching out directly to the Sustainability Office at [sustainability@actonma.gov](mailto:sustainability@actonma.gov).

### Project 2) Electrification Roadmap:

- Wide distribution of the RFP was key, as the network for contacting firms interested in this work is definitely national in character. Firms in other regions of the US expressed significant interest and submitted substantial proposals.
- The joint nature of the project, a collaboration between Town of Acton and Acton-Boxborough RSD, added both complexity and richness. Complexity was managed by close communication between the teams. The result was a rich experience for all participants, as we learned about priorities, timelines, capital planning processes, and operational practices from each other. Salas O’Brien was flexible and gracious in working with two different organizations. The Final Report yields an interesting look thru two different lenses at portfolio electrification.

### **Partners and Other Support:**

- Include a list of all project partners and describe their role in supporting/assisting in the project.
- Acton-Boxborough Regional School District: Municipal entity partnering with Town of Acton on all aspects of Electrification Roadmap activities, including grant application, vendor procurement, vendor supervision, development and review of Final Report components.
- Salas O’Brien: Engineering firm contracted for Electrification Roadmap to perform analysis and identify pathway to full electrification for seven buildings, including Life Cycle Cost Analysis review of capital and operational costs.
- MAPC: The Metropolitan Area Planning Council (MAPC) is the regional planning agency that serves the people who live and work in the 101 cities and towns of Metro Boston. MAPC’s mission is to promote smart growth and regional collaboration. MAPC works toward sound municipal management, sustainable land use, the protection of natural resources, climate change mitigation and adaptation, efficient and affordable transportation, a diverse housing stock, public safety, economic development, and equity and opportunity for all.
- ERG: Consulting firm with specialty in several fields, including environmental services.
- The Town also depended heavily on community partners to complete the Climate Action Plan, including committees, local advocacy groups, businesses, and non-profit organizations -- a list of acknowledgements is included in the Climate Action Plan.