



**Lincoln Climate Action Plan (L-CAP)
Select Board Meeting | June 26, 2023**

Agenda

- Process and Plan Overview
- Sneak Peak of the Plan
 - Project Engagement to Date
 - Postcard Mailer & Snapshot of Stakeholder Contributions
 - Lincoln's Climate Goals
 - Strategy Development & Prioritization
 - Top Strategies for Each Planning Area Thus Far
- L-CAP Dashboard Demo
- Next Steps

Process

The **Municipal Vulnerability Preparedness (MVP)** program provides support for Massachusetts towns to plan for climate change and implement priority actions. Learn more at resilientma.mass.gov/mvp/

April 2019: Lincoln completes the MVP Planning Process



April 2019: Lincoln is designated an MVP Community



April 2022: Town applies for MVP Action Grant



October 2022: Project Begins



Onwards: Select Board Adoption + Town implementation



Summer 2023: Public Review Period



June 2023: Project Ends



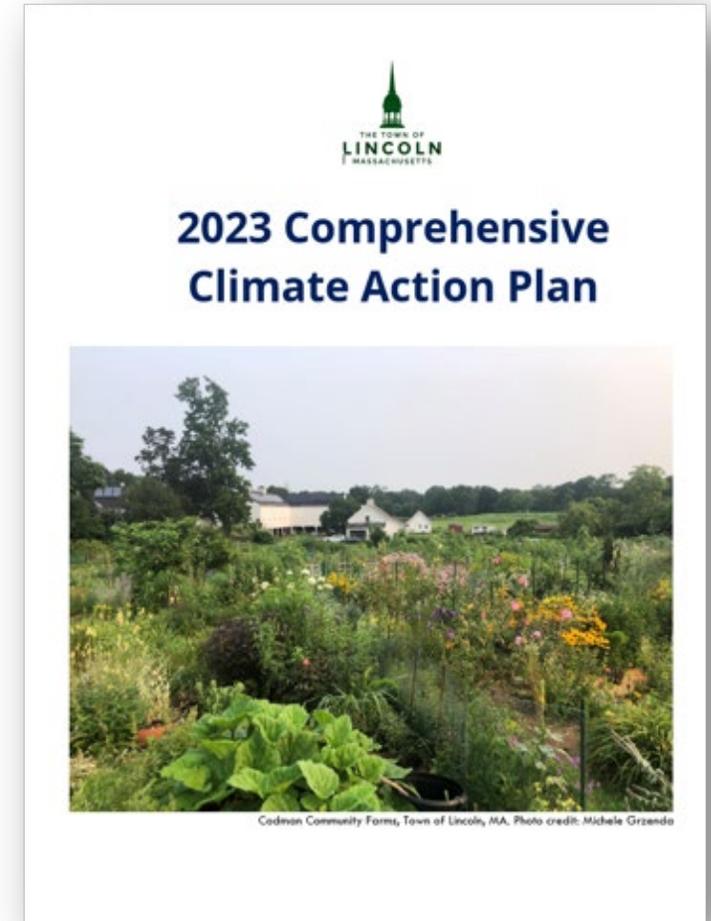
2022-2023: Outreach and engagement; data analysis, modeling, and mapping; developing goals and strategies



The final plan will include recommendations for monitoring and maintenance, to assist the Town in tracking progress on implementing strategies and in making future updates.

Plan Overview

- Identifies existing and ongoing climate efforts in Town
- Establishes climate action goals for the community
- Notes strategies to implement in Town to meet the established goals



Sample Pages from the Final Draft Plan

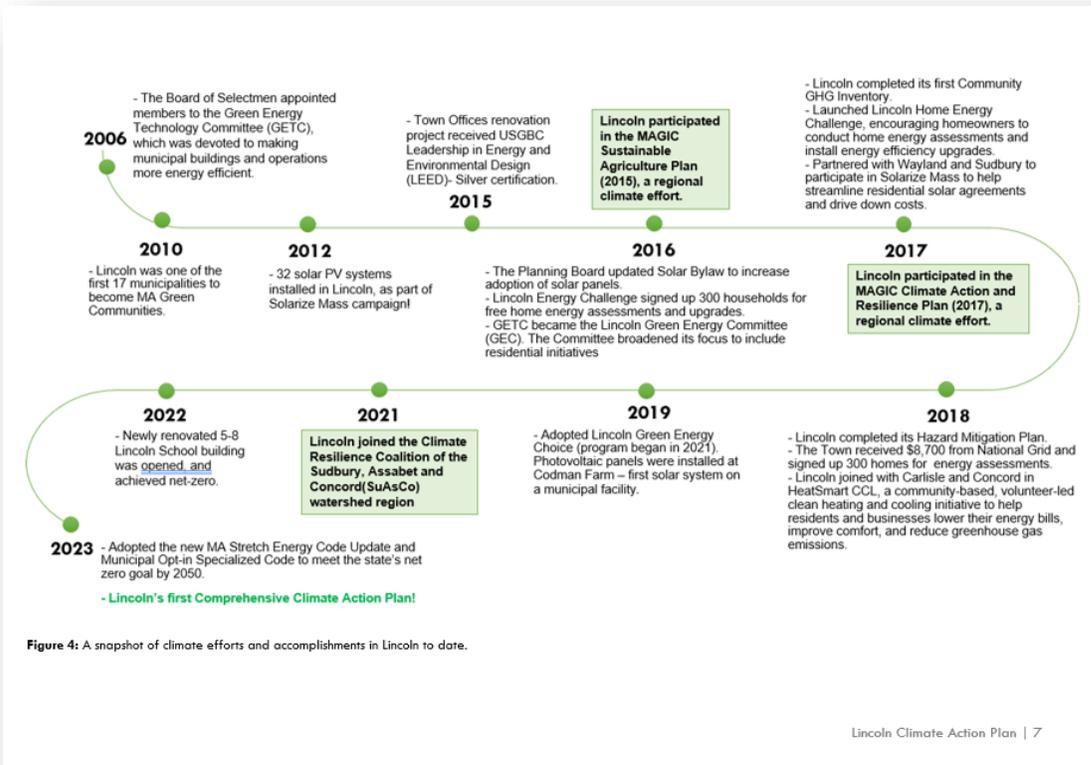


Figure 4: A snapshot of climate efforts and accomplishments in Lincoln to date.

Timeline of highlighted climate efforts and accomplishments in Lincoln to date

A snapshot of Lincoln's carbon footprint

A Snapshot of Lincoln's Carbon Footprint

For this planning process, a review of Lincoln's 2017 Greenhouse Gas Inventory was conducted. Additional key data used for this review included municipal electricity and natural gas consumption data, amongst other sources, that allowed us to see a more comprehensive perspective of Lincoln's emissions from various sectors in 2017.³ Overall, Lincoln's total greenhouse gas emissions (GHG) in 2017 were approximately 56,370 metric tons of CO₂e.

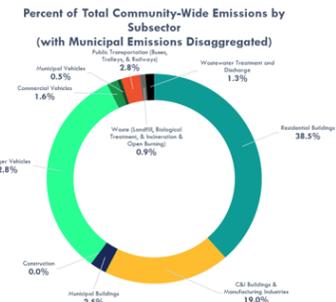
Figure 5 (right): A summary of Lincoln's greenhouse gas emission sources. The "Residents" category includes passenger vehicles and residential homes. The "Businesses & Industry" category includes C&I (Commercial and Institutional) Buildings and Manufacturing Industries, commercial vehicles, and construction. The "Municipal & Public Services" category includes municipal vehicles, municipal buildings, public transportation (buses, trolleys, railways), wastewater treatment and discharge, waste (Landfill, Biological Treatment, and Incineration & Open Burning).

As shown in Figure 6, municipal facilities and operations in Lincoln account for approximately 8% of total emissions in 2017. Residential buildings and passenger vehicles are responsible for approximately 38.5% and 32.8% of emissions respectively, while commercial and institutional buildings and manufacturing industries in addition to commercial vehicles, are responsible for approximately 20.6% of emissions.

Though municipal emissions are lower in comparison to emissions generated by residential and commercial activity, it is still crucial that the municipality lead by example and make changes to Town buildings and vehicles that will lower the usage of fossil fuels and will reduce emissions. Doing this will support a community-wide transition led by residents, businesses, and the Town to become more energy efficient, sustainable, and climate resilient.

Figure 6 (right): Percent of Total Community-Wide Emissions by Subsector (with Municipal Emissions Disaggregated) for Lincoln in 2017.

³ Note: This 2017 Greenhouse Gas Inventory is not able to capture sources of renewable energy in the community however and does not include emissions from aviation.



This review of greenhouse gas emissions in Lincoln is an important component of the climate action plan, as it provides a high-level overview of where the major sources of emissions are in Lincoln and therefore can help guide the prioritization of L-CAP strategies for more effective implementation and achievement of GHG emissions reduction. However, a technical analysis should be conducted for a more detailed understanding of, and to gain quantitative data for, L-CAP strategies and their greenhouse gas reduction potential, in addition to lifetime costs and benefits.

56,370 metric tons of CO₂e is equivalent to...

Emissions from **12,544** gas-powered passenger vehicles for one year

Or... emissions from **10,968** home's electricity use for one year

And can be offset by running **16** wind turbines for a year!

Project Engagement to Date



Stakeholders Engaged to Date (Thank You!)

- **The Lincoln Climate Action Plan Working Group**
- **Climate Action Lincoln (a subcommittee of the Lincoln Green Energy Committee)**
- **Residents!**

Participating Town Departments

Building & Engineering
Conservation
Council on Aging and Human Services
Planning and Land Use
Highway
Public Works
Public Safety
Town Administration
Water

Lincoln Community and Resident Groups

Friends of Modern Architecture
Lincoln Common Ground
Lincoln Land Conservation Trust
Lincoln Parent Teacher Organization
Lincoln-Sudbury High School Environmental Club
Mothers Out Front
Rural Land Foundation
The Commons in Lincoln
Zero Waste Lincoln
Welcome, Inclusion, Diversity, Equity Lincoln

Participating Boards and Committees

Agricultural Commission
Bicycle and Pedestrian Advisor Committee
Board of Health
Conservation Commission
Green Energy Committee
Historic Commission
Housing Commission
Inclusion, Diversity, Equity, Anti-Racism Committee
Lincoln School Committee
Planning Board
Roadway and Traffic Committee
Select Board
Zoning Board of Appeals

Thank you to everyone who has been engaged in this process so far! The Town is looking forward to engaging with more individuals, groups, committees, and departments in Lincoln as we continue working on climate action in the community.

Snapshot of Stakeholder Contributions

Some sample contributions from **more than 200 strategy ideas** that were received!

“100% electric vehicles with lots of charging stations around town”

“Increased access to transfer station for waste & recycling for farmers”

“Advocate at the state and fed level for resources for people who cannot afford upgrades, energy efficiency should not be a luxury for wealthy people”

Education!

“Work toward establishing Lincoln as a local food hub with affordable food for underserved populations”

“Monitor and plan for changes due to climate change, including invasive species and shifts in species range in response to warming temperatures and shifting precipitation patterns”

“Improve safety for pedestrians and cyclists”

“Best practices for recycling solar panels & batteries.”

Postcard Sent to Residents

Lincoln Climate Action Plan

Questions or comments?
Contact Jennifer Curtin
curtinj@lincolntown.org



The Town of Lincoln is planning for a resilient and sustainable future, and **we want to hear from you!**

Visit the project website to register for Community Workshops on **April 12 at 7PM** and **April 14 at 8:30AM**



lincolntown.org/1411/Climate-Action-Plan

Take and share the **public survey** to tell us your thoughts on climate action planning
Closes on April 10, 2023



www.Tinyurl.com/LincolnClimateActionSurvey

Lincoln's Climate Goals

1. Transition to clean energy technologies to support the Town of Lincoln's path towards carbon neutrality.
2. Prioritize accessibility, walkability, and connectivity to the Town's commercial centers and community spaces, while ensuring that these interconnected multimodal transportation systems are also affordable, reliable, and climate resilient.
3. Protect Lincoln's agricultural, historic, and environmental resources from climate change impacts.
4. Make sure Lincoln residents, especially those who are underserved and underrepresented, are prepared to address major climate hazards related to flooding, drought, severe storms, extreme heat and more.
5. Increase town-wide diversion rate through programs and policies to prevent, reduce, reuse, compost, and recycle waste.
6. Engage and support local business owners and residents in making their buildings and homes more sustainable and resilient, in an equitable, affordable, and accessible way.
7. Align local efforts with the State's climate goals and programs. Connect and share progress of Lincoln's climate actions with others in the region, and advocate for climate solutions at the regional and state level.

Strategy Development & Prioritization

Strategies developed for this L-CAP are organized into the following planning areas:

- Energy
- Mobility
- Built Environment
- Working Lands and Natural Resources
- Water and Solid Waste Management
- Social Resilience and Education

Strategies were assigned cumulative performance scores based on the following criteria:

- **Greenhouse Gas (GHG) Reduction Potential** – whether a strategy may have any potential to reduce or mitigate GHG emissions, if implemented.
- **Equity Consideration** – whether a strategy may have any contribution to improving equity.
- **Co-benefit Potential** – whether a strategy may have any potential co-benefits.
- **Enhance Adaptive Capacity and Resilience** – whether a strategy may have any contribution to improving community resilience.
- **Level of Effort to Implement** – level of efforts required municipal staff’s involvement to implement the strategy.
- **Cost to Implement** – cost level (either for town or residents) associated with implementing the strategy.

***Qualitative considerations from various engagements also played a key factor in strategy prioritization**

**Top Strategies
Based on Evaluation and Stakeholder
Feedback**

Energy

E1: Identify opportunities for ground-mounted solar installations, while ensuring the protection of local biodiversity and habitats.

E2: Develop materials and establish a resident ambassador program to educate and assist residents with understanding and accessing available federal and state grant programs for weatherization, building energy retrofits, adoption of solar PV, and battery storage, etc. Ensure access for Environmental Justice (EJ) communities, renters, low/moderate income households, and additional priority populations.

E3: Promote the Lincoln Green Energy Choice program by encouraging the option to choose 100% green electricity (i.e., Class 1 RECs). Consider the option for schools and other municipal buildings.

Mobility

M1: Increase connectivity among roadways, roadside paths, and conservation trails to ensure walkability, accessibility, and safety for alternative transportation modes (e.g., pedestrian, bikes, scooters, power chairs, etc.)

M2: Promote the development of local public transportation services, such as shuttles, buses, and bike shares at businesses, community centers, and other destinations.

M3: Transition municipal fleets and school buses to all-electric where feasible.

M4: Promote adoption and use of electric vehicles through outreach and installation of EV chargers at publicly accessible facilities, while also working with local businesses to identify opportunities on their properties.

Built Environment

BE1: Engage with commercial building owners, multi-family residential property managers, and landlords to discuss opportunities for building retrofits and decarbonization. Advocate for residents who are condo owners, renters and/or living in multi-family buildings to be able to increase energy efficiency.

BE2: Analyze best practices for deep retrofitting and other energy efficiency measures for older homes. Consider engaging/recruiting various home types in town to participate as case studies.

BE3: Conduct a municipal facility assessment to determine a pathway for clean energy transition (i.e., building retrofitting, phasing out fossil fuel furnaces and appliances, etc.).

Implementation Roadmap

Strategy B3: Conduct a municipal facility assessment to determine a pathway for clean energy transition (i.e., building retrofitting, phasing out fossil fuel furnaces and appliances, etc.).

Implementation Lead	<ul style="list-style-type: none">• Municipal-led
Key Implementation Next Steps	<ul style="list-style-type: none">• Create an inventory of all municipal facilities and all available information related to the building operations, energy usage, etc.• Work with a consultant to conduct a comprehensive analysis of opportunities and constraints, as well as cost-benefit analysis, to transition to clean energy for each building/facility• Work with town leadership to determine timeline and buildings/facilities to be prioritized for retrofits and upgrades.• Seek funding to support the upgrades
Improving Equity	<ul style="list-style-type: none">• N/A
Potential Co-benefits	<ul style="list-style-type: none">• Reduced potential economic loss associated with climate change impacts to the Town (tax revenues) and residents (cost to repair/ relocate)• Increased access to renewable energy through on-site generation• Reduced operational costs for retrofitted or new buildings

Implementation Roadmap Continued (B3)

Implementation Partners	<ul style="list-style-type: none">• Town Boards and Committees: Climate Action Lincoln, Lincoln Green Energy Committee, Inclusion, Diversity, Equity, Anti-Racism Committee, Housing Commission• Town Department: Planning and Land Use
Funding Sources	<ul style="list-style-type: none">• MassCEC• Department of Energy Resources (DOER) Green Communities• Executive Office of Energy and Environmental Affairs (EEA) Planning Assistance Grant• U.S. Department of Energy (DOE) (Energy Efficiency and Conservation Block Grant Program, Energy Efficiency Revolving Loan Fund Capitalization Grant Program, Renew America's Schools Grant Program)• Metropolitan Area Planning Council (MAPC) District Local Technical Assistance/Technical Assistance Program (DLTA/TAP)
Measures of Success	<ul style="list-style-type: none">• All municipal buildings undergo deep retrofits

Working Land and Natural Resources

NR1: Encourage local farmers in Lincoln to participate in the Boston region's effort in supporting local food systems and increasing food security.

NR2: Update Lincoln's Wetlands Protection Bylaw to ensure incorporation of nature-based solutions, climate resilience, preservation of native species and ecosystem health.

NR3: Work with the Agricultural Commission and local farmers to promote climate change adaption strategies for farming such as improving soil quality, diversifying crop rotations, modifying planting schedules, and techniques to avoid the use of pesticides and herbicides.

NR4: Work with homeowners to promote sustainable landscaping practices. This includes, for example, prioritizing the planting of climate resilient species to withstand anticipated climate change impacts (such as extreme temperatures, drought, flooding, extreme weather events, etc.).

Implementation Roadmap

Strategy NR2: Update Lincoln's Wetlands Protection Bylaw to ensure incorporation of nature-based solutions, climate resilience, preservation of native species and ecosystem health.

Implementation Lead	<ul style="list-style-type: none">• Municipal-led
Key Implementation Next Steps	<ul style="list-style-type: none">• Lincoln Conservation Commission to hold public meetings to discuss best practices for nature-based solutions, climate resilience, preservation, etc.• Host informational sessions and/or trainings for municipal staff and developers to increase understanding• Expand professional development opportunities (for municipal staff) for climate resiliency and nature-based solutions• Create a guideline for green infrastructure design and low impact development techniques for new development and major renovation projects• Review other municipal bylaws that incorporate climate resilient strategies.• Review existing requirements and/or policies related to managing and protecting wetlands• Strengthen performance standards for permitting work in wetland resource areas and the 100-foot buffer zone
Improving Equity	<ul style="list-style-type: none">• Ensure sustainable land use practices, access to wetlands• Prioritize wetland locations in EJ areas

Implementation Roadmap Continued (NR2)

Implementation Partners	<ul style="list-style-type: none">● Massachusetts Association of Conservation Commissions (MACC)● Mass Audubon and other environmental advocacy groups in the area● Town Boards and Committees: Inclusion, Diversity, Equity, Anti-Racism Committee, Lincoln Conservation Commission, Parks & Recreation Committee● Town Departments: Planning and Land Use, Conservation
Funding Sources	<ul style="list-style-type: none">● Executive Office of Energy and Environmental Affairs (EEA) Municipal Vulnerability Preparedness (MVP) Action grant● Metropolitan Area Planning Council (MAPC) District Local Technical Assistance/Technical Assistance Program (DLTA/TAP)
Measures of Success	<ul style="list-style-type: none">● Increased number of new projects with green infrastructure measures incorporated and buffer zone restoration● Reduction of buffer zone conversion in town● Consistent decision making and implementation strategies are relevant and in accordance with the latest available climate information

Social Resilience and Education

SE1: Evaluate Lincoln's preparedness to address major climate hazards. Establish a neighborhood response and management program, such as a "buddy system," to account for all residents in the event of extreme weather and emergencies. Ensure information on disaster preparedness is available and accessible for all residents.

SE2: Educate residents on incorporating climate-smart practices into their daily lives. Promote the Town's climate resilience actions through educational signage. Ensure signage meets accessibility needs, such as height and visuals. Coordinate with local schools to teach students about energy efficiency, net zero buildings, and resilience efforts in Town.

Implementation Roadmap

Strategy SE1: Evaluate Lincoln's preparedness to address major climate hazards. Establish a neighborhood response and management program, such as a "buddy system," to account for all residents in the event of extreme weather and emergencies. Ensure information on disaster preparedness is available and accessible for all residents.

Implementation Lead	<ul style="list-style-type: none">• Municipal-led & Community Participation
Key Implementation Next Steps	<ul style="list-style-type: none">• Review the Town's current emergency preparedness and response procedures to identify strengths and gaps• Collaborate with relevant municipal departments, including Public Works, Police, and Fire, to update the emergency preparedness plan, with incorporation of climate change considerations• Collaborate with local neighborhood groups and community-based organizations to identify and recruit community members for the neighborhood response and management program. Conduct outreach for volunteer sign-ups (youth included!) and provide informational sessions/webinars for training. Establish lines of communication and frequency of check-in meetings with the program volunteers• Work with municipal staff and community members to create outreach and communications materials for disaster preparedness• Reach out to residents before an emergency as part of the neighborhood response and management program to inventory the various types of resources that may be needed. For example, during an evacuation, a power chair user might need access to a paratransit van and accessible housing would need to be available
Improving Equity	<ul style="list-style-type: none">• Make sure participating "buddies" represent different neighborhoods, languages, and demographics in town• Ensure fair stipends/compensation for volunteers• Translate all materials created into other languages

Implementation Roadmap Continued (SE1)

Potential Co-benefits	<ul style="list-style-type: none">• Reduced social isolation during emergency events (such as heat waves and other extreme events, pandemic outbreaks, etc.)• Improved community connectivity, which can lead to greater resilience within Town
Implementation Partners	<ul style="list-style-type: none">• Town Library• Boston Center for Independent Living• Town Departments: Police, Fire, Public Works, Schools, Council on Aging & Human Services
Funding Sources	<ul style="list-style-type: none">• Executive Office of Energy and Environmental Affairs (EEA) Food Security Infrastructure Grant Program; Municipal Vulnerability Preparedness (MVP) Planning and Action grants• Metropolitan Area Planning Council (MAPC) District Local Technical Assistance/Technical Assistance Program (DLTA/TAP)
Measures of Success	<ul style="list-style-type: none">• Development of a program volunteer cohort in every Lincoln neighborhood, including a lead volunteer to assist with management• A broad reach to most, if not all, residents on emergency preparedness through various outreach and communications methods

Water and Solid Waste Management

WW1: Carefully track water pollutants to develop water treatment solutions that target these hazards. Consider joining the Massachusetts Water Resources Authority (MWRA) services in the future.

WW2: Implement sustainable solid waste disposal methods in Town. Consider allowing farmers access to the transfer station. Create municipal and school composting programs. Educate and encourage zero waste habits and promote waste reduction.

WW3: Promote water conservation efforts by encouraging the use of rain barrels and grey water systems. Educate residents who use well water about water conservation and efficiency measures.

Additional Implementation Support Strategies

Designate a department in Town to be responsible for pursuing state and federal grants and programs that can help make clean energy technology adoption and other greenhouse gas reducing strategies more affordable to residents.

Fundraise to create an implementation fund that can help subsidize costs associated with climate actions for lower-income residents.

Establish a Town committee to ensure the implementation of the Town's Climate Action Plan, especially through the lens of equity to prevent or minimize unintended consequences on the priority populations as well as those whose lives may be already severely impacted by climate change. Focus on engaging and supporting priority populations such as people of color, elders, youth, environmental justice populations, families with young children, diverse residents, and low-income families.

Ensure climate change consideration and best practices are integrated into town policies and projects for alignment and consistency.

Hire a Climate and Sustainability Director to support L-CAP goals, implementation, and next steps.

Use universal language and jargon-free vocabulary for all climate action outreach. As needed, include American Sign Language (or CART - Communications Access Real Time Translation), as well as translation and interpretation of materials for the Town's three top non-English languages.

Conduct regular town-wide greenhouse gas inventory updates to track emissions sources and report on mitigation progress.

Develop an online dashboard that showcases Lincoln's climate goals, implementation strategies, and metrics to measure progress, gaps, and opportunities for improvement.

Conduct voluntary Town census to gather data on household vehicle usage, residential heating systems, and clean energy technologies.

Sponsor training by residents or outside experts on how to access the wide range of rebates, loans, and tax credits available from the State and the Federal government. Provide jargon-free resources and toolkits that are accessible to all.

Develop a detailed technical analysis of the Climate Action Plan strategies to better understand the emission reduction potential, costs of implementation, and feasibility to prioritize short- and long-term L-CAP implementation.

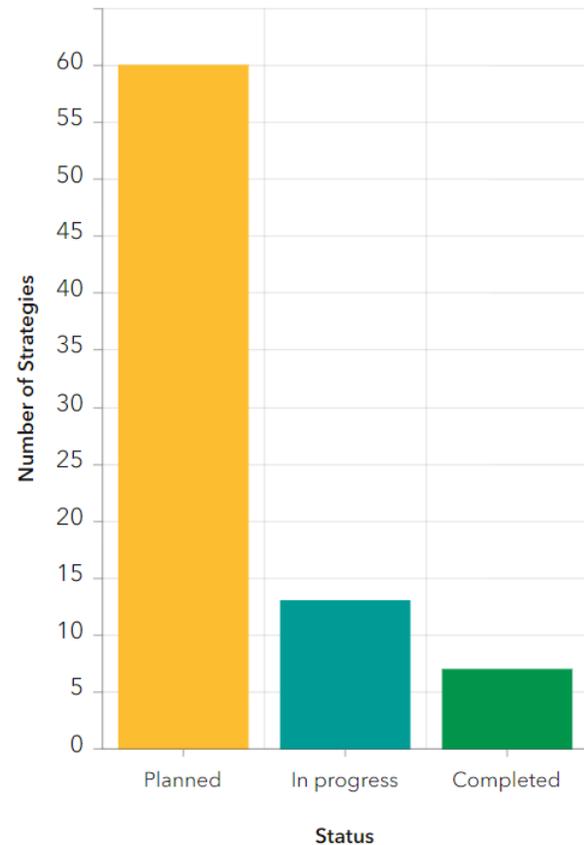
Review and update the Climate Action Plan every 3-5 years.

L-CAP Dashboard (in progress)

Lincoln Climate Action Plan Strategies

Filter by Planning Area
None (show all)

TRACKING PROGRESS



STRATEGIES

Strategy	Planning Area	Implementation Lead	Action Type
Identify opportunities for ground-mounted solar installations, while ensuring the protection of local biodiversity and habitats.	Energy	Municipal	Technical Assistance
Develop materials and establish a resident ambassador program to educate and assist residents with understanding and accessing available federal and state grant programs for weatherization, building energy retrofits, adoption of solar PV, and battery storage, etc. Ensure access for Environmental Justice (EJ) communities, renters, low/moderate income households, and additional priority populations.	Energy	Municipal	Capacity Building
Promote the Lincoln Green Energy Choice program by encouraging the option to choose 100% green electricity (i.e., Class 1 RECs). Consider the option for schools and other municipal buildings.	Energy	Municipal	Advocacy
Develop partnerships and collaborate with local utility companies to support the Town's electrification and energy decarbonization plans.	Energy	Municipal	Capacity Building
Work with local businesses to support a transition to clean energy technologies and adaptation measures to increase resilience to climate impacts.	Energy	Municipal	Capacity Building
Assess the benefits and safety challenges of battery storage systems. Study the development of microgrids.	Energy	Municipal	Technical Assistance
Investigate and keep abreast of evolving renewable energy technologies in residential homes, apartments, and condo-complexes, including roof-top and community shared solar.	Energy	Municipal	Technical Assistance
Work with utility partners (e.g. National Grid) to track and repair methane leaks in the Town	Energy	Municipal & Community	Technical Assistance

Next Steps



- Final Community Meeting – **June 29th, 7:00-8:00pm**
- Public review of the L-CAP: Summer 2023
- Presentation of the Final L-CAP to Select Board: Fall 2023

Additional Resources:

- For full details of the Lincoln Comprehensive Climate Action Plan, check out the full technical report, available at <http://www.lincolntown.org/1411/Climate-Action-Plan>



Questions?

Thank You!

Jennifer Curtin
Assistant Director of Planning
and Land Use, Town of Lincoln
curtinj@lincolntown.org

Van Du
Senior Environmental Planner,
MAPC
vdu@mapc.org

