

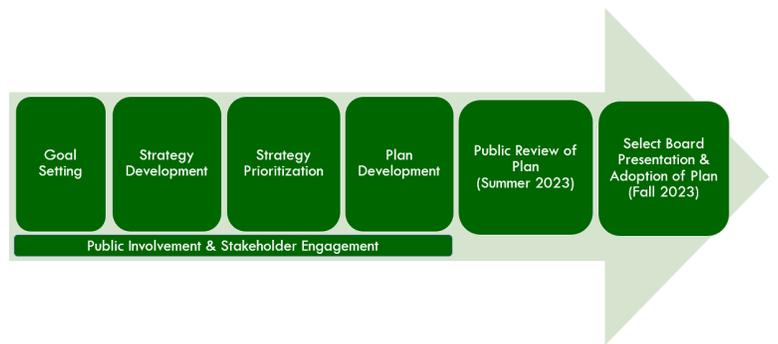


2023 Comprehensive Climate Action Plan (L-CAP) Executive Summary

About the Plan

The Town of Lincoln is committed to addressing climate change and creating a sustainable and inclusive community. Lincoln believes that global problems need local solutions. As such, the development of this Lincoln Comprehensive Climate Action Plan (L-CAP) established climate action goals, described existing and ongoing climate efforts, and developed implementation strategies to advance the town’s climate priorities. It is intended for the 2023 L-CAP to serve as a living framework to help guide the town and its community members towards reducing greenhouse gas emissions while also advancing community resilience in equitable and sustainable ways.

Climate action planning in Lincoln means “all hands on deck!” Over the last nine months, the L-CAP planning process provided many opportunities to connect with stakeholders in the community through online survey participation, “listening tour” conversations, workshops, and focus groups. Feedback gathered from these engagement activities served as guidance for the development of the Plan.



Summary of L-CAP planning process

Additionally, to center equity in this L-CAP planning process, the following questions were considered, especially when establishing the Town’s climate goals and developing priority strategies for implementation:

- Who has been historically impacted?

- Who will be most impacted by the type of changes to our climate to be expected?
- How will the benefits be distributed?



Timeline of Lincoln 's Climate Efforts and Accomplishments to Date

- 2006:** The Select Board appointed members to the Green Energy Technology Committee (GETC), which was devoted to making municipal buildings and operations more energy efficient. (<https://www.lincolngreenenergy.org/green-energy-committee>)
- 2010:** Lincoln was one of the first 17 municipalities to become a MA Green Community.
- 2012:** A total of 32 solar PV systems were installed in Lincoln, as part of the Solarize Mass campaign
- 2016:**
- GETC became the Lincoln Green Energy Committee (GEC). Recognizing the urgency of climate change and the fact that residential homes account for most of the energy use in Town, the Committee broadened its focus to include residential initiatives. (<https://www.lincolngreenenergy.org/green-energy-committee>)
 - Lincoln participated in the MAGIC Sustainable Agriculture Plan (2015), a regional climate effort.
 - The Lincoln Town Offices renovation project received USGBC Leadership in Energy and Environmental Design (LEED) Silver certification.
 - The Planning Board updated the Solar Bylaw to increase adoption of solar panels.
 - Lincoln Energy Challenge signed up 300 households for free home energy assessments and upgrades.
 - The Lincoln Home Energy Challenge program encouraged Lincoln homeowners to conduct home energy assessments and implement recommended efficiency upgrades. (<https://www.lincolntown.org/745/Home-Energy-Assessments>)
- 2017:**
- Lincoln completed its first Community Greenhouse Gas Inventory.
 - Lincoln participated in the MAGIC Climate Action and Resilience Plan (2017), a regional climate effort.
 - Lincoln partnered with Wayland and Sudbury to participate in Solarize Mass to help streamline residential solar agreements and drive down costs. (<https://www.lincolngreenenergy.org/residential-solar>)
- 2018:**
- The Town voted to renovate the preK-8th grade Lincoln School to be net zero.
 - Lincoln completed its Hazard Mitigation Plan.
 - The Town received \$8,700 from National Grid and signed up 300 homes for energy assessments.
 - Lincoln joined with Carlisle and Concord in the HeatSmart CCL program, a community-based, volunteer- led clean heating and cooling initiative to help residents and businesses lower their energy bills, improve comfort, and reduce greenhouse gas emissions. (<http://wepowr.com/heatsmartccl>)
- 2019:**
- The Town adopted Lincoln Green Energy Choice (program began in 2021).
 - Photovoltaic panels were installed at Codman Farm - the first solar system on a municipal facility. The combination of roof-top PV and a solar hot water system is expected to generate all the electricity needed to operate the Farm, helping it achieve net-zero status. (<https://www.lincolntown.org/1111/Codman-Community-Farms-Solar-Project>)

2021: Lincoln joined the Climate Resilience Coalition of the Sudbury, Assabet and Concord (SuAsCo) watershed region.

2022:

- The newly renovated Pre K - 8th grade Lincoln School building was opened and achieved net zero with rooftop solar.
- Lincoln received an MVP Action Grant to fund the development of the Climate Action Plan
- Lincoln submitted a home rule petition for authority to require all new buildings or major renovations be all electric

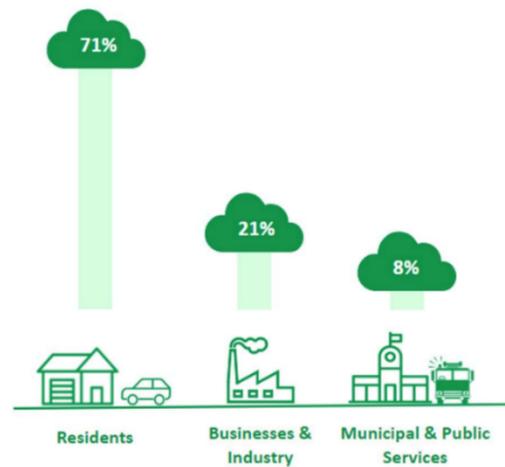
2023:

- The Town adopted the new MA Stretch Energy Code Update and Municipal Opt-in Specialized Code to meet the state's net zero goal by 2050.
- Lincoln's first Comprehensive Climate Action Plan (L-CAP) is released!

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, and other emission sources associated with transportation and waste, which allowed us to see a more comprehensive perspective of Lincoln's emissions from various sectors in 2017.

Overall, Lincoln's total greenhouse gas emissions (GHG) in 2017 were approximately 56,370 metric tons of CO₂e. Municipal operations and facilities in Lincoln accounted for approximately 8% of total emissions in 2017. Residential buildings and passenger vehicles were responsible for approximately 38.5% and 32.8% of emissions respectively, while commercial and institutional buildings and manufacturing industries in addition to commercial vehicles, were responsible for approximately 20.6% of emissions.



A summary of Lincoln's greenhouse gas emission sources. The "Residents" category includes emissions from passenger vehicles and residential homes. The "Businesses & Industry" category includes emissions from commercial and institutional facilities, buildings and manufacturing industries, commercial vehicles, and construction. The "Municipal & Public Services" category includes emissions from municipal vehicles, municipal buildings, public transportation (buses, trolleys, railways), wastewater treatment and discharge, and waste (landfill, biological treatment, and incineration).

What Does Climate Change Look Like in Lincoln?

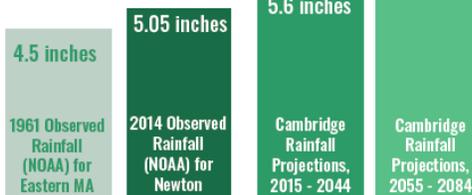
Communities across the Commonwealth, including Lincoln, are already experiencing changing climate conditions. Average annual temperatures and the number of hot days per year have increased, and more annual precipitation and extreme precipitation events have been observed. These conditions will likely intensify, along with associated impacts, according to future climate projections.

As the climate changes, Lincoln can expect...

More Large Storm Events

In addition to increasing annual precipitation, climate change will bring more large rain and snow events. This will lead to more stormwater flooding, as most stormwater drainage is not sized for larger rain events. 10-year, 24 hour storms refer to the 24-hour rainfall total for the biggest storm expected in a 10-year period.

Expected size of a 10-year, 24-hour storm



Storm drains built for 1961 standards will be inadequate as rainfall increases

More Annual Precipitation

But less in the summer and fall...



While total annual rainfall and large rainfall events are projected to increase, summer and fall rain is projected to decrease slightly. Due to the combined effects of earlier snowmelt, less rain, and higher temperatures, summer and fall droughts may become more frequent.

And more frequent droughts...

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Sources: Massachusetts Executive Office of Energy and Environmental Affairs; Northeast Climate Science Center; National Ocean and Atmospheric Administration TP 40; National Ocean and Atmospheric Administration Atlas 14; Cambridge CCVA as cited by Boston Research Advisory Group 2016; Massachusetts Office of Coastal Zone Management, "Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning 2013"

In addition to reducing its carbon footprint, Lincoln will also need to prepare its community members, businesses, and residents, to adapt to the changing climate. Furthermore, when thinking of these climate risks, it is important to keep in mind those who are and will be impacted first and worst. These communities include those identified as priority populations (from previous climate vulnerability assessment work) and the state-designated Environmental Justice communities. These groups include seniors, youth, renters, residents of multi-family developments and assisted living communities, individuals with disabilities, residents who primarily speak a language other than English (a focus on Spanish, Mandarin Chinese, and Russian speakers), people of color, and low-income residents.

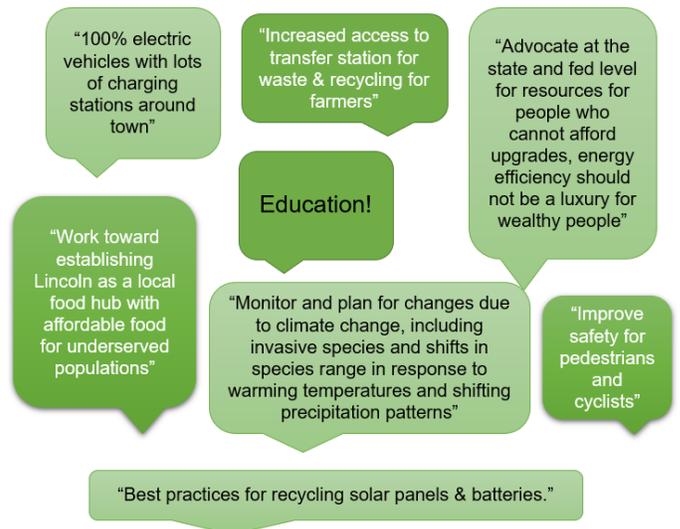
Community Engagement and Feedback for L-CAP

Project Engagement



Summary of engagement activities throughout the L-CAP planning process

The L-CAP milestones of goal setting, evaluation, and strategy development were guided by the Lincoln Climate Action Plan Working Group, which was comprised of a mix of Town staff, residents, organization representatives, and representatives from the Lincoln Green Energy Committee and Climate Action Lincoln. Community members (including businesses, residents, neighborhood groups, non-profit organizations, farms, etc.) were also involved in every step of the L-CAP planning process. They shared their lived experiences with climate change impacts, participated in a visioning exercise on what a sustainable, climate resilient Lincoln community could look like, and set goals and priority actions to implement and achieve this shared vision.



A snapshot of some strategy ideas collected from the listening tour and focus groups during March-April.

Lincoln's Climate Goals

Lincoln's climate goals guide the development and implementation of both short and long-term climate mitigation and resilience efforts in Lincoln.

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.

L-CAP Planning Areas and Implementation Strategies

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

- ❖ Energy
- ❖ Mobility
- ❖ Built Environment
- ❖ Working Land and Natural Resources
- ❖ Water and Solid Waste
- ❖ Social Resilience

More than 200 strategy ideas were received from community engagement activities !

To prioritize the next steps, proposed strategy ideas were consolidated and evaluated. A

set of evaluation criteria was developed with input from the Lincoln Climate Action Plan Working Group to determine and prioritize actions with maximum co-benefits.

The following strategy evaluation criteria and resulting co-benefits are defined as follows:

- **Greenhouse Gas (GHG) Reduction Potential** - whether a strategy reduces or mitigates GHG emissions, if implemented.
- **Equity Consideration** - whether a strategy contributes to improving equity.
- **Co-benefit Potential** - whether a strategy has potential co-benefits.
- **Enhance Adaptive Capacity and Resilience** - whether a strategy contributes to improving community resilience.
- **Level of Effort to Implement** - level of effort required from municipal staff involvement to implement the strategy.
- **Cost to Implement** - cost level (either for town or residents) associated with implementing the strategy.

See “Summary of L-CAP Goals and Strategies ” for details on recommended implementation strategies and roadmaps.

Plan Maintenance

Lincoln’s Comprehensive Climate Action Plan (L-CAP) is a living document, a roadmap for how the Town of Lincoln will tackle climate action in a comprehensive and impactful way. The creation of this plan represents a commitment to climate solutions and will require municipal leadership and community participation by everyone. Municipal staff, elected officials, local community partners, businesses, and residents all have a role to play in this plan. The L-CAP should be reviewed and updated every five years to reflect the latest climate change data, state and local policy updates, and available financial and technical resources for implementation.



Codman Community Farms, Town of Lincoln, MA.
Photo credit: Michele Grzenda

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>

Content of the L-CAP, and implementation progress, can also be updated and shared with the public via an online dashboard at :
<https://mapc.ma/L-CAP>