June 2022

# Somerville Climate Forward Progress Report

Office of Sustainability and Environment

City of Somerville

SustainaVille
creating a resilient & carbon neutral somerville

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# THE PLAN AT A GLANCE

The Somerville Climate Forward (SCF) plan details 13 priority actions items for the City to address over a 5–10-year period to set the City on a path towards becoming a climate change resilient and carbon neutral city. 2021 marked the third year since SCF's inception, and this report will detail the progress the City made on each of its 13 action items. The SCF plan prioritizes reducing Somerville's contribution to climate change (mitigation), preparing Somerville for the inevitable effects of climate change (resilience), and fairly distributing the opportunities creating by climate action and alleviating unequal burdens of climate change (equity). These 13 items and three priorities guided action across a wide range of departments in 2021 and will continue to do so as Somerville moves toward a cleaner and more equitable future. To see the full plan, please visit www.somervillema.gov/climateforward, and feel free to direct any questions for the Office of Sustainability and Environment to ose@somervillema.gov.


Each year, the City publishes an update on progress toward the goals laid out in SCF. In addition, the annual update details current priorities related to Somerville Climate Forward. *Any action that was listed as a priority in last year's report is marked by the following symbol:*

# BUILDINGS

### Net-Zero and Resilient New Buildings Standards

- The City revised the permitting process to encourage contact between developers and staff to ensure sustainability goals and mandates are met. As a result, OSE staff participated in 17 pre-submittal meetings for new LEED certifiable and Net-zero development projects.
- Staff implemented a pilot low load building energy calculator for large development projects to better assess projected building energy use against city goals.
- Staff provided feedback on neighborhood and master plans. The Office of Sustainability and Environment issued 23 certificates for the two earliest stages of LEED and Net-Zero development projects.

### Improved Energy Performance in Existing Buildings

- The Rental Registration and Energy Disclosure Ordinance was submitted to the City Council. The ordinance would establish a rental registration system and require owners of rental properties to provide information to prospective tenants. The ordinance is intended to increase awareness of energy efficiency, promote transparency, and improve city management.
- The City issued at least 153 building permits for weatherization and insulation upgrades to existing buildings. At least 28 of these projects took advantage of Mass Save, a program that can provide 75-100% discount for eligible upgrades.
- The City issued at least 42 permits for ductless air source heat pumps. As both an efficient and renewable thermal appliance, heat pumps can lower a building's carbon footprint.

# MOBILITY

### Equitable Low-Carbon Mobility

- The City completed the Washington Street Rapid Response Bus Lane project in conjunction with the MBTA. Washington Street is one of Somerville's busiest bus corridors. It serves both local and regional residents. The project consisted of adding bus queue jumps, altering traffic signals, and creating a bus-only lane from Sullivan Square to Union Square.
- The Parking Study Task Force held its first meeting the summer and This effort will study citywide parking and curb uses through 2022.

### Rapid Transition to Electric Vehicles

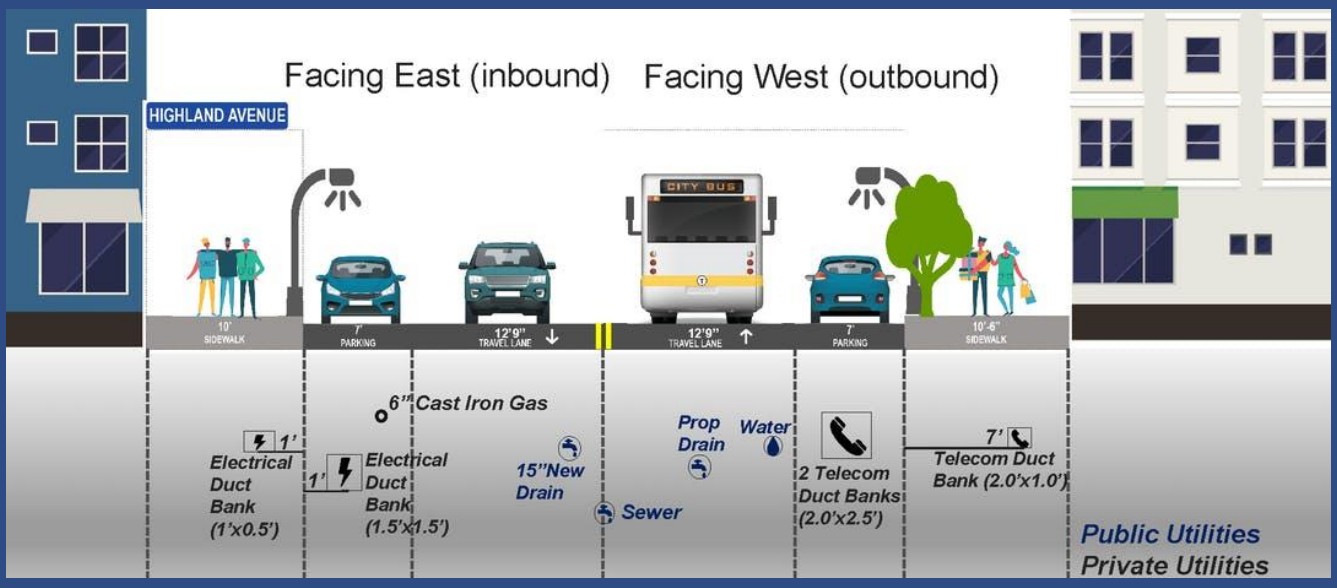
- The City purchased four additional electric vehicle (EV) charging stations. The City installed a station at the recently renovated Conway Park and another at Assembly Square. One station was used to replace a broken charging station at the Day Street Parking Lot, while the fourth charger is planned for installation on Evergreen Avenue. It will be the first public charging station located on a residential street in Somerville.
- The City permitted at least 35 new EV charging stations, some of which will have the ability to charge multiple vehicles at once.
- The City established a regular maintenance solution for public-facing EV charging infrastructure to help existing chargers remain functional year-round.

A public charging station at Assembly Square was activated in January 2021.

# ENVIRONMENT

**Stormwater Management**

- The City completed modeling for its Citywide Drainage and Water Quality Plan. The City is presenting the technical solutions from this planning effort to the public. The process will inform decades of drainage and water quality projects in Somerville.
- The City completed modeling for its Stormwater Master Plan, which features an emphasis on green stormwater infrastructure where feasible. Green stormwater infrastructure captures rainwater where it falls and improves the water quality of stormwater runoff through features that are similar to nature.
- Construction began for the Spring Hill Sewer Separation Project (SHSSP). The SHSSP is a multi-year project to separate stormwater flow from existing sewers that handle both sanitary and stormwater flows. This separation will mitigate flooding and reduce waterway pollution.




## The Spring Hill Sewer Separation Project includes:

- Installation of new storm drains to separate stormwater from combined sewers
- Upgrades of existing storm drains
- Installation of green stormwater infrastructure
- Improvements to the tree canopy on-site
- Improvements to the streetscape on-site

## Somerville Ave Utility Streetscape Improvements (SAUSI)

One of the largest and most ambitious installations of green stormwater infrastructure in Somerville, SAUSI features dramatic upgrades to water, sewer, and stormwater systems along Somerville Ave spanning from Union Square to McGrath Highway. As a part of this project, the City is also improving the streetscape of Somerville Avenue. These upgrades will reduce potential storm damage and localized flooding while providing new water and sewer infrastructure for years to come.

### SAUSI's Stormwater and Sewer Benefits:

- A new 14' by 6' stormwater box culvert capable of handling 800,000 gallons of stormwater. This culvert will be connected to a new pump station at 10 Poplar Street to swiftly discharge stormwater, heightening the City's ability to react to extreme weather.
- Installation of new water mains.
- Lining existing sewer to extend their use for another 50-100 years, effectively creating new sewer pipes within existing ones.
- Roughly 25% of the project area will be able to capture the first 1.5 inches of an average sized storm through:
    - Permeable brick pavers
    - Stormwater planters
    - Bioretention basins
    - Porous pavement cycle tracks

One of the planters installed as part of the SAUSI project.

### SAUSI's Streetscape Benefits:

- Two 6.5' wide bike lines fully separated from motor vehicle traffic. Bike lanes are paved with porous pavement to allow for greater water infiltration and a safe area for bikers.
- Planting of 51 new trees connected to an irrigation system that stretches from Union Square to Medford Street.
- Improved "floating bus stops" which allow a bus to stop without entering the bike lane, providing additional protection for bikers and promoting safe passage for travelers.
- Addition of raised crosswalks at six intersections along Somerville Avenue.

### Expanded Tree Canopy

- The Public Space and Urban Forestry Division (PSUF) completed its Urban Forest Management Plan, a 364-page document that provides a data-driven plan and set of goals to maintain Somerville's forest over the next 5-10 years.
- The City planted 518 trees. 339 were street trees planted through the Urban Forestry program, while the remaining 179 were planted through park and other capital projects.
- The City passed a Native Planting Ordinance. It requires 50% of new street trees planted by the City are native species. Additionally, all new plantings by the City in riparian areas, the community path, and the green line extension rail corridor must be native plants.
- A full-time tree warden was hired.
- PSUF instituted an advanced horticultural maintenance plan for five parks with plant beds featuring native- and pollinator-oriented material. The new plan and maintenance team will ensure these plants get necessary specialized attention.

A group of trees ready for planting.

### Reduced Consumption and Waste

- In response to COVID-19, the City shifted its hazardous waste diversion program away from resident drop-offs. Instead, the City collected hazardous waste from residents' homes, removing both the transportation and time barriers that existed for residents who wished to properly dispose of their hazardous waste. In 2021, 1,350 residents participated in the program.


Building environmental awareness of the next generation at Somerville Public Schools.

# Urban Forest Management Plan

Last year, the Public Space and Urban Forestry Division completed its two-year effort to create an Urban Forest Management plan, a comprehensive guide for the expansion, preservation, and maintenance of a healthy and diverse urban forest.

Included in the plan are the following priorities:

- Somerville aims to increase tree canopy cover from 14.6% to 16%, requiring preservation of existing trees and planting plenty more.
- Diversifying the City's trees to assure biodiversity and health of the forest. Currently, Somerville's forest is dominated by three species.
- Increasing the proportion of native tree species and the decreasing proportion of invasive species.
- Addressing the threat of Emerald Ash Borer to City's 1,036 public Ash trees through multiple strategies.
- Proactive pruning on a six-year cycle.
- Removal/pruning of trees that pose a high risk to public safety.

## VISION STATEMENT

Somerville's vision for its trees is to create the best forest for a city, and the best city for a forest.

### TREE PLANTING

Goal number of trees to plant = at least 350 per year

### YOUNG TREE TRAINING CYCLE

**Total = 2,483 trees**
3-year cycle
Prune -827 young trees per year

### ROUTINE PRUNING CYCLE

**Total = 7,593 trees**
6-year pruning cycle
Prune -1,265 trees per year

# COMMUNITY

**Healthy and Resilient Community**

- Keep Cool Somerville, an initiative to improve community resilience to extreme heat and address the health impacts of climate change, awarded six projects small grants. As a result of the projects,
  - seven families received utility bill assistance;
  - 35 A/C units and 150 electric fans were distributed;
  - 100 cooling kits with hats, insulated lunchboxes and water bottles were distributed;

Mistery Machine at Chuckie Harris Park, August 2021 (Credit: Bent/Haus)

  - fans, sprinklers, and cooling structures were purchased for South Street Farm and several school gardens; and
  - Chuckie Harris Park attracted families with a "*mist*ery machine" cooling mist machine, featuring music and animation.
- The City participated in the Charles River Watershed Association Climate Compact, Metro Mayors Coalition Climate Task Force, and Resilient Mystic Collaborative. Staff also contributed to the forthcoming Metro Mayor's Coalition Climate Task Force Regional Heat Preparedness and Adaptation Plan.
- The City continued to operate its emergency alert network, which has over 70,000 subscribers and offers alerts in five languages. The system allows the City to quickly notify citizens of extreme weather or other emergencies.
- The City hired an Emergency Management Director. The Director is working with the Office of Sustainability and Environment to include climate change resiliency in emergency mitigation and response efforts.
- Working with the Metropolitan Area Planning Council, staff drafted the scheduled update of the Hazard Mitigation Plan. Building on years of science-based research and public engagement, the updated plan more accurately reflects the changing frequency, intensity, and severity of natural hazards facing Somerville because of climate change.

### Pathway to 100% Renewable Electricity

- The City issued at least 92 building permits for solar PV panel installations.
- The Community Choice Electricity program offers fixed product options, pricing, and renewable energy levels for electric customers in Somerville from December 2019 through November 2022.
    - The total voluntary renewable energy purchased annually through the program avoided over 5,800 metric tons of $CO_2$ emissions, an increase of 800 metric tons from 2020.
    - In 2021, the 10% Local Green participants saved $757,000 in electric utility bills compared to Eversource Basic Service (note: future savings cannot be guaranteed).
    - At the end of 2021, there were 818 accounts enrolled in the 100% Local Green option. This is an increase from 2020. These customers collectively purchased 3,841,376 kWh of Class I renewable energy, representing about one-fifth (21%) of all voluntary renewable energy purchased by the program.

### Culture of Climate Action

- The Office of Sustainability and Environment hired its first-ever Community Engagement Specialist.
- 22 residents graduated from the the Somerville Climate Forward Class of 2021. Residents participated in the first-ever fully remote class of ambassadors. Find out more about the program at www.somervillema.gov/cfa.

# LEADERSHIP

### City Government Leading by Example

- The City created the first Energy Stabilization Fund to reinvest savings from energy projects.
- Through the statewide Green Communities program, the City performed an LED lighting upgrade at the Argenziano School and repaired a DPW steam trap. These projects abated approximately 100 metric tons of $CO_2$ equivalent emissions.

**The City decreased the amount of fossil fuels used to power municipal operations.**

**84% Fuel Oil Use**

**8.5% Gas Use**

**6.4% Gasoline Use**

- Between July 1, 2020 and June 30, 2021, the City reduced emissions resulting from powering municipal buildings and City vehicles by 421 metric tons $CO_2$ equivalent emissions, or 5% compared to 2020 levels. A large portion of the decrease can be attributed to the redesign of Somerville High School (SHS). This significantly reduced the City's use of oil. Currently, SHS is the City's most efficient building.
- The City developed a comprehensive Building Master Plan covering all municipal offices and civic spaces in the City's building portfolio. This plan includes major renovations to address some of the City's least energy-efficient facilities and develop new, all-electric facilities. Another goal of the project is to bring City departments that regularly collaborate closer together. This can reduce transportation emissions generated through the course of business.

### State Advocacy for Carbon Neutrality

- The City submitted a comment to the Energy Efficiency Advisory Council regarding the regularly scheduled Mass Save Three-Year Plan update.

### Regional Collaboration for Coastal Resilience

- In 2020, the City of Somerville, along with Boston, Chelsea, Everett, Revere, Winthrop, and the Mystic River Watershed Association, were awarded a Municipal Vulnerability Preparedness Action Grant to conduct the Resiliency Mystic Collaborative Lower Mystic Vulnerability Assessment. The assessment continued through 2021. The assessment will identify impacts to both built and social infrastructure caused by a hypothetical, prolonged extreme weather event and provides recommendations. More information can be found at resilient.mysticriver.org/lower-mystic-learn-more.

# PLANS FOR 2022 AND BEYOND

Throughout 2021, staff were able to make thoughtful progress on key priorities to adapt and respond to climate change. There are many things to look forward to in the year ahead.

- There will be a robust effort to update Somerville Climate Forward beginning in late 2022. To stay informed, sign up for the SustainaVille Newsletter online at www.somervillema.gov/sustainaville.
- The Office of Sustainability and Environment will continue to review new construction and major renovations requirements for sustainability and resiliency and encourage the electrification of buildings and parking spaces through this process.
- The Housing Division will continue efforts to reshape the City's housing rehabilitation program with a greater focus on full-building weatherization, improving the energy efficiency, and reducing carbon emissions.
- The City will conduct an inventory and evaluation of city-owned vehicles.
- City staff will continue to meet with the public on potential action items and capital project proposals presented in 2021's Citywide Drainage and Water Quality Master Plan modeling.
- The City will continue construction on the Spring Hill Sewer Separation Project.
- The Public Space and Urban Forestry Division is beginning to implement the actions items laid out in the Urban Forest Management Plan, including pruning and removal of high- and moderate- risk trees.
- The City will continue citywide planting efforts to meet the goal of planting 350 trees per year.
- The Office of Sustainability and Environment will conduct the next biannual greenhouse gas inventory featuring a review of municipal and community emissions. For the first time, the City will conduct an inventory to evaluate the emissions impact of consumption and waste in Somerville, directly addressing a Climate Forward goal.
- The City will update its Community Choice Electricity program.
- The OSE Community Engagement Specialist will help Somerville cultivate and enhance equity, accessibility, diversity, and inclusivity of sustainability, resiliency, and environmental efforts. This includes growing partnerships with local organizations and Somerville Public Schools.

- The SomerViva Office of Immigrant Affairs is planning to add another liaison with fluency in Mandarin. This will allow the existing emergency alert network to deliver updates in a sixth language.
- The Hazard Mitigation Plan will be reviewed by the City Council, Federal Emergency Management Administration, and Massachusetts Emergency Management Administration. Once it is approved, it will be implemented by multiple departments.
- The City will continue work on an emergency management roadmap to identify ways the City can improve in the following three priority areas:
    - Coordination and communication between departments during a crisis.
    - Planning for sheltering residents displaced by emergencies.
    - Providing even quicker citizen alerts during emergencies.
- The City has three new solar PV systems in development, totaling 998 kW. The systems will be sited at the new Somerville High School, East Somerville Community School, and 0 Innerbelt. All three are projected to come online during in FY22. The projects will increase the City's installed solar capacity by nearly one-third (29%).
- The City will begin assessing school buildings in conjunction with long-term student enrollment projections. Like the existing Building Master Plan, sustainability will be a large focus of the long-term planning for Somerville's educational building stock.
- The Lower Mystic Vulnerability Assessment report will be released. The City and its partners will research opportunities to forward the recommendations in the assessment and improve resiliency.