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SPP 609 WORKSHOP
SOMERVILLE CASE PROFILE
APRIL 2026

City of Somerville Networked Geothermal

A community-led feasibility study in New England's densest city, testing whether networked geothermal can serve as a viable electrification pathway for a grid-constrained urban environment.

LOCATION	PROJECT TYPE	CURRENT STATUS
Somerville, Middlesex County, Massachusetts	**Community (HEET Kickstart)**	**Feasibility completed (March 2025)**

LEAD ORGANIZATION	SYSTEM SCALE	ESTIMATED COST
City of Somerville	**58–285 buildings (4 models), up to 312 boreholes at 500 ft**	**$12.5M–$19.0M gross; $5.8M–$9.2M net (4 models)**

KEY OBSTACLE

No construction funding, no designated operator, no permits filed

PROJECT DESCRIPTION

The City of Somerville is proposing a networked geothermal system in the Central Hill neighborhood, a dense, mixed-use area that includes City Hall, Somerville High School, the Public Library, the 1895 Building, and a YMCA alongside 285 total buildings.[1] The system would consist of up to 312 closed-loop boreholes drilled to 500 feet, connected via a thermal energy network to deliver heating and cooling to between 58 and 285 buildings depending on the model selected.[1] The feasibility study was funded through a $50,000 HEET Kickstart grant and conducted by Buro Happold in collaboration with drilling contractor Brightcore.[1,2]

Somerville is the densest city in New England, making it a distinctive test case for urban networked geothermal deployment.[1] The project was selected in part for its concentration of municipal anchor buildings and its potential to serve energy-burdened residents who currently lack access to cooling.[1] The city's aging electrical grid cannot easily absorb rising demand from widespread air-source heat

TIMELINE

Early 2024: Buro Happold begins feasibility work

Sept 2024: First technical feasibility report

Dec 2024–Jan 2025: Two virtual community town halls

Feb–March 2025: Final feasibility report and HEET Kickstart report

POLICY ANCHOR

Climate Forward 2024, Somerville's community-driven climate action plan targeting carbon net-negative by 2050. Geothermal study

pump adoption, making networked geothermal, which delivers heating and cooling more efficiently and with lower peak electrical draw, a potentially more viable electrification pathway.[1,3]

KEY ACTORS AND GOVERNANCE

The City of Somerville's Office of Sustainability and Environment (OSE) initiated the project, managed procurement, and serves as the primary client, with Energy Manager Garrett Anderson as the public contact.[1,4] Buro Happold conducted the feasibility study and techno-economic analysis, while Brightcore Energy handled borefield design and cost estimation.[1] Mayor Katjana Ballantyne publicly endorsed the project and framed it as central to the city's decarbonization goals.[2,6]

Multiple regulatory bodies hold decision authority over any future construction. The Massachusetts DPU regulates networked geothermal operators and would require an Emergency Response Plan and Operator Qualification Plan. MassDEP and the EPA co-issue NPDES drilling discharge permits, and the city's engineering and water departments control local soil disturbance, trench, and hydrant permits.[1] Coordination with the MBTA is required for any network routing crossing the Green Line or Lowell commuter rail.[1]

FUNDING AND COSTS

The feasibility study modeled four configurations at varying scales. Gross costs range from $12.45 million (Model 4, 58 buildings) to $19.02 million (Model 1, 285 buildings). After the federal Investment Tax Credit and Mass Save incentives, net costs range from $5.81 million to $9.22 million.[1] Projected annual savings against an air-source heat pump alternative range from $632,000 (Model 4) to $1.43 million (Model 1), with annual carbon reductions of 474 to 1,130 tons of CO_2.[1]

The only confirmed funding is the $50,000 Kickstart feasibility grant. No construction funding has been identified, no operator of record has been designated, and no permit applications have been filed as of early 2026.[1]

PERMITTING AND APPROVALS

An NPDES permit, co-issued by EPA and MassDEP, would be required for drilling wastewater discharge, with an estimated cost of $25,000–$30,000 and a timeline of three or more months.[1] Local permits include a Water and Sewer Department hydrant permit ($200 plus $2,200 refundable deposit per hydrant), an Engineering Department soil disturbance permit ($2,500 per drilling site), and street occupancy and trench permits for lateral piping in the public right-of-way.[1]

framed within Climate Forward goals in all public materials.[7,8,9]

NEXT STEP

Identify construction funding, designate an operator of record, and file initial permit applications. Resolve whether a municipal, utility, or third-party ownership model will govern the system.

Significant constraints include a state law restricting drilling within 50 feet of a water tunnel, which eliminates greenspace near the Somerville Public Library from the drillable area.[1] The MBTA Green Line and Lowell commuter rail running through Central Hill require close coordination to avoid disrupting transit infrastructure, and underground utility locations must be confirmed via ground-penetrating radar before drilling can proceed.[1]

COMMUNITY ENGAGEMENT AND EQUITY

The OSE distributed materials to approximately 890 households and held two virtual town halls in December 2024 and January 2025, each with roughly 100 attendees, followed by a public results meeting in March 2025.[1,4] A resident survey gathered approximately 220 responses, though results were never published.[1] The report describes resident reaction as showing "interest and excitement."

Equity is woven into the project rationale. Site selection used HEET's LeGUp mapping tool incorporating environmental justice and energy burden data layers, and HEET directed nearly 50% of its total Kickstart funding to environmental justice communities.[1,2] Providing cooling access to Central Hill residents who currently have none is an explicit co-benefit.[1] More than two-thirds of Somerville's population are renters, and a May 2025 electrification report frames geothermal as a solution to transformer upgrade costs that fall disproportionately on renters and affordable housing residents.[3] The key gap is that engagement to date has been informational only, with no City Council vote or formal public comment process.[1]

WHY THIS CASE MATTERS

Somerville demonstrates that Massachusetts has created strong policies and incentives for networked geothermal, but the practical systems needed to build these projects are not ready yet. The city has a technically sound study, a preferred site, four modeled configurations, and a cost range, but no construction funding, no designated operator, and no permit applications filed.[1] The feasibility-to-construction gap here is not primarily technical. The area has strong geological potential, the site is identified, and the economics are plausible. The challenge is institutional: deciding ownership, operations, financing, and whether traditional utility rules can be adapted for a city that wants to manage this differently.[1]

Sources

1. Buro Happold / Brightcore, "Somerville Networked Geothermal Feasibility Study — HEET Kickstart Report," February 24, 2025. PJ6_Feasibility_Study_01.pdf

2. HEET, "13 Massachusetts Communities Kickstart New Geothermal Networks with $450,000 in Funding from MassCEC," February 29, 2024. PJ6_HEET_Blog_Funding_from_MassCEC.pdf
3. Buro Happold, "Somerville Networked Geothermal and Electrification Feasibility Study," March 31, 2025. PJ6_Feasibility_Study_03.pdf
4. City of Somerville, "Help Somerville Explore New Clean Energy Technology by Joining Upcoming Community Meetings," November 26, 2024. PJ6_News_Article_04.pdf
5. City of Somerville, "Somerville Report Finds High Cost of Electrification Is Slowing Transition From Gas," May 12, 2025. PJ6_News_Article_03.pdf
6. City of Somerville, "Mayor Ballantyne Delivers State of the City Address," January 8, 2025. PJ6_Mayor_State_of_the_City_Address_01.pdf
7. City of Somerville, "Community Climate Action Plan." PJ6_Somerville's_Community_Climate_Action_Plan.pdf
8. City of Somerville, "Buildings and Energy." PJ6_Buildings_and_Energy.pdf
9. City of Somerville, "Networked Geothermal Informational Meeting," December 9, 2024. PJ6_Networked_Geothermal_Information_Meeting_Presentation_Slides.pdf
10. City of Somerville, "Somerville Earns Top Honors as Certified Climate Leader Community," May 7, 2025. PJ6_News_Article_05.pdf
11. "Department of Public Utilities Issues Order 20-80," December 6, 2023. PJ6_Press_Release_01.pdf

Sources still needed: Resident survey results (approximately 220 responses collected but not published); any City Council discussion, vote, or formal public comment proceeding related to the geothermal proposal; documentation of any operator-of-record deliberation or utility coordination regarding system ownership.
