

HISTORIC NEW ENGLAND

Pierce House Climate Action Plan



Photo: Jeff Bousquet Photography

2025–2030

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Any views, findings, conclusions, or recommendations expressed in this report do not necessarily represent those of the National Endowment for the Humanities.

Letter from the President

In this document you will find Pierce House’s ambitious Climate Action Plan, the second site-specific plan of its kind for a Historic New England property. This is the culmination of months of rigorous data analysis, spirited community conversations, and the dedication of our exemplary employees and partners.

In 2023, Historic New England adopted an institutional Climate Action Plan that set an overall framework and specific goals for working towards an equitable, sustainable world. 2024 marked the release of our first site-specific climate action plan at Casey Farm. Buoyed by this success, Historic New England again partnered with GreenerU to develop a plan for Pierce House, which was supported by a major grant from the National Endowment for the Humanities.

Our core sustainability tenets of climate justice, resilience, and mitigation were the focal points of this process, guiding the diverse planning team of staff, volunteers, and patrons. This process included a review of the property’s key greenhouse gas emissions and sustainability findings, followed by planning sessions that deployed SMARTIE evaluative criteria to generate strategic, measurable, achievable, realistic, time-bound, inclusive, and equitable goals. Participants discussed values and priorities, engaged in ideation activities to generate innovative solutions, and created actionable and ambitious goals supported by detailed strategies and metrics for success.

Collaboration among Historic New England’s staff, governance, and stakeholders has cemented climate action as an essential component of our work and our approach to preservation. In 2025, as we celebrate our 115th year, our enthusiasm to pursue our climate justice, resilience, and mitigation goals is growing across all program areas. We are motivated to support equitable and sustainable action at Pierce House and in the Dorchester community, so that we may share this special place with the public for another 115 years—and beyond.



Vin Cipolla
President and CEO
Historic New England

Plan Summary

CLIMATE MITIGATION

Goal 1: Decarbonize the Building

By 2030, eliminate on-site emissions (Scopes 1 and 2) without compromising the integrity of the historic structure.

Goal 2: Reduce Indirect Emissions

By 2027, develop and implement policies that promote the decreased use of fossil fuels for commuting, travel, and landscaping.

CLIMATE RESILIENCE

Goal 3: Improve Site Resilience

By 2027, secure and enhance the exterior envelope of the building and landscape and begin a three-year review cycle for major maintenance items.

Goal 4: Prepare for Climate Events

By 2030, implement site-specific preparedness and response protocols that support the resiliency of the building, landscape, and community.

CLIMATE JUSTICE

Goal 5: Expand Educational Opportunities

By 2030, integrate climate change content into Pierce House's programming and communication.

Goal 6: Strengthen Community Relationships

By 2030, integrate Pierce House more fully into the community by engaging the neighborhood in public programs and developing relationships with community members.

About Historic New England



Copy of a late nineteenth-century painting of Pierce Farm courtesy of Judy Pierce

Historic New England, founded in 1910 as the Society for the Preservation of New England Antiquities, is a leading history and historic preservation organization. Our mission is to save and share New England's past to engage and inform present and future generations. We explore and interpret New England's culture and history through our house museums, landscapes, archives, and objects, engaging more than 200,000 people annually. Pierce House, the subject of this report, is one of thirty-eight historic properties that Historic New England preserves and presents to the public.

PRESERVATION PHILOSOPHY

Historic New England's Preservation Philosophy maintains that all existing building elements, regardless of age and quality, are worthy of retaining. Any recommended interventions must weigh the expected benefits of the improvement against the potential loss of historic material and the impact of the improvement on character defining features of the site. We believe that our climate action goals are compatible with this philosophy, and that we can advance resiliency, mitigation, and climate justice while emphasizing sensitivity to historic building materials.

INSTITUTIONAL COMMITMENTS

Our institutional approach to climate action is grounded in four ambitious goals, approved by the Board of Trustees on September 21, 2023, as follows:

Historic New England is committed to addressing the global climate crisis through actions that reduce or eliminate greenhouse gas emissions, promote resiliency, engage our communities, and advance climate justice and energy equity by:

GOAL 1

Enacting operational shifts that integrate climate action into the day-to-day operations of Historic New England.

GOAL 2

Achieving carbon neutrality for all Historic New England sites by 2050, continuously evaluating progress and adjusting actions to achieve success.

GOAL 3

Managing our properties to meet our high preservation standards but also adapting those standards to ensure resilience in the face of weather extremes and sea level rise.

GOAL 4

Engaging a broad and inclusive public through robust partnerships, programs, and activities that advance climate justice for all.

Important terms

Term*	Definition
carbon neutral	having no net greenhouse gas emissions, to be achieved by either eliminating net greenhouse gas emissions, or by minimizing greenhouse gas emissions as much as possible, and using carbon offsets or other measures to mitigate the remaining emissions.
climate justice	“climate justice” is a term, and more than that a movement, that acknowledges climate change can have differing social, economic, public health, and other adverse impacts on underprivileged populations. Advocates for climate justice are striving to have these inequities addressed head-on through long-term mitigation and adaptation strategies.
climate resilience	the ability of a site or community to survive disruption and to anticipate, adapt, and flourish in the face of change
decarbonization	the reduction or elimination of greenhouse gas emissions from a process.
energy conservation measures	an energy conservation measure (ECM) reduces the energy consumption of a particular piece of equipment or a certain aspect of essential building services to reduce overall building energy use.
greenhouse gas	any gas that has the property of absorbing infrared radiation (net heat energy) emitted from Earth’s surface and reradiating it back to Earth’s surface, thus contributing to the greenhouse effect.
metric tons of carbon dioxide equivalent (MTCDE)	the standard unit of measurement used to quantify a mix of greenhouse gas emissions in terms of the warming effect of carbon dioxide.

* more terms are defined in Appendix A

About Pierce House

Pierce House is one of the last surviving examples of seventeenth-century architecture in the city of Boston. Lived in by ten generations of one family, the house documents the building practices and tastes of the Pierces over three centuries. Family members expanded and adapted their house to meet demands for space, function, comfort, and privacy. Pierce House was acquired by Historic New England in 1968 to preserve and present the site to the public. The Pierce family's story highlights key aspects of local, regional, and national history. Today, Pierce House is open year-round for school and youth programs.

PIERCE HOUSE BY THE NUMBERS

In 2023

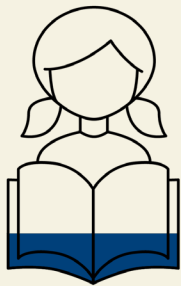
4,939

people were served by Pierce House school and youth programs



1,125

people visited Pierce House in 2023 in total



18%

of school and youth program attendees visited Pierce House in person



50%

of school and youth program visitors walked to Pierce House

Pierce House is a two-and-a-half-story frame house. Its 1683 construction date and a later addition in ca. 1712 were confirmed by dendrochronology testing in 2001, making it the third-oldest extant structure in Boston. The original seventeenth-century framing, demonstrating post-medieval East Anglian construction techniques, is highly significant, and architectural viewpoints allow visitors to see many of the house's rare surviving features, including chamfered framing members and a nearly complete exterior wall of original riven clapboards.

The house was expanded to the east by an additional nine feet in 1765 and the rear lean-to addition was extended as well, as noted in Col. Samuel Pierce Jr.'s journal. Inside the house, evidence of eighteenth- and nineteenth-century remodeling campaigns, including fireplace mantles, cupboards, and other details, are present. The expansions and adaptations made by the Pierce family to meet changing tastes for space, function, comfort, and privacy document the larger evolutions in building practices over two centuries.

Pierce House is mechanically heated via a forced-air natural gas furnace located in the basement. The supply and return ductwork is located in the basement and distributes air to the rooms in the house via existing supply diffusers. The majority of the house is currently ventilated, with the exception of the storage room on the second floor and the entire attic. An interesting aspect of this house is that insulation has been a consideration since its original construction. Original eel grass insulation was replaced in kind with eel grass batts in the early 1900s. At the time of GreenerU's site visit in July 2024, there was one portable air conditioning unit operating in the office of Pierce House and an additional uninstalled window unit.

The half-acre site includes a driveway and small parking area. At the northwest corner of the lot there is an underground garbage pail receptacle which is preserved as part of Pierce House. The remainder of the lot is covered by grass. On the south side of the lot is a large oak tree, which provides some shading to the southeast side of the house. There is also a concrete pad in the northeastern corner where the garage once stood, which Historic New England is open to reenvisioning to support climate action activities. See a full description of Pierce House's infrastructure in Appendix C.



Artist rendering of Pierce House in 1765 Mark Harland Johnson

LAND ACKNOWLEDGMENT

For more than 6,000 years the Neponset Band of the Massachusetts Tribe lived and thrived on land English colonists later renamed Dorchester. The Neponset people hunted, fished in both rivers and the sea, and planted vast fields of grain, corn, squash, and beans on this fertile land near the river, which provided large harvests for winter stores. The area was rich in resources and the Neponset had not only adequate food for their year-round needs but a surplus of meat, grains, and skins for trade with other tribes.

Prior to the arrival of English colonists in 1620, European trading ships anchored along the coast to trade with Indigenous tribes. Visitors brought with them diseases that were deadly to Indigenous people and that dramatically reduced their populations. In 1616, just a few years before the arrival of English colonists, a foreign plague swept through coastal villages of the Massachusetts killing nearly eighty percent of the Indigenous population. Just as the Massachusetts population was beginning to stabilize and recover, the English conquest of the region began.

When the English sailed into Massachusetts territory in 1620 to establish a permanent settlement, the Neponset Sac'hem was Chickataubut, Principal Chief of the Massachusetts.

Chickataubut signed a treaty with the English in 1621 and consented in 1630 to the establishment of an English settlement where the Neponset River met the bay. Seventeenth-century references claimed that Chickataubut sold the land at this time, but current thinking is that he saw his payment as a tribute and not as a sale, since the concept of land ownership was unheard of to the Massachusetts.

English settlers who arrived on the ship *Mary and John* at Nantasket Beach in June of 1630 erected the first settlement just north of that site. The arrival of the landing party initiated the long-term occupation of these Indigenous homelands, a process that transformed a landscape of natural resources collectively managed by Indigenous people into a stockaded settlement governed by settler values of private property, patriarchy, and resource extraction.

Updated narratives that more accurately explain the relationship between Indigenous people and English colonists in the seventeenth century come from more nuanced research and the oral histories of the Massachusetts people, who still live in their ancestral homelands and continue the practice of storytelling to pass their history from one generation to the next.

About the Plan

THE TEAM

The core team for this planning process was composed of the following individuals, all of whom brought different perspectives and expertise to the table.

- Ben Haavik, Vice President of Property Care and Climate Action, Historic New England
- Joie Grandbois, Sustainability Coordinator, Historic New England
- Katherine Pomplun, Institutional Giving Officer, Preservation, Historic New England
- Kate Hooper, Education Program Coordinator, Pierce House, Historic New England
- Jennifer Haugh, Vice President of Planning and Customer Engagement, GreenerU
- Madeline Rawson, Project Manager, Planning, GreenerU

GreenerU facilitated the creation of this plan, developing a baseline report, conducting an energy audit, designing and running meetings, engaging stakeholders, and designing the final plan. To learn more about GreenerU visit www.greeneru.com.



DATA COLLECTION

Baseline

GreenerU and Historic New England staff worked in tandem to compile Pierce House baseline information starting in May 2024. Using energy data, a greenhouse gas emissions inventory, programming details, and resilience information, they formed a comprehensive picture of sustainability at Pierce House. The full report can be found in Appendix C and was presented during an informational webinar on September 24, 2024.

Energy Audit

As part of the baselining phase, GreenerU visited Pierce House on July 9, 2024, to review systems and existing conditions and to discuss potential decarbonization solutions with Historic New England staff. This site visit led to a set of comprehensive energy conservation recommendations that can be found in Appendix B.

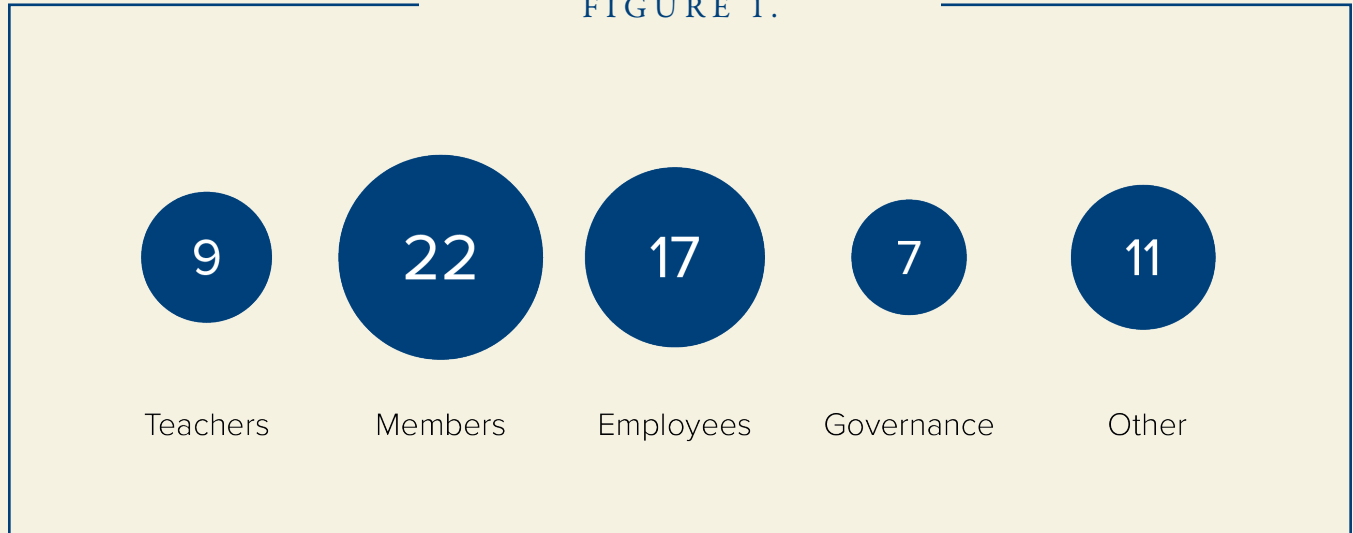


Photo: Jeff Bousquet Photography

STAKEHOLDER ENGAGEMENT

Stakeholder input is crucial to any planning process. With the hope of gathering feedback from diverse perspectives, the team extended invitations to community members and cultural organizations, teachers, city and state officials, and Historic New England members, governance, and staff.

FIGURE 1.



The Pierce House climate action planning process had sixty-six actively engaged participants. This figure shows the number of participants from each of Pierce House's major stakeholder groups.

Informational Webinar

The core team presented the baseline report findings in a webinar held on September 24, 2024. This event provided the general public and other stakeholders with the background information needed to participate fully in the launch.



Photograph by Daniel Nystedt

Launch

GreenerU planned and facilitated a launch meeting that brought Pierce House stakeholders together. This meeting was held virtually from 6–8 p.m. on October 21, 2024 and had the following goals:

- Solidify a shared understanding of Pierce House's sustainability baseline
- Begin to develop a strategic direction for Pierce House's climate action goals

Facilitators used Mural, an online whiteboard tool, to engage participants and record their feedback and suggestions. The meeting generated many ideas for improving sustainability at Pierce House and a set of goal topics for the core team to work on.

Stakeholder Surveys

To provide another opportunity for stakeholder input, two surveys were developed: one for Historic New England members in Boston and one for teachers that have participated in Pierce House programming. The first was sent out on November 21 and closed on December 5. The latter was sent out on November 13 and closed on December 5. Results were compiled and analyzed by the core team and incorporated into goal and strategy language prior to the zenith.

Zenith

GreenerU planned and facilitated a “zenith” meeting, which served as the culmination of the planning process. Held virtually, this event ran from 6–8 p.m. on December 11, 2024, and solicited detailed feedback from attendees on draft goals. The goals of the meeting were to:

- Provide feedback on draft goals and strategies
- Revise draft goals and strategies in each focus area group
- Solidify “final” draft goals

The outcomes of this meeting included newly revised goals, next steps for the core team, and feedback on the strategies. After the zenith, the core team did additional research and held multiple discussions to solidify the goals and strategies in this plan.

PLAN STRUCTURE

Focus Areas

This plan is structured around three focus areas, which reflect Historic New England’s overarching climate goals: climate mitigation, climate resilience, and climate justice.

Goal Language

Six goals were developed, two for each focus area. Staff will aim to achieve each goal prior to the calendar year identified; for example, if “2027” is identified as the target year, the goal should be accomplished by the end of 2026.

Abbreviated Baseline Info

Each goal is accompanied by a summary of baseline information to provide context about where Pierce House is starting. You can find the full baseline report in Appendix C.

Metrics of Success

Metrics of success are included for each goal to clarify what accomplishing the goal will look like. This is to ensure the measurability of each goal.

Climate Mitigation

Historic New England goal: Achieve carbon neutrality for all Historic New England sites by 2050, continuously evaluating progress and adjusting actions to achieve success.

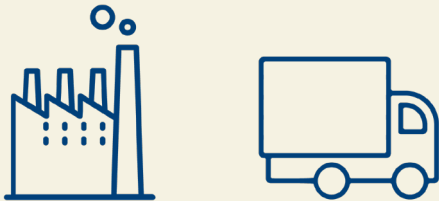
GOAL 1: DECARBONIZE THE BUILDING

By 2030, eliminate on-site emissions (Scopes 1 and 2) without compromising the integrity of the historic structure.

Baseline Information

Greenhouse gas emissions are generally sorted into three different categories: Scope 1, Scope 2, and Scope 3. More information about what each of these categories encompass can be found below.

SCOPE 1



Emissions generated directly on site, typically through the combustion of fossil fuels. Includes emissions from heating, fleet vehicles, etc.

SCOPE 2



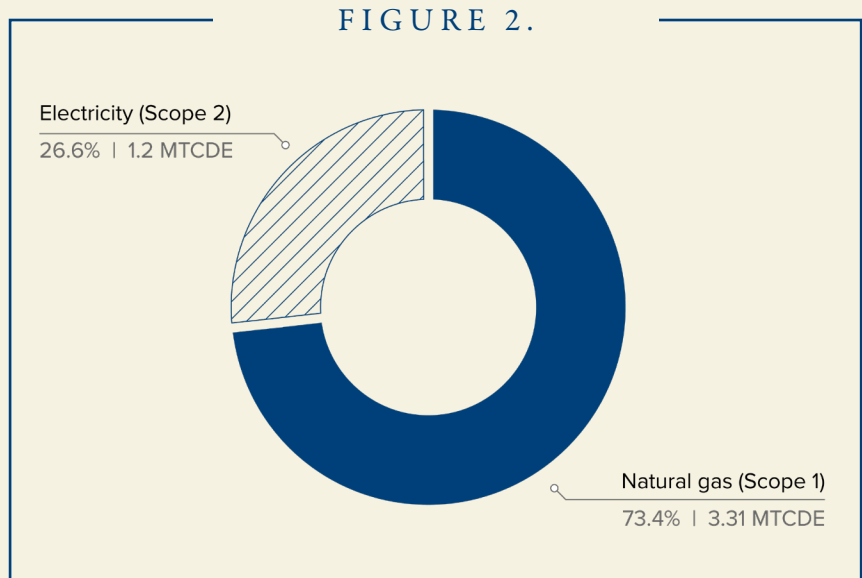
Emissions generated off-site, but that are directly attributable to the institution's activities, such as emissions from purchased electricity.

SCOPE 3



Indirect emissions through operations such as commuting, institution-sponsored travel, and the production and disposal of purchased products and services.

Natural gas makes up 73 percent of Pierce House’s emissions and electricity makes up the other 27 percent (see figure 2). Pierce House’s power is currently procured through the Boston Community Choice Electricity (BCCE) program. The site is currently enrolled in the standard offering, which provides 39 percent renewable energy.



Scopes 1 and 2 greenhouse gas emissions from Pierce House in calendar year 2023 (MTCDE)

There are many ways for a building to achieve decarbonization, but it’s common for this process to include three key elements: energy efficiency, electrification, and renewable energy (see below). These are the three main components GreenerU recommends Pierce House use to achieve any decarbonization or carbon neutrality goals.



ENERGY EFFICIENCY

Improvements to a building’s energy efficiency ensure that resources are used effectively.

It also allows for a more accurate projection for heating, cooling, and electricity needs.



ELECTRIFICATION

Converting fossil-fuel based building systems to electricity allows renewable electricity to power the whole building.

Electric systems can also be more efficient than fossil-fuel systems.



RENEWABLE ENERGY

An electrified building isn’t decarbonized until it is powered by renewable electricity.

There are many options for acquiring renewable electricity, including on-site infrastructure and power purchase agreements.



The strategies to achieve Goal 1 align with these decarbonization pathway elements. Strategy 1.1 addresses renewable energy, committing Pierce House to sourcing all electricity from a renewable source by 2027. Recommendations from the 2024 energy audit include installing a solar photovoltaic array on the property (see Appendix B). Alternatively, or additionally, Historic New England could take advantage of BCCE's 100 percent renewable energy offering (as opposed to the current enrollment in BCCE's standard offering which provides 39 percent renewable energy).

Strategy 1.2 addresses the efficiency part of the decarbonization pathway. During the 2024 energy audit, GreenerU formulated a series of recommended energy conservation measures (ECMs) for Pierce House to consider implementing (see Appendix B for full list).

Strategy 1.3 addresses the second element of decarbonization: Electrification. GreenerU recommends replacing the current gas-fired furnace with a heat pump. It should be noted that while the house currently does not have air conditioning, installing a heat pump system as is recommended would allow for both heating and cooling without additional infrastructure changes. Further discussion and study will be needed before choosing which type of heat pump is best suited to the site's needs. The difference between air-source and ground-source heat pumps is explained in Appendix B, along with information about the pros and cons of each type.

Metric of Success

Pierce House's 2030 greenhouse gas emissions inventory shows a net zero of on-site (Scope 1 and 2) emissions, with a maximum of 5 percent of emissions eliminated through carbon offsets.

Strategies

Strategy	Goal 1	Implementation*					
		2025	2026	2027	2028	2029	2030
1.1 Renewable energy Eliminate Scope 2 emissions through purchasing renewable energy and/or developing on-site energy generation.		→		✓			
1.2 Energy conservation measures Implement preservation-appropriate energy conservation measures recommended in 2024 energy audit.		→	→	→	→	→	✓
1.3 Building electrification Eliminate the use of fossil fuels for site operations.		→	→	→	→	→	✓

* ✓ indicates year by which the strategy is intended to be complete



Photograph by Daniel Nystedt



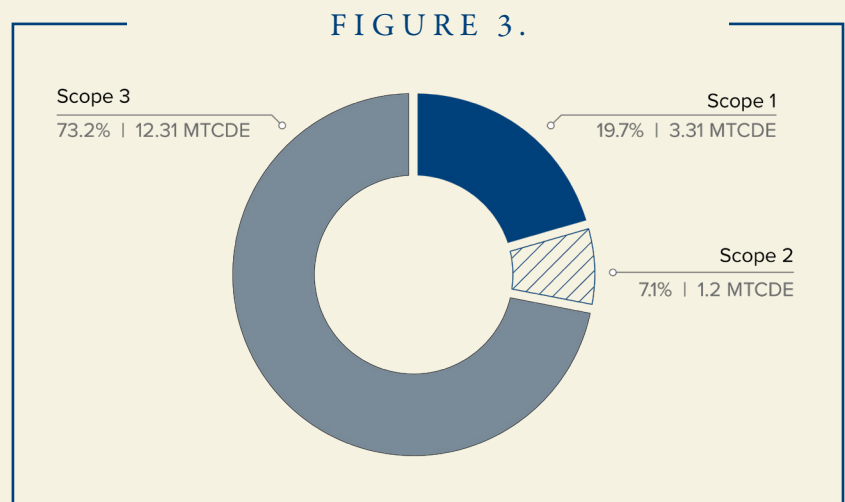
Photograph by Daniel Nystedt

GOAL 2: REDUCE INDIRECT EMISSIONS

By 2027, develop and implement policies that promote the decreased use of fossil fuels for commuting, travel, and landscaping.

Baseline Information

Generally, institutions are prioritizing the elimination of emissions they have direct control over, which are Scope 1 and 2 emissions; however, Scope 3 emissions are still incredibly important to consider and mitigate as they make up the majority of emissions at most properties, including Pierce House (see figure 3). After significantly reducing Scopes 1 and 2 emissions, Historic New England will focus on reducing Scope 3 emissions in order to achieve full carbon neutrality in 2050.



Total greenhouse gas emissions from Pierce House in calendar year 2023 (MTCDE)

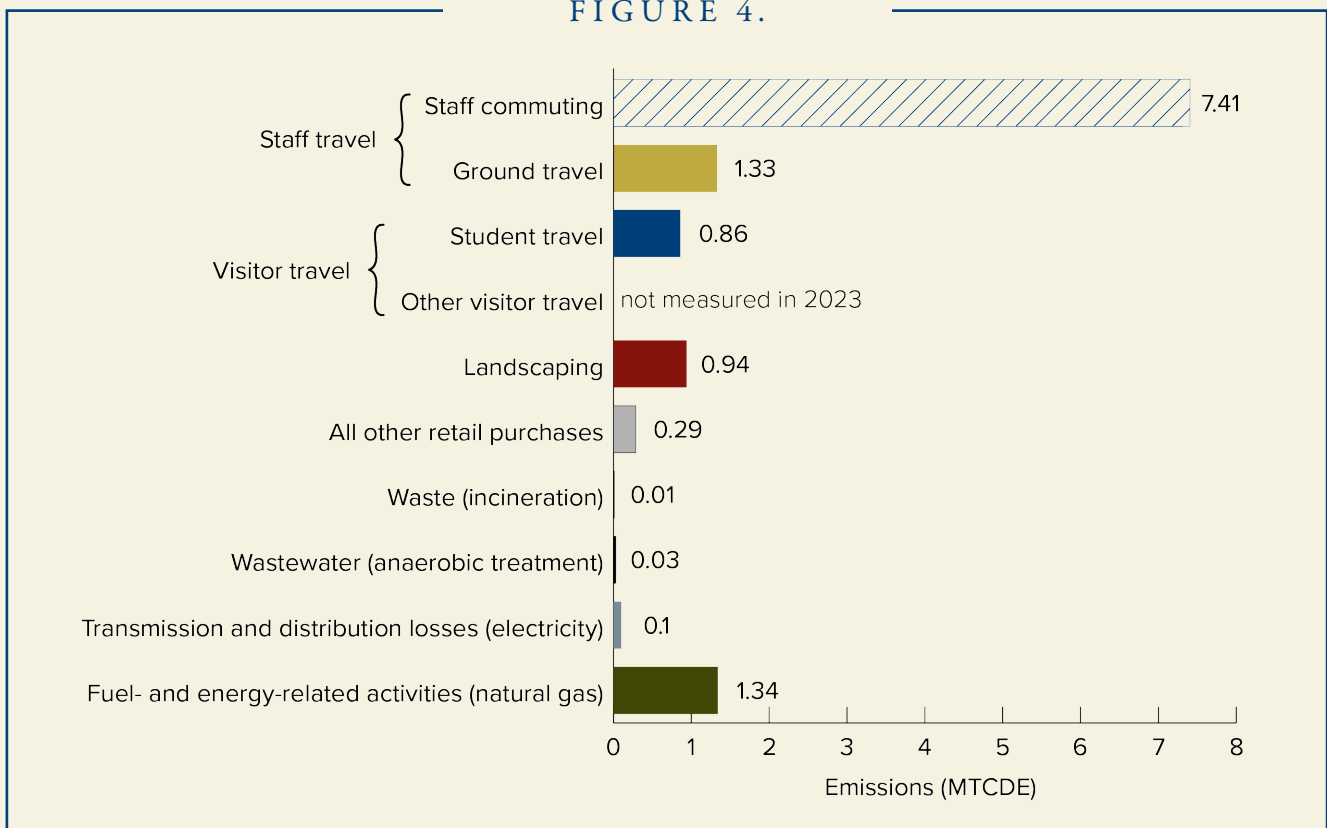
Scope 3 comprises fifteen categories, though not all of them apply to every property. Experts are still working out the best methodology to use when approximating values for some categories. Historic New England is ahead of the game in measuring most of the categories relevant to the property. Figure 4 illustrates the breakdown of these sources, the largest of which is staff commuting.

Staff commuting refers to staff travel between Pierce House and their home. Ground travel refers to staff travel to professional development programs, to present Pierce House programming, and other work-related travel. Both of these are encompassed in Strategy 2.2: Staff travel. Historic New England acknowledges that some activities in this plan could increase indirect emissions and will work to minimize this impact.

Student travel is also a notable source of emissions and refers to the emissions from student groups traveling to and from Pierce House. The emissions from other visitor travel (e.g., members visiting the site for a tour) were not tracked in 2023, though a system has since been established to measure this. Strategy 2.3: Visitor travel encompasses student travel and other visitor travel.

Other impactful emissions sources include landscaping and fuel- and energy-related activities (FERA). Landscaping refers to emissions from the tools used by the company Historic New England hires to maintain the house's grounds. FERA for natural gas would be eliminated by actions taken for Goal 1 and is therefore not addressed in Goal 2.

FIGURE 4.



Scope 3 greenhouse gas emissions from Pierce House in calendar year 2023 by source (MTCDE)

Metrics of Success

1. A mix of Pierce House-specific and organization-wide policies that target Scope 3 emissions have been created and implemented.
2. Pierce House's 2026 greenhouse gas emissions inventory (and all following inventories) tracks the emissions for each strategy to measure progress towards Historic New England's 2050 carbon neutrality goal.



Photo: Jeff Bousquet Photography

Strategies

Strategy	Goal 2	Implementation*		
		2025	2026	2027
2.1 Data tracking Create a system for tracking the impacts of these policies to assist in planning for future Scope 3 emissions reductions.		→	✓	
2.2 Visitor travel Develop and implement a plan to promote the use of a wider variety of transportation options for visitors to attend Pierce House events.		→		✓
2.3 Staff travel Create an organization-wide procedure to encourage employees to use alternatives to single-occupant fossil-fuel vehicles for commuting and business travel.		→		✓
2.4 Landscaping Reduce emissions from grounds and landscaping by using organic and natural landscaping and pest control techniques, as well as electric landscaping equipment.		→		✓

* ✓ indicates year by which the strategy is intended to be complete

Climate Resilience

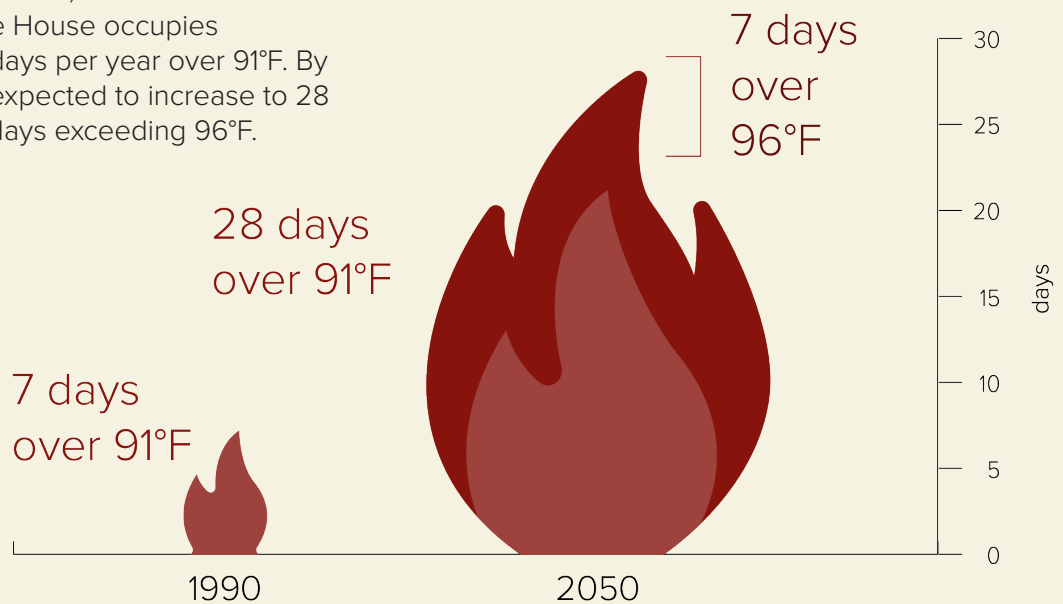
Historic New England goal: Manage our properties to meet our high preservation standards but also adapt those standards to ensure resilience in the face of weather extremes and sea level rise.

BASELINE INFORMATION

Both resilience goals relate to all baseline information collected for climate resilience. Therefore that data is presented first here to provide context for both goals.

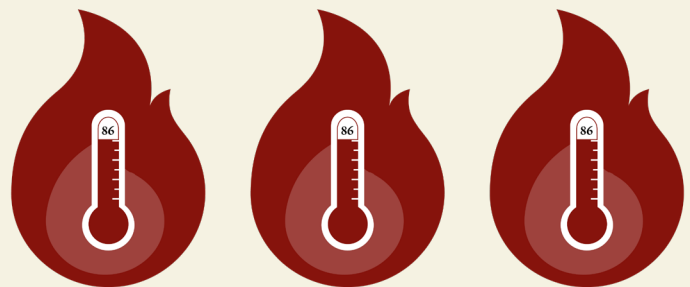
Extreme Heat

According to ClimateCheck, the area of Dorchester that Pierce House occupies experiences about 7 days per year over 91°F. By 2050, this number is expected to increase to 28 days, with 7 of those days exceeding 96°F.



According to ResilientMass, models predict that there will be at least one to two heat stress events in Dorchester each year by 2050.

Heat stress events are defined as instances where a three-day average temperature exceeds 86°F.



Impervious surfaces and tree canopy cover are also important for conversations about extreme heat. Impervious surfaces retain heat, while tree canopy cover provides shade and cooling effects. According to the City of Boston, Dorchester had around 21 percent tree cover in 2022. This is slightly below the 27 percent citywide average and makes up 13 percent of Boston's total canopy. It should be noted that there is a wide range of tree canopy cover across the city, with Jamaica Plain boasting around 42 percent cover compared to East Boston with around 7 percent cover.

Pierce House programs are primarily run during the school year, which avoids the hottest months of the year; however, there are still days during this time, especially in June, that can be uncomfortably hot. Pierce House does not currently have equipment that can reliably cool the entire space, making the house uncomfortable on hot days for both visitors and staff. The number of hot days during the school year will increase in the future. All three strategies for Goal 4 address the issue of rising heat. A short-term action will be instituting a high-heat policy organization-wide to keep staff and visitors safe. In the following years, Historic New England will develop site-specific protocols to deal with extreme heat and other hazards at Pierce House.

FIGURE 5.



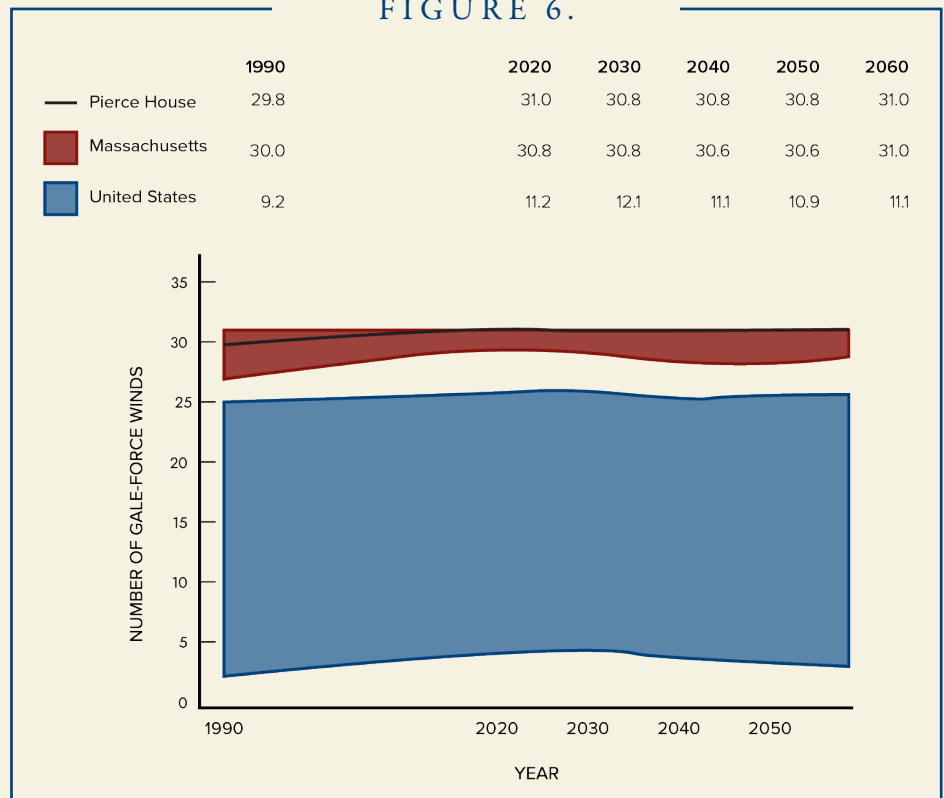
Impervious surface and tree canopy coverage in the area surrounding Pierce House (identified on map).

Source: [ResilientMass Climate Change Projections Dashboard](#).

Storms

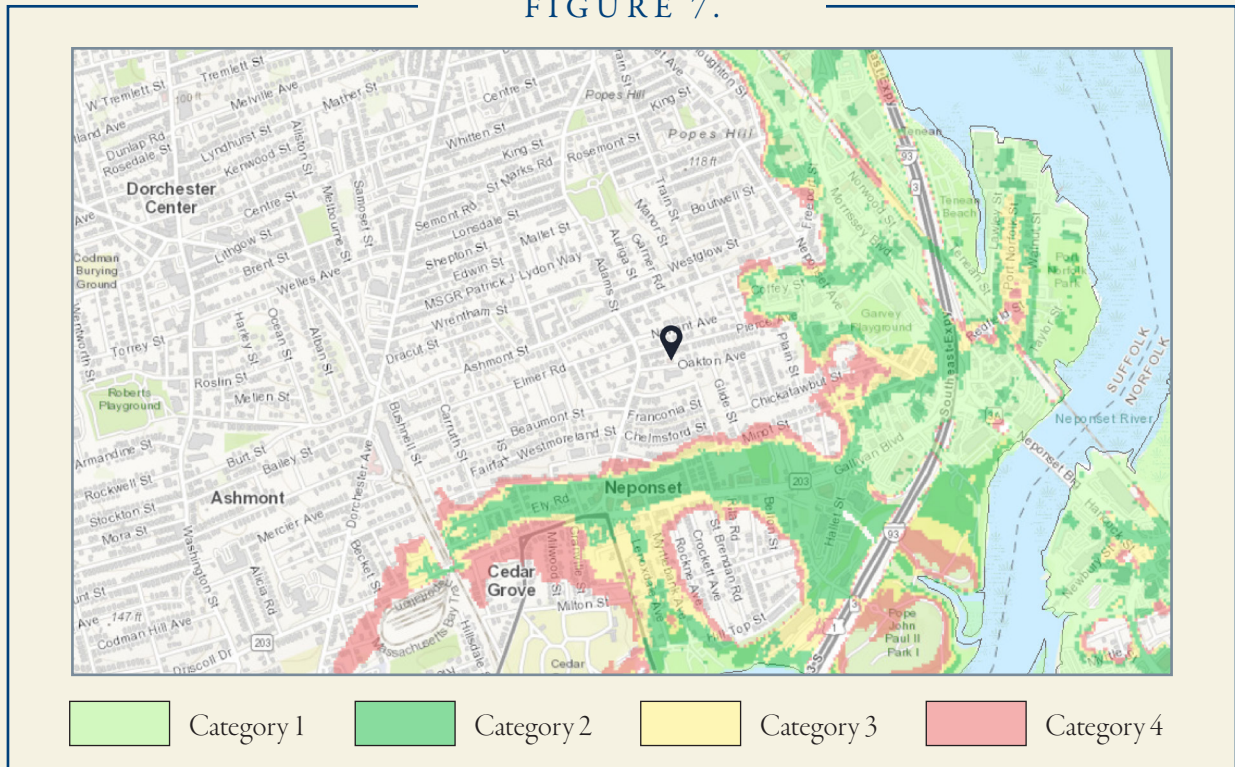
Storms are projected to worsen in Boston in the coming decades, especially with respect to flooding. While Pierce House itself is not in danger of flooding or increased gale-force winds (see figure 7), damage to exposed roads and transportation networks could inhibit access to the site. Additionally, because Pierce House is not in danger of flooding, the site could be used to serve the community during storms. Site-specific procedures to check on the house after storms and to help the community will be developed as a part of Strategy 4.2.

FIGURE 6.



Number of annual historic and projected gale-force winds at Pierce House, in Massachusetts, and in the United States. Source: [ClimateCheck](#)

FIGURE 7.



Worst-case hurricane surge inundation zones in the case of category 1 through 4 hurricanes (Pierce House identified on map).

Source: [ResilientMass Climate Change Projections Dashboard](#).

GOAL 3: IMPROVE SITE RESILIENCE

By 2027, secure and enhance the exterior envelope of the building and landscape and begin a three-year review cycle for major maintenance items.

Metrics of Success

1. In 2027, the exterior envelope of the building and landscape has been secured and no major issues remain that need to be addressed.
2. Starting in 2027, Historic New England implements a three-year review cycle for major maintenance items at Pierce House to keep the envelope secure and resilient.

Strategies

Goal 3		Implementation*		
Strategy		2025	2026	2027
3.1	Stormwater management Improve stormwater management.	→	✓	
3.2	Review cycle Develop a three-year schedule for major maintenance items.	→	→	✓
3.3	Exterior envelope Complete repairs on the exterior of the building and secure it from the weather.	→	→	✓

* ✓ indicates year by which the strategy is intended to be complete

GOAL 4: PREPARE FOR CLIMATE EVENTS

By 2030, implement site-specific preparedness and response protocols that support the resiliency of the building, landscape, and community.

Metric of Success

In 2030, there are protocols at Pierce House that address preparedness for and responses to extreme heat, storms, and other climate events. Responsibility for implementation of these protocols is clear and protocols are consistently followed after 2030.



Strategies

Strategy	Goal 4							Implementation*						
	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030		
4.1 High-heat procedure Enact an organization-wide procedure for high-heat days.							→					✓		
4.2 Develop resilience protocols Review the baseline report and develop site-specific preparedness and response protocols.							→					✓		
4.3 Enhance on-site shade Implement options for enhancing shade cover for the site.							→					✓		

* ✓ indicates year by which the strategy is intended to be complete

Climate Justice

Historic New England goal: Engage a broad and inclusive public through robust partnerships, programs, and activities that advance climate justice for all.

GOAL 5: EXPAND EDUCATIONAL OPPORTUNITIES

By 2030, integrate climate change content into Pierce House's programming and communication.

Baseline Information

CONTENT

With grant funding from Mass Humanities, Historic New England recently completed a significant research effort to enhance the school-age curricula at Pierce House. Existing programs have been updated to provide deeper context about the experiences of free Black, enslaved, and Indigenous people in colonial Dorchester.

That said, there is still room for growth. It is worth noting that the three most popular programs that Pierce House offers still revolve around colonial life. Strategy 5.1 acknowledges that this work is not finished and should continue. Strategy 5.2 targets the inclusion of climate content in existing programming where appropriate.

MARKETING

In the past, Pierce House staff mailed brochures to many schools in the Boston area, but have since stopped sending those types of materials. Most of Pierce House's business comes from "repeat customers," and they end up with a waitlist each year for their programs. As a result, their outreach initiatives are limited. If enrollment

for these programs is slow, staff will send emails to teachers, schools, or other contacts who have booked programs in previous years.

The staff's sense is that most people find Pierce House programs through word of mouth or a web search. Pierce House is also listed on the Boston Public Schools (BPS) Place-Based Learning [website](#), which is a tool used by BPS teachers to search for field trip opportunities.

As more Pierce House programs with climate components are offered, Historic New England's marketing team should take a bigger role in publicizing those programs as climate-inclusive. As this is a change in Pierce House's past programming, teachers should be informed that Pierce House offers climate content within a historic context.

COMMUNICATION

Historic New England regularly shares information about the organization's climate action commitment and goals as well as information on work being done at the sites, such as the Casey Farm climate action plan. The organization also shares more general blog posts, webinars, and workshops that focus on the topic. Additionally, staff attend conferences to present information about Historic New England's climate work and to share resources and best practices with other organizations.

Communicating about climate action at Pierce House is a recent effort and has focused on the development of the current climate action plan.

Metrics of Success

1. By 2028, programs currently offered at Pierce House incorporate climate content where appropriate. This is tracked and communicated to the Sustainability Coordinator.
2. By 2028, the Historic New England marketing team has made several efforts to increase awareness of climate programming at Pierce House and has tracked engagement with these efforts.
3. By 2030 (and going forward), staff attend conferences, give talks, and generally communicate about the implementation of the climate action plan as measured by the number of events attended and communications sent.



Photo: Jeff Bousquet Photography



Photograph by Daniel Nystedt

Strategies

Strategy	Goal 5						Implementation*						
	2025	2026	2027	2028	2029	2030	2025	2026	2027	2028	2029	2030	
5.1 Inclusive storytelling Increase the number of stories in Pierce House programming that focus on Indigenous people and Black Americans during Pierce House’s history.			→									✓	
5.2 Climate programming Integrate climate content into existing programming.				→								✓	
5.3 Increase awareness of climate content Increase awareness of climate content in programs through marketing efforts.					→							✓	
5.4 Communicate successes Use Pierce House to demonstrate the successful decarbonization of a seventeenth-century building.												→	✓

* ✓ indicates year by which the strategy is intended to be complete



Photograph by Daniel Nystedt

GOAL 6: STRENGTHEN COMMUNITY RELATIONSHIPS

By 2030, integrate Pierce House more fully into the community by engaging the neighborhood in public programs and developing relationships with community members.

Baseline Information

Today, Pierce House is open year-round for school and youth programs. Pierce House welcomes nearly 2,000 on-site visitors in a typical school year and has recently made changes to the site to better serve students with mobility challenges. Historic New England is committed to expanding opportunities for audiences of all abilities.

These accessibility changes will support Pierce House's new goal to integrate more fully into its surrounding community, in which it does not currently have a strong presence. All strategies for this goal are aimed at deepening relationships with community members and offering valuable and impactful services to the neighborhood.



Metrics of Success

1. High-quality public programs offered consistently at Pierce House will be an indication of the success of this goal starting in 2027.
2. Community awareness will be measured by the number of local attendees at events sponsored by Pierce House.
3. By 2030 Historic New England staff should be able to identify meaningful relationships with members of Pierce House's neighborhood.

Strategies

Goal 6		Implementation*					
Strategy		2025	2026	2027	2028	2029	2030
6.1 Community awareness Increase community awareness of the site.		→		✓			
6.2 Public programming Host Historic New England programming and events for members and the general public at Pierce House.		→		✓			
6.3 Sharing adaptation information Provide home maintenance and adaptation information to the local community.		→			→	✓	
6.4 Connect with our neighbors Establish and maintain long-term, two-way relationships with our neighbors and community members.		→					✓

* ✓ indicates year by which the strategy is intended to be complete



Photograph by Beth Oram

Appendix A

ADDITIONAL IMPORTANT TERMS

Term	Definition
air-source heat pump	a device that absorbs heat from the outside air and releases it inside a building
energy use intensity	energy use intensity expresses a building's energy use as a function of its size or other characteristics
forced-air natural-gas furnace	a heating system that uses natural gas to heat a building by circulating warm air through a duct system
ground-source heat pump	a device that uses the earth's natural heat to provide a building with heating, cooling, and hot water
heat stress events	heat stress events are defined as instances where a 3-day average temperature at a particular region exceeds 86 °F
land acknowledgment	a land acknowledgment is a formal statement that recognizes the unique and enduring relationship that exists between Indigenous peoples and their traditional territories.
Scope 1 emissions	direct greenhouse gas emissions occurring from sources that are owned or controlled by the institution. This includes: combustion of fuels to produce electricity, steam, heat, or power using equipment in a fixed location such as boilers, burners, heaters, furnaces, incinerators and combustion fuels by institution-owned cars, tractors, buses, and other transportation devices.
Scope 2 emissions	indirect greenhouse gas emissions that are a consequence of activities that take place within the organizational boundaries of the institution, but that occur at sources owned or controlled by another entity. Scope 2 emission sources include purchased electricity, purchased heating, purchased cooling, and purchased steam.

Term	Definition
Scope 3 emissions	all indirect emissions not covered in Scope 2. Some examples of Scope 3 greenhouse gas emissions are: Purchased goods and services, capital goods, waste generated in operations, business travel, commuting (employee and student), end-of-life treatment of sold products, downstream leased assets, franchises, and investments.
solar photovoltaic array	a photovoltaic array is multiple solar panels electrically wired together to form a much larger PV installation (PV system)
weatherization	the process of protecting a home's interior from outside elements like moisture, cold air in winter, hot, humid air in summer, and even sun, snow, and ice damage



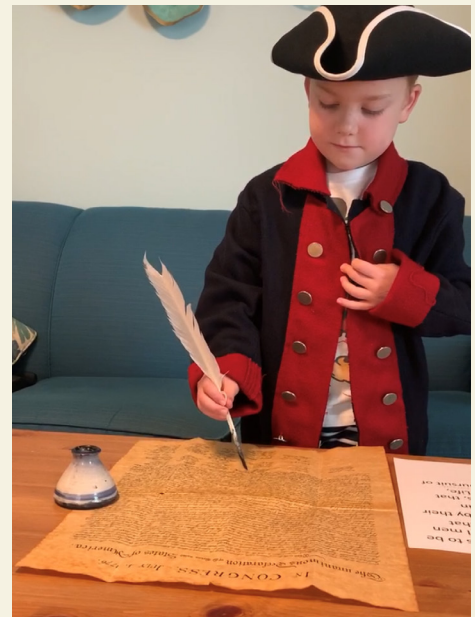
Photograph by Daniel Nystedt



Photograph by Beth Oram



Photograph by Daniel Nystedt



Appendix B

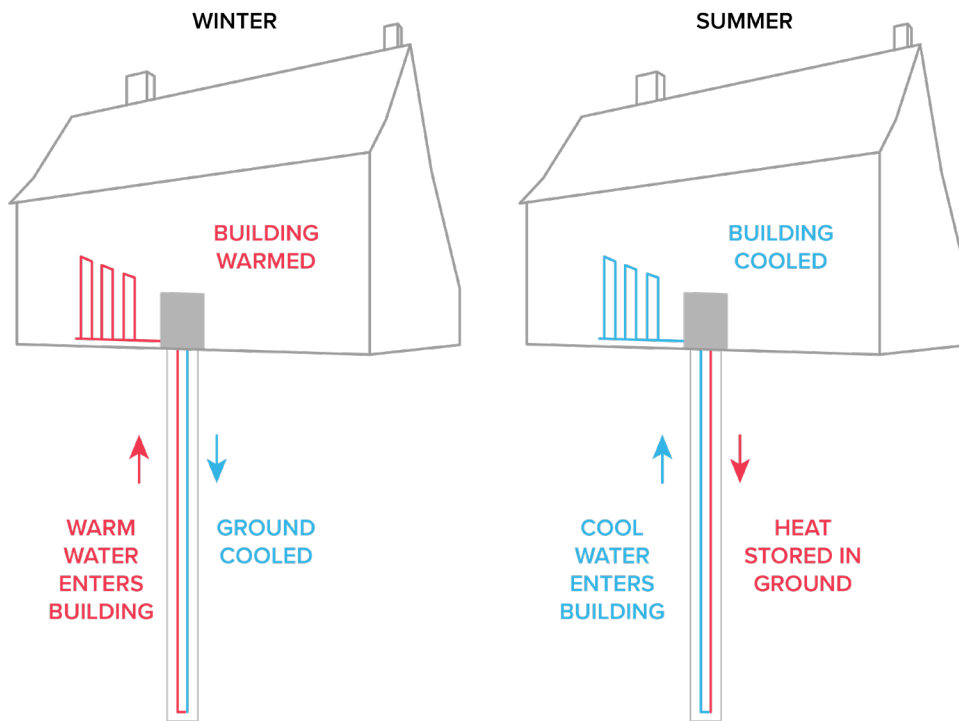
ENERGY CONSERVATION MEASURES

The following table shows the estimated effects of recommended energy conservation measures (ECMs) and decarbonization options developed by GreenerU for Pierce House. Please note that a letter suffixed to the measure number indicates an alternative measure. Table 2 describes the pros and cons of the alternative measures.

TABLE 1. POTENTIAL ENERGY CONSERVATION MEASURES

	ECM description	Current mechanical system	Effect on energy system
1a	Replace gas-fired furnace with a ground-source heat pump (see page 34)	Gas furnace	15–25% energy use reduction
1b	Replace gas-fired furnace with an air-source heat pump (see page 34)	Gas furnace	10–20% energy use reduction
2a	Install solar photovoltaic array on new shed/ carport	New solar	Onsite generation
2b	Install solar photovoltaic array on new shed/ carport with battery storage	New solar	Onsite generation + battery backup
3	Replace fluorescent and incandescent light bulbs with LED bulbs	Lighting	10–30% energy use reduction
4	Replace fluorescent gallery lighting with LED equivalent	Lighting	10–20% energy use reduction
5	Replace domestic hot water heater with heat pump hot water heater	Domestic hot water heater	2–5% energy use reduction
6	Replace plug-in humidifiers with more efficient option	Humidity control	2–5% energy use reduction
7	Add ductwork to second floor storage area	Ventilation	Slight energy use increase

1A. GROUND-SOURCE HEAT PUMP



1B. AIR-SOURCE HEAT PUMP

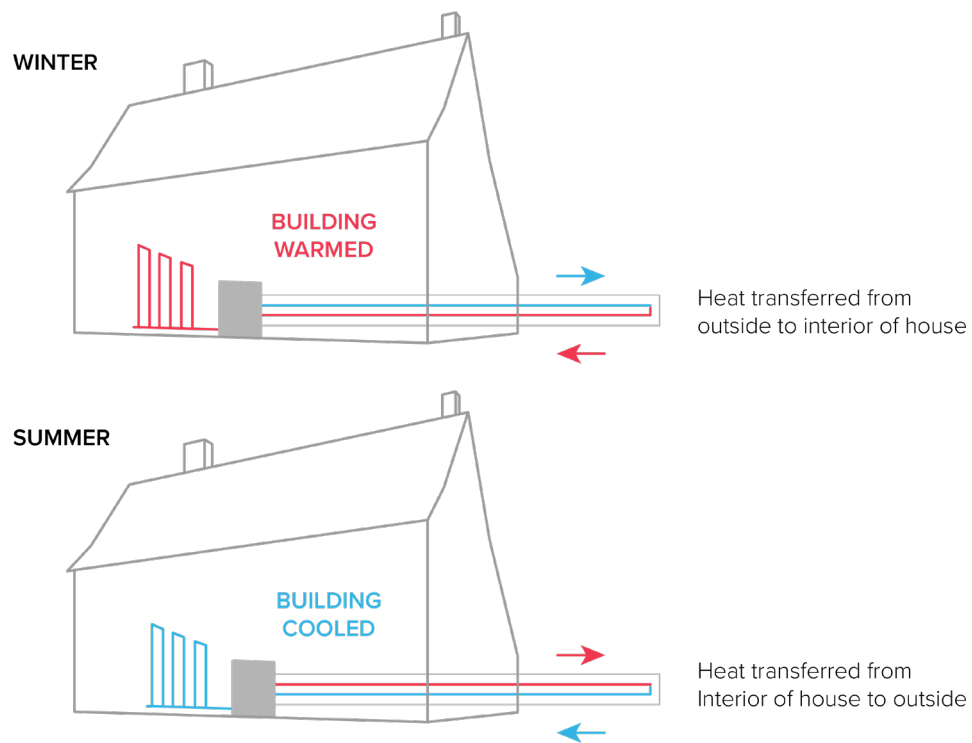
















TABLE 2. — HEAT PUMP COMPARISON CHART

Consideration	1a. Ground-source heat pump	1b. Air-source heat pump
Electrifies existing heating system	 Yes	 Yes
Adds cooling and dehumidification capacity to existing ductwork distribution system	 Yes	 Yes
Modifications to interior occupied space	 No (reuse existing ductwork/ diffusers)	 No (reuse existing ductwork/ diffusers)
Outside installation details	 Major disruption to outside space during installation	 Minor disruption to outside space during installation
Post-installation outdoor aesthetic	 Minimal to no outdoor visibility of mechanical systems	 Condensing unit visible - equipment screen would need to be installed to hide equipment
Energy efficiency	 Most efficient option	 More efficient than existing system
Installation cost	 Most expensive option	 Less expensive than a ground-source heat pump

 Pro
  Neutral
  Con

Appendix C

2024 PIERCE HOUSE BASELINE REPORT

HISTORIC NEW ENGLAND

Pierce House Climate Action Plan
BASELINE REPORT



CREATED BY GREENERU
SEPTEMBER 2024

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Any views, findings, conclusions, or recommendations expressed in this report do not necessarily represent those of the National Endowment for the Humanities.

About Historic New England



Historic New England, founded in 1910 as the Society for the Preservation of New England Antiquities, is the oldest and largest regional heritage organization in the United States. Our mission is to save and share New England's past to engage and inform present and future generations. We explore and interpret New England's culture and history through our house museums, landscapes, archives, and objects, engaging more than 200,000 visitors annually. Pierce House, the subject of this report, is one of thirty-eight historic properties that Historic New England preserves and presents to the public.

PRESERVATION PHILOSOPHY

Climate action planning for the site also needs to take into account conditions and regulations for historic sites. This will impact what actions can be implemented at Pierce House.

Historic New England is guided by a Philosophy of Preservation, that all existing building elements, regardless of age and quality, are worthy of retaining. Any intervention that is recommended needs to weigh the expected benefits of the improvement against the potential loss of historic material and the impact of the improvement on character defining features of the site. We feel we can achieve our goals in climate action while still being sensitive to the building materials.

INSTITUTIONAL COMMITMENTS

Historic New England is committed to addressing the global climate crisis through actions that reduce or eliminate greenhouse gas emissions, promote resiliency, engage our communities, and advance climate justice and energy equity by meeting these four goals by 2050:

GOAL 1

Enacting operational shifts that integrate climate action into the day-to-day operations of Historic New England

GOAL 2

Achieving carbon neutrality for all Historic New England sites by 2050, continuously evaluating progress and adjusting actions to achieve success

GOAL 3

Managing our properties to meet our high preservation standards but also adapting those standards to ensure resilience in the face of weather extremes and sea level rise

GOAL 4

Engaging a broad and inclusive public through robust partnerships, programs, and activities that advance climate justice for all

Summary of Recommendations

CLIMATE MITIGATION RECOMMENDATIONS

1. Set a carbon neutrality target date for Pierce House that includes Scopes 1 and 2
2. Set a goal for Scope 3 emissions reductions for Pierce House
3. Select and implement energy conservation measures for decarbonization

CLIMATE RESILIENCE RECOMMENDATIONS

1. Select and implement a solution to cool Pierce House on hot days
2. Develop an institution-wide heat policy to keep staff and visitors safe on hot days
3. Continue regular maintenance to maintain the house's resilience to storms

CLIMATE JUSTICE RECOMMENDATIONS

1. Develop programming that addresses local climate justice concerns
2. Develop a strategy to elevate programming options that center justice
3. Ensure that Pierce House climate goals consider climate justice and marginalized voices

Important Terms

Term*	Definition
carbon neutral	having no net greenhouse gas emissions, to be achieved by either eliminating net greenhouse gas emissions, or by minimizing greenhouse gas emissions as much as possible, and using carbon offsets or other measures to mitigate the remaining emissions.
climate justice	“climate justice” is a term, and more than that a movement, that acknowledges climate change can have differing social, economic, public health, and other adverse impacts on underprivileged populations. Advocates for climate justice are striving to have these inequities addressed head-on through long-term mitigation and adaptation strategies.
climate resilience	the ability of a system or community to survive disruption and to anticipate, adapt, and flourish in the face of change.
decarbonization	the reduction or elimination of greenhouse gas emissions from a process.
energy conservation measures	an energy conservation measure (ECM) reduces the energy consumption of a particular piece of equipment or a certain aspect of essential building services to reduce overall building energy use.
greenhouse gas	any gas that has the property of absorbing infrared radiation (net heat energy) emitted from Earth’s surface and reradiating it back to Earth’s surface, thus contributing to the greenhouse effect.
metric tons of carbon dioxide equivalent (MTCDE)	the standard unit of measurement used to quantify a mix of greenhouse gas emissions in terms of the warming effect of carbon dioxide.

*more terms can be found in the appendix

About Pierce House

Pierce House is one of the last surviving examples of seventeenth-century architecture in the city of Boston. Lived in by ten generations of one family, the house documents the building practices and tastes of the Pierces over three centuries. Family members expanded and adapted their house to meet demands for space, function, comfort, and privacy. Pierce House was acquired by Historic New England in 1968 to preserve and present the site to the public. The Pierce family's story highlights key aspects of social, local, and New England history. Today, Pierce House is open year-round for school and youth programs.

LAND ACKNOWLEDGEMENT

For more than 6,000 years the Neponset Band of the Massachusetts Tribe lived and thrived on land English colonists later renamed Dorchester. The Neponset people hunted, fished in both rivers and the sea, and planted vast fields of grain, corn, squash, and beans on this fertile land near the river, which provided large harvests for winter stores. The area was rich in resources and the Neponset had not only adequate food for their year-round needs but a surplus of meat, grains, and skins for trade with other tribes.

Prior to the arrival of English colonists in 1620, European trading ships anchored along the coast to trade with Indigenous tribes. Visitors brought with them diseases that were deadly to the Indigenous people and that dramatically reduced their populations. In 1616, just a few years before the arrival of English colonists, a foreign plague swept through coastal villages of the Massachusetts killing nearly eighty percent of the Indigenous population. Just as the Massachusetts population was beginning to stabilize and recover, the English conquest of the region began.

When the English sailed into Massachusetts territory in 1620 to establish a permanent settlement, the Neponset Sac'hem was Chickataubut, Principal Chief of the Massachusetts. Chickataubut signed a treaty with the English in 1621 and consented in 1630 to the establishment of an English settlement where the Neponset River met the bay. Seventeenth century references claimed that Chickataubut sold the land at this time, but current thinking is that he saw his payment as a tribute and not as a sale, since the concept of land ownership was unheard of to the Massachusetts.

English settlers who arrived on the ship Mary and John at Nantasket Beach in June of 1630 erected the first settlement just north of that site. The arrival of the landing party initiated the long-term occupation of these indigenous homelands, a process that transformed a landscape of natural resources collectively managed by Indigenous people into a stockaded settlement governed by settler values of private property, patriarchy, and resource extraction.

Updated narratives that more accurately explain the relationship between Indigenous people and English colonists in the seventeenth century come from more nuanced research and the oral histories of the Massachusetts people, who still live in their ancestral homelands and continue the practice of storytelling to pass their history from one generation to the next.

PROGRAMMING OVERVIEW

Some of the most popular school and youth programs* that Pierce House runs include:

A REVOLUTION IN DORCHESTER

This program provides students with a window into the Revolutionary War era through the journal of Colonel Samuel Pierce. A resident of Pierce House, Colonel Samuel recorded everything from the details of daily life on his farm to major events like the Boston Massacre, the Boston Tea Party, and the fortification of Dorchester Heights. Students learn to analyze primary source documents to learn more about the past, examine reproduction artifacts and clothing, and work together to construct a Revolutionary War timeline. At the end of the program they have an opportunity to write with a quill pen.



COLONIAL SAMPLER



Learn what life in colonial times was like for children in New England. A series of hands-on activities teach about the work, education and play of the Pierce children in eighteenth-century Dorchester. Students will see reproduction clothing that boys and girls wore in the past. Each student will make an herbal sachet, write with quill pens and play historic toys and games. The museum program includes a visit to the parlor at Pierce House for a discussion on everyday life.

*To learn more about the many programs Pierce House offers, visit Historic New England's [website](#).

COLONIAL TRADES: MAKING COMMUNITY WORK

Students learn what life was like on Pierce Farm during the years leading up to the Revolution. A pre-visit activity based on Colonel Samuel Pierce's account book allows students to take on the roles of real Dorchester residents, including farmers, weavers and blacksmiths. Students learn about the goods and services each of their characters provided to the community and play a bartering game that mimics the economic system of the colonial Dorchester. Hands-on spinning and weaving activities allow students to further explore the production of goods using colonial resources and technology.

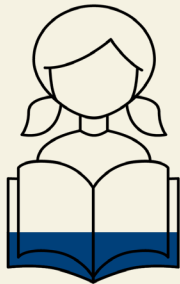


PIERCE HOUSE BY THE NUMBERS

In 2023

4,939

people were served by Pierce House school and youth programs



18%

of school and youth program attendees visited Pierce House in person



1,125

people visited Pierce House in 2023 in total



50%

of school and youth program visitors walked to Pierce House

INFRASTRUCTURE OVERVIEW

Key to a climate action planning baseline is gaining a thorough understanding of Pierce House’s mechanical systems. To understand these systems in the building, document and understand historical conditions, and explore potential decarbonization solutions with the Historic New England staff, the consultant GreenerU visited Pierce House on Tuesday, July 9, 2024 and met with the following employees:

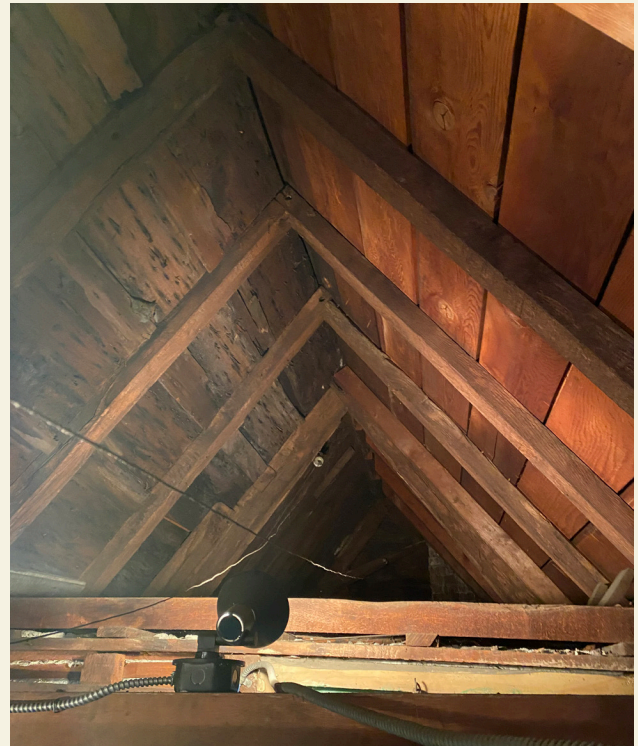
- Joie Grandbois, Historic New England Sustainability Coordinator
- Jeanice Sherman, Historic New England Preservation Project Manager
- Kate Hooper, Pierce House Education Program Coordinator
- Marissa Mayo, Historic New England Property Care Operations Manager

Pierce House is a two-story building that includes a partially occupied attic. The building has an uninhabited mechanical basement that does not have any mechanical ventilation. The first floor includes a kitchenette, learning room, gallery room, and a historical room that is furnished in a historically accurate fashion. The second floor includes an office for Historic New England staff, a storage room, a gallery/program room, and access to a space that still has the **original clapboard siding**. The attic has two rooms that historically were living spaces and the **original roof framing** is visible while in the attic. Additionally, there are educational displays that are incorporated into the house to highlight historic construction techniques; these include parts of the roof, siding, and exposed interior wall spaces.

The building does not include modern insulation but has a long tradition of being **insulated by eel grass**. Interior storm windows were installed as a result of a past energy audit to reduce infiltration into the building. The asphalt shingle roof, when last replaced, used lighter shingles to better reflect summer heat.



original clapboard siding



original roof framing in attic



eel grass wall insulation

Pierce House is mechanically heated via a forced-air natural-gas furnace located in the basement. The supply and return ductwork is located in the basement and distributes air to the rooms in the house via existing supply diffusers. The majority of the house is currently ventilated, with the exception of the storage room on the second floor and the entire third story attic. There is a supply diffuser in the period room, but there does not appear to be any airflow from this diffuser and the room is noticeably colder than the rest of the house during cold weather. An electric domestic hot-water heater is used to generate hot water in the building, which is only used via the faucets in the kitchenette and bathrooms. One plug-in dehumidifier is located in the basement and another is located in the clapboard viewing area; both are drained to a sump pump in the basement. At the time of GreenerU's site visit, there was one portable air conditioning unit operating in the office of Pierce House and an additional uninstalled window unit.

During the site walkthrough, GreenerU identified the building currently has a generator transfer switch installed in the electrical system. The building is generally illuminated through fluorescent or incandescent light bulbs. During the walkthrough, GreenerU did not observe any LED light bulbs. In the first floor gallery room, fluorescent lights illuminated frames on the wall

The outside of the building includes a driveway and small parking area. Historic New England staff indicated that there was previously a garage/shed at the end of the parking area, which could be reused to house a solar array or enclose mechanical equipment. At the northwest corner of the lot is an underground garbage pail receptacle which is preserved as part of Pierce House. The remainder of the lot is covered by grass. On the south side of the lot is a large oak tree, which provides some shading to the southeast side of the house.



Climate Mitigation

Historic New England goal: Achieving carbon neutrality for all Historic New England sites by 2050, continuously evaluating progress and adjusting actions to achieve success.

BACKGROUND

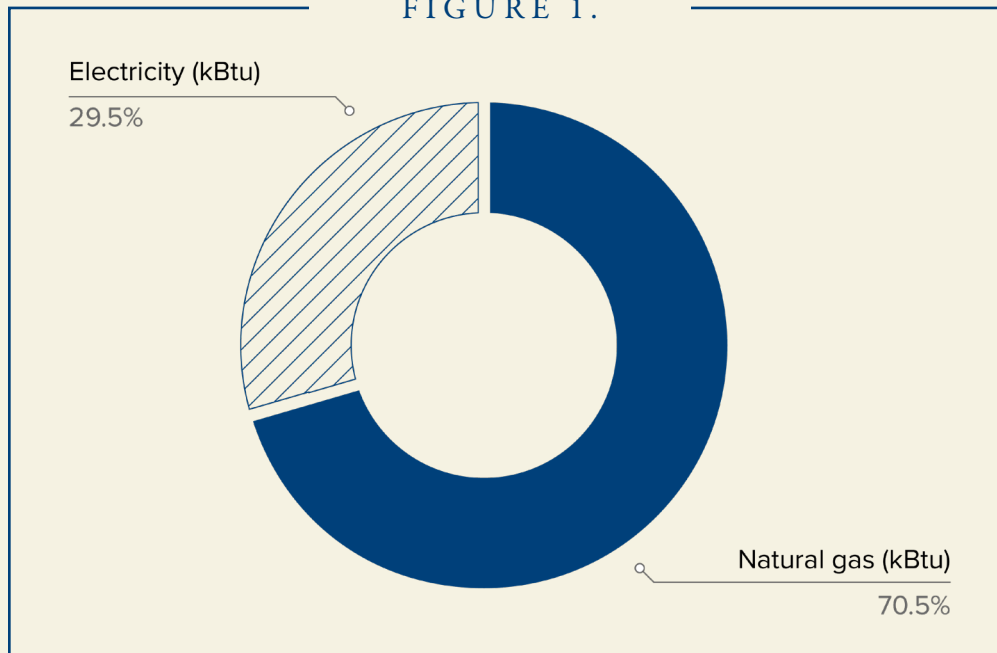
Climate mitigation addresses the process of reducing the amount of greenhouse gases that are being emitted. Before developing methods to eliminate emissions, it's important to understand the amount an institution is emitting and what the largest sources are. As part of a larger effort to baseline greenhouse gas emissions for all Historic New England properties, Joie Grandbois collected data encompassing Pierce House's electricity use, natural gas use, commuting methods, and landscaping (among other, smaller, sources). This data was primarily pulled from utility bills and purchase orders.

ENERGY AND EMISSIONS

Energy use

Pierce House is heated by a natural gas furnace located in the basement and its operations are powered by electricity from the grid. As is common for houses in the northeast, natural gas usage increases during the winter and decreases during the summer (see figure 2). Electricity usage stays fairly constant throughout the year.

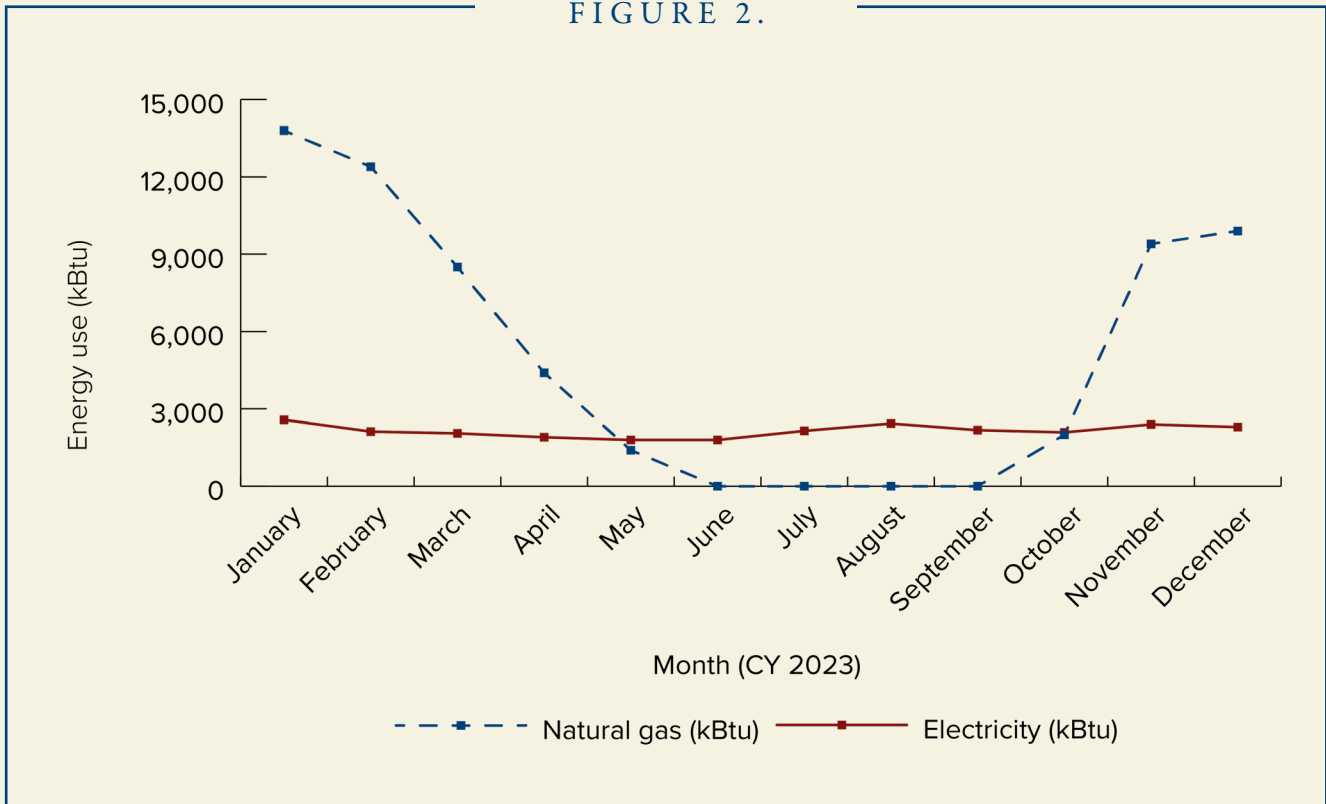
FIGURE 1.



Pierce House's natural gas usage makes up 70.5% of the total energy use and electricity accounts for the other 29.5%.

Total energy use at Pierce House in calendar year 2023.

FIGURE 2.



Natural gas and electricity use at Pierce House by month in calendar year 2023.



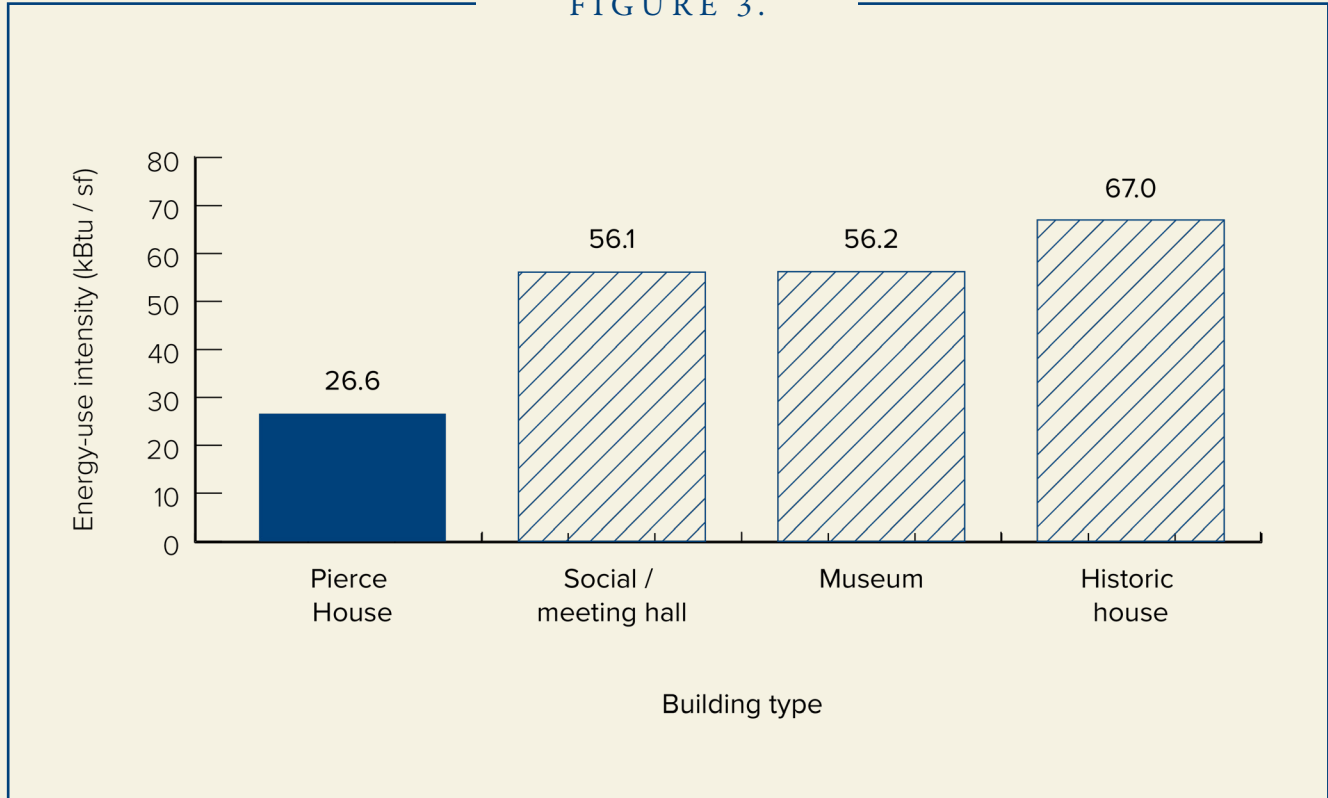
PEER COMPARISONS

Energy use intensity is a common metric used to measure efficiency and compare buildings of different sizes. It represents energy use over square footage, normalizing the size of buildings and allowing for comparisons. Unfortunately, Pierce House does not clearly fit into a property type within the ENERGY STAR PortfolioManager® [Technical Reference](#) on energy use intensity, and therefore it's more challenging to compare Pierce House's energy intensity with buildings of a similar type.



As shown in figure 3, GreenerU compared Pierce House's energy use intensity to the average for a social/meeting hall and a museum (ENERGY STAR PortfolioManager®), as well as a historic house ([Culture Over Carbon](#)), all of which generally are less efficient than Pierce House. It's worth noting that while Culture Over Carbon provides the closest match in terms of building type, only forty-five sources were included in the analysis to obtain the average.

FIGURE 3.



Pierce House energy-use intensity compared to averages for similar buildings.

Greenhouse gas emissions

Greenhouse gases trap heat from the sun within the earth's atmosphere. It's these gases that make life on earth possible, because without them the earth would be incredibly cold.

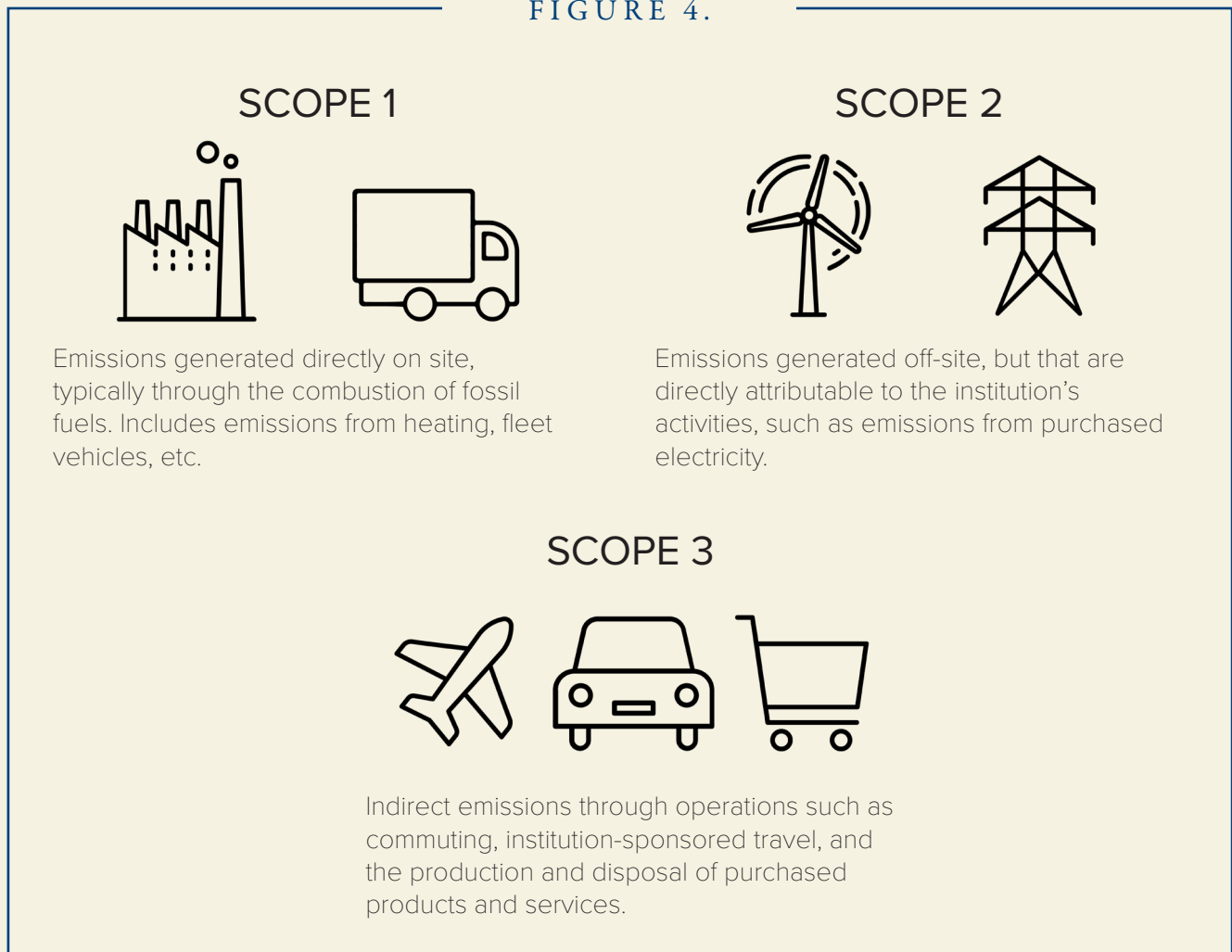
During the industrial revolution, humans began combusting materials like coal for power, and while this led to huge advances in technology, it also began releasing unprecedented levels of greenhouse gas emissions into the atmosphere.

Over time, those emissions have increased, and have started to radically change our climate, causing changes in precipitation, drought, wildfires, temperature, etc. Historic New England

realizes that eliminating greenhouse gas emissions is an essential task, and has committed to reaching carbon neutrality by 2050.

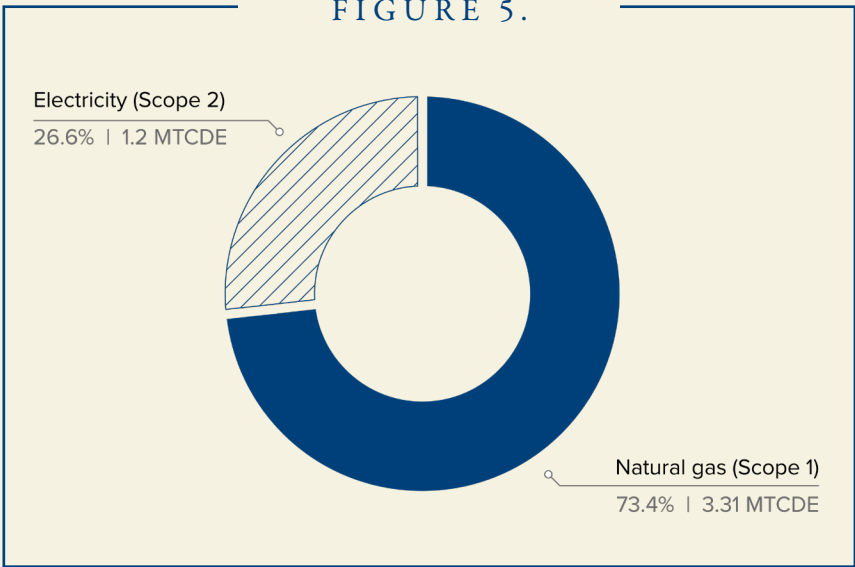
Greenhouse gas emissions are measured in metric tons of carbon dioxide equivalent, or MTCDE. Inventories include three categories: Scope 1, Scope 2, and Scope 3. More information about what each of these categories encompass can be found in figure 4.

FIGURE 4.



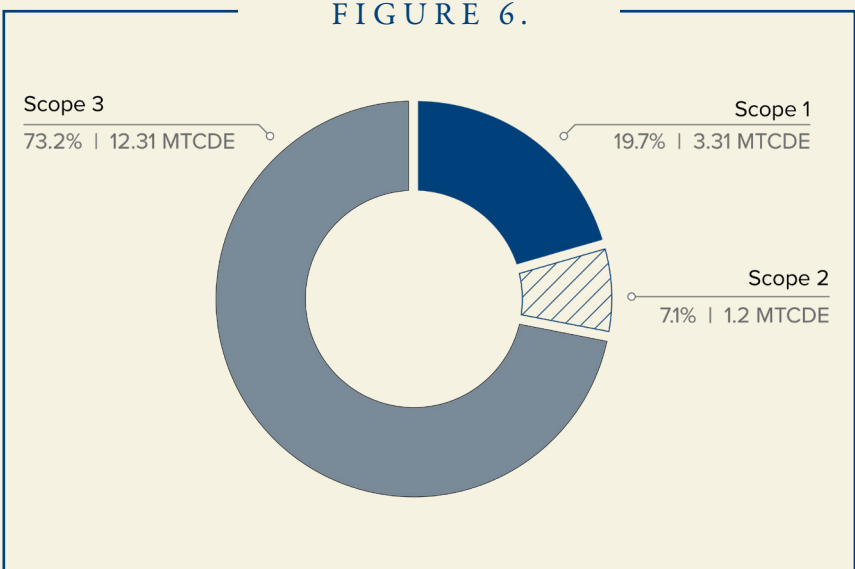
Explanations of Scopes 1, 2, and 3.

The split in emissions between natural gas and electricity is very similar to the difference in energy usage displayed in figure 1. Natural gas makes up 73% of Pierce House’s emissions and electricity makes up the other 27% (see figure 5). Pierce House participates in the Boston Community Choice Electricity program (BCCE). The site is currently enrolled in BCCE’s standard offering which provides 39% renewable energy.



Scopes 1 and 2 greenhouse gas emissions from Pierce House in calendar year 2023 (MTCDE).

Generally, institutions are prioritizing the elimination of emissions they have direct control over, which are Scopes 1 and 2 emissions; however, Scope 3 emissions are still important to consider and mitigate as they make up the majority of most institutions’ emissions, as is the case with Pierce House (see figure 6). After significantly reducing Scopes 1 and 2 emissions, Historic New England plans to move onto reducing their Scope 3 emissions in advance of their 2050 carbon neutrality date.

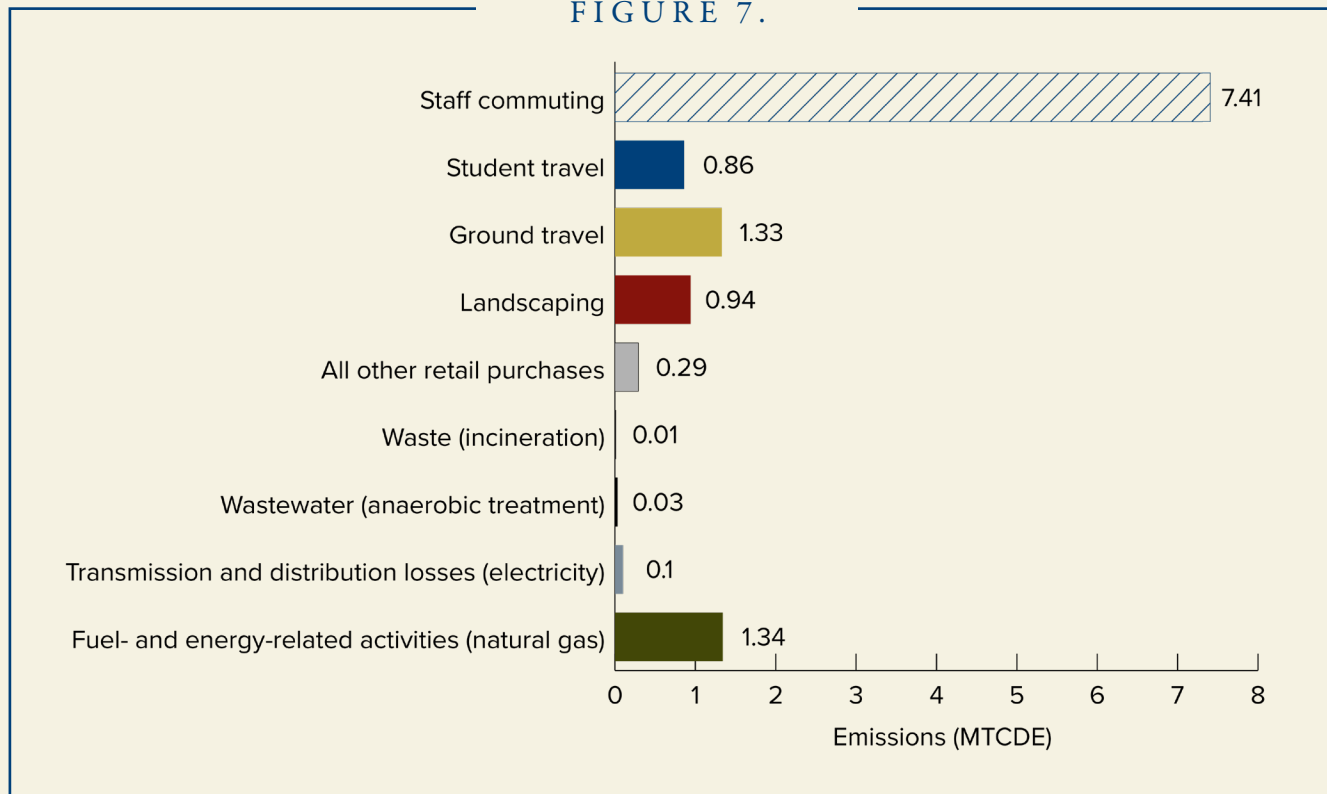


Total greenhouse gas emissions from Pierce House in calendar year 2023 (MTCDE).

Scope 3 is comprised of fifteen categories, though not all of them apply to every institution. Experts are still working out the best methodology to use when approximating values for some categories. Pierce House is ahead of the game in measuring most of the categories relevant to the property. Figure 6 illustrates the breakdown of these sources, the largest of which is staff commuting. Fuel- and energy-related activities (FERA) for natural gas is the next largest, and ground travel, which includes organization-sponsored travel, comes in third. FERA measures the emissions from activities related to natural gas not accounted for in Scope 1 (i.e., production and delivery of fuels).



FIGURE 7.

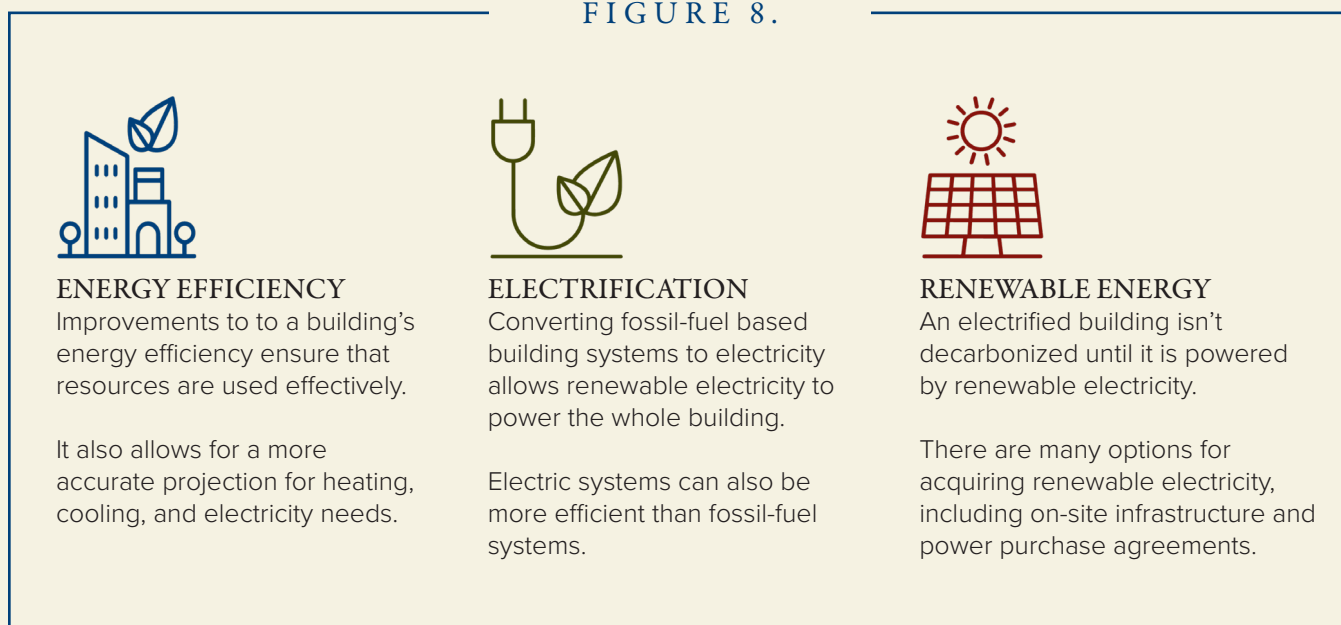


Scope 3 greenhouse gas emissions from Pierce House in calendar year 2023 by source (MTCDE).

PATHWAY TO DECARBONIZATION

There are many ways for a building to achieve decarbonization, but it's common for this process to include three key elements: energy efficiency, electrification, and renewable energy (see figure 8). These are the three main components GreenerU recommends Pierce House use to achieve any decarbonization or carbon neutrality goals.

FIGURE 8.



Three elements of a decarbonization pathway.

Based on a site visit and information gathered for this report, GreenerU formulated a series of recommended energy conservation measures (ECMs) for Pierce House to consider implementing. All of these measures address the first component of decarbonization: energy efficiency.

ECMs 1a and 1b address the second element of decarbonization: electrification. These measures recommend replacing the current gas-fired furnace with a heat pump. It should be noted that while the house currently does not have air conditioning, installing a heat pump system as is recommended would allow for both heating and cooling without additional infrastructure changes.

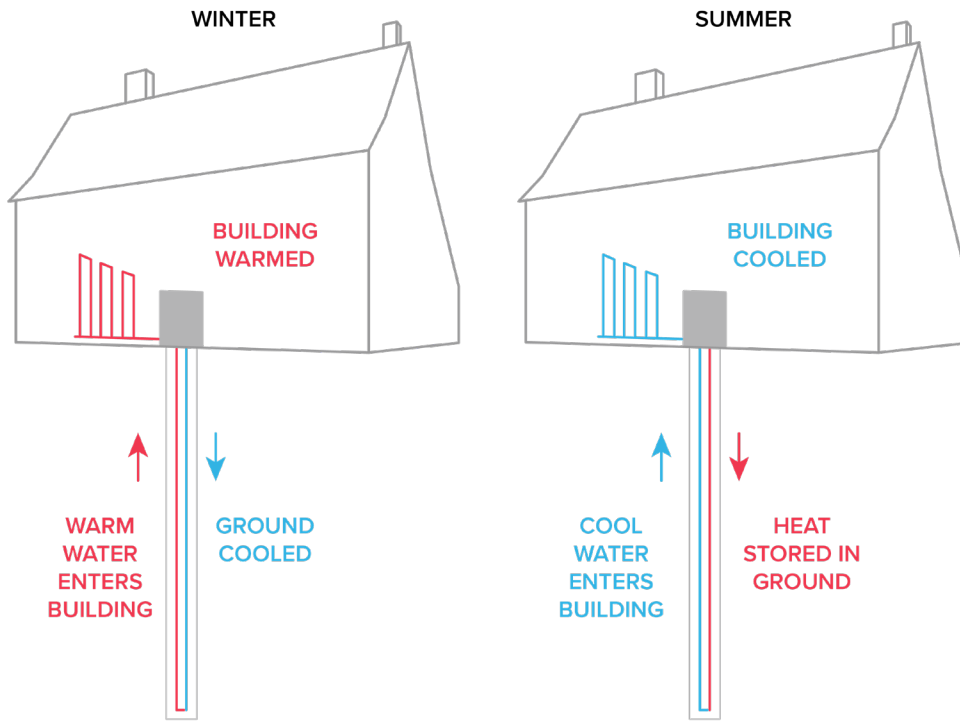
ECMs 2a and 2b address the third element of decarbonization: renewable energy. These measures recommend installing a solar photovoltaic array on the property. It's also worth noting that Pierce House is currently enrolled in BCCE's standard offering, which provides 39% renewable energy; Pierce House could take advantage of an option offering 100% renewable energy through BCCE.

The following table shows the potential energy conservation measures (ECMs) for Pierce House. *Please note that a letter suffixed to the measure number indicates an alternative measure.* Table 2 describes the pros and cons of the alternative measures.

TABLE 1. POTENTIAL ENERGY CONSERVATION MEASURES

	ECM description	Current mechanical system	Effect on energy system
1a	Replace gas-fired furnace with a ground-source heat pump (see page 24)	Gas furnace	15–25% energy use reduction
1b	Replace gas-fired furnace with an air-source heat pump (see page 24)	Gas furnace	10–20% energy use reduction
2a	Install solar photovoltaic array on new shed/carport	New solar	Onsite generation
2b	Install solar photovoltaic array on new shed/carport with battery storage	New solar	Onsite generation + battery backup
3	Replace fluorescent and incandescent light bulbs with LED bulbs	Lighting	10–30% energy use reduction
4	Replace fluorescent gallery lighting with LED equivalent	Lighting	10–20% energy use reduction
5	Replace domestic hot water heater with heat pump hot water heater	Domestic hot water heater	2–5% energy use reduction
6	Replace plug-in humidifiers with more efficient option	Humidity control	2–5% energy use reduction
7	Add ductwork to second floor storage area	Ventilation	Slight energy use increase

1A. GROUND-SOURCE HEAT PUMP



1B. AIR-SOURCE HEAT PUMP

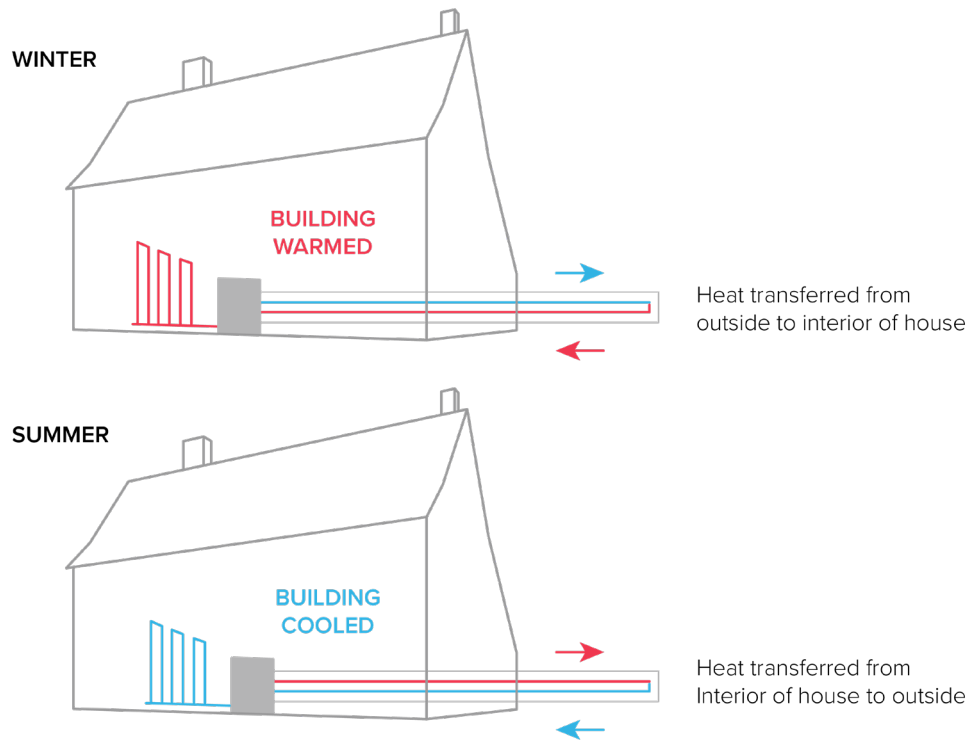
















TABLE 2. — HEAT PUMP COMPARISON CHART

Consideration	1a. Ground-source heat pump	1b. Air-source heat pump
Electrifies existing heating system	 Yes	 Yes
Adds cooling and dehumidification capacity to existing ductwork distribution system	 Yes	 Yes
Modifications to interior occupied space	 No (reuse existing ductwork/ diffusers)	 No (reuse existing ductwork/ diffusers)
Outside installation details	 Major disruption to outside space during installation	 Minor disruption to outside space during installation
Post-installation outdoor aesthetic	 Minimal to no outdoor visibility of mechanical systems	 Condensing unit visible - equipment screen would need to be installed to hide equipment
Energy efficiency	 Most efficient option	 More efficient than existing system
Installation cost	 Most expensive option	 Less expensive than a ground-source heat pump

 Pro
  Neutral
  Con

Climate Resilience

Historic New England goal: Managing our properties to meet our high preservation standards but also adapting those standards to ensure resilience in the face of weather extremes and sea level rise.

BACKGROUND

In summer 2024, GreenerU conducted a climate resilience assessment to analyze the projected climate impacts for Dorchester and investigate the direct and indirect impacts to Pierce House. While Pierce House has climate risk associated with the property itself, it also is part of the larger Dorchester community and will be impacted by any disruption the community experiences.

This baseline report contains the highlights from the larger assessment, the rest of which can be found in the appendix. The content draws on four main sources, including a climate report created for Pierce House using [ClimateCheck](#), the [Coastal Resilience Solutions for Dorchester Final Report](#) (2020), the [Urban Forest Plan](#) (2022), and the [ResilientMass Climate Change Projections Dashboard](#).

Note that the ResilientMass Climate Change Projections Dashboard uses the RCP 8.5 emissions scenario, which is a high-emissions scenario that assumes emissions will continue to rise throughout the 21st century, as the basis for the model/projections. The numbers listed in the extreme heat and flooding sections below are median values; lower- and upper-bound values can be found on the dashboard.

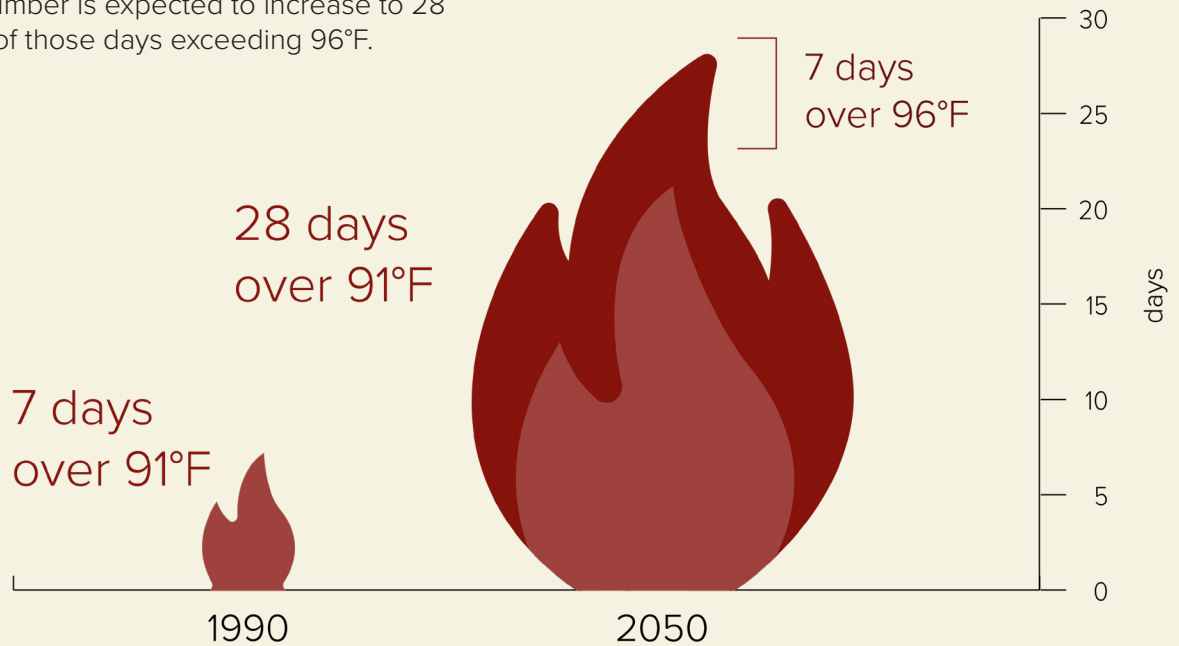
To move forward with creating and implementing climate resilience goals, Historic New England wants a balance of regional predictive data and specific information about what is happening on site. To achieve this, they recently implemented a system where impacts are reported by employees working on site after a weather or climate event. Since the implementation of this system, no significant information has been reported about Pierce House, but continuing to collect information from people on site will actively help Historic New England manage the resilience of their sites in the future.



EXTREME HEAT

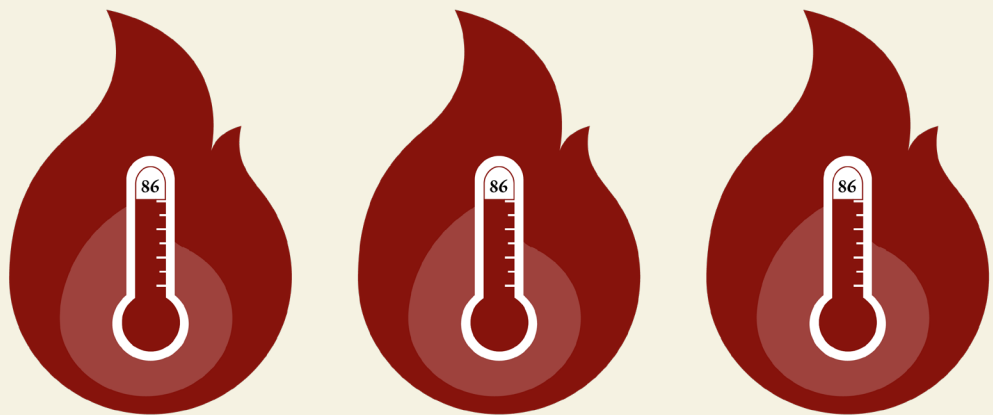
Impacts to the Dorchester community

According to ClimateCheck, the area of Dorchester that Pierce House occupies experiences about 7 days per year over 91°F. By 2050, this number is expected to increase to 28 days, with 7 of those days exceeding 96°F.



According to ResilientMass, models predict that there will be at least one to two heat stress events in Dorchester each year by 2050.

Heat stress events are defined as instances where a three-day average temperature exceeds 86°F.

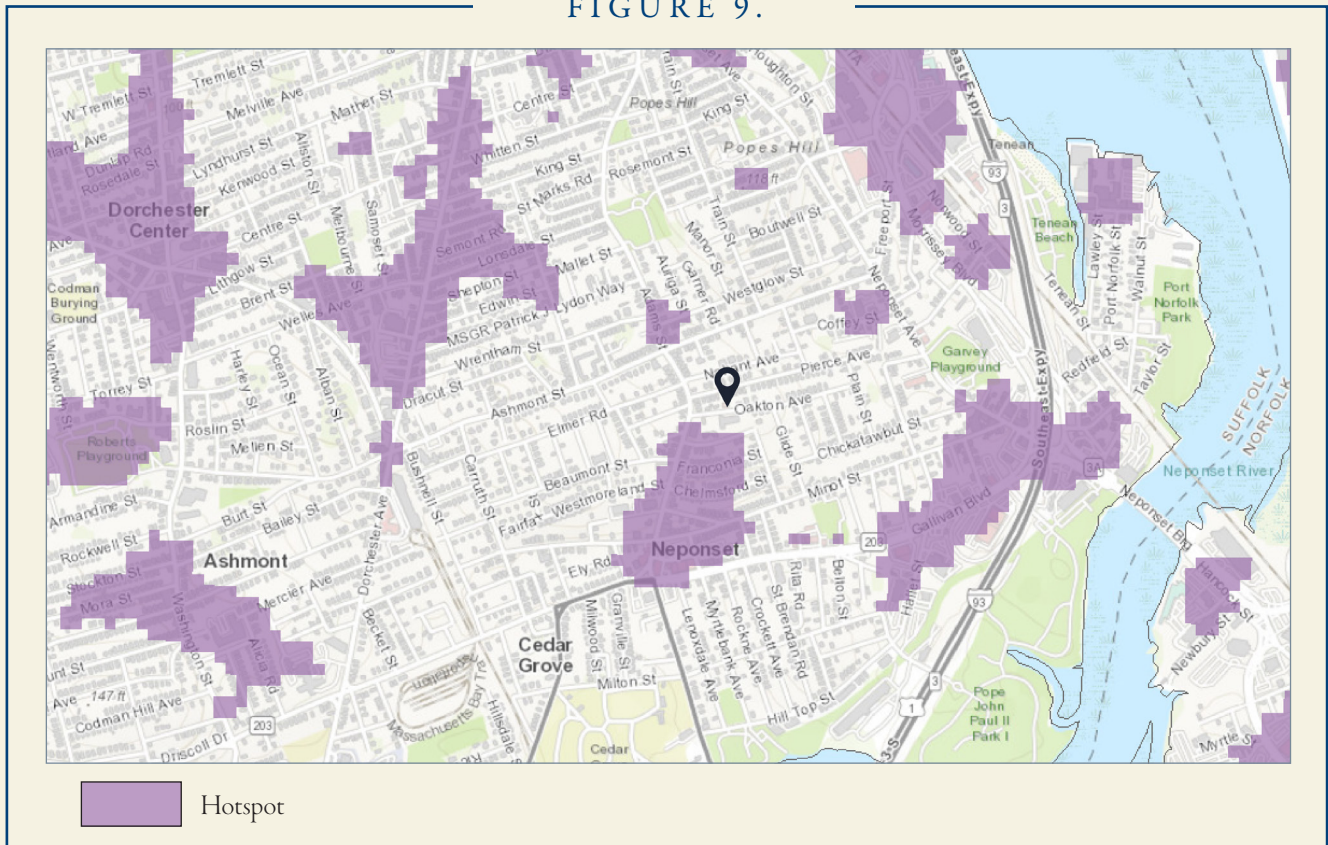


SURFACE TEMPERATURE

Another important heat metric is land surface temperature (LST) hotspots, which measure the temperature of the land. The purple in figure 8 identifies areas with the highest 5% LSTs in Metro Boston. Retaining more heat in the land can indicate areas potentially vulnerable to an urban heat island effect, which makes areas with more impervious surfaces and less shade much hotter than rural areas.



FIGURE 9.



Land surface temperature hotspots in the area surrounding Pierce House (identified on map).

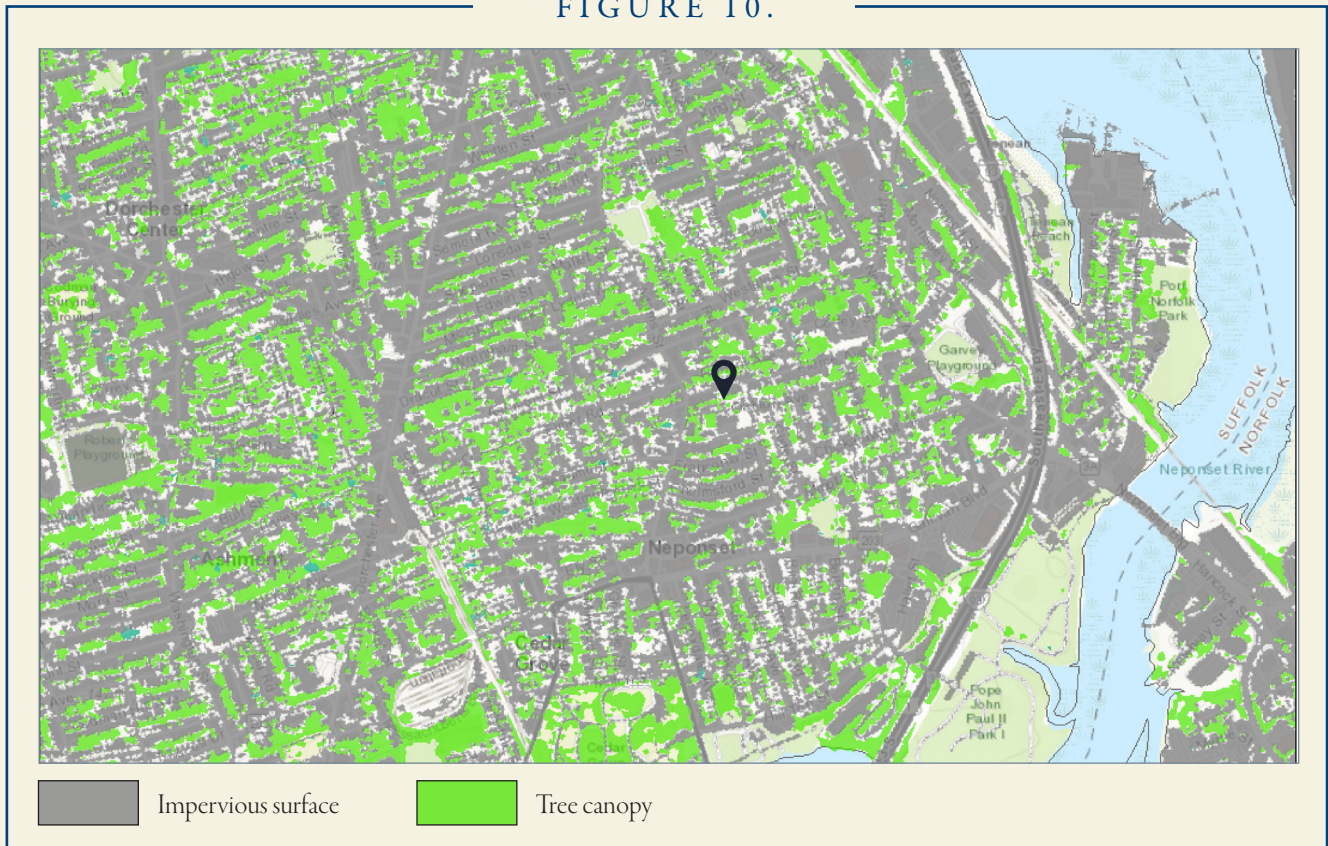
Source: [ResilientMass Climate Change Projections Dashboard](#).

IMPERVIOUS SURFACES AND TREE CANOPY

Impervious surface and tree canopy cover is also important for conversations about extreme heat. Impervious surfaces retain heat while tree canopy cover provides shade and cooling effects. According to the City of Boston, Dorchester had around 21% tree cover in 2022. This is slightly below the 27% citywide average and makes up 13% of Boston's total canopy. It should be noted that there is a wide range of tree canopy cover across the city, with Jamaica Plain boasting around 42% cover compared to East Boston with around 7% cover.



FIGURE 10.



Impervious surface and tree canopy coverage in the area surrounding Pierce House (identified on map).

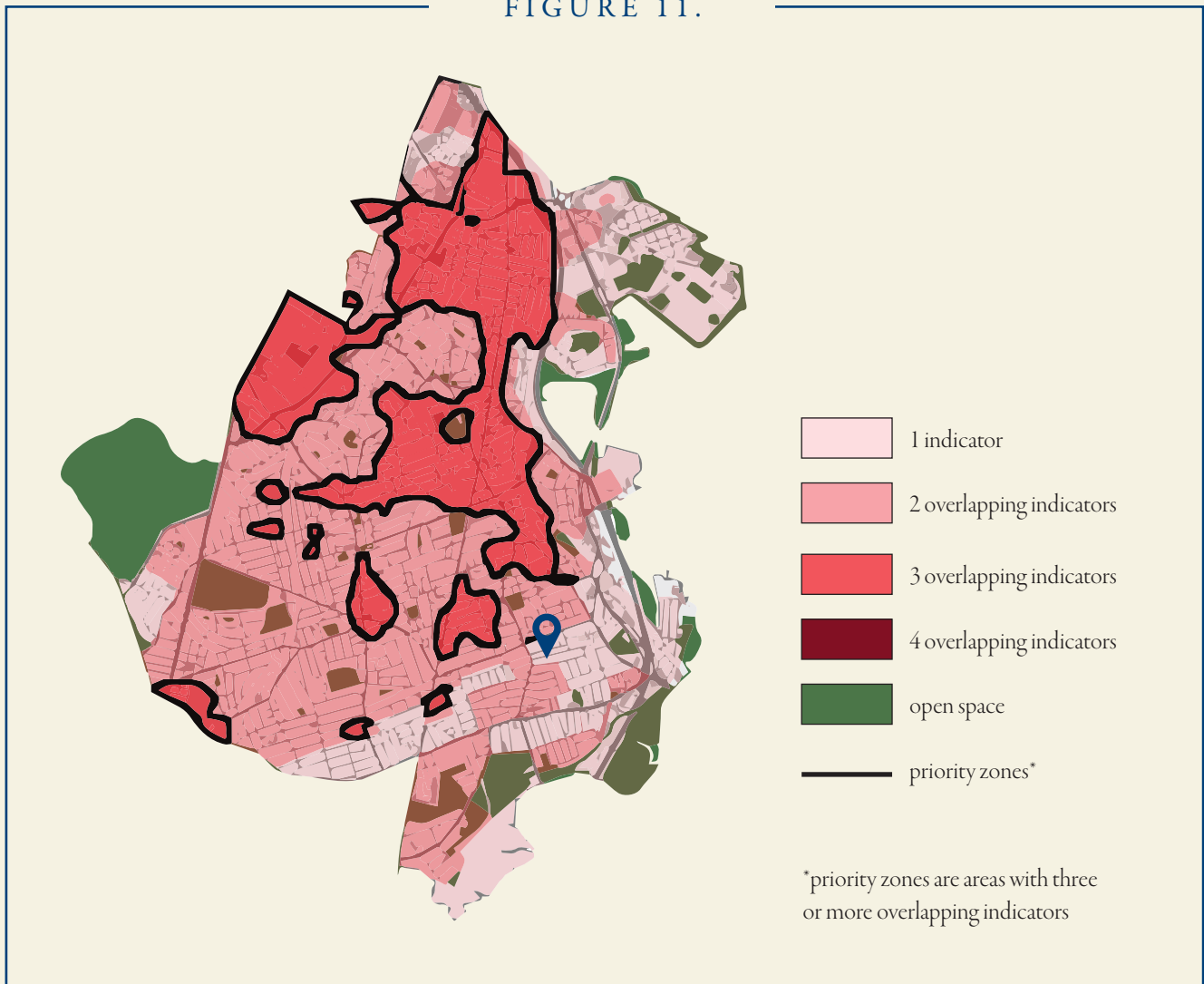
Source: [ResilientMass Climate Change Projections Dashboard](#).

Boston developed the Urban Forest Plan in 2022, which identified priority zones for adding trees to the canopy. These zones were identified based on the intersection of the following indicators: environmental justice census blocks, low canopy, heat event hours, and historically marginalized areas (see appendix for information about these indicators).

Significant portions of Dorchester have three overlapping indicators and are designated as priority zones. An estimated 853 potential street tree planting sites were identified during an inventory in May 2021. An examination of the potential tree planting locations around Pierce House show a number of sites on Adams Street as well as one site on Pierce Avenue.



FIGURE 11.



Priority zones in Dorchester for increasing tree canopy coverage (Pierce House identified on map).

Source: [Urban Forest Plan](#).

Impacts to Pierce House

Pierce House primarily runs programs during the school year, which avoids the hottest months of the year; however, there are still days during this time, especially in June, that can be uncomfortably hot. Because of this, temperature controls would enhance the visitor experience and safety of attendees. Pierce House does not currently have equipment that can reliably cool the entire space, making the house uncomfortable on hot days for both visitors and staff. Due to climate change predictions on severe weather-related events, the number of hot days during the school year will increase in the future.

One potential solution is to install heat pumps (see energy conservation measure 1a and 1b), which could provide cooling capabilities in addition to their heating function. Central cooling would address heat-related resilience concerns for the property.

Pierce House should also institute a high-heat policy that takes into account the safety of employees and visitors being on site on hot days. The guidance provided in this policy would depend on the cooling available in the building.

The oak tree in front of Pierce House currently provides important shade to the property, which should be taken into consideration during any conversations about its removal. Without this shade, Pierce House would be significantly less resilient to extreme heat.

Infrastructure upgrades will be needed to provide adequate refuge from extreme heat and protect the health and safety of employees, community members, and other guests.

If possible, consider implementing the following changes while preserving the historical integrity of the building:

- Install drapes or shades to provide insulation and block the sun.
- Add heat control window film to reflect the sun without blocking the view.
- Install weather-stripping to block any air gaps. Ensure that the site has adequate insulation.
- Install heat pumps with cooling capabilities.



FLOODING AND PRECIPITATION

Impacts to the Dorchester community

Note that multiple emissions scenarios were used as the basis for the projections listed below. Timelines will vary based on global efforts to reduce emissions.

FUTURE CHRONIC FLOODING

- By the 2030s (nine inches of sea level rise), fringe flooding will expand along the Neponset River and in Port Norfolk.
- Open spaces such as Malibu Beach, Tenean Beach, and the Neponset River wetlands could be inundated by tidal monthly flooding in the 2070s, causing dramatic changes in their ecosystem functions and risk reduction benefits.



As the climate changes, the risk of the two primary types of coastal flood along Boston's coastline increases:

FUTURE CHRONIC FLOODING

flooding that is caused by rising tide levels

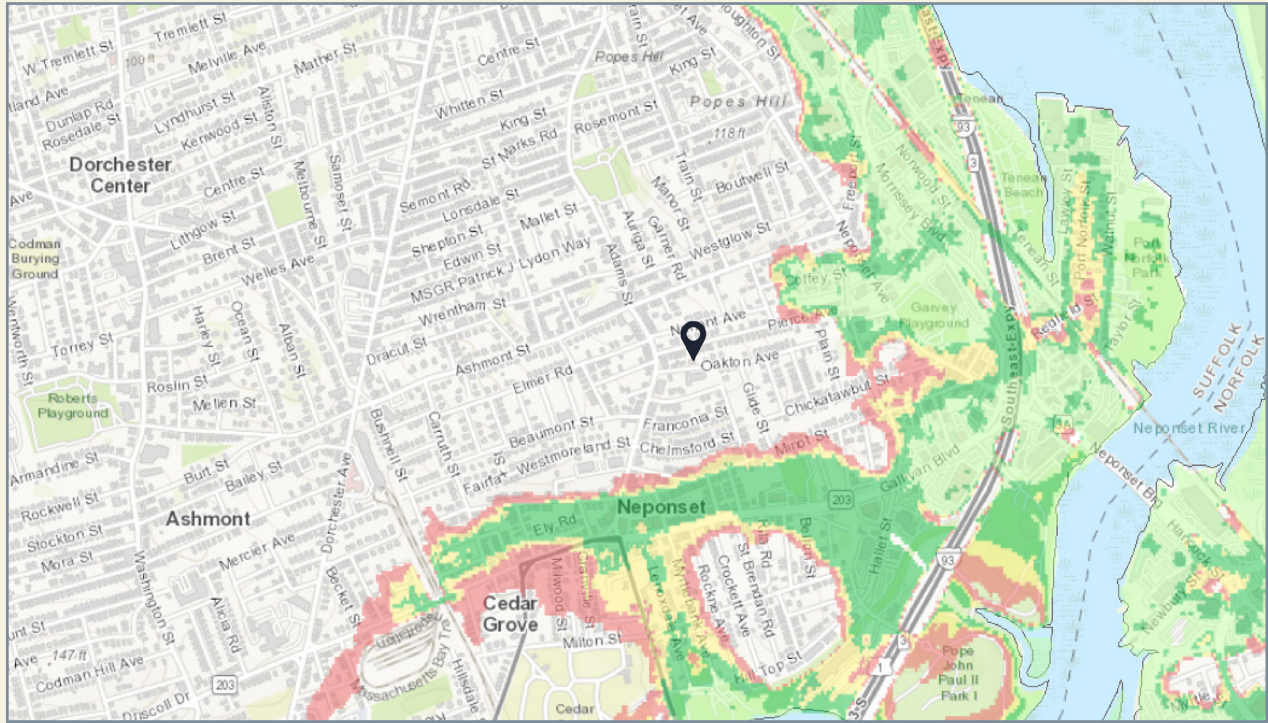
FUTURE STORM SURGES

flooding that is caused by the increasing intensity and frequency of storm events

FUTURE STORM SURGES

- Currently, approximately 73 buildings in Dorchester could be impacted during a 1% annual chance flood event, causing damages estimated around \$67 million.
- By the 2030s (nine inches of sea level rise), the flooding during a 1% annual chance event could impact approximately 409 buildings in Dorchester, with estimated damages at around \$330 million.
- When sea-level rise hits 50 inches (2070s), approximately 1,050 buildings in Dorchester could be impacted by a 1% annual chance flood event, with estimated damages reaching \$860 million.
- Low-lying areas such as Clam Point, Morrissey Boulevard, and Bayside could experience more than five feet of water during a 1% annual chance event if there is 40 inches of sea level rise.

FIGURE 12.



Worst-case hurricane surge inundation zones in the case of category 1 through 4 hurricanes (Pierce House identified on map).

Source: [ResilientMass Climate Change Projections Dashboard](#).



HOW WILL FLOODING AFFECT DORCHESTER?

- In Dorchester, coastal flooding can impact the local communities and resources through physical damage, stress (anxiety, trauma, and lost productivity), displacement costs, and losses due to business interruption.
- Coastal flooding can also disrupt critical infrastructure systems, including transportation, stormwater infrastructure, and essential facilities.
- Depending on the specific characteristics of individual structures, impacts on flooding will be different from building to building. For example, the level at which entrances to a building are set with respect to ground level will have an impact on how much damage water can do.
- A significant number of community and ecological assets (libraries, associations, clinics, open spaces, schools, etc.) are located within the floodplain and could be damaged or destroyed.
- Damage to exposed roads and transportation networks could isolate areas of Dorchester and interrupt its emergency response system.
- Hypothetical time delays along Morrissey Boulevard due to flood-related road closures could result in delay costs* of between \$2.5 and \$5.5 million per day.



*Note: delay costs can include extended labor and equipment costs, extended storage costs, extended bond costs, material inflation costs, debris removal, extra security, legal and administrative fees, reinspection and permitting fees, and demobilization and remobilization costs.

Impacts to Pierce House

Pierce House itself is not in danger of flooding, but damage to exposed roads and transportation networks could inhibit access to the site.

According to ClimateCheck, Pierce House has experienced about 11 extreme storms per year, with an average of about 1.7 inches of rain per storm, historically. By 2050, this number is expected to increase to 13 times per year, averaging the same amount of precipitation per storm.

Total annual precipitation is also expected to increase from 47 inches to 51 inches by 2050.

Though these deviations are not a dramatic departure from historical norms, GreenerU recommends considering the following measures due to the wide range of impacts that increased extreme precipitation can inflict upon human wellbeing, property, infrastructure, and the surrounding environment:

- Make sure that roofs and chimneys are in good condition. Seal any gaps to prevent rainwater from seeping in.
- Check that seals around windows and doors are intact.
- Analyze the carrying capacity of the gutters and consider modifications to support higher volumes of water if needed.
- Clean gutters and downspouts on a regular basis and make sure all parts are properly connected.
- Ensure downspouts route water away from the property with extensions.
- Run water with a hose through gutters routinely to check flow.
- Check property drainage to ensure proper water flow.



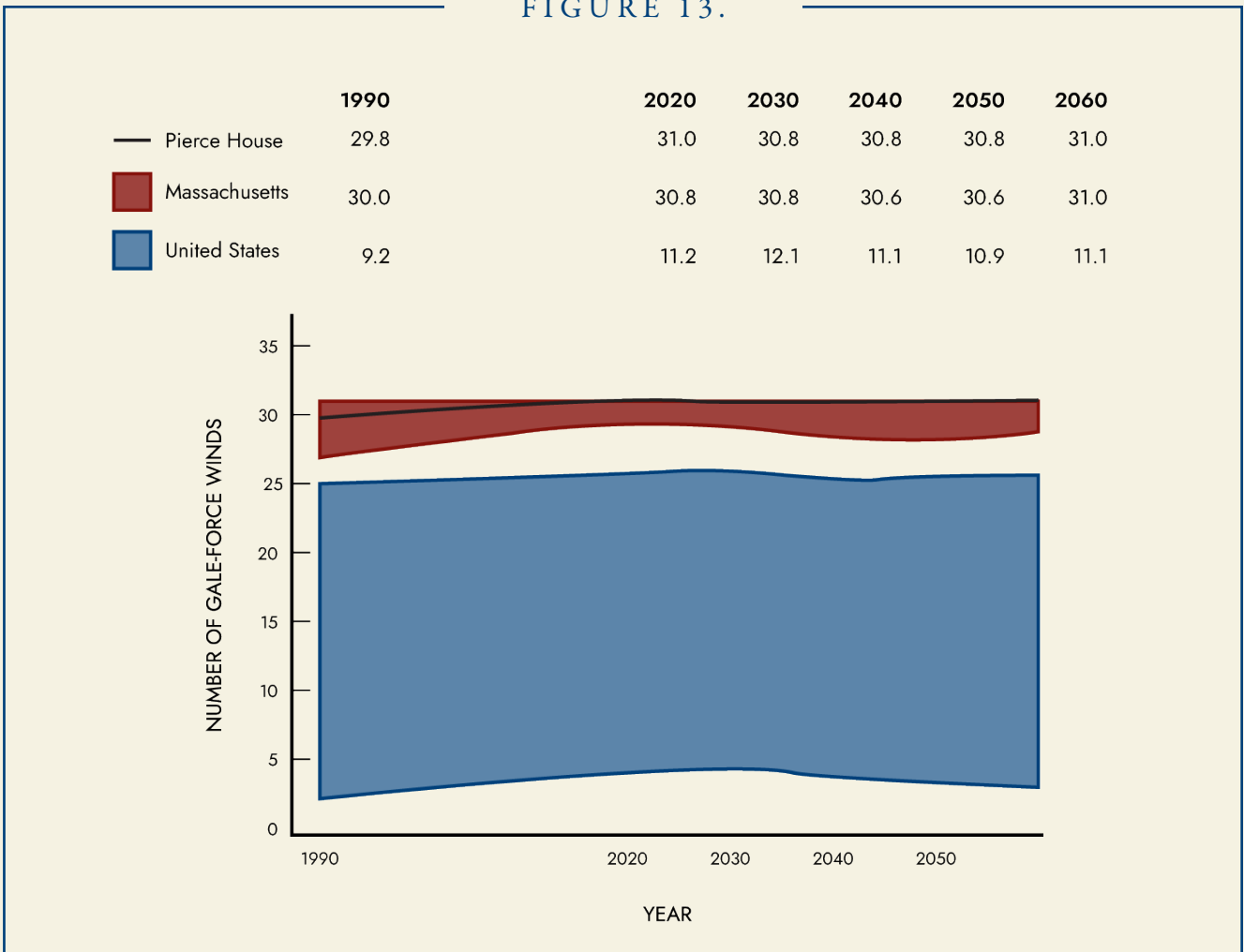
WIND

One of the ways wind risk is evaluated is by analyzing the frequency of gale-force winds, which typically fall between 39 and 54 mph.

While Pierce House is in a high-wind area compared to the rest of the United States, changes to the climate between 2020 and 2050 are not likely to bring significant change to the number of times Pierce House experiences gale-force winds.*

Pierce House should continue to deal with wind risk as it has in the past, maintaining the oak tree on the property regularly and preserving the structural integrity of the building. Inspecting the building after wind storms for damage including lifted shingles would also be worthwhile.

FIGURE 13.



Number of annual historic and projected gale-force winds at Pierce House, in Massachusetts, and in the United States.

Source: [ClimateCheck](#)

*Note: wind was not evaluated at the community level due to the absence of community-level data in the ResilientMass map.

Climate Justice

Historic New England goal: Engaging a broad and inclusive public through robust partnerships, programs, and activities that advance climate justice for all.

BACKGROUND

Climate justice acknowledges that climate change can have differing social, economic, public health, and other adverse impacts on underprivileged populations. These inequities must be considered and addressed in any long-term mitigation and adaptation strategies. To understand how Pierce House already interacts with the community, GreenerU gathered information on three topics: the location of schools Pierce House works with, the accessibility of the property itself, and the outreach Pierce House staff conducts for programs.

ENVIRONMENTAL JUSTICE COMMUNITIES

While Pierce House itself is not situated in an EJ neighborhood, Dorchester has many EJ neighborhoods and it's important to look at the schools that the house serves with their programming.

Using a list of every school Pierce House worked with in calendar year 2023, GreenerU plotted each school's location on a map from the Commonwealth of Massachusetts titled "2020 Environmental Justice Populations" (figures 15 and 16)*. These locations were then aggregated into a pie chart showing the percentages of schools that Pierce House serves that are located in an EJ neighborhood (figure 14).

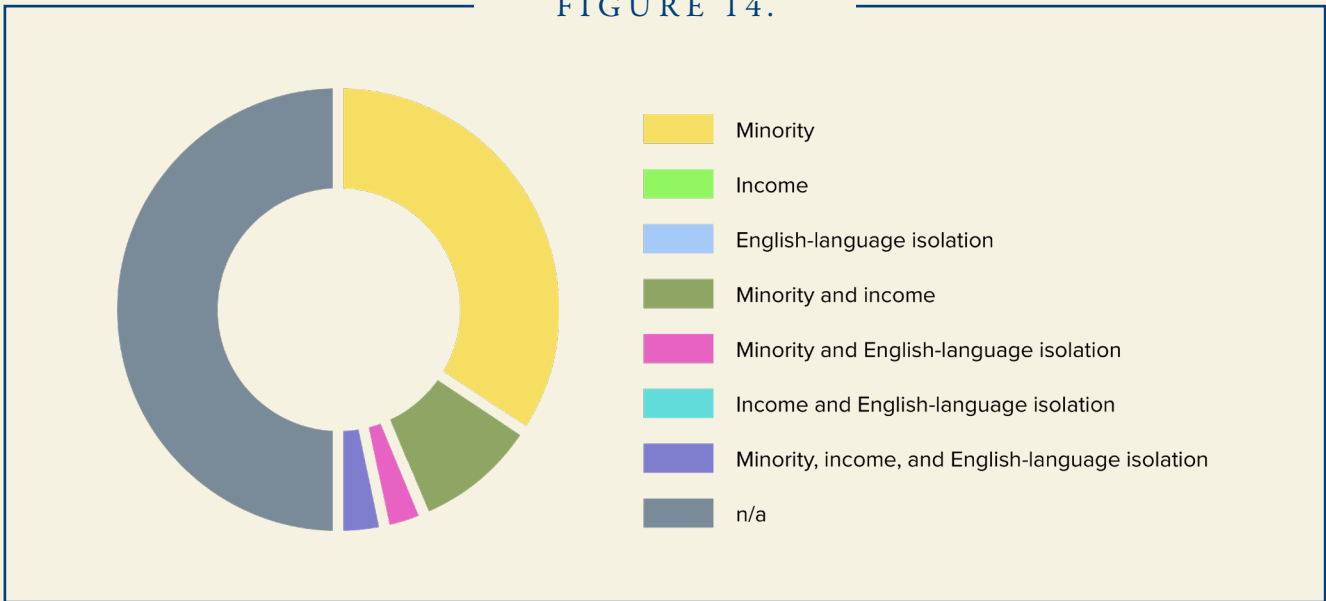
About 50% of the Massachusetts schools Pierce House serves are located in an EJ neighborhood, all of which are categorized as minority communities. About 15% of the Massachusetts schools Pierce House serves qualify for at least one additional EJ attribute, such as English-language isolation and income.

The programming offered by Pierce House is also important to take into consideration when looking at connecting with EJ neighborhoods. With grant funding from Mass Humanities, Historic New England recently completed a significant research effort to enhance the school-age curricula at Pierce House. Existing programs have been updated to provide deeper context about the experiences of free Black, enslaved, and Indigenous people in colonial Dorchester.

There is still room for growth, however. Historic New England could also consider adding programming focusing on climate justice and the way climate change will affect different populations.

*These data were obtained from <https://www.mass.gov/info-details/massgis-data-2020-environmental-justice-populations>.

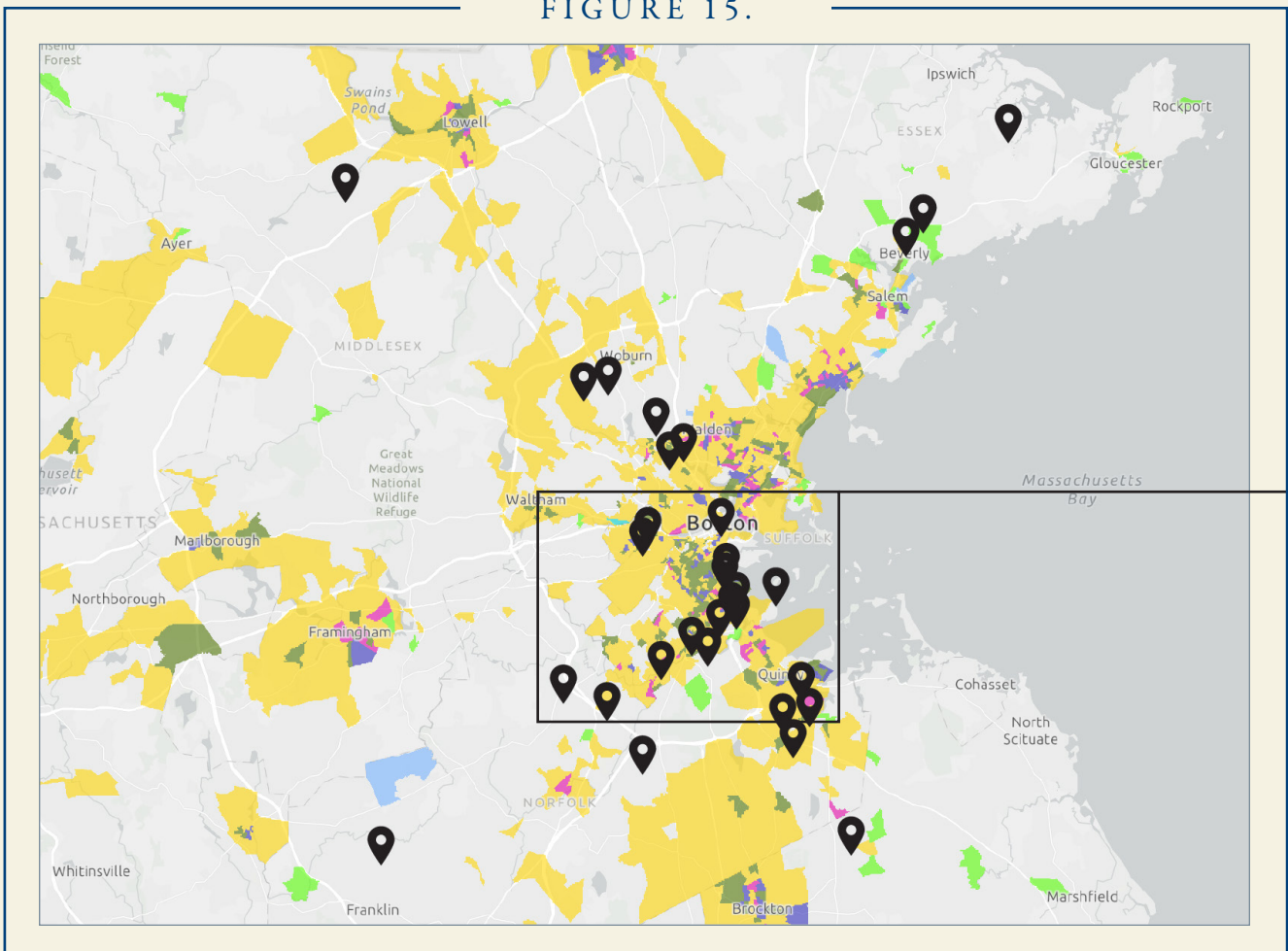
FIGURE 14.



Percentage of schools that Pierce House worked with in 2023 that are located in EJ neighborhoods.

Source: [Massachusetts 2020 Environmental Justice Populations map](#).

FIGURE 15.



Locations of schools Pierce House worked with in 2023 overlaid on environmental justice communities.

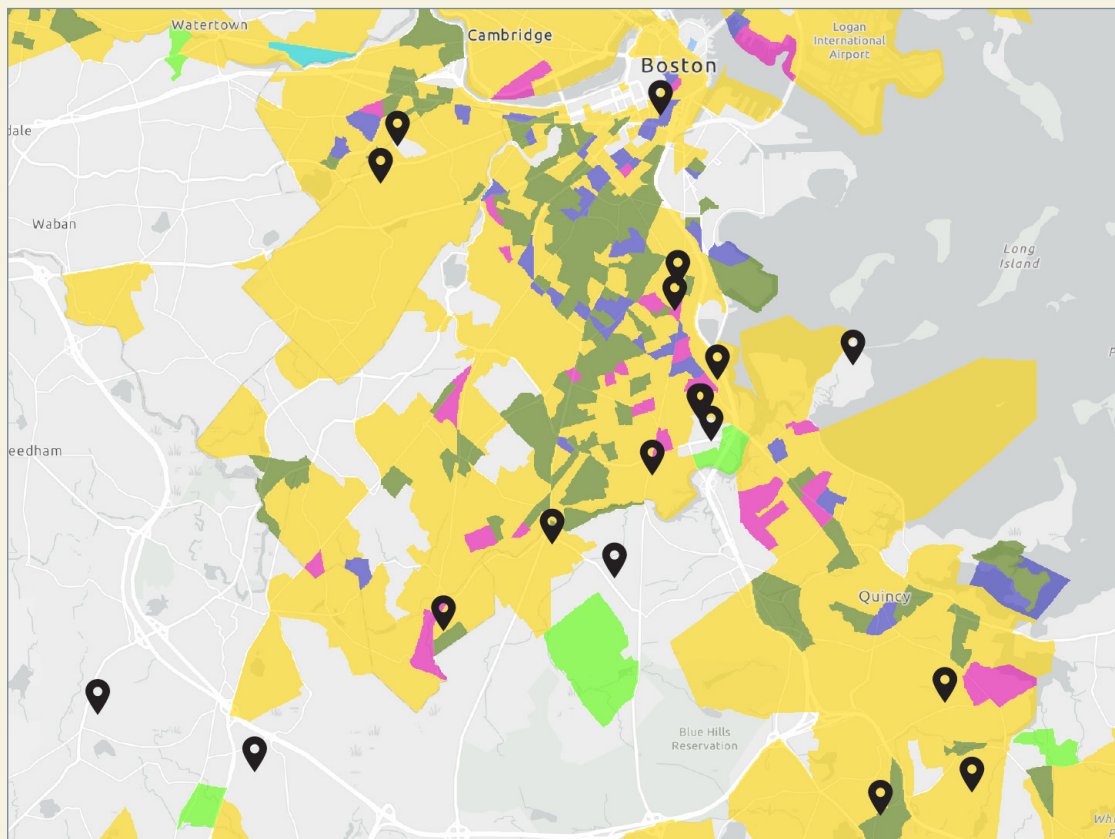
Source: [Massachusetts 2020 Environmental Justice Populations map](#).

HOW ARE EJ NEIGHBORHOODS IDENTIFIED?

Environmental justice census blocks are identified by the Commonwealth of Massachusetts* based on whether one or more of the following criteria are met:

1. The annual median household income is not more than 65% of the statewide annual median household income.
2. 25% or more of households lack English language proficiency (“English isolation”).
3. Minorities comprise 40% or more of the population.
4. Minorities comprise 25% or more of the population 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.

FIGURE 16.



Locations of schools Pierce House worked with in 2023 overlaid on environmental justice communities; zoomed in on the Dorchester area.

Source: [Massachusetts 2020 Environmental Justice Populations map](#).

*find more information [here](#).

ACCESSIBILITY IMPROVEMENTS

Today, Pierce House is open year-round for school and youth programs. Pierce House welcomes nearly 2,000 on-site visitors in a typical school year but does not adequately serve students with mobility challenges. Historic New England is committed to expanding opportunities for audiences of all abilities. As part of this commitment in 2022 Historic New England completed an accessibility feasibility study for Pierce House. Accessibility improvements based on the recommendations from this study are currently underway at the site.

The project will include (but is not limited to) the following:

- Constructing a new accessible entrance at the existing rear entrance. This new entrance will become the primary entrance, and rebuilding this entrance will eliminate steps and grade changes.
- Converting the existing kitchen into a kitchen/visitor center.
- Reconfiguring the existing bathroom into an accessible bathroom.
- Adding sloped transitions and railings between rooms where needed.

The goals of the project are:

- To improve access to the building and to the site.
- To re-route the entire visitor experience so that everyone who will access and tour the property will use the same pathways, entry points, and interior flow.
- To ensure that alterations to the building, site, and landscape are sensitive to the period of interpretation and do not impair the property's integrity, in keeping with Historic New England's preservation philosophy.
- To ensure that Pierce House is recognized among Boston-area educators as a site that offers both compelling programs and a physically accessible setting for their diverse student populations.

See more information about this project in the appendix.



OUTREACH EFFORTS

In the past, Pierce House mailed a brochure to many schools in the Boston area, but have since stopped sending those types of materials. Most of Pierce House's business comes from repeat customers, and they end up with a waitlist each year for their programs. As a result, their outreach initiatives are limited. If attendees for these programs are slow, staff will send emails to teachers, schools, or other contacts that have booked programs in previous years.

Most people find Pierce House programs through word of mouth or a web search. Pierce House is also listed on the Boston Public Schools (BPS) Place-Based Learning [website](#), which is a tool used by BPS teachers to search for field trip opportunities.

In terms of Pierce House tours, promotion has usually been done through Historic New England's social media pages and press releases.



Appendix

ADDITIONAL IMPORTANT TERMS

Term	Definition
air-source heat pump	a device that absorbs heat from the outside air and releases it inside a building.
emissions scenarios	emission scenarios are possible pathways for rising greenhouse gas emissions depending on the actions society takes to mitigate climate change.
energy use intensity	energy use intensity expresses a building's energy use as a function of its size or other characteristics.
forced-air natural-gas furnace	a heating system that uses natural gas to heat a building by circulating warm air through a duct system.
ground-source heat pump	a device that uses the earth's natural heat to provide a building with heating, cooling, and hot water.
heat stress events	heat stress events are defined as instances where a 3-day average temperature at a particular region exceeds 86 °F.
land acknowledgement	a land acknowledgement is a formal statement that recognizes the unique and enduring relationship that exists between Indigenous Peoples and their traditional territories.
Scope 1 emissions	direct greenhouse gas emissions occurring from sources that are owned or controlled by the institution. This includes: combustion of fuels to produce electricity, steam, heat, or power using equipment in a fixed location such as boilers, burners, heaters, furnaces, incinerators and combustion fuels by institution-owned cars, tractors, buses, and other transportation devices.

Scope 2 emissions	indirect greenhouse gas emissions that are a consequence of activities that take place within the organizational boundaries of the institution, but that occur at sources owned or controlled by another entity. Scope 2 emission sources include purchased electricity, purchased heating, purchased cooling, and purchased steam.
Scope 3 emissions	all indirect emissions not covered in Scope 2. Some examples of Scope 3 greenhouse gas emissions are: Purchased goods and services, capital goods, waste generated in operations, business travel, commuting (employee and student), end-of-life treatment of sold products, downstream leased assets, franchises, and investments.
solar photovoltaic array	a photovoltaic array is multiple solar panels electrically wired together to form a much larger PV installation (PV system).
weatherization	the process of protecting a home's interior from outside elements like moisture, cold air in winter, hot, humid air in summer, and even sun, snow, and ice damage.

ADDITIONAL CLIMATE RESILIENCE INFORMATION

Key coastal resilience projects in Dorchester

One key aspect of the Coastal Flood Resilience Design Guidelines is the flood resilience overlay, a zoning planning tool meant to guide future development. The overlay district will cover areas with a 1% chance of coastal flooding by around 2070; this will place restrictions on allowed uses on ground floors below the Design Flood Elevation.

The plan also identified a subset of near-term projects, known as catalytic projects. These are projects that are prioritized for implementation based on a combination of immediate flood risk conditions and pathways to implementation.

- Morrissey Boulevard (North); raise the intersection of Morrissey Boulevard and Bianculli Boulevard to the DFE, install a tide gate at Patterns Cove, extend continuous public access from Columbia Point to the Vietnam War Memorial, install living shoreline elements
 - Raising the intersection will reduce the likelihood that the road will flood in the 1% annual chance flood and maintain a dry route for emergency responders and evacuation.
 - Installing a tide gate would allow for protection up to +16.1 feet NAVD88
 - Preservation and installation of living shoreline elements could enhance and bolster the existing condition of fringe tidal wetlands, providing additional protection.
- Conley Street Deployable; Install deployable gate at Conley Street underpass, construct a low landscape berm to +12.5 NAVD88, raise Conley Street to +12.5 NAVD88, pedestrian and bike improvements
 - Installation of a deployable gate would address near-term flood risks by closing the near-term flood pathway up to +16.0 feet NAVD88

- The landscape berms would close the flood pathway entering through the underpass, mitigating risk in frequent flood events.
- Tenean Beach Phase I; open space enhancements
- Neponset Circle; Neponset Circle Berm Park and Expanded Wetlands Area (Preferred) or Neponset Circle Raised Harbor Walk (Alternative)
 - Proposed solutions include construction of a landscape berm, open space enhancements to provide public recreational space for the neighborhood, tidal wetland preservation and expansion into the site, and improved public access to the waterfront.
 - These solutions would provide coastal flood risk reduction benefits along with creating a continuous system of public waterfront parks.
 - It should be noted that this proposal is contingent upon the acquisition of one non-residential property along the waterfront.

Context: priority areas for tree cover

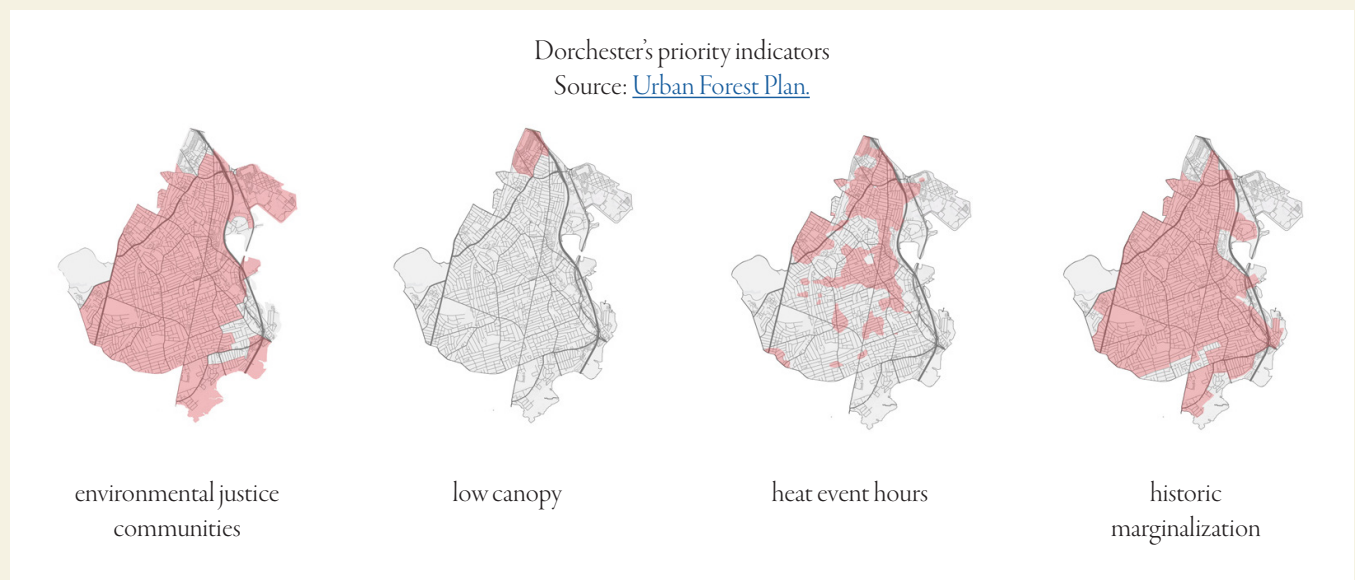
Boston developed the Urban Forest Plan in 2022, which identified priority zones for adding trees to the canopy. These zones were identified based on the intersection of the following indicators: environmental justice census blocks, low canopy, heat event hours, and historically marginalized areas

Environmental justice census blocks are identified based on whether one or more of the following criteria are met: the annual median household income is not more than 65% of the statewide annual median household income, 25% or more of households lack English language proficiency, minorities comprise 40% or more of the population, or minorities comprise 25% or more of the population 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.

Low canopy is defined as areas with less than 10% tree canopy coverage.

Heat event hours refers to areas exposed to the two upper quintiles of heat impact.

Historic marginalization refers to areas that received “C” or “D” ratings from the 1938 HOLC “Residential Security Map,” which were often subject to housing discrimination and other practices.



Additional data from the Climate Change Projections Dashboard

Extreme heat:

- By 2050, maximum, minimum and average temperatures in the Dorchester area are projected to increase by 5.4 °F.
- By 2050, there is expected to be 1 day per year where temperatures reach above 100 °F, around 8 days per year where temperatures reach above 95 °F, and around 21 days per year where temperatures reach above 90 °F. Currently, there are 0 days per year where temperatures reach above 100 °F, 1 day per year where temperatures reach above 95 °F, and 8 days per year where temperatures reach above 90 °F.

Precipitation:

- By 2050, there will be around a 8.7 percent increase in total annual precipitation
- By 2050, there will be around a 13.5 percent increase in daily maximum precipitation
- There is projected to be 1 day per year where precipitation amounts exceed 1 inch. Currently, there are 6 days per year where precipitation exceeds 1 inch.

FULL ACCESSIBILITY PROJECT SUMMARY

Written in summer 2024 by Jeanice Sherman

Context

Historic New England is the oldest and largest regional heritage organization in the nation. It offers a unique opportunity to experience the lives and stories of New Englanders through their homes and possessions.

Pierce House is one of the last surviving examples of seventeenth-century architecture in the city of Boston. Lived in by ten generations of one family, the house documents the building practices and tastes of the Pierces over three centuries. Family members expanded and adapted their house to meet demands for space, function, comfort, and privacy. The Pierce family's story highlights key aspects of social, local, and New England history.

Historic New England has identified the 1930s as our interpretive period because it represents the moment in time when this once rural area had been subdivided for urban development, with the road and curbing being laid out and a school established across the street.

Building accessibility

The project scope of work for the building will follow the recommendations of a 2022 accessibility feasibility study for Pierce House.

The project may be broken down into the following categories:

- Construction of a new accessible entrance at the existing rear entrance. This new entrance will become the primary entrance, and rebuilding this entrance will eliminate steps and grade changes.
- The existing kitchen door and frame leading to the weather shed will be salvaged.
- Conversion of the existing kitchen into a kitchen/visitor center.
- Reconfiguration of the existing bathroom into an accessible bathroom.
- Adding sloped transitions and railings between rooms where needed.

Building exterior:

- Remove the existing weather shelter.
- Construct a new wood-framed weather shelter on a concrete pad with thickened edges matching the finish materials of the removed weather shelter. Paint the new constructed weather shelter.
- Add one downspout and connect to the existing catch basin system.
- Modify the existing 4' tall chain link fence.

Building interior (protect space beyond work areas):

- Remove existing restroom walls in the kitchen. Salvage restroom lavatory for reuse. Remove finished flooring in the existing restroom.
- Enlarge opening at exterior door.
- Salvage for Owner door between kitchen and parlor.
- Remove refrigerator, stove, and designated cabinets from the kitchen.
- Construct enlarged, AAB compliant restroom at former restroom location with new and salvaged plumbing as indicated.
- New countertops for kitchen cabinetry.
- Reconfigure kitchen storage cabinet.
- Add electrical outlets, lighting and wiring as indicated at the kitchen, weather shelter and accessible restroom.
- Construct a 3-segment, portable accessible sloped walkway as indicated.
- Construct a gated, railing at the second floor back stair landing.



Site improvements

Historic photographs, documentation, and a Cultural Landscape Treatment Plan from 2010 guide any work on the landscape.

The project may be broken down into the following categories:

- Survey
 - Conduct a land survey to verify existing and proposed grades.
- Drainage
 - Contractor to ensure positive drainage away from all buildings, structures, and plant beds.
 - After investigation, analysis, and confirmation of condition and capacity of drywells (to be completed by others), reset downspout tie-ins to below grade.
- Soil
 - Provide reinforced soil for slopes greater than 3:1.
- Paths and paving
 - Provide accessible routes to conform to Massachusetts Architectural Access Board and/or ADA guidelines, whichever is more stringent.
 - Install asphalt paving to conform to Massachusetts DOT standard section.
 - Install stone dust paving as noted.
 - Install concrete pavers as noted.
 - Install washed decorative stone to match existing as noted,
 - Install monolithic salvaged granite slab as noted.
- Fencing
 - Install cast-in-place concrete for fence post footings.
 - Install stockade fence infill to match existing as noted.
- Painting
 - Clean and repaint existing chain link fence; perimeter fencing is not included.

- Site protection
 - Utilize erosion and sediment control devices.

- Planting
 - Save and protect all existing trees and shrubs to remain. Install tree protection at the oak tree trunk. Tree protection to be installed prior to the start of construction and shall remain in place until written authorization to remove.
 - Air spade root zone of existing oak tree. Work will be performed by a certified arborist.
 - Stake location of all proposed plant material prior to installation. All plant material to conform to guidelines as noted. Contractor shall supply plant material in quantities sufficient to complete work.
 - Amend existing soil with compost and fertilizers as noted.
 - Install un-dyed dark organic mulch as noted.
 - Provide plant maintenance immediately after plants arrive on site and continue maintenance through written acceptance at which time the 1-year guarantee period shall commence.
 - Provide and install seed at the lawn.

- Metals
 - Provide custom fabricated metal frame and pruning guide as detailed. Rods. Contractor to provide physical mockup for owner and landscape architect approval and fabricator shop drawings prior to installation.