

Boston's 'heat islands' turn lower-income neighborhoods from hot to insufferable

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Three years ago, after city officials repeatedly promised that a traffic project in the heart of their neighborhood would create significantly more green space, they left Jamaica Plain residents with more concrete and asphalt.

In an effort to slow traffic and make Hyde Square's signature rotary easier to cross, the city widened sidewalks, broadened the circle with new pavers, and created multiple large concrete pedestrian islands. There were no new planters or flowers, though the city did add a small tree.

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"It's profoundly disappointing what the city left," said Richard Parritz, a neighbor who chairs the design committee of Three Squares, a local nonprofit group that has pressed the city to add more green space to the neighborhood. "This is a health and equity issue. It's not right."

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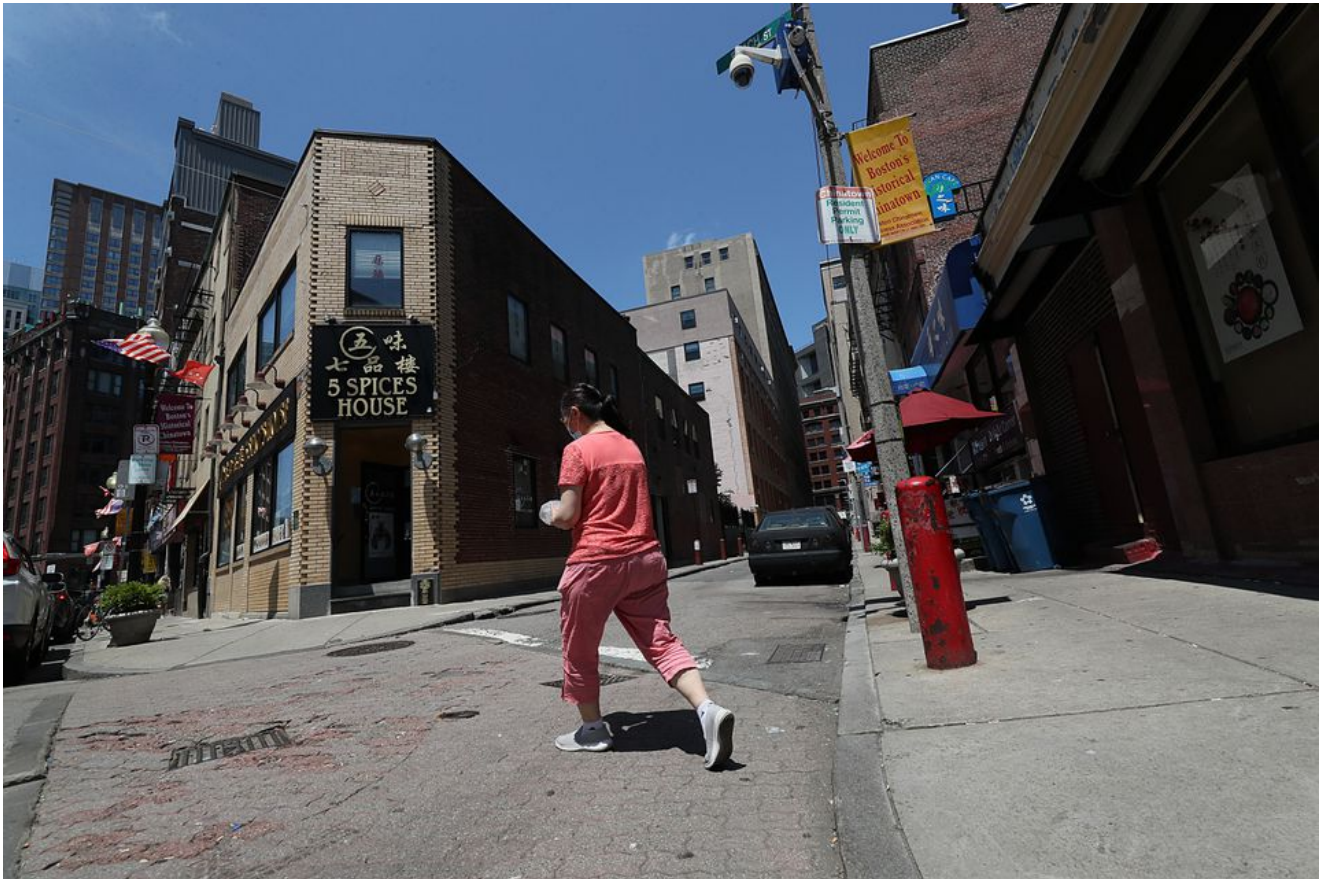
As Boston warms from climate change, city officials will have to do more to reduce such redoubts of asphalt and concrete, known as “heat islands,” which exacerbate the rising temperatures that residents will endure in the coming years, environmental advocates say.

By the end of the decade, city temperatures could exceed 90 degrees for over 40 days a year — and by as many as 90 days annually in 2070 — compared with an average of 11 days in 1990, according to city projections. Those increases in temperatures could have serious health consequences, with one major study estimating that heat-related deaths in the coming decades could be more than 50 percent higher than they were a few decades ago.

Dense urban development absorbs and radiates heat significantly more than green spaces. In the United States, heat islands were responsible for daytime temperatures in urban neighborhoods rising as much 7 degrees higher than those in outlying areas, and nighttime temperatures up to 5 degrees higher, with the worst temperature differences in more humid cities along the East Coast, according to the Environmental Protection Agency.

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In Boston, city officials said they’re well aware of the concerns about heat islands. In a recent city report, officials noted that temperatures in leafier neighborhoods are often significantly lower than in more densely populated areas. For example, on one summer day in 2019, city officials found afternoon temperatures in Chinatown and Lower Roxbury exceeded 105 degrees, about 10 degrees more than in Franklin Park and West Roxbury. There was a similar disparity at night.



Such neighborhoods as Chinatown can be much hotter on a given day than nearby, leafier areas. Suzanne Kreiter/Globe Staff

Many of the city’s heat islands are concentrated in lower-income neighborhoods, where fewer people have air conditioning or tree cover to keep their homes cool, said Reverend Mariama White-Hammond, the city’s environment chief.

She and others noted that much of the disparity could be attributed to the city’s history of racial inequity, in which banks “redlined” certain neighborhoods, making it difficult for people of color to obtain mortgages and leaving those neighborhoods with less green space and other public investments.

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In the city’s recent report on heat, officials noted that those neighborhoods, once determined by banks to be “hazardous” for loans, are now 3.3 degrees warmer than the city’s average, nearly 2 degrees warmer at night, with 16 percent less parkland and 7 percent fewer trees. The neighborhoods the banks considered the “best” or “desirable” are 4.2 degrees cooler during the day than the city average and 1.7 degrees cooler at night, with 4 percent more parkland and 32 percent more trees.

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“Historically, we’ve made decisions that have led to these inequities, and now we need to work collaboratively to balance the scales,” White-Hammond said. “We have to do this not just for what is happening now, but for what we know is coming down the line.”

City officials are trying to figure out what to do about the problem. As part of that effort, they’ve launched a “heat resilience” study and this month began holding idea sessions in the most affected neighborhoods, she said. In one step they’ve taken this summer, as temperatures have already surged, officials are planning “cooling zones” at several neighborhood libraries, where they’ll be handing out towels and misters.

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White-Hammond acknowledged that the city would not only have to plant more trees but figure out how to keep more of them alive. For example, between 2008 and 2017, the city planted 9,809 street trees and removed 5,815 — a net gain of fewer than 4,000 — despite pledges by city officials to plant 100,000 trees in that time.

But the city only has two watering trucks, and every flower or tree planted must be tended to, all of which are likely to require more water as temperatures rise and droughts become more likely in the coming years. “We used to be able to count on mother nature, but we might need to water more than we ever had,” White-Hammond said.



Washington Street in Nubian Square offers few trees. Suzanne Kreiter/Globe Staff

The broader challenge involves better coordination among city departments, so future development or traffic projects, such as the one in Hyde Square, incorporate as much green space as possible, she said.

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“We’re trying to pull things together and cooperate and coordinate with others,” she said.

Some have blamed the city’s Public Works Department for paving road medians and city lots, rather than planting there, as the former requires far less maintenance and money.

But department officials said they “wholeheartedly disagree.”

“The Public Works Department makes every effort to maximize green space and install landscaping features that enhance the vibrancy of the neighborhood,” said Chris Coakley, a department spokesman.

Others noted that Boston is far from unique in having to reduce heat islands.

A new report by American Forests, a Washington-based conservation group, estimated that more than 500 million trees must be planted in metropolitan areas around the country to reduce heat disparities.

The report found those neighborhoods with a majority of people of color have 33 percent less tree canopy on average than majority-white communities. Moreover, neighborhoods with 90 percent or more of their residents living in poverty have 41 percent less tree canopy than communities with only 10 percent or less of the population in poverty.



Trees planted along Columbus Avenue. Suzanne Kreiter/Globe Staff

In their report, Boston ranked second, behind Memphis, among large cities with the greatest disparity between the hottest neighborhood and their city-wide average.

“What we know is that trees make cities more climate-resilient, improve health outcomes, and that they haven’t been equitably distributed,” said Chris David, vice president for data science at American Forests. “They should be considered as important as any infrastructure, and the federal government should be helping cities pay for them.”

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In places like Hyde Square, where the temperature has regularly soared into the 90s in recent weeks, residents such as Parritz of Three Squares are hoping the city recognizes more needs to be done, and soon.

Shortly after the city completed the \$900,000 traffic project in 2018, several trees in the area died, including one that city workers made a seemingly half-hearted effort to preserve by building an oddly shaped dirt pit around it.

Parritz has become so frustrated with the lack of green space that his group has begun setting up planters around the neighborhood. City officials say they plan to add public art to some of the concrete added during the road project, but they couldn't say whether it would include more greenery.

"We need to do better," he said.

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