

The need for more open spaces

Bostonians seek eco-friendly solutions to waterfront’s climate threats

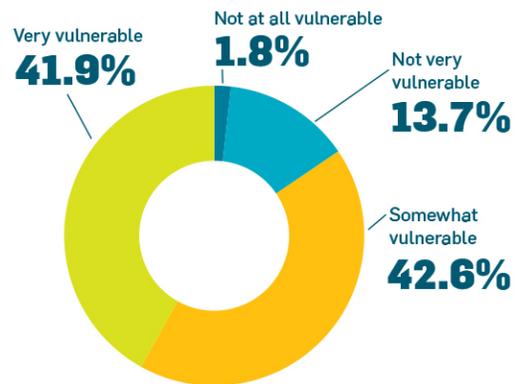
Bostonians are awakening to the need for greater environmental resilience for a city facing mounting climate change threats. A new study¹ from The Trustees reveals overwhelming support for strengthening our shorelines and green infrastructure by building more parks and natural landscapes. It also found that access to open spaces delivers immense value in the health, social, and economic well-being of residents and businesses.

Why residents want a more resilient city

An abundance of studies confirm that urban parks and open spaces are essential for meeting the recreational, cultural, health and other needs of local communities. Quality of life in many of America’s greatest cities is, in fact, defined largely by the great parks that grace them.

But another virtue of open spaces has now become a more urgent priority: *environmental resilience*. In the wake of record tides and storm surges across Boston’s waterfront, a new survey from The Trustees of Reservations (The Trustees) found that an overwhelming majority of Bostonians believe the city’s waterfront faces significant climate threats. When polled, 85 percent said they believe Boston’s waterfront is vulnerable to the effects of climate change, with nearly half (42 percent) saying it is “very vulnerable.”

How vulnerable do you think the Boston Waterfront is to the effects of climate change?



It’s easy to understand why. As historic weather events like the bomb cyclone that accompanied Winter Storm Grayson become annual regularities, the Atlantic Ocean has become the greatest environmental threat to the Commonwealth. The highest tides on record flooded the MBTA’s Aquarium subway station. City streets became icy rivers, stranding residents and closing businesses. More than 84,000 Massachusetts residents are now at extreme risk of sea level rise; a number that is projected to more than double by 2050, as scientists from the University of Massachusetts Boston predict sea level rise will likely increase 8 to 18 inches in that timeframe².

¹ Qualtrics survey of residents of Boston proper - July 23 to Aug 8, 2018 ... n=453

² [UMass Boston Scientists Predict Heat, Sea Level Rise Increase for City of Boston](#), *UMass Boston News*, Jun 17, 2016

Boston has experienced 21 events that triggered federal or state disaster declarations since 1991. As these events increase, the area of Boston exposed to stormwater flooding will grow steadily throughout as well. By the 2050s, seven percent of the Boston's total land area could be exposed to frequent stormwater flooding from 10-year, 24-hour rain events³.

"In Boston, we are seeing more frequent flooding on our waterfront, especially in East Boston and Charlestown," said Boston Mayor Marty Walsh when he announced new resiliency measures to help the city mitigate climate change challenges. "It's more important than ever that we work together to make sure our city is ready for the changes ahead."

These new realities are driving calls for resilient design and making open spaces a civic priority, particularly along Boston's waterfront. Parks with natural landscapes like hills, native plant life and salt marshes are more likely to respond to a storm surge by slowing and redirecting water away from vulnerable neighborhoods. Features such as berms, open fields and stormwater gardens can provide much-needed flood protection. Natural features like marshes, living shorelines, quick-draining sandy shores, and rocky shorelines not only provide greater biodiversity but function like storm defenses; many can restore themselves naturally.

Case in point: when Superstorm Sandy devastated coastal regions of New York, [Brooklyn Bridge Park](#) – an 85-acre park built on reclaimed shipping piers along the City's East River – helped block incoming flood waters and soak up storm surges that might have damaged surrounding neighborhoods⁴. The park was designed with a variety of ecosystems like meadows, forests, and wetlands as well as berms, hills, and quick-draining soils to create an adaptable and climate change-resilient landscape of the future. Though most of the park was submerged for hours during the peak of the storm, its robust flora withstood the onslaught relatively unscathed and bounced back quickly to continue serving its ecological function.

Bostonians believe that green infrastructure also delivers a host of environmental benefits beyond shoreline protection, the research found. Well over two-thirds (69 percent) of residents said parks and open spaces were extremely or very helpful in improving water and air quality, for example. More than half (53 percent) said that improving these environmental issues was the first or second most important reason for building more parks and open spaces.

The U.S. Forest Service calculated that trees remove thousands of metric tons of air pollution from large cities like New York each year, while also saving tens of thousands of dollars in recycled water and soil erosion⁵. Yet Boston lags behind many other U.S. cities in expanding its tree canopy, and has fallen well short of its own goal of expanding that canopy 20 percent by 2020⁶.

Trees and other plant life in parks also help keep cities cooler by mitigating the heat build-up of urban hardscapes by lowering surface and air temperatures through shade and evapotranspiration, helping to reduce peak summer temperatures by 2–9° F⁷. They help protect the biological diversity of native plants

³ [Climate Ready Boston](#), Executive Summary

⁴ [Weathering the Storm: Horticulture Management in Brooklyn Bridge Park in the Aftermath of Hurricane Sandy](#), Ecological Landscape Alliance, Jan. 2013

⁵ [The Effects of Urban Trees on Air Quality](#), US Department of Agriculture Forest Service

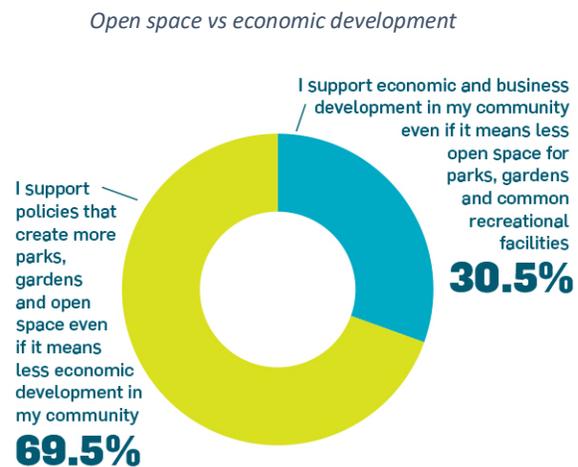
⁶ [Boston fails in promise to plant 100,000 trees](#), Boston Globe, Jun. 2018

⁷ Using Trees and Vegetation to Reduce Heat Islands, US Environmental Protection Agency

and fauna. And they help control storm water runoff by intercepting rainfall and slowing the rate at which it impacts the city's sewer and storm water facilities.

In areas under threat of over-development – such as Boston's Seaport District – strategic resilient design can help keep the concrete sprawl in check, enhancing the urban landscape's aesthetics and improving the quality of life for all who live, work and visit there.

These attitudes toward greening the city were favored over economic development, according to the research. When given a choice between development and parks, well over two-thirds (70 percent) of Bostonians participating in the survey prefer the latter.



How open spaces drive economic growth

That's not to say a trade-off between open spaces and economic development is required, Bostonians believe. Among those surveyed, there was also strong support (52 percent) for creating parks, gardens, and open spaces to help attract more visitors and generate more economic opportunities for local businesses.

Indeed, many urban parks and open spaces have become anchors for robust economic activity, from enhancing property values to attracting more quality employees to expanding the businesses' customer bases.

According to the National Recreation and Park Association, local park and recreation agencies generated \$154 billion in economic activity in 2015, as well as adding more than 1.1 million jobs that boosted labor income by \$55 billion⁸.

Consider the examples of other popular urban parks. A study of the [High Line](#) in New York City found that the park attracted an estimated \$31 million in new tourist spending in 2011. By 2027, it is expected to bring in more than \$1 billion in new property tax revenues, resulting in an 800 percent ROI for the city's investment⁹. Construction of Millennium Park of Chicago created 14,000 jobs. And Boston's own Rose Kennedy Greenway has increased adjacent property values by 5 percent since its opening in 2008.

The survey suggests that open spaces impact real estate values as well, influencing where residents choose to live. Well over half of respondents (60 percent) said that living close to open spaces was extremely or very important when considering where to raise a family. Other studies confirmed even greater property value gains for neighborhoods bordering parks. A CityLab report found that the property values of homes located near parks will likely increase by \$81.54 per square foot¹⁰. Numerous other studies show that proximity to a park adds 15 to 20 percent to residential and commercial

⁸ [The Economic Impact of Local Parks](#), National Recreation and Park Association, 2015

⁹ High Line Network Inclusive Impact Framework, HR&A Advisors, Dec. 7, 2017

¹⁰ [Why We Pay More for Walkable Neighborhoods](#), CityLab, 2012

property values. Similarly, a greenbelt in Boulder, Colo., increased the value of surrounding homes by \$5.4 million, generating an additional \$500,000 in property tax revenue. And a study by the Trust for Public Land found that people will pay 12 to 15 percent more for the same house on the same size of land if the home and land are located in close proximity to a quality park¹¹.

Another way to measure the economic value of open spaces is in its recreational use. Park recreational activities – which are generally free or low cost – can be valued based on what park users would be willing to pay for a similar commercial experience. A 2006 study revealed that Boston’s park and recreation system delivered a recreational value of \$345,352,000¹².

How open spaces build stronger community bonds

Beyond environmental resilience, open spaces help create more resilient communities through improved social cohesion. Parks help connect neighborhoods, create a sense of safety, instill civic pride, and reduce crime, among many other social benefits, numerous studies have confirmed.

Bostonians believe in these transformative effects as well. Two-thirds of residents (63 percent) said that parks and open spaces were extremely or very helpful in building communities. Consequently, parks influence where Bostonians choose to live, work and play. Well over half of residents (60 percent) said that living close to open space was extremely or very important when considering where to raise a family. One-third (31 percent) said the same thing about where they would like to work.

Green spaces can revitalize a neighborhood through increased community engagement. They provide a common space where people of all socio-economic backgrounds can come together, interact, and collectively enjoy everything the resource has to offer. Establishing new parks can forge closer personal bonds, making such neighborhoods more livable. They also offer recreational opportunities for at-risk youth, potentially diminishing crime. At a development stage, the city can engage the neighborhood direct in design, planning and ongoing operations of these resources.

They also provide connectivity for neighborhoods previously separated or disenfranchised diverse communities. The 11th Street Bridge Park in Washington, DC, for example, was designed specifically to reconnect diverse neighborhoods separated by the Anacostia River, with the goals of improving health, cultural and economic opportunities for all.

But social cohesion can only be achieved if access to parks and open spaces is equitable to all. The nation’s great public parks were designed in large part to democratize public spaces where people of all means can meet on equal terms.

Peer-reviewed studies suggest that public access to open space is not distributed equally or fairly, with access often stratified based on race and income. Access for low income and minority neighborhoods is particularly imbalanced. For instance, in Los Angeles, white neighborhoods enjoy 31.8 acres of park space for every 1,000 people, compared with 1.7 acres in African-American neighborhoods and 0.6 acres in Latino neighborhoods¹³.

¹¹ [Measuring the Economic Value of a City Park System](#), The Trust for Public Land, 2009

¹² [Consider Parks As Economic Development Engines And Not Just A Drain On City Budgets](#), The Park and Facilities, May 2018

¹³ [The Benefits of Parks](#), The Trust for Public Land, reprint of “Parks for People” white paper, 2003

The good news is that, in Boston, access is more equitable, the research found. Bostonians said they currently have good access to open space, but clearly want more of it. Almost half (45 percent) of Bostonians surveyed said that open spaces are very accessible, but approximately the same percentage call for more parks and open spaces, even if it meant more taxpayer money to fund them.

More Bostonians also agreed than disagreed with the statement that the city's lower income and minority neighborhoods have access to parks and open spaces equal to that of affluent neighborhoods. This data clearly suggests that work is needed to better understand how well the city is doing in providing truly equitable access to open spaces.

One Boston. One Waterfront.

We can no longer think of storm surges and other harsh climate events as “historic” but rather as commonplace. This latest research confirms that Bostonians want solutions that can save the city.

Open spaces provide accessible places for fun, exercise, play, respite and recreation. They connect communities and bring new economic vitality to adjoining businesses and neighborhoods. They play an important role in the safety and vibrancy of Boston communities.

“This survey demonstrates that Bostonians clearly understand and value our waterfront, and what can be done to enhance it,” said Trustees President and CEO Barbara Erickson. “Climate resiliency, community, and access are converging issues that are driving greater support for parks across the entire waterfront.”

The Trustees recently launched a multi-site, multi-year effort to protect waterfront open space as a public park for all. To learn more about The Trustees One Waterfront Initiative, visit onewaterfront.thetrustees.org.

For more information, contact:

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About The Trustees: *Founded in the City of Boston by landscape architect and open space visionary Charles Eliot in 1891, The Trustees is the nation's first and the Commonwealth's largest preservation and conservation nonprofit. We are the largest private landowner of coastal land in the state, with more than 120 miles of coastline in our care. For more than 125 years, we have worked to preserve and protect dynamic natural and cultural sites—from beaches and community gardens, to farms, historic homesteads, designed landscapes, and hiking trails—for public use and enjoyment. Today we are working to engage a larger constituency of Massachusetts residents, members, visitors, and public and private partners in our work to help protect our fragile natural, ecological, cultural, and coastal sites for current and future generations as they face increased impacts and risks from our changing climate. To learn more, visit www.thetrustees.org.*

How accessible are open green spaces to you in the Boston area?

