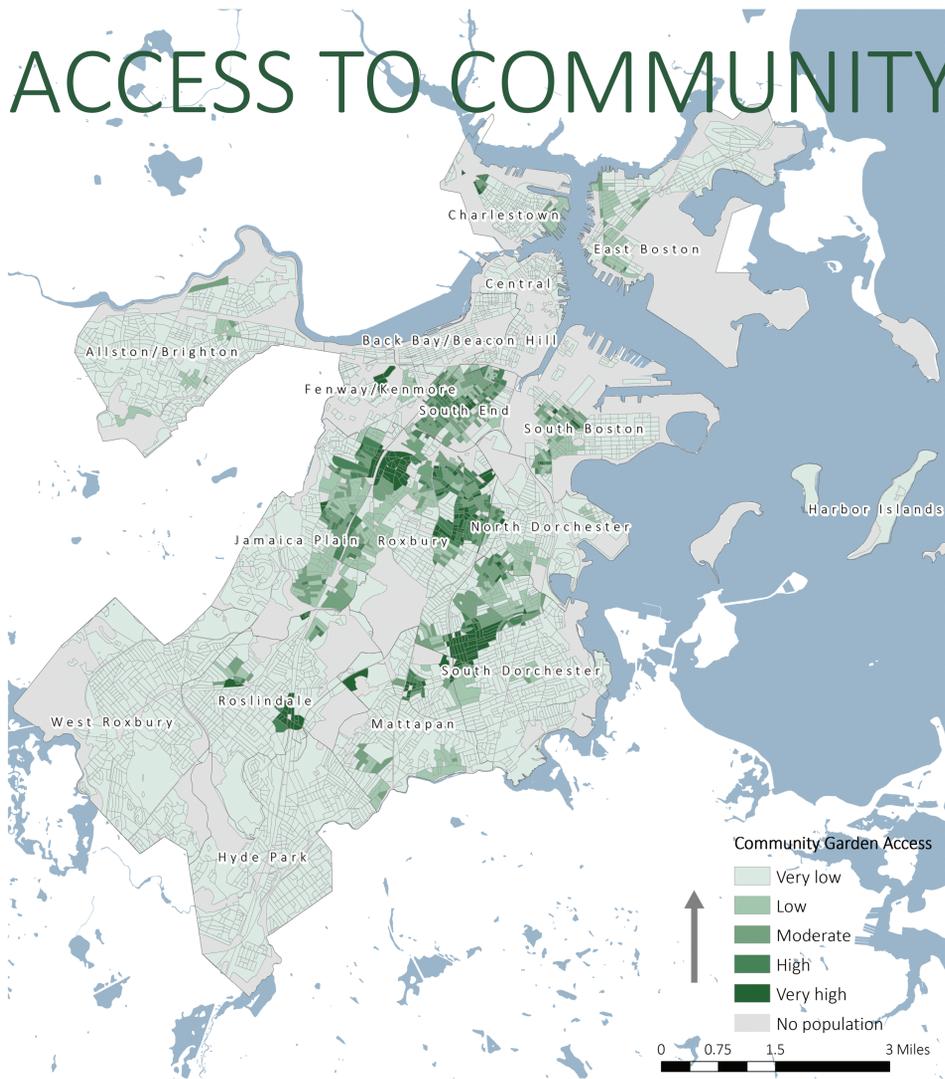


ACCESS TO COMMUNITY GARDENS IN BOSTON



Methodology

To measure access to community gardens, an index was created that incorporated four factors: community garden service areas (≤ 0.25 miles from gardens along the street network), number of community gardens within the service areas, community garden square feet per 1,000 people living in service areas, and presence of longstanding community garden waitlists at the neighborhood level. These factors were translated to 2010 U.S. Census blocks.

Network analyst was used to create the community garden service areas. A quarter-mile walkable area, a distance which is supported by park equity research, was chosen to ensure that gardens could be accessible to parents with young children and elderly community members.

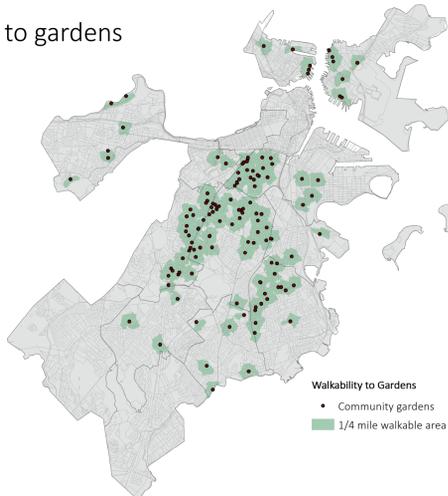
Walkable areas in some neighborhoods overlapped considerably, which indicated increased garden access. Because there was no clear method to quantify this overlap, garden counts within the walkable areas were used to up-weight these areas. The

number of gardens in each service area was calculated by joining the community garden points to the service area polygons. When service area polygons overlapped, service areas with the maximum number of gardens were assigned to the corresponding census blocks.

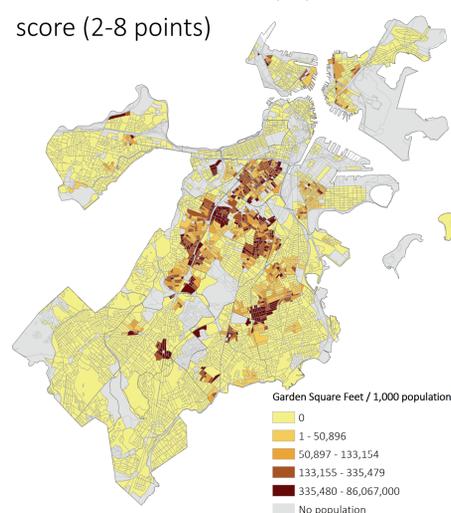
Boston Natural Areas Network (BNAN) provided information on longstanding garden waitlists by neighborhood and square footage per garden. Using census block population data and the service areas, square feet of community gardens/1,000 people was calculated.

Census blocks outside of the quarter-mile areas were coded with access scores of zero. Quantiles of blocks within the walkable areas were scored by factors 2-4 (below), with a total possible score of 16. Factor 2 carried the most weight because the area available within a walkable distance was the most important factor related to access. The final access score was then mapped by quantiles.

Factor 1: Within walkable distance to gardens

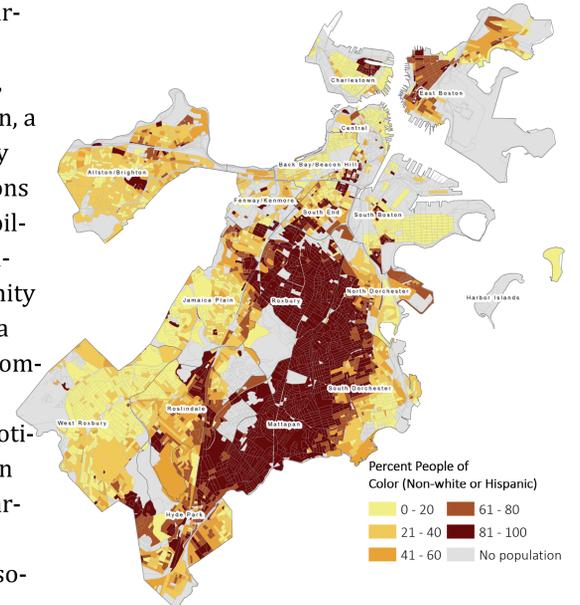


Factor 2: Garden area/population score (2-8 points)



Overview

Measuring access to community gardens in a holistic way requires assessing multiple factors: proximity, availability and adequacy. In Boston, a city that continues to be affected by extreme racial segregation, questions have been raised about the equitability of access to the City's 100+ community gardens. Access to community gardens is an issue of food justice, a concept that includes the right of communities to produce and consume their own food. These concerns motivated this project, which focused on measuring access to community garden spaces and exploring possible connections to race, ethnicity and socio-economic status.



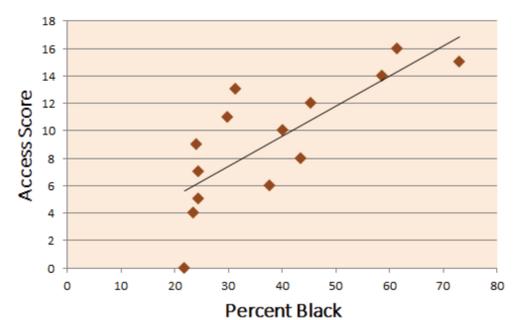
Results and Discussion

The resulting access index map is shown (top left). Areas with very high access are located throughout the city, with notable pockets in Fenway, Roslindale, Roxbury and Dorchester. On the other end of the spectrum, much of the city has low or very low access to gardens.

An analysis of socio-demographic characteristics of census blocks by access score revealed a few surprising patterns (right). A positive correlation was seen between percent black and access (below) and a negative correlation was seen between percent white and access. These correlations were not in the expected directions, as it was hypothesized that people of color have

lower access to gardens. Finally, correlation matrices between access and housing status at the block level and access and median household income at the tract level (not shown) indicated a lack of association between these variables. These results are neither comprehensive nor conclusive. Improvements could be made to the method that may alter the results. Additionally, there might be factors related to access that could not be

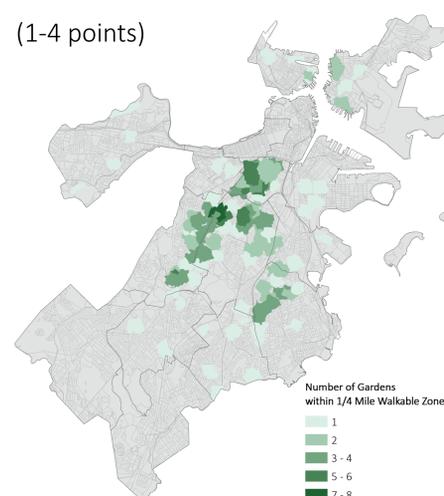
Socio-demographic Characteristics of 2010 Census Blocks in Boston, MA by Community Garden Access								
Garden Access Score	Total Population	Percent White	Percent Black	Percent Hispanic	Total Occupied Housing Units	Percent of Units Owned	Percent of Units Rented	
Very Low	0	443,999	58.0	21.9	15.1	180,683	35.7	64.3
	4	23,063	47.7	23.6	20.4	10,313	21.1	78.9
	5	13,216	49.5	24.6	33.0	5,212	27.8	72.2
Low	6	12,800	34.2	37.7	30.2	4,742	23.6	76.4
	7	39,330	47.6	24.4	26.4	16,091	31.1	68.9
Moderate	8	10,952	32.5	43.6	26.4	4,191	26.5	73.5
	9	24,941	51.9	24.2	18.9	11,243	35.9	64.1
	10	12,030	33.4	40.1	24.0	4,439	28.7	71.3
High	11	17,937	46.0	29.9	17.3	7,765	37.3	62.7
	12	3,725	25.2	45.4	29.2	1,385	27.1	72.9
Very High	13	8,662	46.0	31.3	19.1	4,052	25.1	74.9
	14	926	20.0	58.6	25.5	453	24.1	75.9
	15	4,097	9.6	73.0	17.2	1,360	37.5	62.5
	16	1,916	24.1	61.4	16.7	770	33.9	66.1



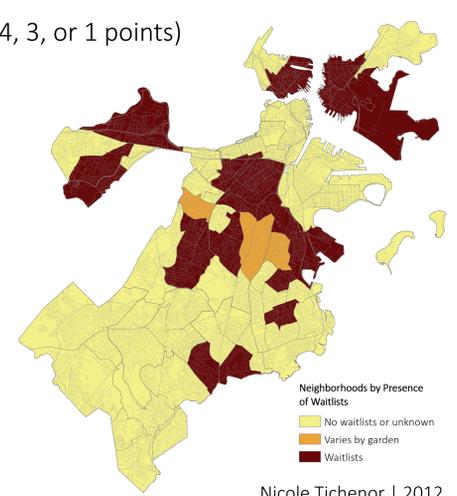
lower access to gardens. Finally, correlation matrices between access and housing status at the block level and access and median household income at the tract level (not shown) indicated a lack of association between these variables.

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Factor 3: Garden count score (1-4 points)



Factor 4: Waitlist score (4, 3, or 1 points)



Nicole Tichenor | 2012

Sources: MassGIS, BNAN, Boston Redevelopment Authority, U.S. Census Bureau 2010

NAD 1983 State Plane Massachusetts Mainland FIPS, 2001 (US Feet)