

Access, Disadvantage, and Inequality in Boston, Massachusetts

Overview:

Boston is the largest city in New England and one of the largest metropolitan areas in the United States. A common concern in large cities is equity in access to urban amenities such as public transportation and parks. Environmental Justice looks into the equitable treatment of people regardless of race, gender, age, etc. It includes measures of accessibility to things like transit, parks, and libraries as well as exposure to environmental hazards such as air pollution. Like many cities, Boston is not environmentally just. In many cities minorities and low income households are disproportionately exposed to environmental hazards while simultaneously having reduced access to positive neighborhood resources that they are more likely to rely on.



This project investigates the relationship between race, income, and access. Specifically, I look at access to public transportation, libraries, parks, and health centers. As mentioned, minority and low income people are more likely to rely on public transportation and if their access is reduced, it makes it even harder to access things like libraries and health centers if they are not within walking distance. MassGIS provides data on environmental justice populations based on three criteria; minority, low income, and English proficiency. It is useful to view their map for comparison.

Methodology:

In order to geographically map out income and race, data was obtained from the United States Census by block group. While census blocks are a smaller and more accurate measurement, income data is only available at the block group level because it is collected by the American Community Survey. Using the attribute data, lower income (median household income below 35,000) and minority (less than 25% white) census blocks were determined. Then, using selection tools, census blocks out of walking distance (0.25 miles) of rapid transit stations, libraries, and health centers, were determined. Additionally, census blocks without a park were determined. Census blocks with a population of zero

were excluded. Using this information, a weighted disadvantage score was calculated. Lack of access to libraries, parks, and health centers were weighted with 1 point. A minority block group was also attributed 1 point. Low income blocks and blocks without rapid transit access were weighted with 2 points because lack of transit access further reduces access to other institutions and low income households are less likely to own a car. The resulting disadvantage score can range from 0 to 8 for the census block groups.

Results and Conclusions:

As one might expect, access declines as you move out from the city center. Looking more closely, the block groups with the highest level of disadvantage are concentrated in the neighborhoods such as Roxbury and Mattapan which are historically low income and majority minority

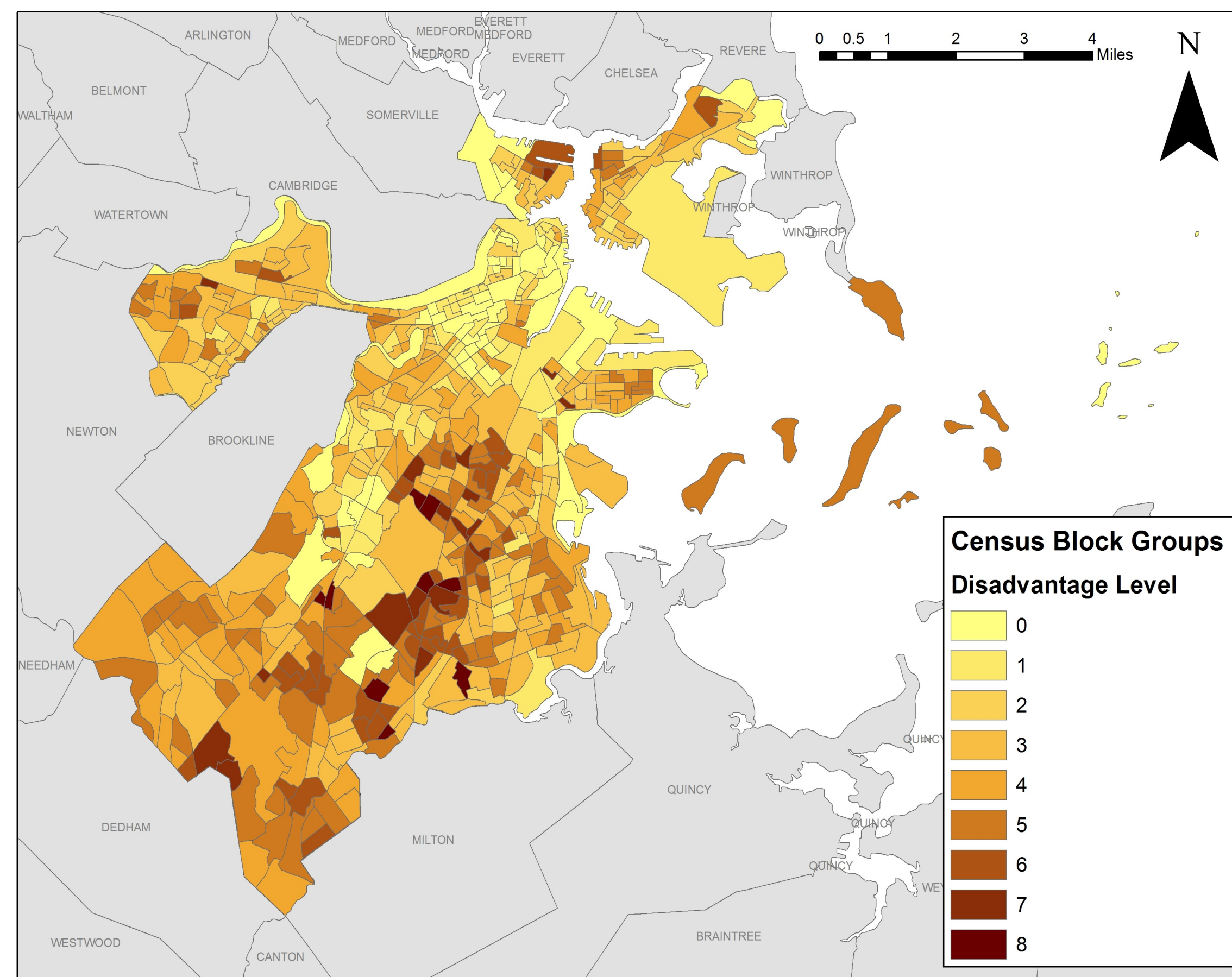
communities. The wealthier, whiter neighborhood of West Roxbury shows moderate levels of disadvantage due to low transit access and relatively few institutions; however, residents here are more likely to own cars making walkability less important. To some extent my disadvantage map mirrors the Environmental Justice map by MassGIS, however, the difference in amount of criteria and scope explain the difference. Overall, both show similar geographic disadvantage trends. Based on this analysis we can conclude that low income and minority residents have disproportionately low access to institutions and Boston could strive for greater environmental justice.

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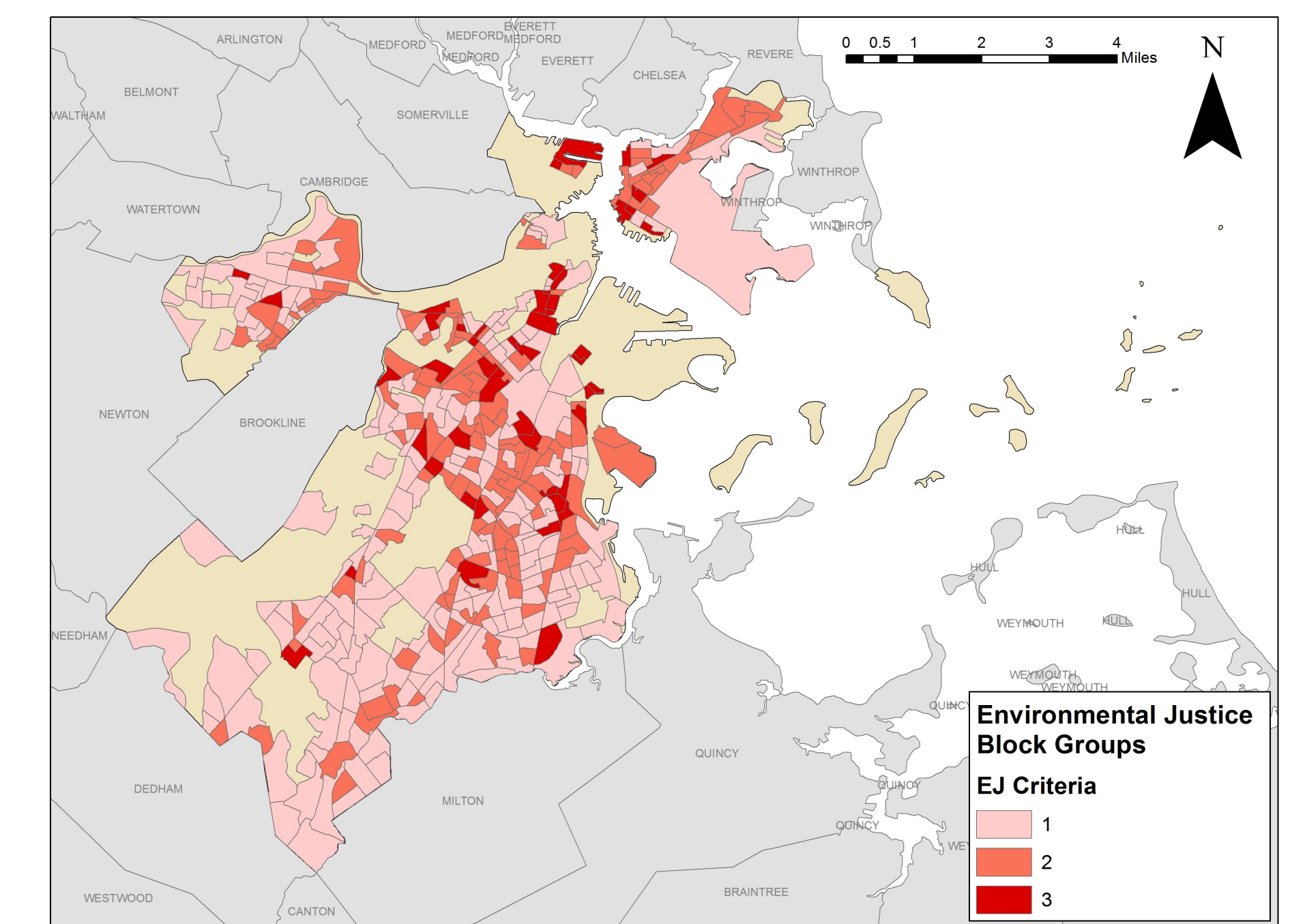
Data Sources: MassGIS, US Census, Tufts M Drive
Projection: NAD State Plane Massachusetts Mainland
FIPS 2001 Meters
Scale : 1:95,892



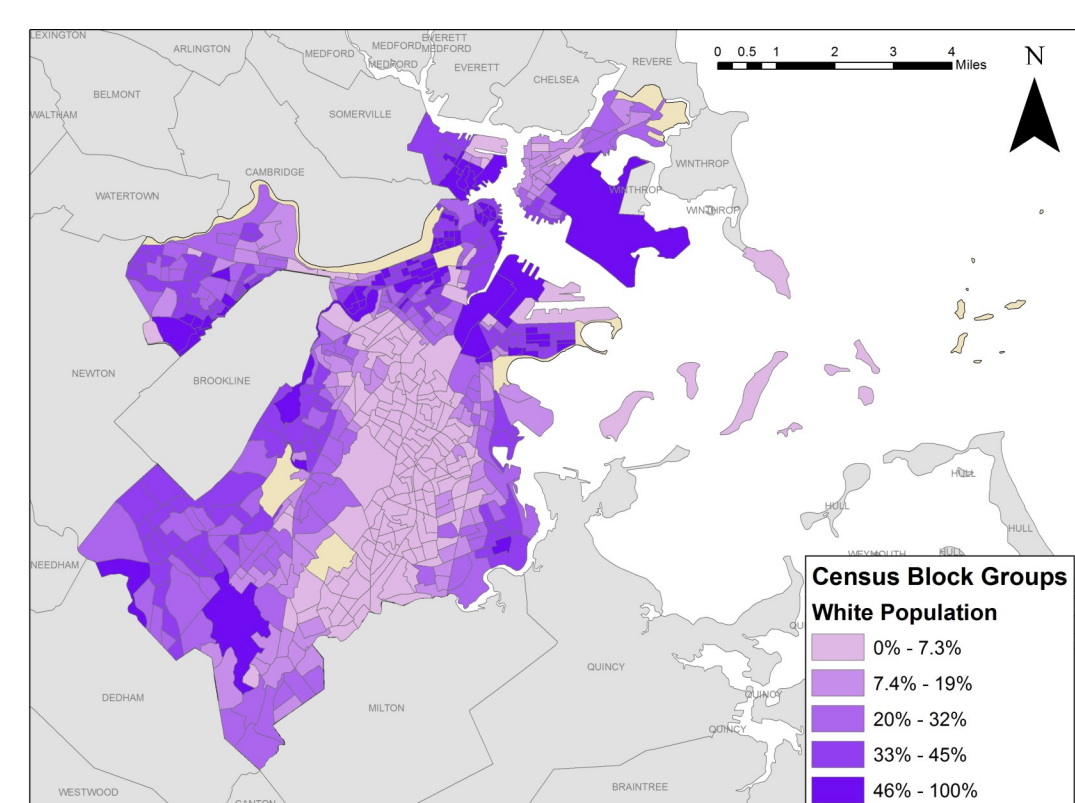
Final Analysis, Disadvantage Levels



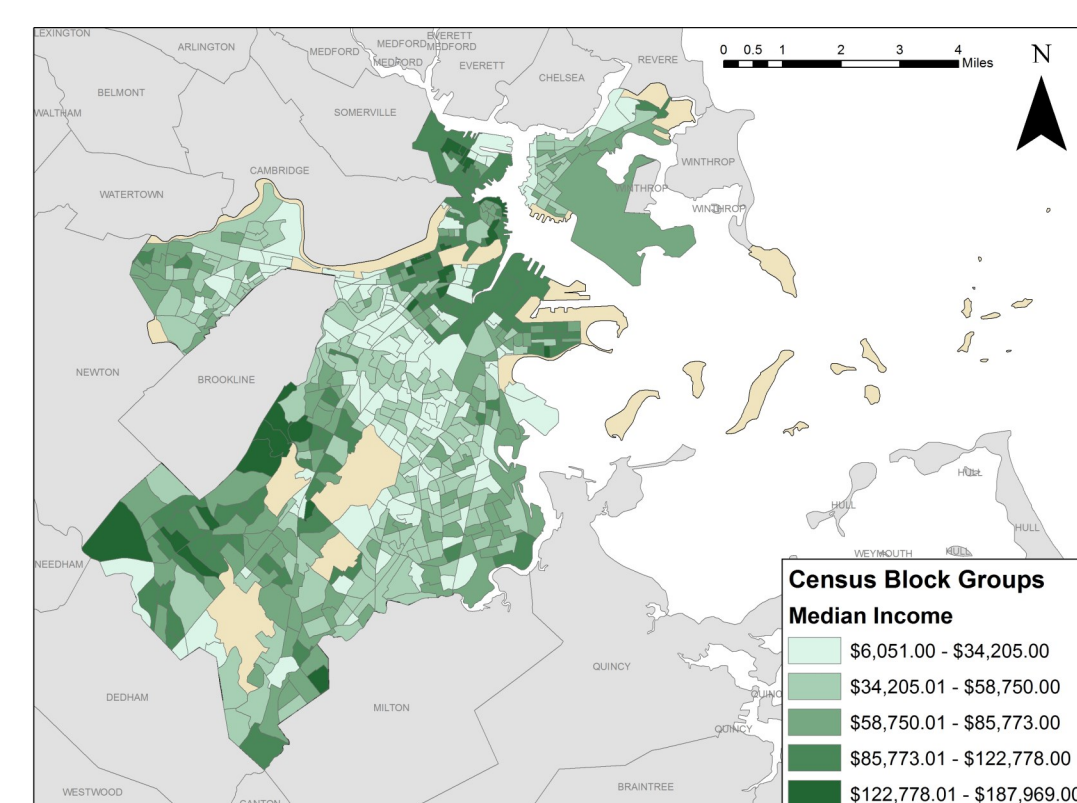
MassGIS E.J. Populations



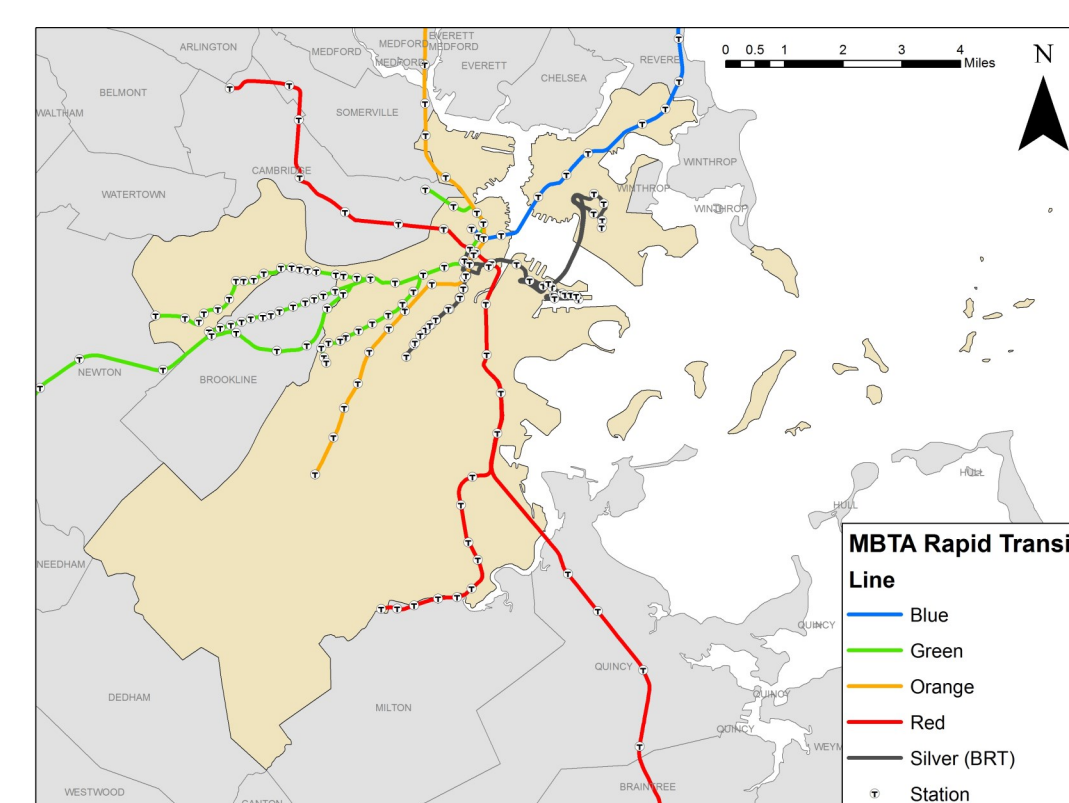
Percent Population White



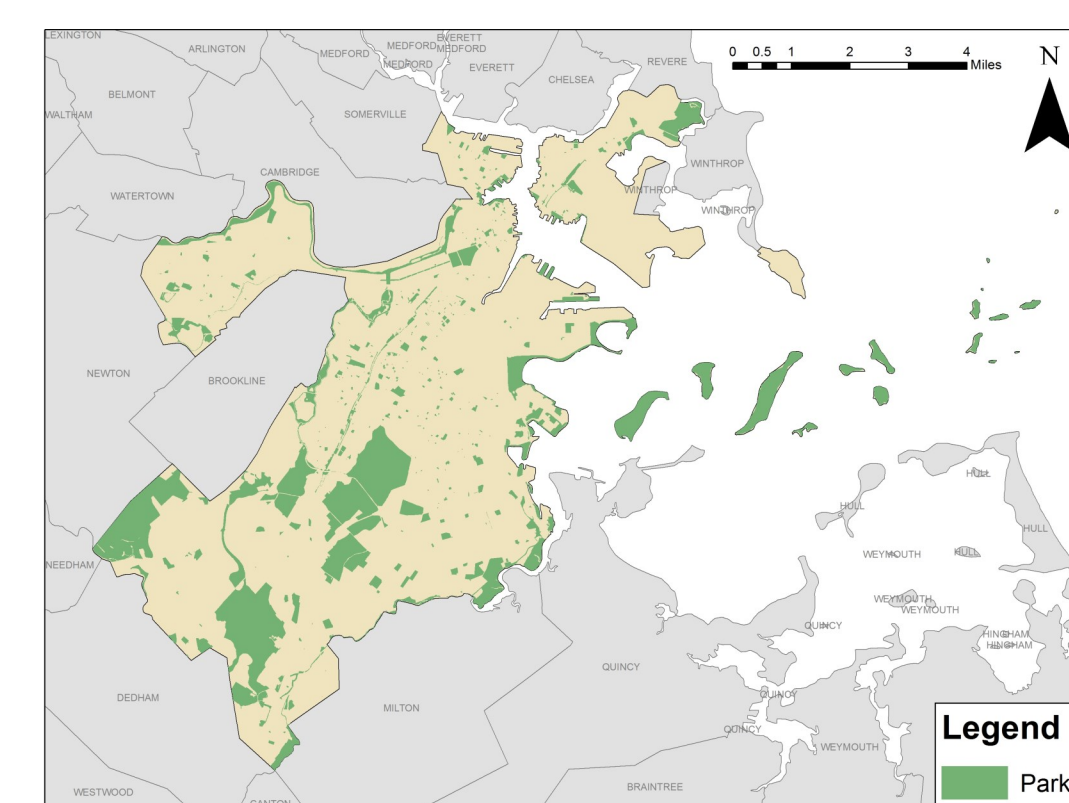
Median Household Income



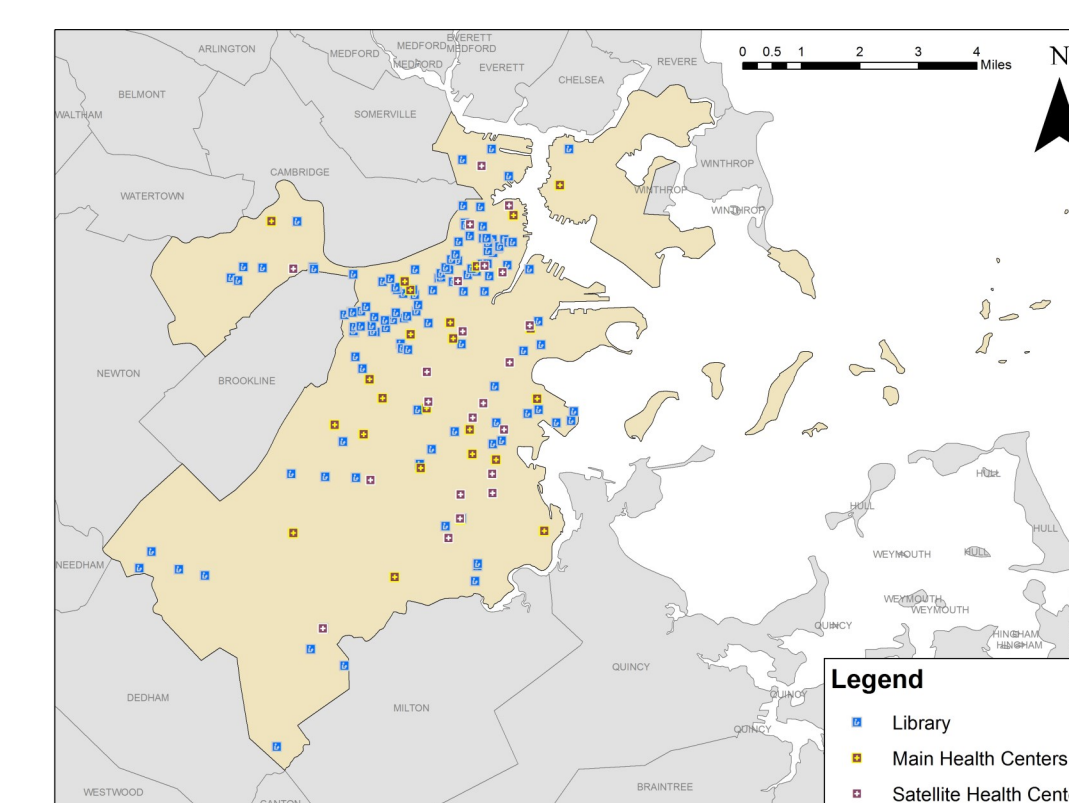
Rapid Transit



Parks



Libraries and Health Centers



Neighborhood Map

