

Changing Faces: A Spatial Analysis of Gentrification in Boston, MA

Background

Gentrification is a powerful force for economic change in our cities, but it is often accompanied by extreme and unnecessary cultural displacement. In the City of Boston, activists and political leaders are concerned that gentrification in the form of rapidly rising property values in low-income areas are contributing to displacement of families and children. And due to the continuing existence of racialized and structural inequality in this city, it could also serve to resegregate Boston along racial, ethnic, and class dimensions.

With this study, the objective was to understand where gentrification was most occurring in Boston from 2010-2017 as well as identify clusters of the most vulnerable areas. The vulnerability analysis used to measure gentrification is based off of five indicators taken from the *National Neighborhood Indicators Partnership "Guide to Measuring Neighborhood*

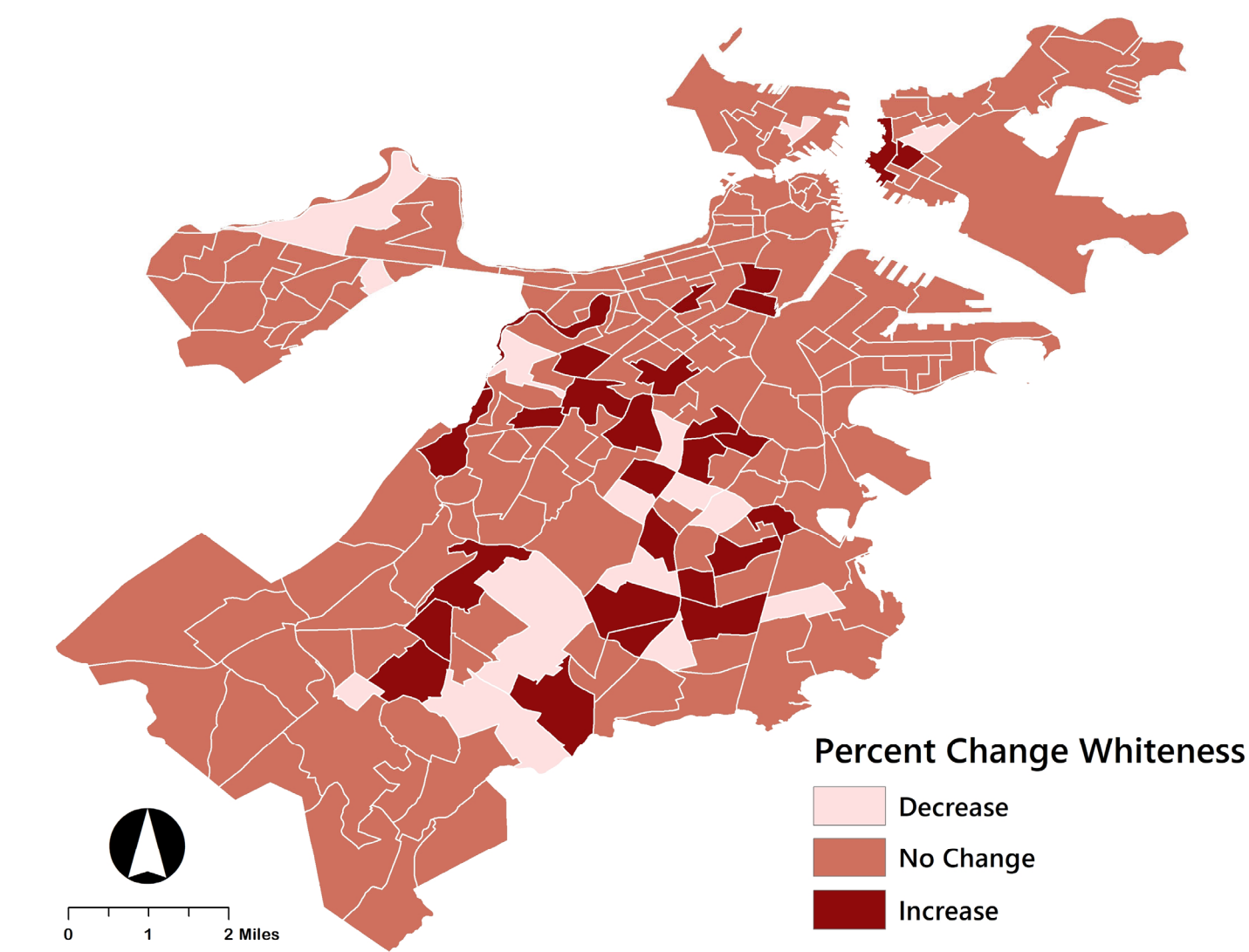
Data Sources

Data for this project came from the US Census Bureau, years 2010 and 2017, MassGIS Data, City of Boston GIS Data, and Boston Planning & Development Agency
Projection: GCS North American 1983

Cartographer

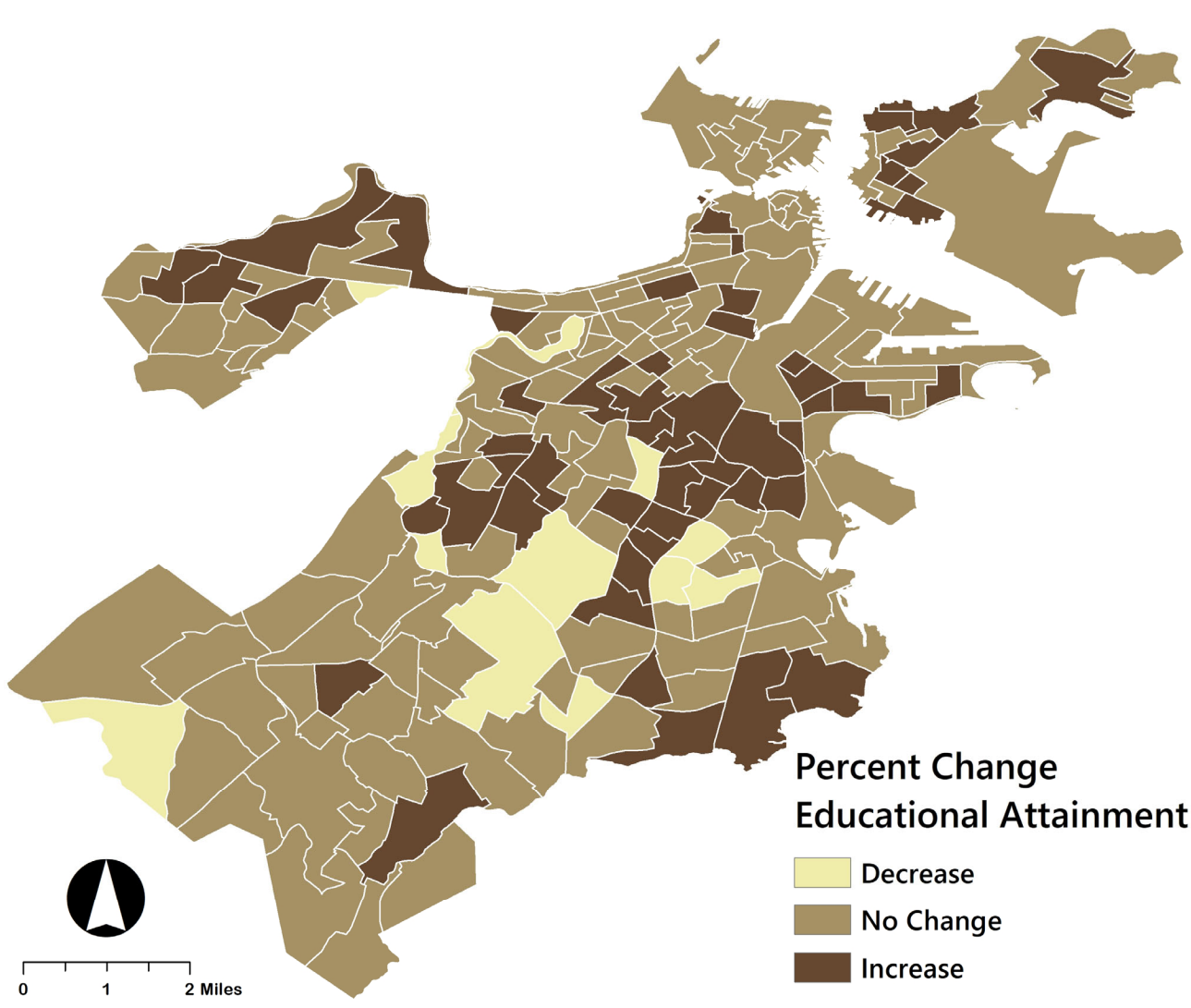
Mario Lagnese - GIS 101 - December 16, 2019 

Gentrification Indicators, 2010-2017



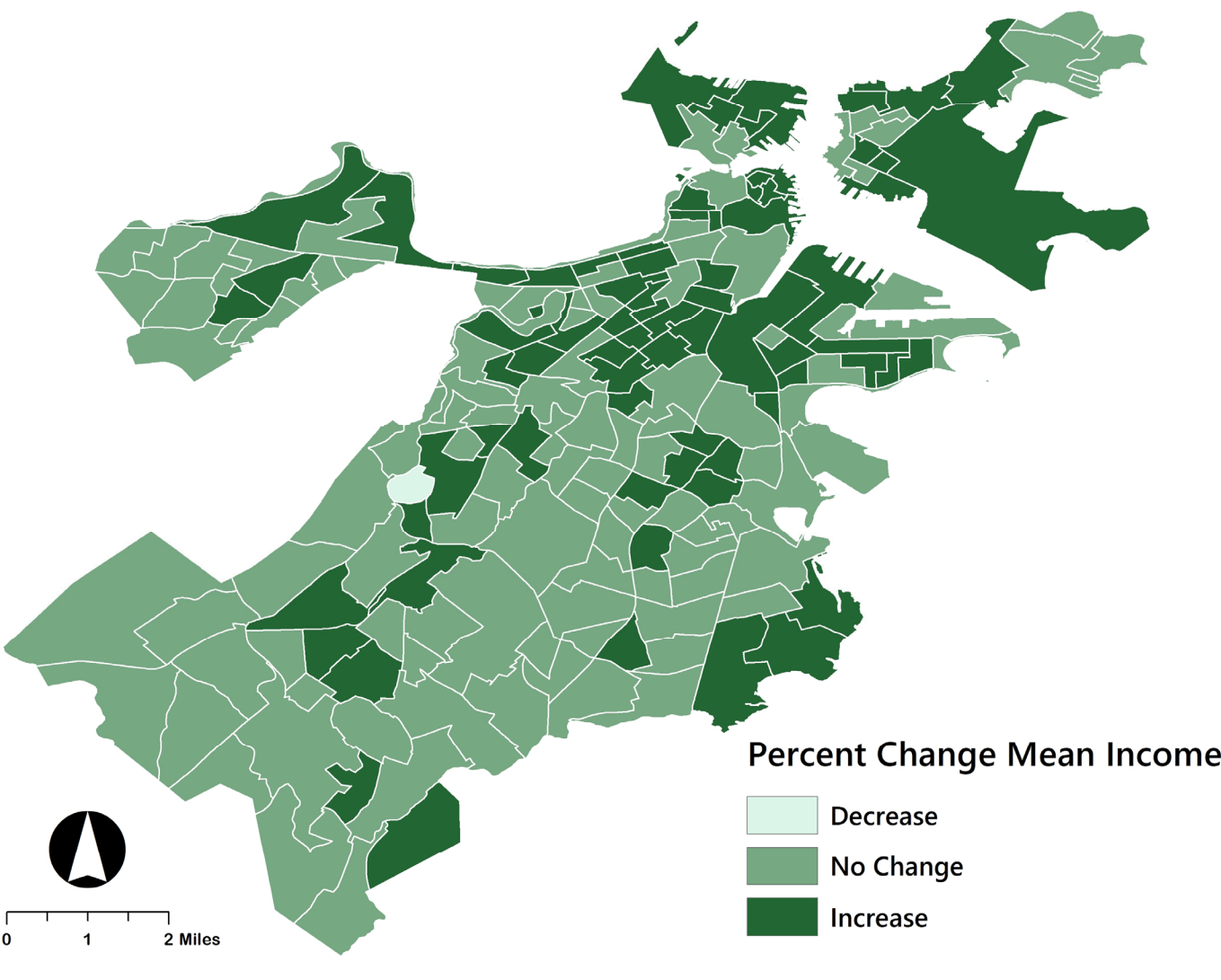
% Change Whiteness

A demographic change associated with accelerating gentrification is the increase in white residents who move into nonwhite neighborhoods. To longtime residents, this means higher home prices ahead, more investors knocking, and more white neighbors.



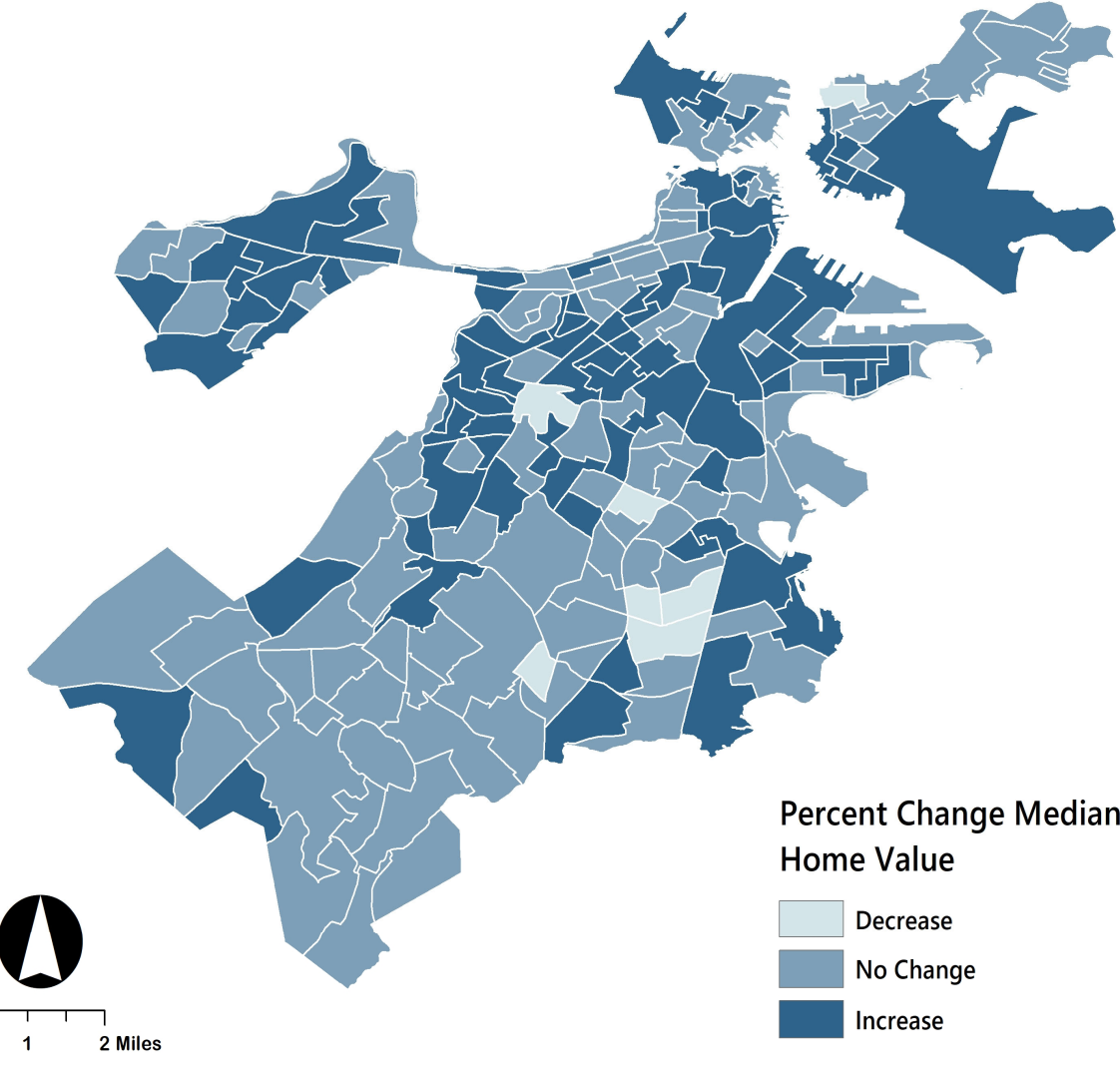
% Change Educational Attainment

Educational attainment in this study measured the number of residents 25 years old and over holding bachelor's degrees. A common sign of gentrifying neighborhoods is the increase in college-educated residents.



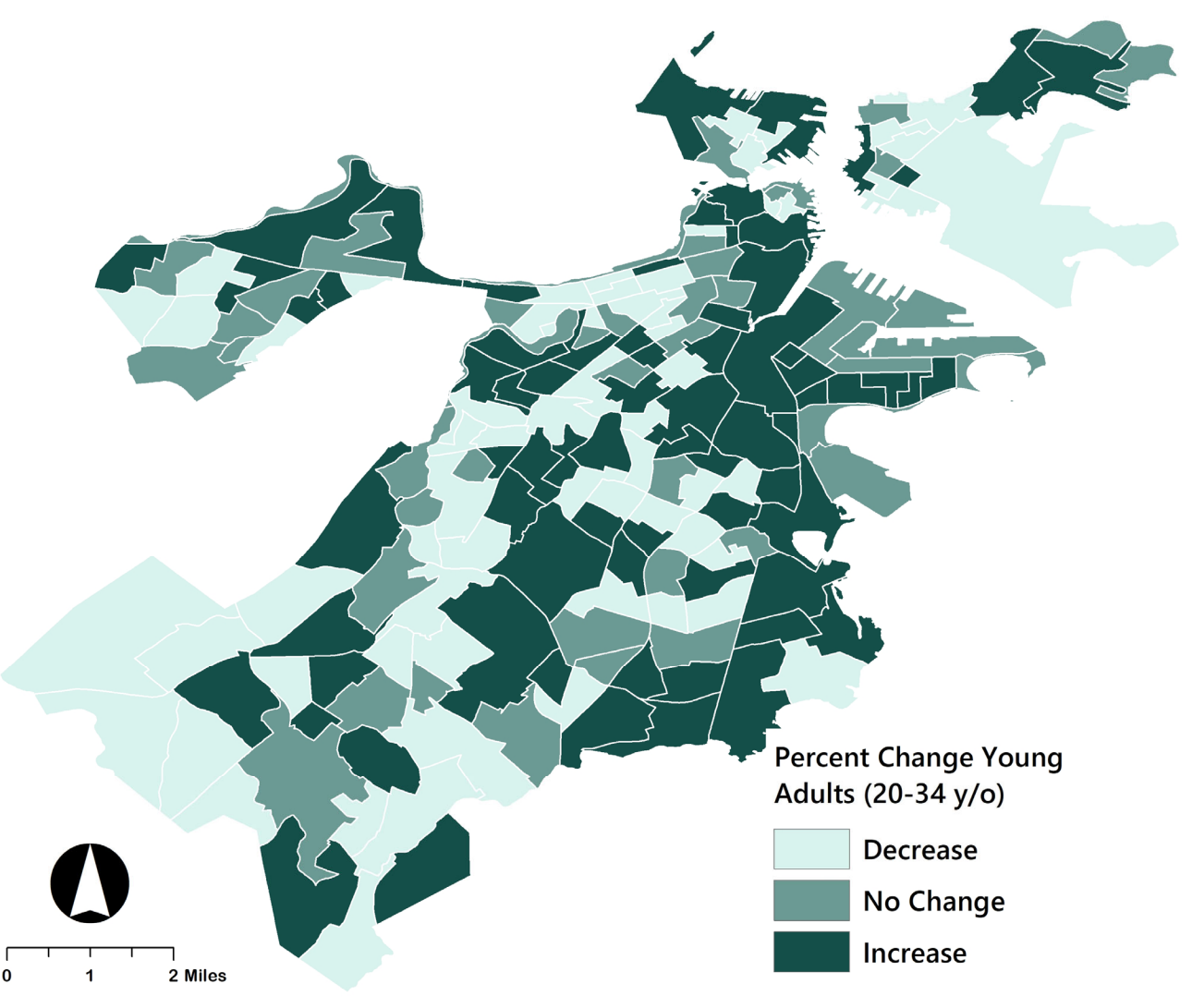
% Change Mean Income

Income measures are essential to fully understanding how a neighborhood is changing. It can also be combined with data on other costs, which can help identify the share of people who can afford to live there.



% Change Median Home Value

As newer residents with higher incomes move into a neighborhood, they signal that the market values housing at a higher price. This can trigger higher housing prices, which contributes to residents with low incomes being pushed out of the neighborhood.



% Change Young Adults

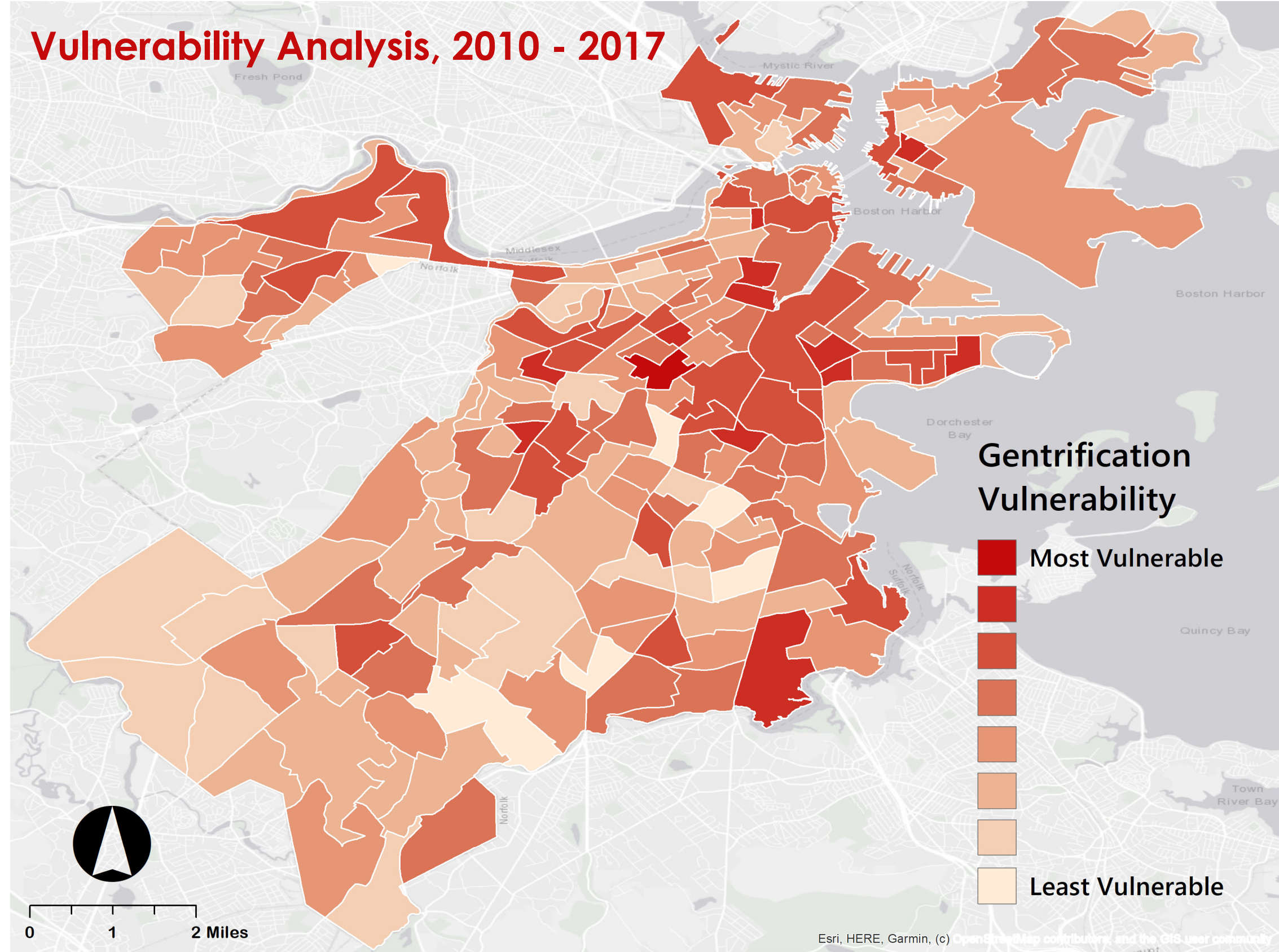
The first groups to gentrify an area are thought to often be young, childless, well-educated adults. Amenities are replaced with bars, retail, and nightlife that appeal to young adults, which signals increased investment.

Methods

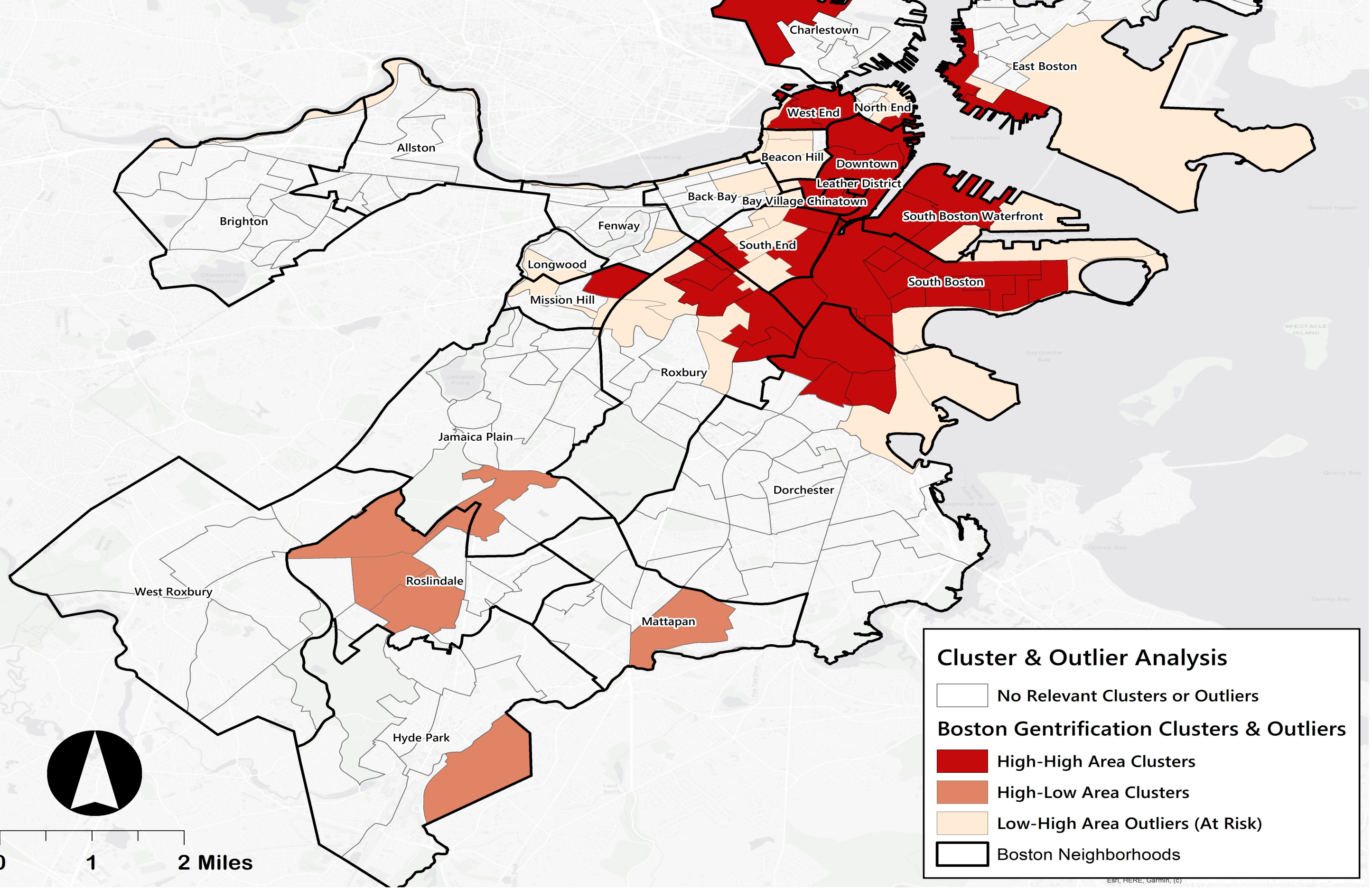
Gentrification indicator maps were created from 2010 and 2017 Census data for Suffolk County, MA. In order to analyze just Boston, tracts outside of the city were removed. Annual percents for each indicator were used to calculate percent change from 2010 to 2017 for every tract. To determine level of gentrification, a score was assigned to each tract's percent change using an excel nested IF statement. Three scores were possible for each tract's percent change:

- 1 = Percentage change for individual tract was less than average of indicator
- 0 = Percentage change for individual tract was greater than or equal to negative average of indicator but less than or equal to positive average
- 1 = Percentage change for individual tract was greater than average of indicator

Scores for each tract and indicator were summed to determine a vulnerability analysis for Boston, represented by map below.



Cluster Analysis, 2010-2017



Results & Conclusion

One of the major takeaways from this analysis was being able to identify the areas of Boston which have been most impacted by gentrification. Historically, Boston neighborhoods of Charlestown, Jamaica Plain, East Boston, South Boston, Dorchester, and Roxbury have experienced significant gentrification. Completing a cluster analysis of the vulnerability map, the project confirmed already gentrified neighborhoods as well as areas that are most at risk. This could help city officials and community groups plan to control negative effects of gentrification. However, this method was significantly limited due to the project's strict definition of gentrification. A more holistic approach would be to include more indicators over a longer period of time. Additionally, using a location quotient would better tell the story of how the areas have fared over time compared to the overall levels of Boston. Further analysis could compare the results from Boston to other prominent cities in the area like Cambridge and Somerville.