

“Urban transit systems in most American cities...have become a genuine civil rights issue-and a valid one-because the layout of rapid-transit systems determines the accessibility of jobs to the Black community. If transportation systems in American cities could be laid out so as to provide an opportunity for poor people to get meaningful employment, then they could begin to move into the mainstream of American life.”¹
-Dr. Martin Luther King, Jr.

While the Environmental Justice movement began as opposition to the disproportionate distribution of polluting facilities, highways and other “bads,” it is also concerned with the distribution of “goods” such as public transportation. But 45 years after Dr. King’s death and 30 years after the generally accepted beginning of the EJ movement, transit systems in the US still tend to provide poorer service to poor and minority communities. These environmental justice communities are more likely to have residents who can’t afford to or are unable to drive (those known as “captive riders”) and are the very people who would benefit from improved service. Instead of new light rail or subway systems, or even well-planned Bus Rapid Transit (BRT), these communities often have to make do with slow, uncomfortable bus lines to get to work, school, and other destinations.

The history of transit in Boston is no exception. In the late 1980s, the Orange line, which had traveled through the largely black South End to Dudley Square in Roxbury, was torn down and moved about ½ mile to the west. It was eventually replaced by the Silver Line, which is called a BRT system, but falls short of many of the criteria that makes a system truly Rapid Transit.

Meanwhile, Mattapan, the western area of Dorchester and eastern Roxbury (the area between the Red and Orange lines) have a great lack of transit access. These neighborhoods, poor and largely minority since the 60s, have recently become the home of thousands of immigrants, many from Cape Verde and Haiti. Currently there is a commuter rail line, the Fairmount Line, that passes through the area, but there are just three stops in the three neighborhoods. “Captive riders” in these neighborhoods must often take multiple buses or walk over a mile to get to a rapid transit stop. A study by the Dukakis Center at Northeastern University² recently found that average commute times for minority riders in Boston were significantly greater than those for white riders, even those who use the same mode.

The MBTA has recently opened a new stop at Talbot Ave. in Mattapan. They are also currently constructing one new Fairmount Line station, at Four Corners / Geneva Ave, designing another at Blue Hill Ave / Cummins Highway, and are in the early stages of planning another at River Street in Mattapan.

While increased stations would increase the transit access of these residents, questions of equal access remain. Currently, the Fairmount Line makes just 16 trips per weekday, including only three between 8:30 AM and 4 PM, and doesn’t operate on the weekends. Many of the residents of the Fairmount Line area work in jobs with irregular schedules. While the MBTA would like to increase service with the opening of the new stations, they may not have the funding to do so under the current budget squeeze. If new stations are built, but they only provide service for 9-5 commuters, are they much of an improvement? Will the Fairmount Line really take area residents from where they live to where they “work and play”?

This project analyzes the demographics and issues surrounding the Fairmount Line and tries to tie it to transit justice throughout the city of Boston.

METHODOLOGY

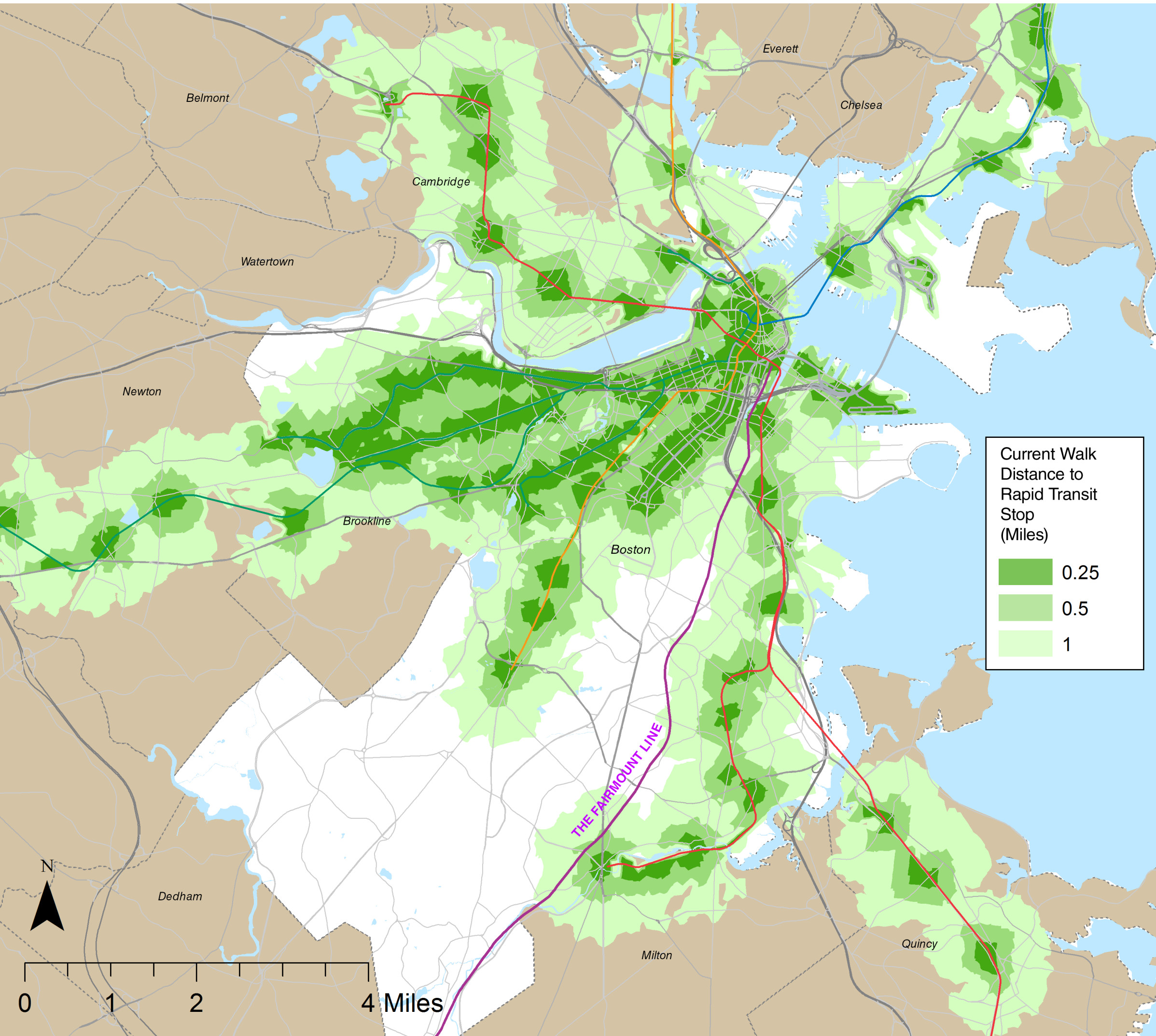
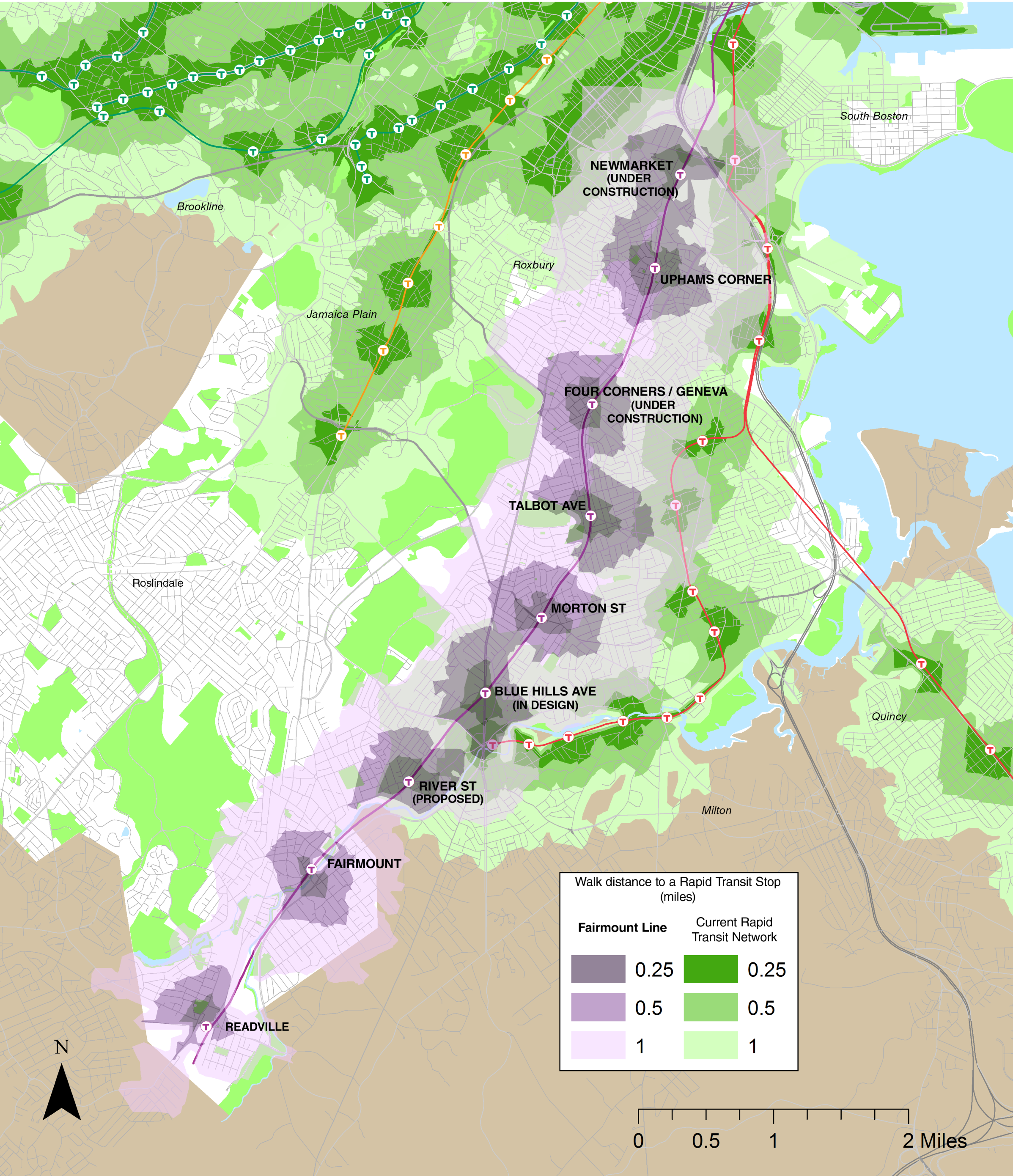
I created multiple maps using different techniques to begin to analyze the demographics of the Fairmount Line area and the impact of transit expansion on residents of the area. Census data and American Community Survey estimates were used to show data on racial demographics and to map the percentage of households who reported they didn’t have a vehicle (the “captive” riders).

To show the value per size of the homes in the largely-residential corridor, I used Boston Assessor’s data from 2009 to create an interpolation using Inverse Distance Weighting (IDW). First, each parcel was turned into a point rather than a shape. Then I selected out just those parcels designated as residential, and those who had information on the square footage of their living area. This left me with 78,506 points; I then divided the assessed value of the parcel by the living area to get a value per square foot for each parcel. This was then plotted into a raster map using the IDW tool to get a “heatmap” of residential home value.

Finally, I used Network Analyst and the MassDOT streets layer to make two walk distance (or “ped-shed”) maps: one with the current rapid transit system (including the Red, Orange, Blue, Green and Silver Lines, but not the regular bus lines) and one with the current and potential Fairmount Line stops added in.

¹King, Jr., M. L. (1990) A Testament of Hope: The Essential Writings and Speeches of Martin Luther King, Jr. New York: Harper Collins, p.325
²Dukakis Center. (2012) Equity and Inequity in Greater Boston’s Transportation System. Retrieved from: <http://www.northeastern.edu/dukakiscenter/equity-and-inequity-in-greater-bostons-transportation-system/>

THE FAIRMOUNT LINE A STEP FORWARD?



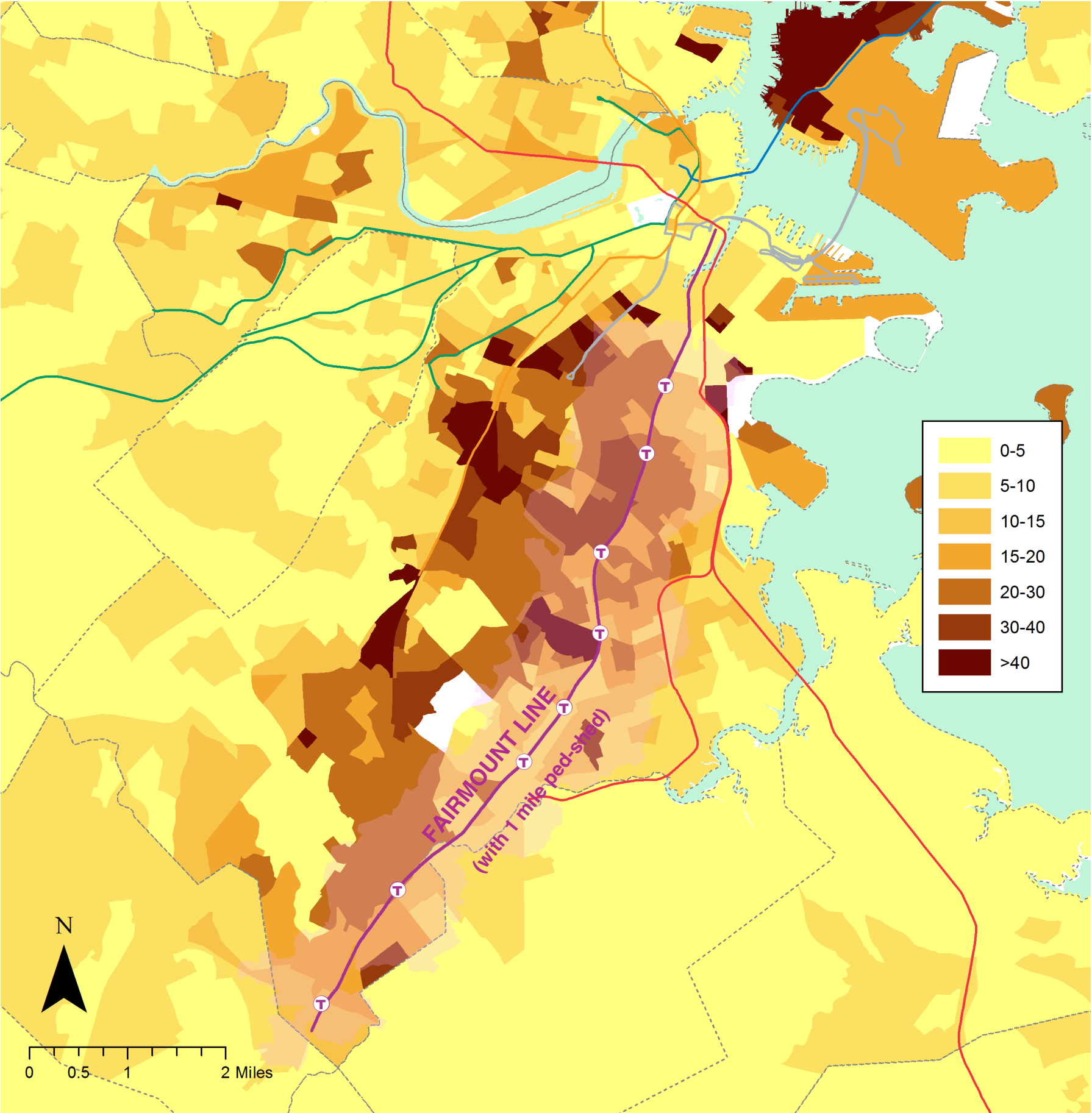
RESULTS

The maps using Census 2010 data shows that the Fairmount Line area has some of the highest concentrations of minorities in the Boston area. Most of the blockgroups in the area are less than 30% white. There is also a large concentration of residents identifying as Hispanic, though not as high a concentration as Chelsea or East Boston. The area has high concentrations of households with no vehicles compared to the suburbs, but not compared to areas on the current rapid transit line; however, when one considers the *current* level of public transit service is quite low, there is a high number of “captive” riders.

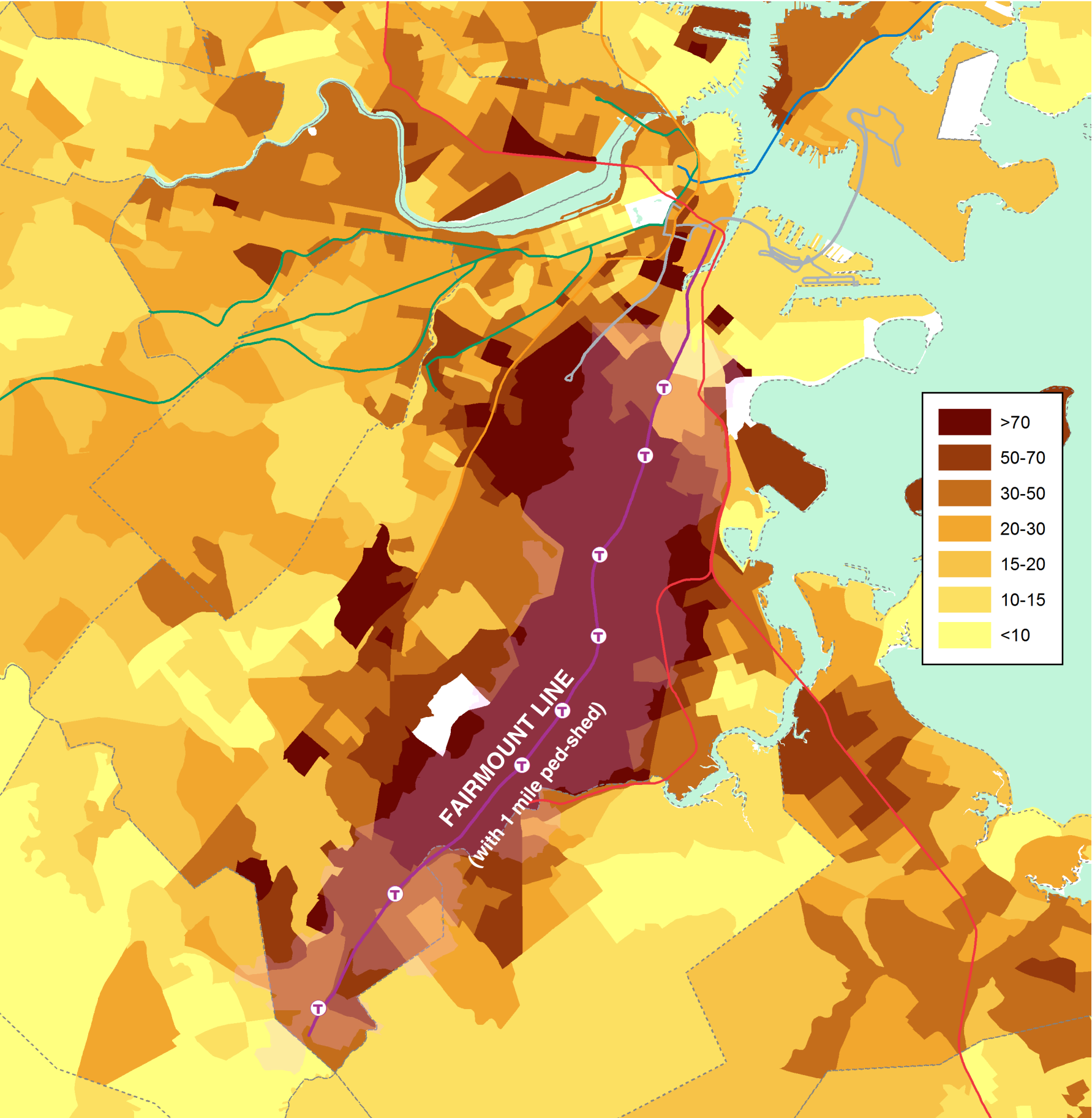
The residential land value map reveals a general pattern of higher prices towards the center of the city, but generally shows the area as having relatively low value.

As the “ped-shed” maps show, much of the area is currently over 1 mile from a rapid transit stop; yet, if all the proposed stations on the Fairmount Line were to be built, nearly all of the area would be within a mile of a stop (and much of it within a half-mile). It is clear from these maps that frequent, affordable service on the current and new stations of the Fairmount Line would provide good access to Downtown Boston and the rest of the MBTA network for the many residents of the area.

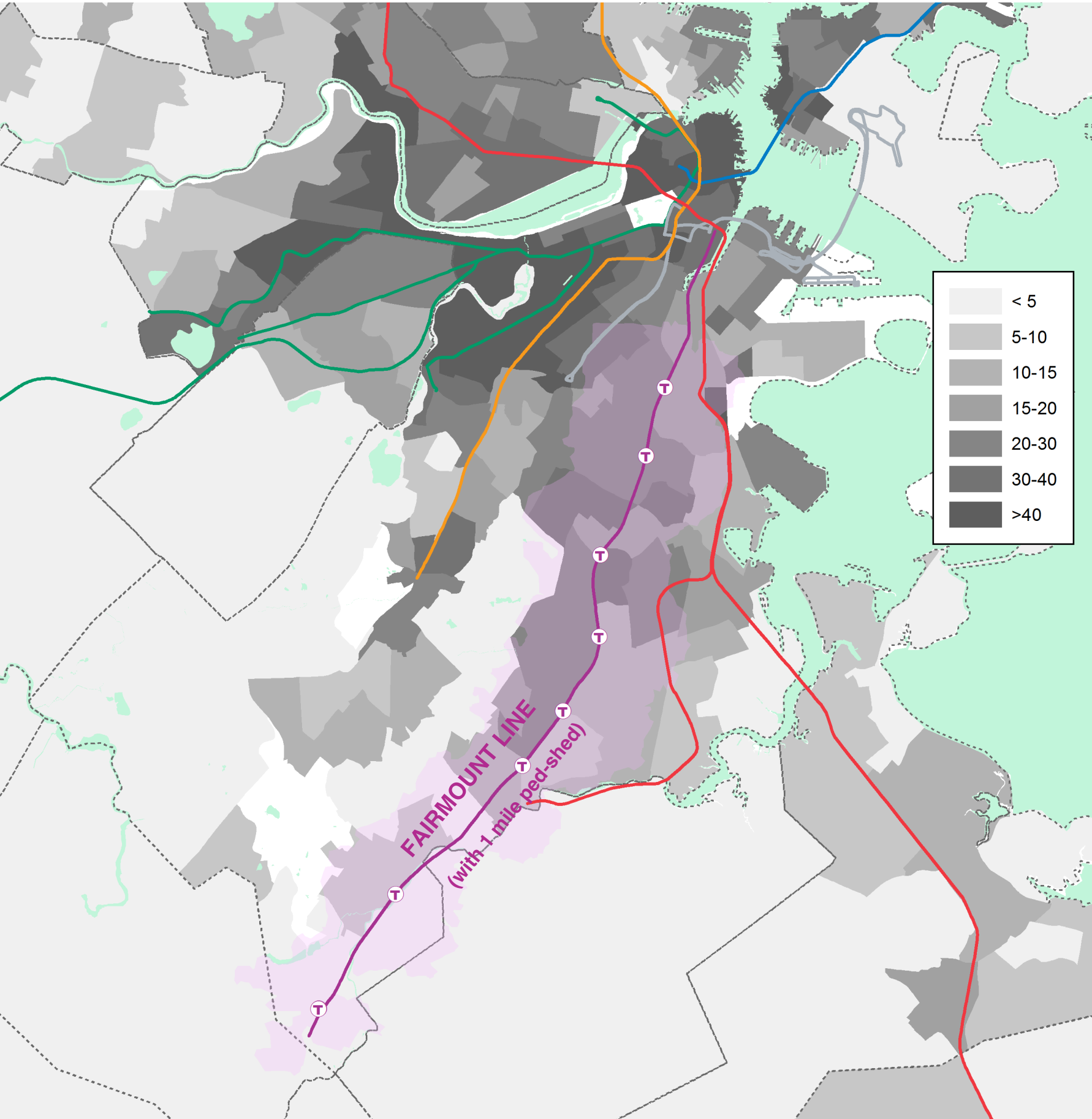
HISPANIC POPULATION BY CENSUS BLOCKGROUP PERCENT HISPANIC (2010 CENSUS DATA)



NON-WHITE POPULATION BY CENSUS BLOCKGROUP PERCENT NON-WHITE (2010 CENSUS DATA)



HOUSEHOLDS WITH NO VEHICLE BY CENSUS TRACT PERCENT (2006-2010 ACS AVERAGES)



HEATMAP OF RESIDENTIAL LAND VALUE DOLLARS ASSESSED VALUE PER SQUARE FOOT OF LIVING AREA

