Identifying Sites for Green Affordable Housing Development in Boston Massachusetts

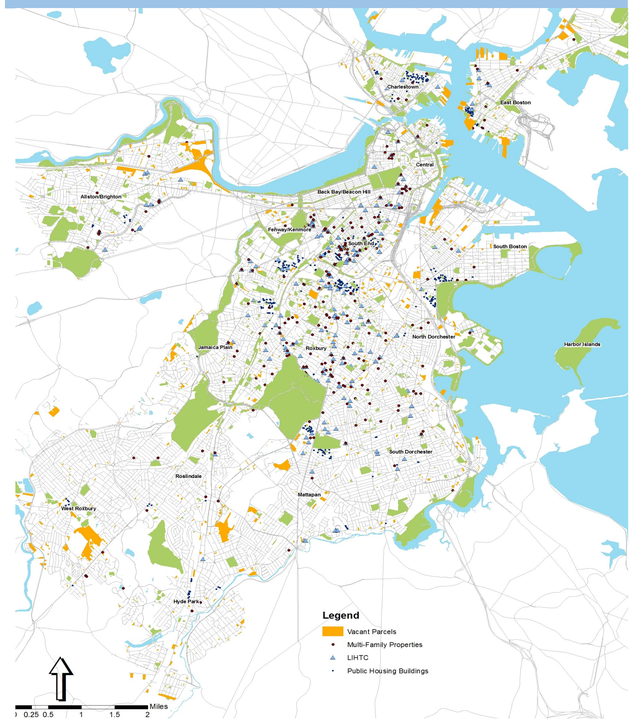
Introduction

The availability of affordable housing is scarce in Boston, Massachusetts area. Reports show that policy makers are concerned that the lack of affordable housing, and the rising cost of existing housing in the area presents challenges for employers to obtain and retain employees. Renters are not the only category of people dealing with lack of housing and high costs of renting in Boston; there is also a lack of affordable homeownership in the area. Currently, there are 51,625 assisted housing units and 902 public housing buildings in Boston. The age of the structures ranges between 49 years old to 4 years old properties. Although the youngest construction is only four years old, the data collected from HUD shows no indication of the green and sustainable status of these entities. The lack of healthy, efficient, and durable affordable housing is alarming to say the least. This project intents to identify vacant parcels throughout Boston which can be used for green sustainable .affordable housing. These available lots will be judged by their size and proximity to schools, hospitals, transit, and open space.

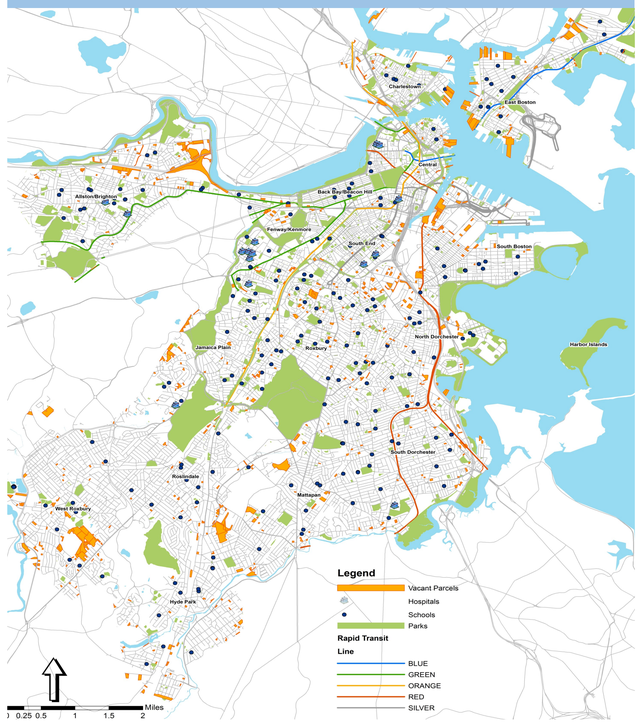
Methods

I wanted to locate the closest vacant parcels for green affordable housing construction to my main four layers, schools, hospitals, rapid transit, and open space. The parcels were selected by attributes to include only the 10,000 square feet and larger lots. They resulted being a total of 692 parcels. Then I mapped each layer, including the vacant parcels layer, over the Boston District layer. Each layer was clipped to the Boston District. Then, I calculated the proximity of the four main layers, individually, utilizing the Analysis Tool, “near” feature. But my coordinate was set for meters when I wanted miles unit. I converted the coordinate to miles by adding a field to the parcels table of attributes for each layer. Then I performed a field calculation, multiplying Near_Dist by the equivalent in mileage. This gave me the distance in miles between the parcels and the other layers individually. Using selected by attribute, I selected only the vacant lots one mile away from all four major layers. After, I created a new layer made out of the 21 vacant parcels located within one mile distance from all four layers.

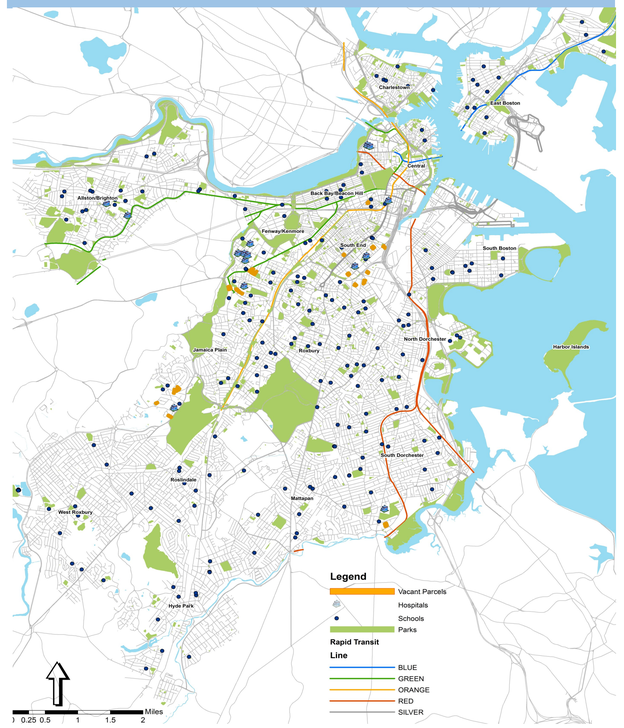
Vacant Parcels & All Assisted Housing in Boston



Vacant Parcels All 4 Major Layers, & Assisted Housing

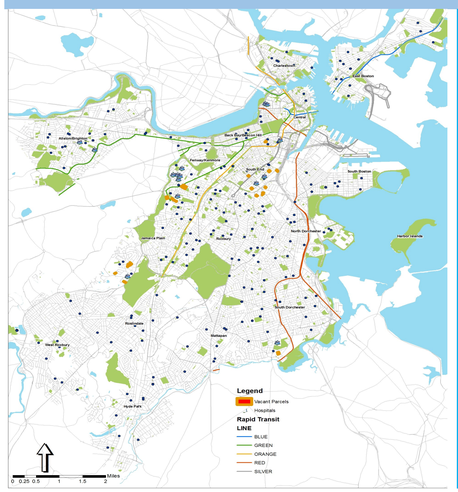


All Vacant Parcels Located Within One Mile from All Four Main Layers



Discussion

For this purposed, facilities or services located one mile away will be considered, three-quarter of a mile would be better, one-quarter of a mile would be best. The four main layers to be calculated were schools, hospitals, open space, and transit. The proximity calculations resulted in 427 vacant parcels located less than one mile away from the closest school. However, none of the other three layers were less than a mile away for further. Individually, each layer produced a different number of vacant parcels; all between 21 and 25 layers. The best proximity including all four layers at the same time was one mile approximately. It resulted in 21 vacant parcels one mile away from the closest school, hospital, open space, and train station. When I selected by attribute to visualize the lots within one mile from hospitals and rapid transit alone, the result was 24 lots instead of 21. When I selected the lots within one mile from schools and parks, the total of parcels was still 21. Many different combinations of the four layers could have been used. I chose to apply only a few.



On the left all vacant parcels located within one mile from the hospitals and transit

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Data Source: Tufts GIS Lab, HUDuser.org, City of Boston

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On the right all the vacant parcels located within one mile from schools and open spaces