Food Retail Opportunities in Boston's Underserved Neighborhoods

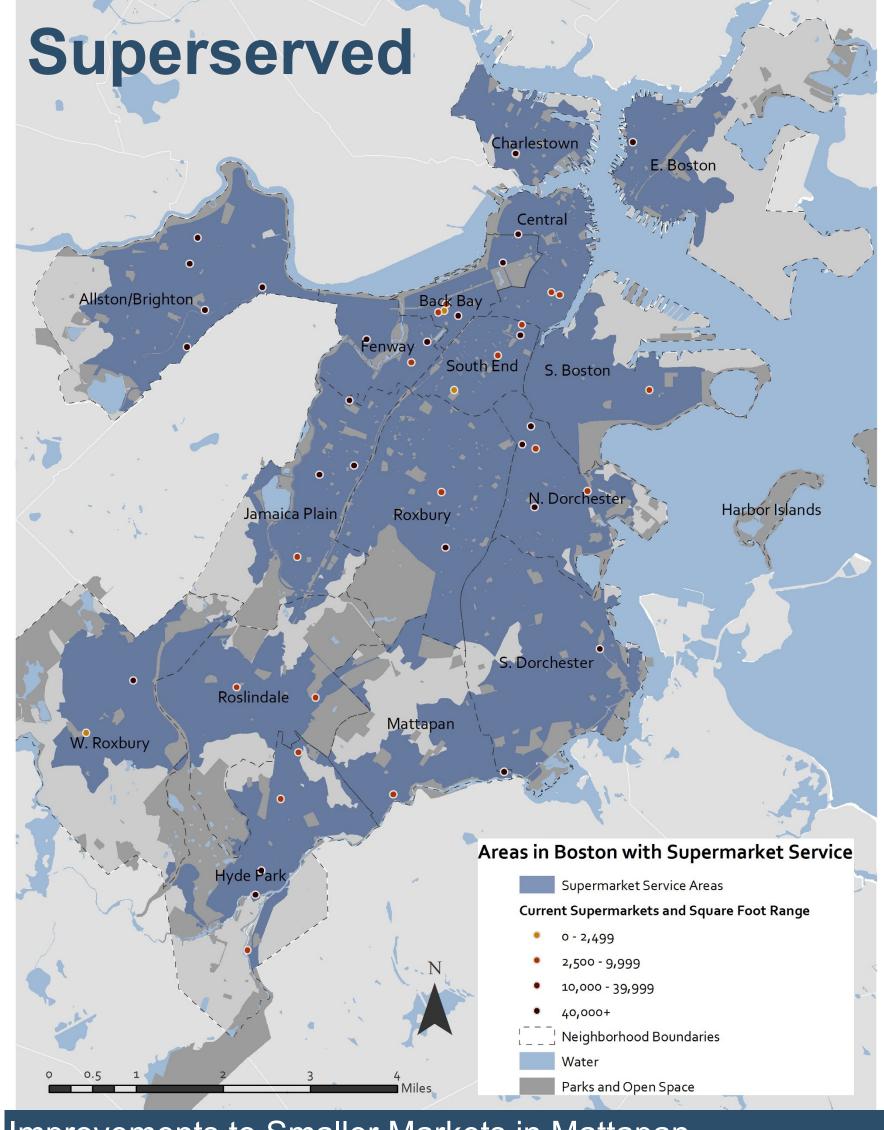
1. Introduction

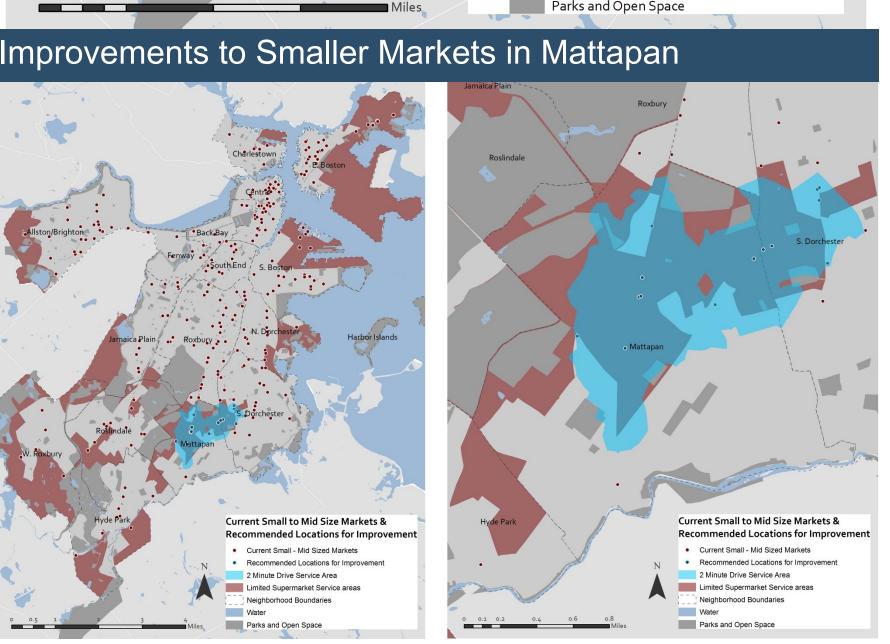
In the United States, an estimated 8.4 percent of the population has limited access to healthy and affordable food options¹. An absence of nearby supermarkets, income restraints, and limited transportation options can all present barriers to accessing a full range of food options. Where areas have limited food access, its residents often experience higher than average rates of poor health outcomes, including obesity and diabetes2.

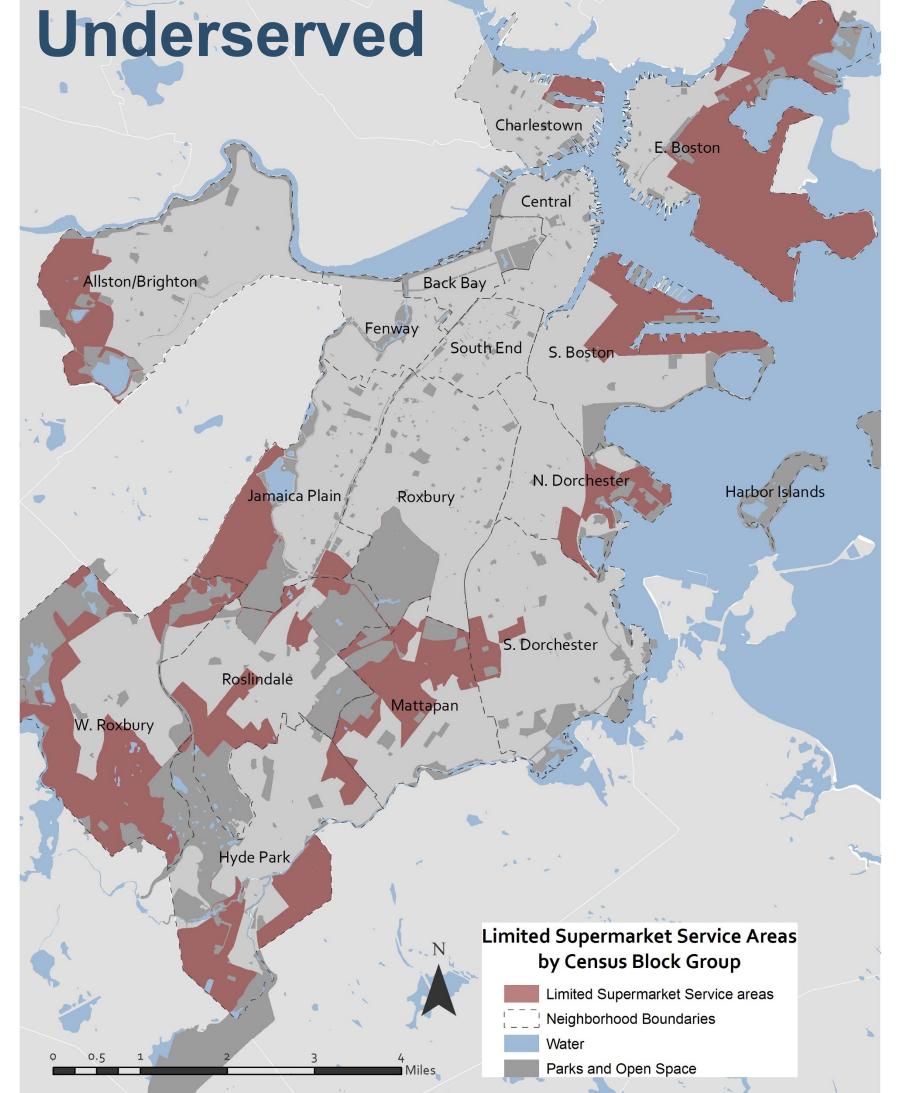
In areas of Boston, food access and correlated negative health outcomes mirror national trends. Reports by the Boston Public Health Commission and The Food Trust identify the Boston neighborhoods of Roxbury, Dorchester, Mattapan and East Boston as areas in greatest need of improved healthy and affordable food options³. In addition to experiencing a dearth of supermarkets (a proxy for healthy food choices), several neighborhoods also have higher than city-average rates of obesity, diabetes, and cardiovascular disease⁴. Thirty-seven percent of Mattapan's population is obese; this is in stark comparison to Boston's 21 percent average⁵. Roxbury has the highest rates of both diabetes and heart disease of Boston's neighborhoods⁶. The combination of diet-related health outcomes and limited grocery store service in these neighborhoods build the case for the need to improve availability of healthy and affordable food options.

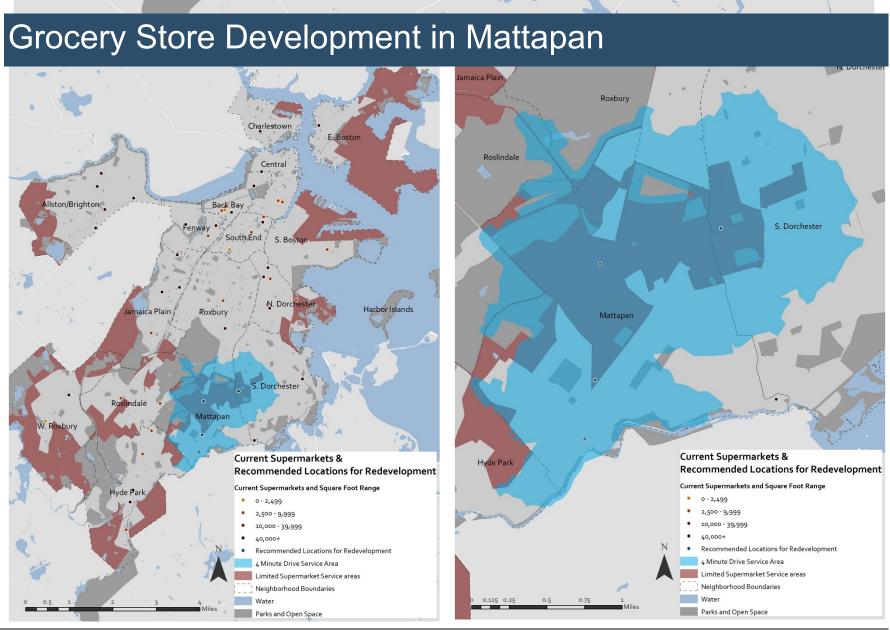
The following analysis reveals that in addition to a demonstrated social need for improved healthy food options, there are also business opportunities in these neighborhoods for developing new food markets. By measuring the service areas of Boston's existing supermarkets, ten distinct areas are shown to have limited access to supermarkets. Within these neighborhoods, the lack of nearby supermarkets suggests that the money spent on food is either being spent at supermarkets outside of the neighborhoods or at limited service food markets within the neighborhoods. The outflow of food money to outside supermarkets represents an opportunity for food enterprise interventions within underserved neighborhoods.

The Fresh Truck Site Expansion in Mattapan Current and Recommended Vending Site Current and Recommended Vending Sites for The Fresh Truck for The Fresh Truck Recommended Sites 2 Minute Walk Service Area 2 Minute Walk Service Area Limited Supermarket Service area Limited Supermarket Service are









3. Recommendations

Several interventions to improve healthy food access are recommended to provide immediate, intermediate and long-term solutions. Focusing on Mattapan, where the food purchasing capacity is shown to be the greatest, the following recommendations are made:

Expanded Routes for The Fresh Truck: a retrofitted bus that sells fresh produce in Boston. In 2013, their inaugural year, The Fresh Truck sold at 11 sites throughout Boston. Two of these sites are near but not within the Mattapan limited service area. I suggest three additional sites for consideration. The barriers to vending at these sites are likely to be low, and The Fresh Truck could consider these sites for its upcoming 2014 season. The sites recommended are the Young Achievers School at 20 Outlook Road, Franklin Field BHA at 100 Ames Street and a City of Boston-owned parking lot at 76 Norfolk Street.

Improvements to existing Small- and Mid-Size Markets: "Healthy on the Block", an initiative of the Boston Public Health Commission (BPHC), currently works with corner stores in Mattapan and East Boston to improve their healthy food offerings. Within the Mattapan limited service area there are 7 small food markets; I suggest that BPHC could consider these markets for inclusion in the Healthy on the Block program to improve the healthy food options available in the stores.

New Full Service Grocery Stores: Recently, some food market chains have recognized the opportunity to serve urban areas, and are designing stores with smaller footprints (10,000 square feet and up) to fit into densely built urban spaces. This smaller store format could be the right fit for Mattapan.

While within the limited service area in Mattapan, there are no vacant, commercial parcels 10,000 square feet or larger, there are a handful of parcels that are of this size that currently operate auto-repair related businesses. suggest evaluating three of these parcels for redevelopment into a smaller format urban grocery store.

Purchasing Power and Opportunity in Underserved Areas

Neighborhood	Food Purchasing Power (annual estimates)	Grocery Demand (in square feet)
Mattapan	\$19,300,836	36,318
Jamaica Plain	\$16,452,223	30,958
West Roxbury	\$16,135,796	30,362
Brighton	\$16,007,997	30,122
East Boston	\$13,028,490	24,515
Hyde Park	\$10,064,927	18,939
Roslindale	\$8,943,192	16,828
South Boston	\$6,793,282	12,783
North Dorchester	\$4,391,244	8,263
Charlestown	\$263,876	497

4. Conclusion

Agencies and organizations throughout Boston recognize the need to improve food options for city neighborhoods with limited access to healthy food options, and are working to improve conditions through a number of strategies. This research and analysis argues that in addition to the demonstrated need, there are also opportunities to improve food access through growing healthy food businesses. Such developments would also positively impact the local economy. There are opportunities for cross-sector collaboration between policy makers, community members and business owners to further examine the recommendations made herein, in Mattapan and in other limited service neighborhoods with opportunities for food retail improvements.

Limitations: This research focused on Boston supermarkets only. Supermarkets just outside Boston's boundaries were not considered, and as such the underserved areas that abut municipal boundaries would require further research and verification. The identified areas that are coastal or completely within Boston's boundaries correctly identify limited access areas.

2. Methodology

Analysis included several steps in the following order:

Determining areas with adequate supermarket service: The Superserved map (top left) shows the area in Boston where residents have adequate access to full service supermarkets. The blue area shows the aggregated supermarket service area. The supermarket service area was determined by estimating the different walk and drive times customers would be willing to travel to reach food stores of different sizes. The commute time to store size ratio were estimated as follow:

Store Square Footage	Drive Time	Walk Time
0 – 2,499	2 minutes	2 minutes
2,500 – 9,999	3 minutes	3 minutes
10,000 – 39,999	4 minutes	4 minutes
40,000+	5 minutes	5 minutes

The ArcMap GIS Network Analyst Service Area tool was used to determine the total supermarket service area.

Determining areas with limited supermarket service & purchasing power: The limited service areas were determined by identifying the Census Block

Groups that fell in the gaps of the Superserved areas. These areas are depicted in the Underserved map (top right). Purchasing power of the limited service areas was determined using Census data from 2010, measurements of food spending from the Consumer Expenditure Survey, and estimates of ability to capture 60% of the food spending with new markets. Using measurements from the Food Marketing Institute, sales volume of \$531.44 per square foot was used to estimate the square footage of new market development the areas could support. The equations below were used to arrive at neighborhoods estimates. The table (middle right) shows the results.

Purchasing Power = (Total area Income/percentage income spent on food consumed at home) * percentage of food spending able to be captured by new markets PP = (Total HH \$ / 7 percent) * 60 percent

Grocery Demand (in square feet) = Purchasing Power/Sales per square foot GD (sf) = PP/\$531.44

Recommendations for interventions focused on Mattapan where the purchasing power and grocery demand was highest.

Interventions for improving healthy food options:

Recommended site expansion for The Fresh Truck includes a combination of criteria that appear to have been used for the enterprise's current locations including, population dense neighborhoods, social centers, property owned by the City of Boston, bus transit access and parking for The Fresh Truck.

Seven food markets (0-2,499 square feet) currently operate within the limited service area in Mattapan. All are recommended as candidates for evaluation and improvement.

Three sites (10,000 – 15,000 square feet) are identified for **smaller format** grocery store development. All sites are currently auto-related businesses. All are recommended as potential sites for grocery redevelopment.

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3 Trust, The Food. "Food for Every Child: The Need for More Supermarkets in Massachusetts." (2010). Accessed December 16, 2013: http://

5 "Health of Boston."

Health of Boston," Boston Public Health Commission Research and Evaluation Office (BPHCRE), (2011), http://www.bphc.org/about/research hob2010/Forms%20%20Documents/Health%20of%20Boston%202011_Final_Print_Revised_30Nov11.pdf.

4 "The Wellness Trail: How Healthy Is Your Neighborhood," Tufts Clinical And Translational Science Institute (TCTSI), Last accessed December 16, 2013, http://wellnesstrail.tuftstsi.org/neighborhood disease_rates/south_end_chinatown.

Data Sources: MassGIS (Hydrography, Open Space, Streets, Census Block Groups, Parcels); Reference USA (Food Markets with NAICS codes: 445110, 445230, 445230, 445220, 445299, 446191); Census 2010 (Household Units, Income); The Fresh Truck website, vending sites Thanks to David Treering for providing data that informed this research. Thanks to Barbara Parmenter for offering GIS technical support.





Cartography: Heidi Stucker, M.A. Candidate Course: Introduction to GIS, Fall 2013 **Urban and Environmental Policy and Planning**