

# Healthy Food Accessibility for Seniors:

## More than options at the grocery store

Madison Wierzel

Fundamentals of GIS

### Introduction

Accessibility to healthy food has become a battle cry in recent years, leading to increases in the number of farmers markets and greater local food options at traditional grocery stores. However, access means more than additional options at the grocery store to elders and those with mobility issues. Healthy food is not truly more accessible until it is also easily and readily available to such vulnerable populations.

The goal of this project was to investigate whether assisted living facilities in the greater Boston area had adequate access to grocery stores within a 400 meter distance, and then whether such stores could be easily gotten to by someone with more limited mobility.

### Methodology

A list of assisted living centers (ALC) in Boston was compiled from a Massachusetts Executive Office of Elder Affairs spreadsheet on certified assisted living residences. These addresses were made into points and then a shapefile on ArcGIS. ESRI Business Analyst 2010 was then imported into ArcMAP and SIC codes for grocery stores (5411) and fruit and vegetable markets (5431) were used with SQL to select only those businesses from the Business Analyst layer. From there, a select and sum model was used to highlight only those two business types within a 400 meter radius around each ALC.

These results are shown in the large map. Then, for greater precision when deciding on a location, MassGIS land use data was used to show areas approved for commercial use. That was helpful in deciding on the proposed store's suggested location.

The ALC chosen for the zoomed in map was decided based upon having the fewest grocery store or fruit and vegetable markets within the 400 meter radius, and while this one shows three stores like another ALC in the bottom left of the large map, there is actually only one currently there as of 2014. A Google Streetmap tour confirmed what had been a corner store is now a hair salon. The buffer tool in ArcMap was used to highlight the area in which a new store location would be built.

### Conclusion

With this data, the best location for a store is close to the Visiting Nurse Assisted Living Center in Somerville. There is currently only one convenience-style store within a 400 meter radius, and it has a small step that may prove difficult to those with mobility issues.

However, there are notable limitations to this project. First, the data are not current with regards to both the ESRI business analyst data layer and the land use data; ESRI is from 2010 and the land use is from 2005. The ESRI data turned out to be incorrect for siting grocery store and fruit and vegetable market locations, because two of the three in the project radius for the Lowell St. ALC are no longer in business and are occupied by non-food businesses, as shown by Google Street View.

Additionally, the parcel of land suggested already has a business operating on it, and there does not appear to be additional room for a grocery store. Negotiations would have to happen before any new store could be brought in.

Going forward, more recent data should be used to evaluate the prevalence of stores nearby. Part of the project was originally going to include elevation data to assess hilliness and accessibility, but the data are not granular enough to do so at present. However, if in the future such data were available, that would add a nice layer of nuance to the siting, especially in hillier neighborhoods. It would also be helpful to find data on sidewalk conditions, as poor walkways may influence how frequently elders or those with limited mobility may seek to go to the store.

### Results

After deciding that the Lowell St. ALC could benefit from an additional grocery store within 400 meters, commercial land use data was used to discover available land parcels within the requisite radius. The star icon on the pull out map indicates this project's suggested store location for the most benefit to this ALC that is on land that could be commercially developed, though whether that land is large enough to accommodate a grocery store is a separate question.

### References

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Grocery store in 2009 on the ESRI dataset that is a salon now.



Proposed store location.

Some issues with the ESRI business data meant that two locations were noted in the select and sum model when, in fact, street view shows them as no longer being such stores. The one store still there, the bottom photo to the left, has a step that may make it difficult to enter for those with mobility issues.

Grocery Stores Near Chosen ALC	Address	Currently In Business
SOMERVILLE QUICK STOP	219 HIGHLAND AVE, SOMERVILLE	Y
VEDLEYS MINI MARKET	217 HIGHLAND AVE, SOMERVILLE	N
SUPREME KITCHEN	233 HIGHLAND AVE, SOMERVILLE	N

Table of stores near chosen ALC; data from ESRI Business Analyst 2010