

Grocery Access in Lawrence, MA

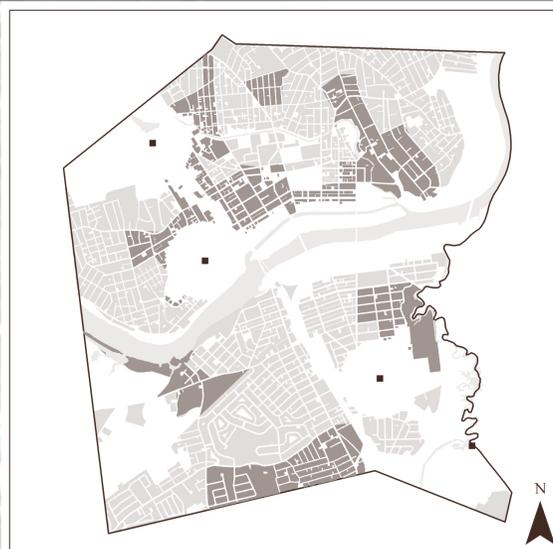
Proximity of Residences to Grocery Store and Corner Store Locations

Introduction

Food insecurity is often measured spatially by locating areas that have a shortage of grocery retailers. The USDA defines a geographic area without any grocery retailers within 1 mile as a “food desert.” However, the availability of food varies by store type, with big box grocery stores providing large selections of produce and staple items, and corner stores stocking more junk food, soda, and unhealthy offerings. Some scholars have argued that if four or more corner stores exist within an area of 0.25 miles, the location can be considered a “food swamp” despite the presence of small grocery retailers.

In Lawrence, MA, a city with high rates of poverty and food insecurity, over ninety corner stores service an area of seven square miles. Contrary to popular belief, many of the stores stock healthy groceries and staple items in addition to unhealthy snack food. Corner stores play an important role in food access for residents living in poverty in the city. This poster will highlight the distance of Lawrence housing units from different types of food stores, and how this relates spatially to poverty rates.

Map: Parcel Distance from Grocery Stores



Legend

- Big Box Grocery Stores
- Distant from Grocery Stores
- High Poverty and Distant from Grocery



Results and Conclusion

92.5% of parcels that are potential residence locations (zoned R or B) are more than 0.25 from big box grocery stores. However, 79% of parcels are within a quarter mile of corner stores.

21% of parcels in the city are near neither store type and could be considered food desert parcels (> 0.25 mi from all stores).

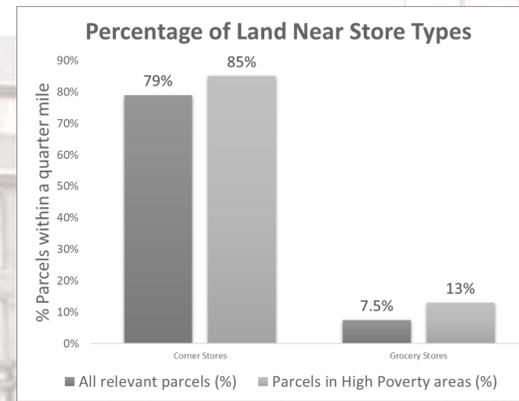
Within the high poverty block groups, 15% of the parcels have neither store type within a quarter mile.

Although Lawrence residents as a whole have poor access to big box grocery stores, parcels in high poverty areas were found to be closer in proximity to grocery and corner stores compared to Lawrence as a whole.

Other relevant findings included the following:

- 97.5% of all parcels serviced by big box stores are also serviced by corner stores (see image above)
- 92% of the food desert parcels are zoned R1 or R2. Similarly, 92% (449/489) of the food desert parcels in high poverty block groups are zoned R1 or R2

These findings suggest a relationship between food access and zoning in Lawrence that deserves further consideration. The results highlight the importance of social and economic factors beyond geographic proximity when assessing food accessibility in cities. Further research could improve understandings of the role of corner stores in food access.



Methodology

What is the distance between housing unit locations and corner store/ grocery store locations?

What is the relationship between poverty rates by block group, and access to these store types?

Sources of Data:

- Lawrence Zoning Map from the Merrimack Valley Planning Commission, to identify parcels as potential locations of housing units
- Grocery and Corner store location data from Reference USA, geocoded with an address locator
- Data on poverty at the block group level from the American Community Survey 2016 (5 year estimates), to identify high poverty block groups

Attribute queries were used to determine:

- the count of potential residential parcels in the city, and the count containing geometry within 0.25 miles of corner stores and grocery stores
- the count of potential residence parcels within the high poverty block groups identified, and the count of these parcels containing geometry within 0.25 miles of corner stores and grocery stores

Potential residence locations were defined as tax parcels zoned Residential (R) or Business (B), based on the city zoning ordinances. A distance of 0.25 miles was selected as the limit to store based on a stricter definition of food desert from the city of Baltimore, which takes more conditions of poverty into account. High poverty block groups were defined as block groups containing over 100 households living in poverty. Parcels with centroids within the high poverty block groups were selected for further analysis.

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Image sources

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