Finding Food Deserts in Toronto, ON

Introduction

For this project, I am searching for food deserts within Toronto, ON. Food deserts refer to areas that have limited access to supermarkets with fresh foods. People in urban or suburban areas that live more than 1.6 kilometers from a supermarket are considered as living in a food desert. For rural populations, the distance is adjusted to 16 kilometers.

Food deserts tend to be found where residents have low mobility (lack of access to transportation) and are low-income. For those reasons, these areas are less attractive to large supermarket chains.

For those same reasons, food deserts have health implications. Low-income persons or those with low mobility and have less access to fresh fruits and vegetables. Hence, they tend to eat less fresh fruits and vegetables. This, in turn, leads to poorer diet, health, and increased obesity rates.

Urban planners, local councils and health officials can work on public initiatives to increase access to supermarkets in current food deserts. Once these desert areas are located, land parcels that can accommodate a grocery store can be identified and councils can work on plans and incentive packages to attract grocery stores to the neighborhoods.

Data

For this project, the data used consisted of

- Postal code areas for Toronto, ON extracted from a Wikipedia page [https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M]
- Geographical coordinate data [https://cocl.us/Geospatial_data]
- Foursquare API using venue information to locate grocery stores

Using the postal code coordinates, I can search each postal code for a grocery store and record its location. Then, I can do a left exclusive join on the dataframes to find which postal codes found no grocery stores within a radius of 1.6 kilometers.

Methodology

Ideally, a shortest-path analysis from each residence to the nearest grocery store would be run but is very difficult using a street network. As a proxy, I used the center of a postal code to create a buffer zone of 1.6 kilometers to aid in calculating access to grocery stores in Toronto, ON.

First, I obtained postal codes and their respective locations using geospatial data and information scraped from a page for postal codes.

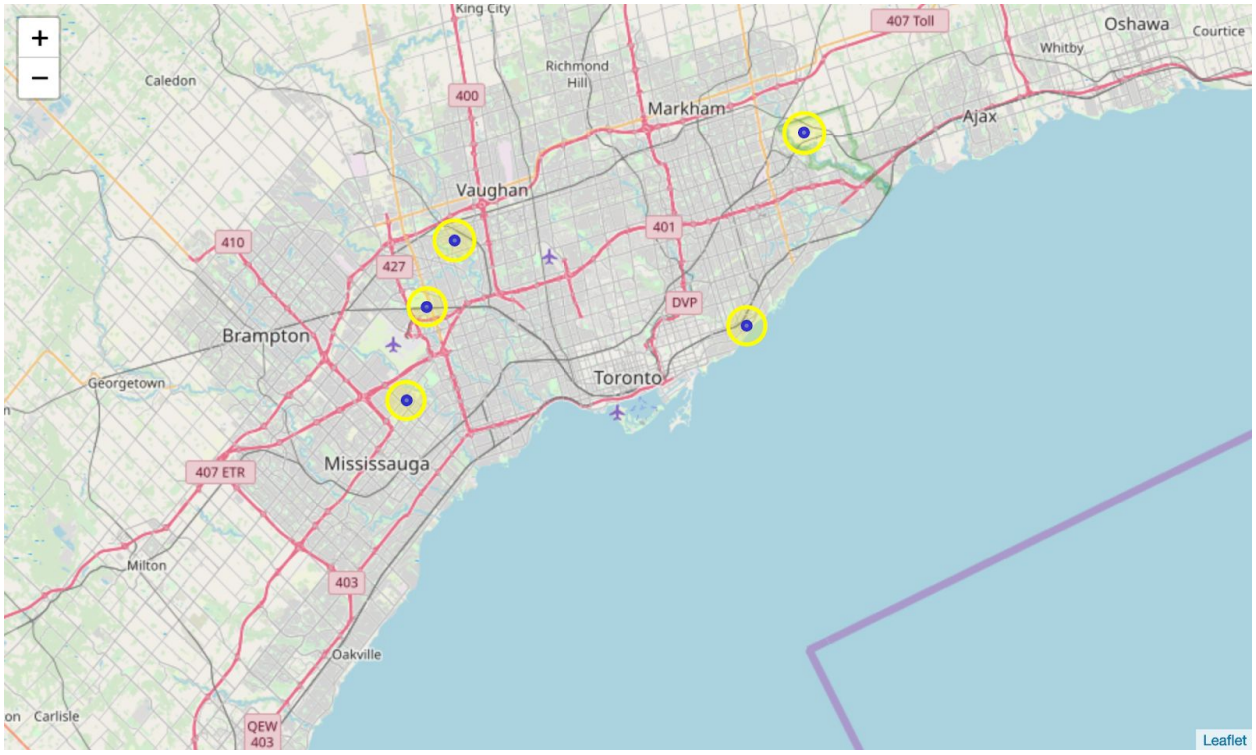
Next, I searched for grocery stores within a buffer zone of 1.6 kilometers around the center of each postal code. If a grocery store was found, its name and location were recorded. As the goal is to find areas with zero grocery stores, once a store was found and recorded, we could move on to the next postal code area. For our purposes, there was no need to locate all stores within the buffer zone.

Once all postal code areas were searched, we found all areas that found no grocery stores in the buffer zone. These areas were then mapped.

Results

After the analysis was performed, it has been determined that there are five food deserts within the boundaries of Toronto, ON, as indicated by the yellow buffer zones in the following map.

Food Deserts in Toronto, ON



Discussion

Most large cities do have food deserts, and this is not only a health issue but also presents opportunities for communities to address accessibility and inequality issues.

The results presented are limited given the information used. Further research into population density and transit options within the mapped food deserts should be done to determine how best to address the lack of access to grocery stores in the area.

Conclusion

Some parts of urban areas lack amenities conducive to community development and the well-being of its residents. A lack of affordable nutritious food is one such amenity and these food deserts have been identified for the Toronto, ON area.

The identification of these food deserts should assist policymakers craft incentives to attract grocery stores to the affected areas.