

Urban Agriculture and Food Insecurity

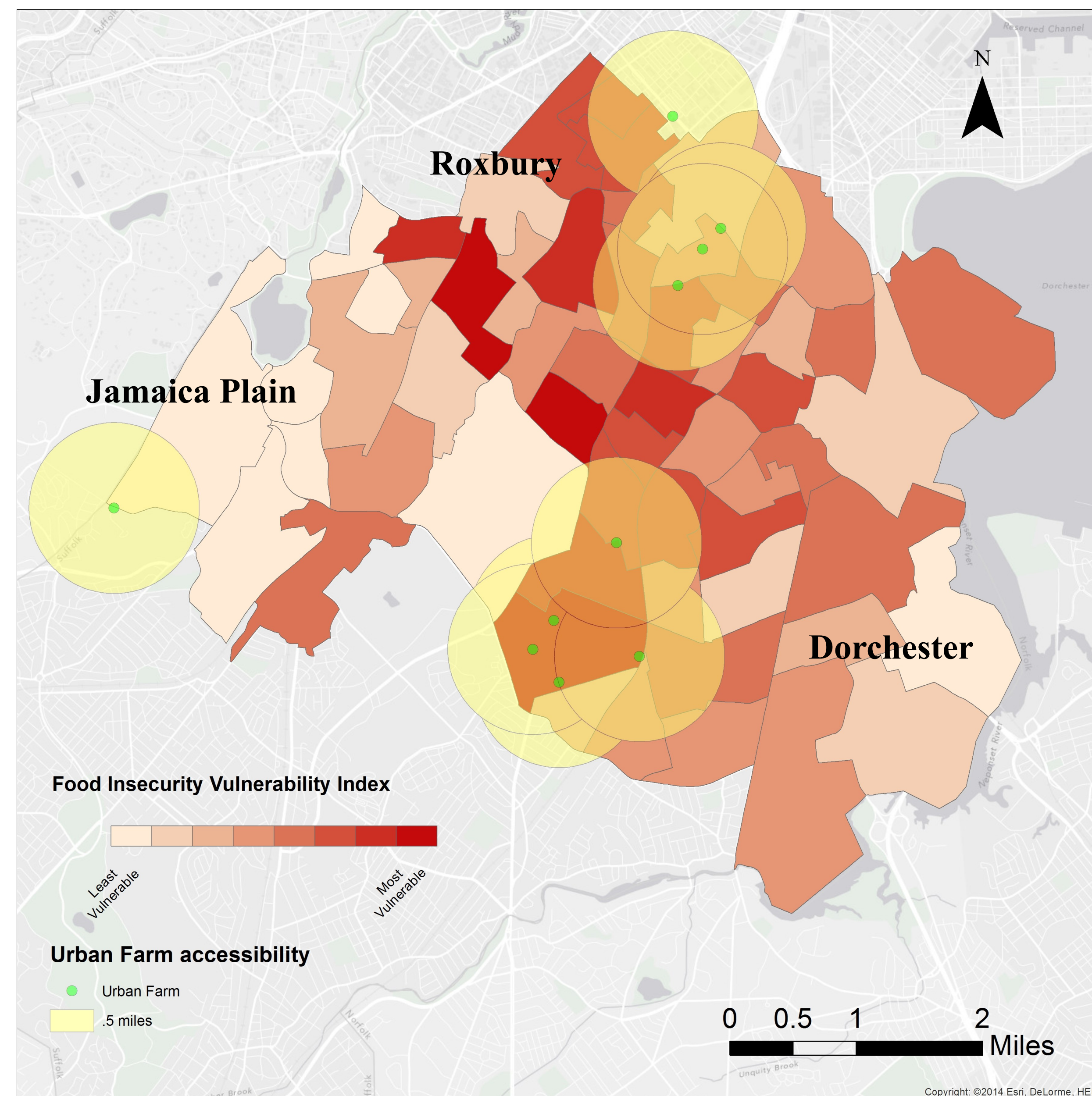
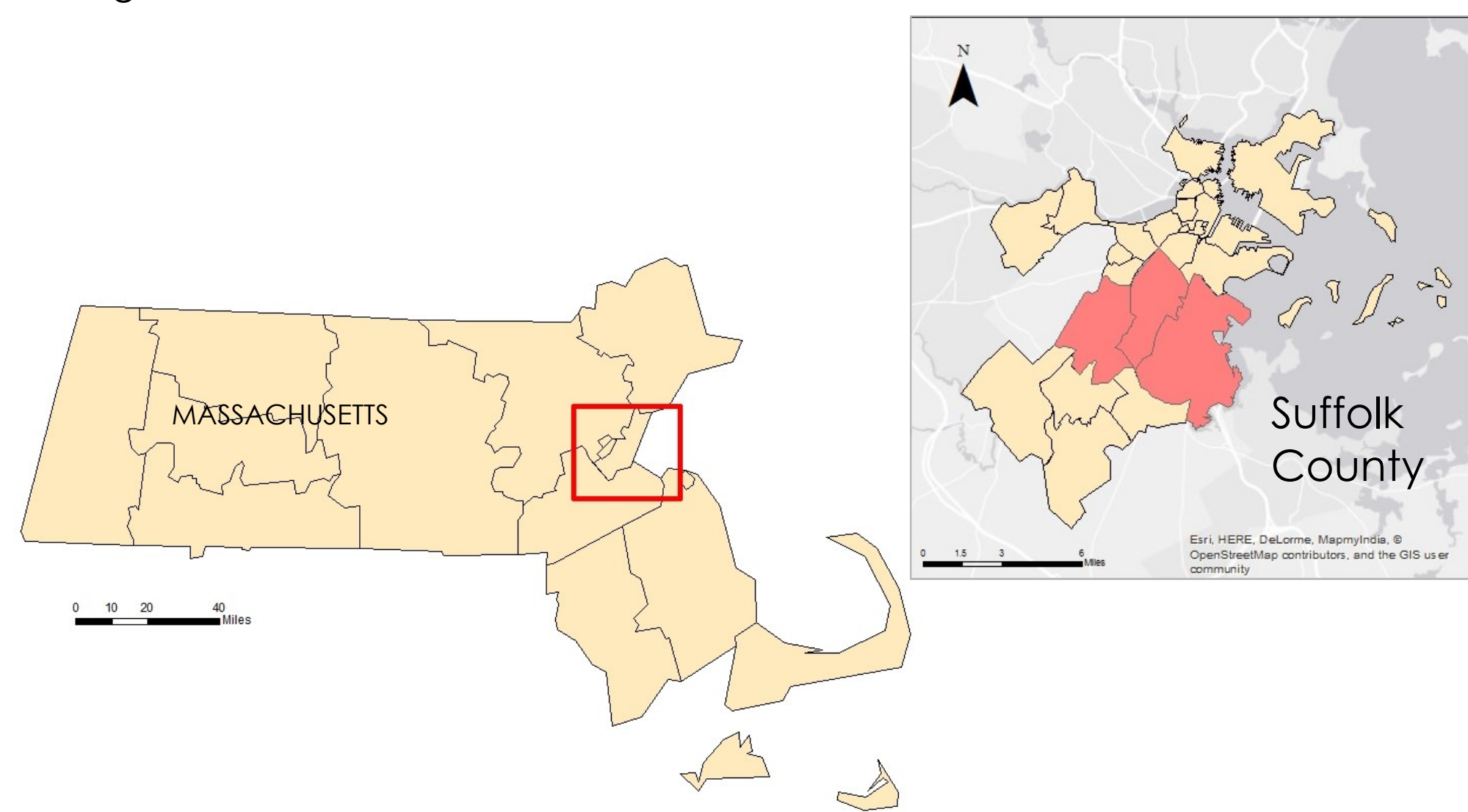
Identifying opportunities in Article 89

Introduction

With the looming question of how to provide food for our country's growing population, many cities have turned to urban agriculture in an effort to alleviate food insecurity of inner city populations. Though the idea of turning parking lots and roof tops into food sources is attractive, many potential projects are thwarted by difficult and complex zoning laws that restrict what land can be used for. Boston has taken great steps in eliminating this barrier with new legislation introduced in 2014, and has the potential to become one of the United States' leading cities in innovative urban agriculture projects, should the new zoning be taken advantage of.

Article 89 was the result of a three year collaboration led by the Mayor's Office of Food Initiatives, the Boston Redevelopment Authority, and the Mayor's Urban Agriculture Working Group. Its passing allows for urban food production to be conducted as an economic activity on parcels of land up to one acre in size. While previously backyard gardening was permitted, the new zoning expands the possibilities for those wishing to create economic opportunities from urban agriculture. Currently, there are several agricultural businesses or nonprofits operating in Boston, but there is much room for expansion into areas that are less served, with the potential for helping to alleviate food insecurity throughout Boston.

This project focuses on three neighborhoods of Boston: Dorchester, Roxbury, and Jamaica Plain. All of these neighborhoods have current agricultural projects located within them, yet these initiatives are still inaccessible to a large portion of the population. Determining populations at highest risk for food insecurity that are not being served by current initiatives will allow new initiatives to fill voids and improve food access throughout Boston.



Methodology & Results

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The scope of the project was determined by location of current urban agriculture projects in Boston. Based on a preliminary analysis, Jamaica Plain, Roxbury, and Dorchester were chosen as the focus locations.

Population characteristics that pose high risk of food insecurity were compiled based on literature reviews and previous studies on food insecurity and access. The five factors chosen by the researcher to create the vulnerability map were: total population and population under 14; SNAP beneficiaries; access to a vehicle; and income below the poverty line. These characteristics were displayed in individual choropleth maps showing variation based on census tract within the three neighborhoods.

These characteristics were then ranked on a scale from one to five, with one coordinating with the lowest risk of food insecurity and five coordinating with the highest risk. These rankings were combined into a master ranking showing overall risk of food security based on all five factors, which were combined into a larger choropleth map. Finally, the choropleth vulnerability map was laid under a display of areas within half a mile of current urban farms. This distance was determined by common measures of food access, with under half a mile representing high risk of food inaccessibility.

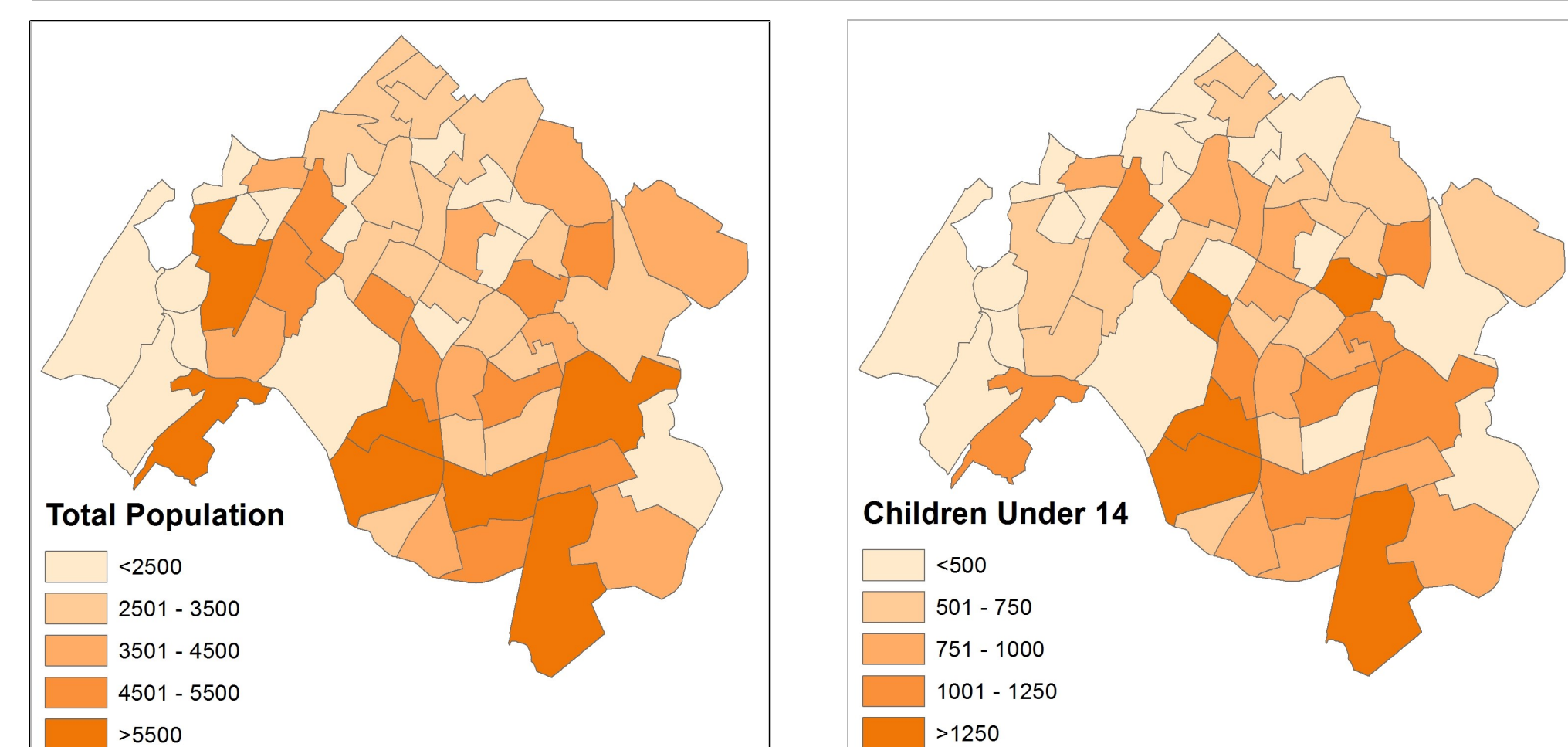
The resulting vulnerability analysis results in several conclusions about food insecurity and urban agriculture. Current organizations are heavily clustered in neighborhoods of Dorchester and Northern Roxbury, with much overlapping region in terms of their accessibility. Many of these neighborhoods also showed to be higher on the vulnerability index. However, it is evident that there are still areas of high food insecurity without access to urban agriculture. These tracts are largely located in Roxbury and eastern Dorchester and provide opportunities for new farmers. Jamaica Plain, overall, has relatively lower risk of food insecurity, while Roxbury and parts of Dorchester have a much higher risk of food insecurity.

Discussion & Further Research

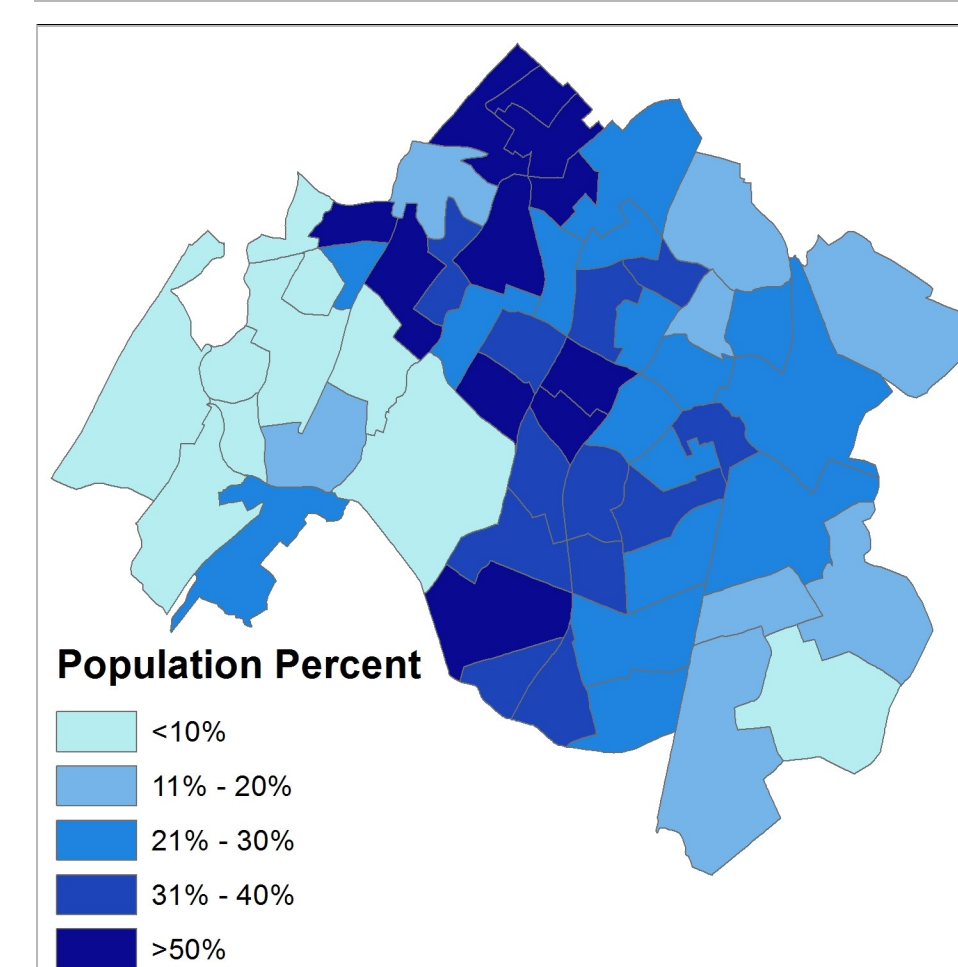
Though this analysis shows areas that are food insecure and yet not being served by current operations, several additional factors need to be taken into account. The first of these is to ensure that agriculture is something of interest to the populations currently living in these vulnerable census tracts. Though many are quick to propose agriculture as a solution, it is important that

the community be involved in the process. Though it appears there are opportunities for new farmers, a follow up analysis should identify concerns and interests of populations, tracts of land and available rooftops available, as well as evaluating other factors important for agricultural success, such as light availability, water access, and public vs. private land ownership.

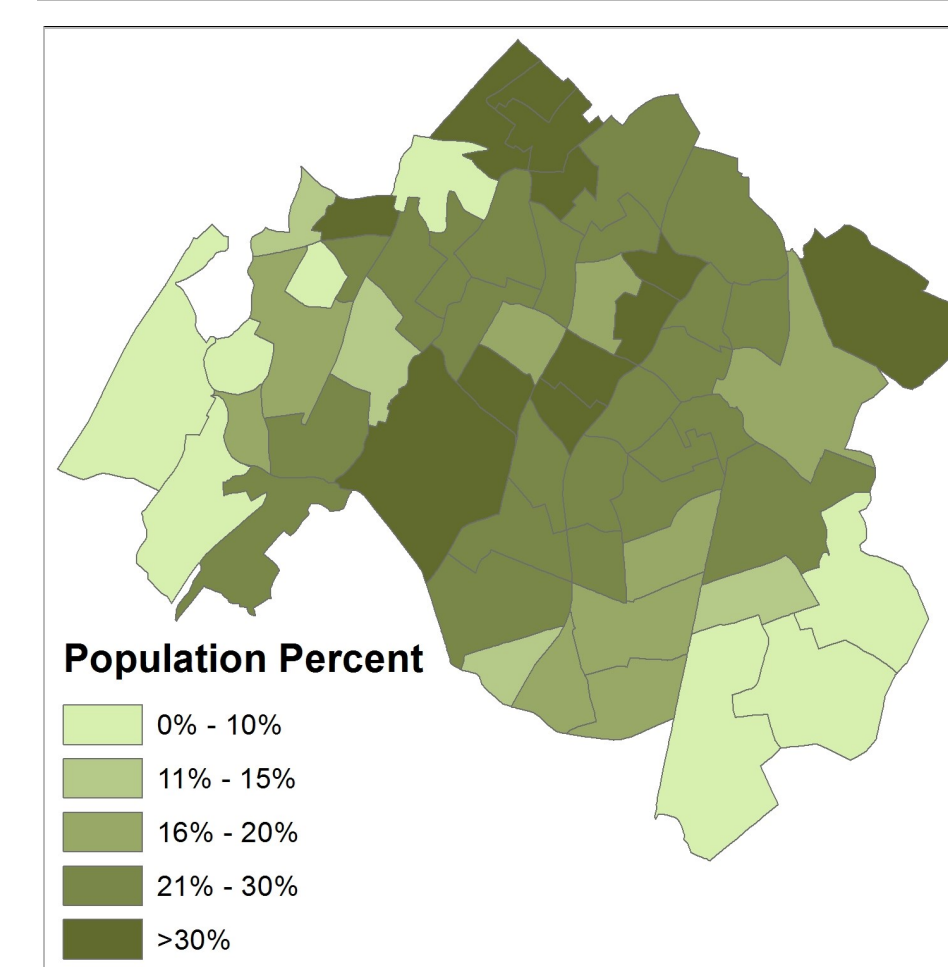
Population Density



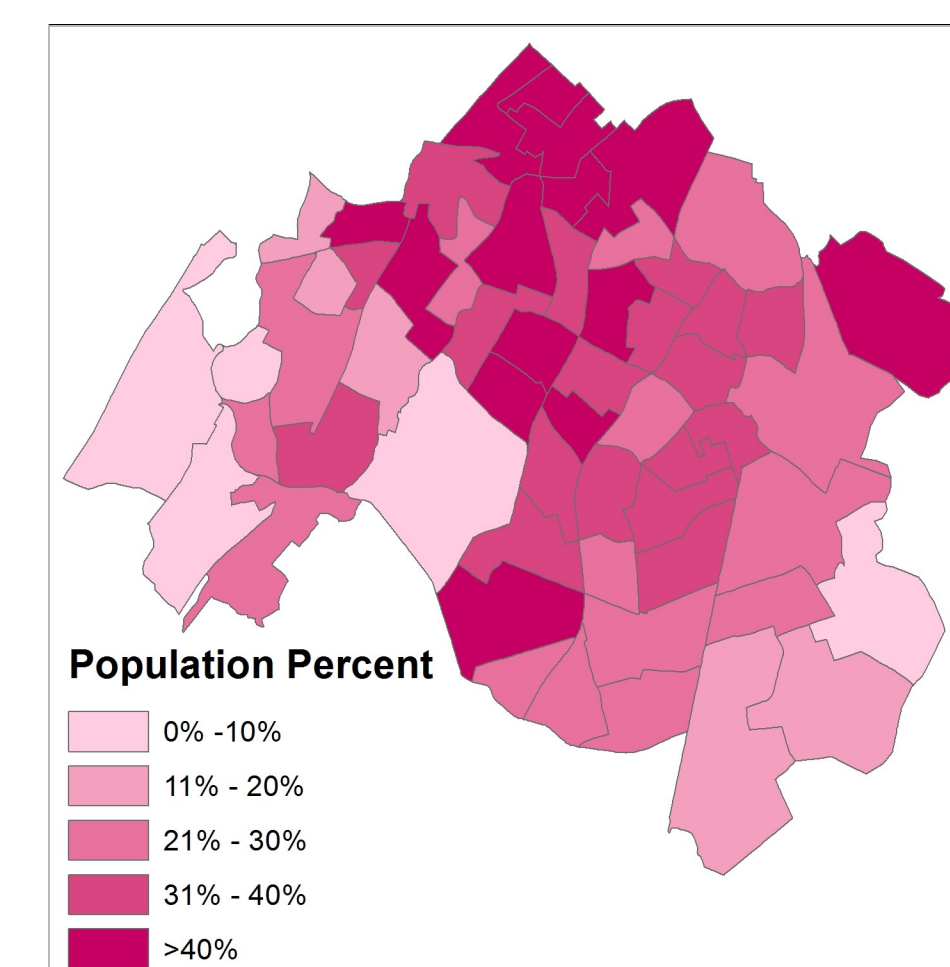
SNAP Benefits



Poverty Level



Lacking Vehicle



Sources

Data Sources: Massachusetts state map : ESRI, www.esri.com | Boston neighborhood shapefile: Boston Redevelopment Authority, www.bostonredevelopmentauthority.com | Basemap: ArcGIS | TIGER shapefiles: United States Census Bureau, www.census.gov | Indicators for food security vulnerability: Census data by census tract, factfinder2.census.gov | Urban farm locations: www.mass.gov
Other Sources: Boston Redevelopment Authority, [Article 89](http://www.bostonredevelopmentauthority.org): Urban Agriculture, 12/20/2013 www.bostonredevelopmentauthority.org/getattachment/a573190c-9305-45a5-83b1-735c0801e73e | Mayor's Office, "Mayor Menino Announces Adoption of Urban Agriculture Zoning," 12/19/2013.

Fundamentals of GIS Final Project
 Cartographer: Abigail Harper
 Date: May, 2014
 Coordinate System: GCS NAD 1984



