Overview
The goal of this project is to both visualize and analyze the locations of current urban agriculture efforts to increase access to healthy foods in the City of Boston. This includes community gardens, urban farms and farmers markets. In recent years, urban agriculture has gained attention and momentum; the passing of Article 89 in December 2013 set standards and made legal commercial urban agriculture within Boston city limits (Office of Food Initiatives). These urban farms as well as community gardens and farmers markets have been touted as potential tools to address public health issues like food insecurity, sustainability, and community empowerment (City of Boston). This GIS analysis looks at the spatial distribution of these projects in the City of Boston as they compare to racial demographic data to attempt to draw conclusions about the racial makeup of communities in which urban agriculture efforts are located and who may be seeing their benefits.

Sites of Urban Agriculture

Urban Agriculture Distribution

Methodology
The data used in this project was gathered from the City of Boston as well as the U.S. Census Bureau. The City of Boston provided names and addresses of urban farms, community gardens and farmers’ markets in the city. Racial composition of Boston by census tract for white, African American and Hispanic populations was obtained from the 2010 census. The urban agriculture point data was geocoded using TIGER road centerlines as an address locator. The overview map is the result of this process, displaying the different types of urban agriculture and their spatial distribution in the City of Boston.

These point data sets were further modified using the Euclidean Distance function in the ArcGIS Spatial Analyst toolbox. This tool created a raster dataset that displays areas within ½ mile of the location type. The census data was used to create maps displaying the percent racial composition for white, African American and Hispanic demographics. The darker areas on these maps indicate areas of higher percentage of the given race. These maps allow us to see racial distribution by census tract within Boston.

The data for the table and graphs involved in analysis was created using clipping by attribute. New data layers were created for each type of urban agriculture to find out how many of each type were in census tracts where more than 50% of the population was black or white or more than 40% of the population was Hispanic. These data were collected and graphed to represent the distribution of the types of neighborhoods in which urban agriculture features are located.

Findings
- 42% of community gardens are located in predominantly white census tracts, 42% in predominantly African American census tracts and 4% in predominantly Hispanic ones. Community gardens are relatively evenly distributed by race.
- Farmers markets are most likely to be located in a census tract that is predominantly white (59%).
- All of the urban farms used in this analysis (currently listed by the City of Boston) were located in census tracts that are predominantly African American in demographic makeup.

<table>
<thead>
<tr>
<th>Type of Urban Agriculture</th>
<th>Community Garden</th>
<th>Urban Farm</th>
<th>Farmers’ Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>54</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>White</td>
<td>54</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>Hispanic</td>
<td>5</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>No predominant grp.</td>
<td>15</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>128</td>
<td>7</td>
<td>29</td>
</tr>
</tbody>
</table>

Data Sources
MassGIS (2009)

Dana Howe
Intro to GIS, Fall 2014