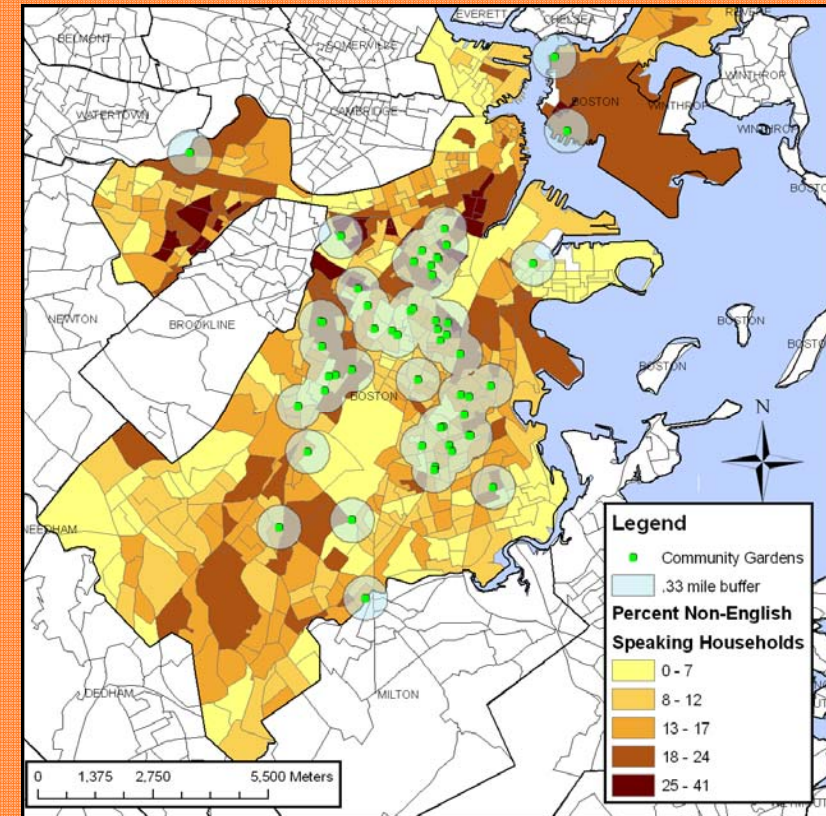
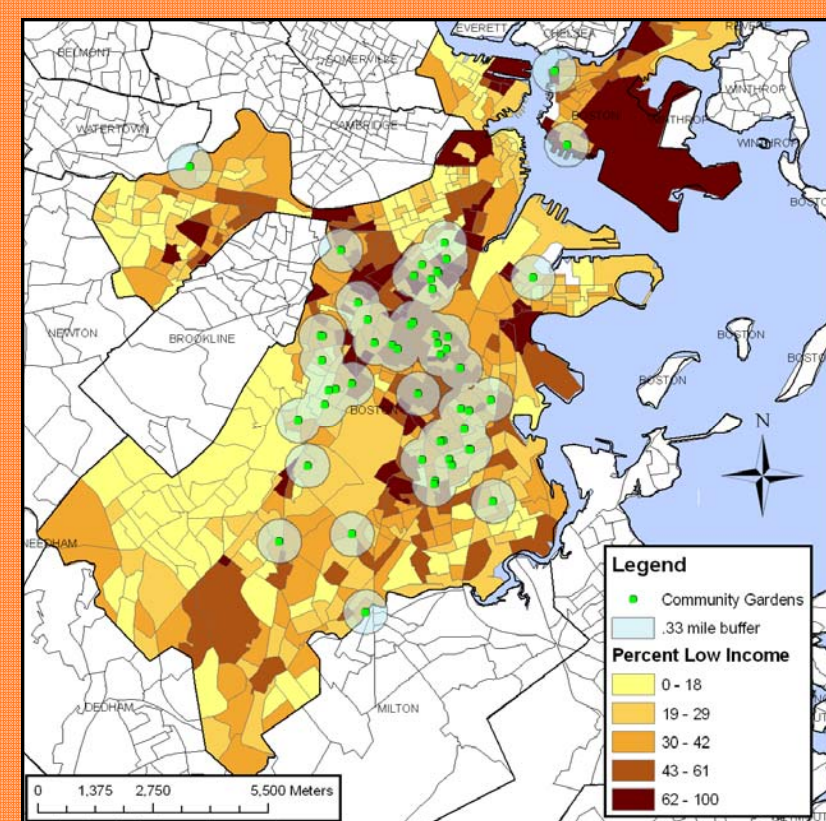


Food Insecurity in Boston: Socioeconomic Demographics of Areas with Community Gardens

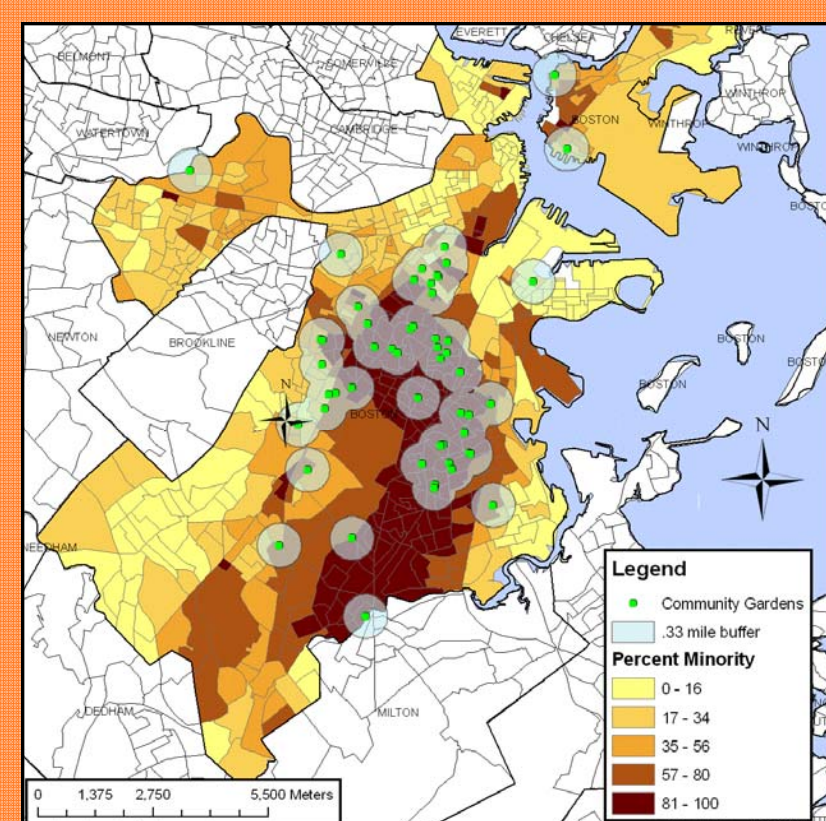
Percent Non-English Speaking Households



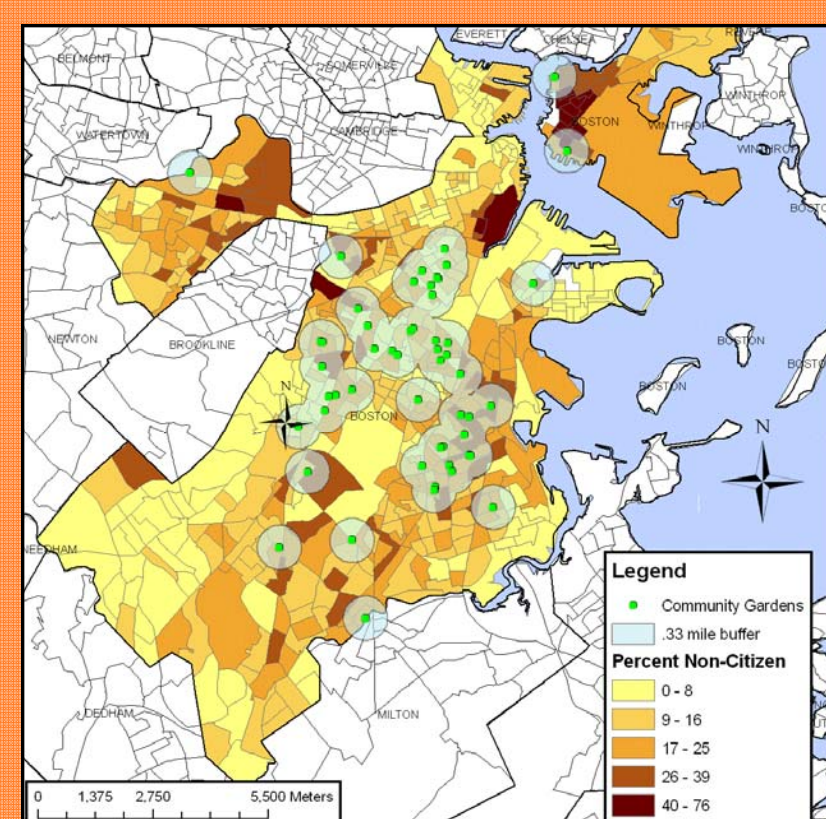
Percent Low Income Residents



Percent Minority Residents



Percent Non-US-Citizen Residents



Background:

As of 2004, approximately 800 million hectares of land were used for food production – approximating an area equivalent to Brazil, to provide enough food to feed a human population approaching 6.3 billion.¹ In order to support such large-scale agricultural activity, millions of hectares of hardwood forest (temperate and tropical), grasslands, wetlands, estuaries, and coral reefs have been either eliminated or severely damaged, resulting in significant loss of biodiversity and wide-spread disruption of ecosystem functions.²

With exponential world population growth expected to reach 9 billion by 2050, our current agricultural system will not be able to sustain us. There is a movement to grow more food in cities, where the majority of the world population lives, to reduce the environmental impacts of industrial agriculture while providing equitable access to fresh food across community lines.

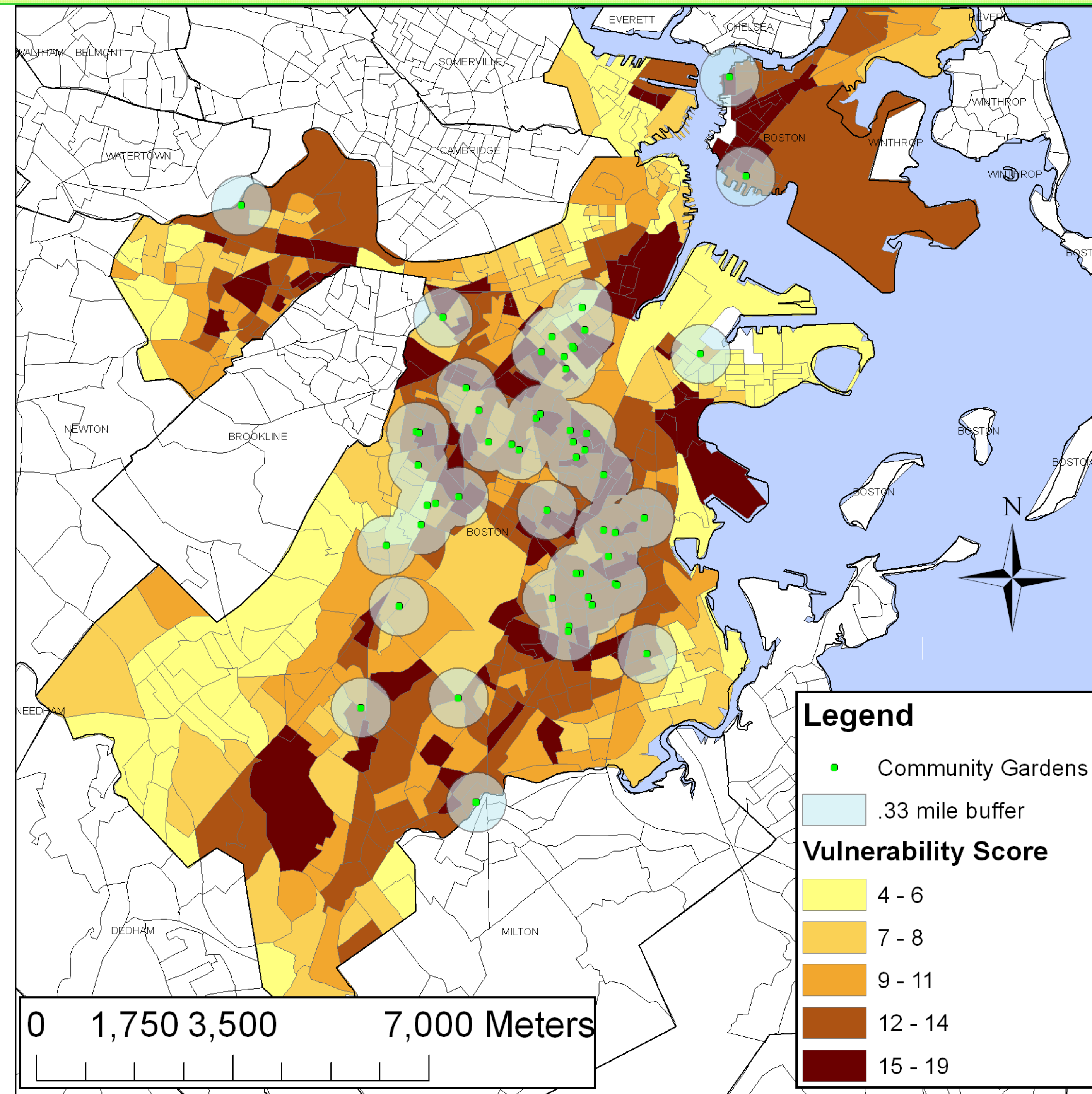
Equitable access to fresh, healthy food has been stunted by the industrialization and centralization of the food system, leaving many communities without food security. This study looks at which communities are most vulnerable, and highlights the use of community gardens as a socially and environmentally beneficial solution to food insecurity.



<http://pitchforkdesign.blogspot.com/>

Benefits of Community Gardens:

- Increased green space
- Increased access to fresh, healthy produce
- Additional income
- Jobs—maintenance or leadership positions
- Improve the health of overall urban ecology
- Allow residents to connect with nature
- Provide space for children to learn about nature, how their food grows
- Allow immigrants and migrants from rural areas to stay connected with their agricultural heritages
- Decrease crime—less vacant lots, more people outside “watching” the streets



Vulnerability to Food Insecurity

Methodology:

A system to evaluate the vulnerability of a community to food insecurity was created using a numbering system. The four variables included were: percentage of households that do not speak English and percentage of residents within census block groups that were low income, non-US-citizens, and racial minority (see maps to the left). Each were broken down into five ranges and assigned a number (Table 1). The sum of the variables for each block group then determined the overall score, shown spatially on the map above.

Mean values of selected variables for block

groups within the third of a mile buffer and outside the buffer are shown in Table 2 for comparison.

Score	Percent Minority	Percent Low Income	Percent Non-Citizen	Percent Non-English
1	0-16	0-18	0-8	0-7
2	17-34	19-29	9-16	8-12
3	35-56	30-42	17-25	13-17
4	57-80	43-61	26-39	18-24
5	81-100	62-100	40-76	25-41

Table 1: Variables and their scored ranges

Purpose of study:

This study aimed to analyze the socioeconomic demographics of the communities in Boston that are at risk for food insecurity and to compare them to those that have community gardens. From this, one can determine which areas in Boston are vulnerable to food insecurity but lacking in agricultural space, and would therefore benefit from access to community gardens.

Results and Conclusions:

While the locations of community gardens in Boston follow trends for vulnerability to food insecurity, there are several neighborhoods that are left out. Introducing urban agriculture to these communities could improve the overall environmental and social health of the city.

Variable	Within .33 mile	Outside .33 mile
Percent White	30.16	59.60
Percent Non-White	69.77	40.42
Percent Hispanic American	19.60	11.21
Percent Asian American	5.38	7.40
Percent African American	36.31	18.13
Percent Non-Citizen	17.04	14.41
Percent Non-English Speaking	13.89	12.64
Percent Low Income	37.33	31.15
Percent Medium Income	45.42	44.28
Percent High Income	17.24	24.57
Median Value of Owner-occupied homes	204,649.17	218,314.33

Table 2: Mean values of tested variables



Cartographer: Mara Gittleman

Course: UEP 232/ENV 193 —Intro to GIS

Data Sources: MassGIS, Census 2000 data, StreetMap USA, Boston Natural Areas Network,

References: ^{1,2} Food and Agriculture Organization, World Health Organization. 2004 statistics on crop production as cited by Despommier, Dickson. *Vertical Farm Essay 1*. www.verticalfarm.com