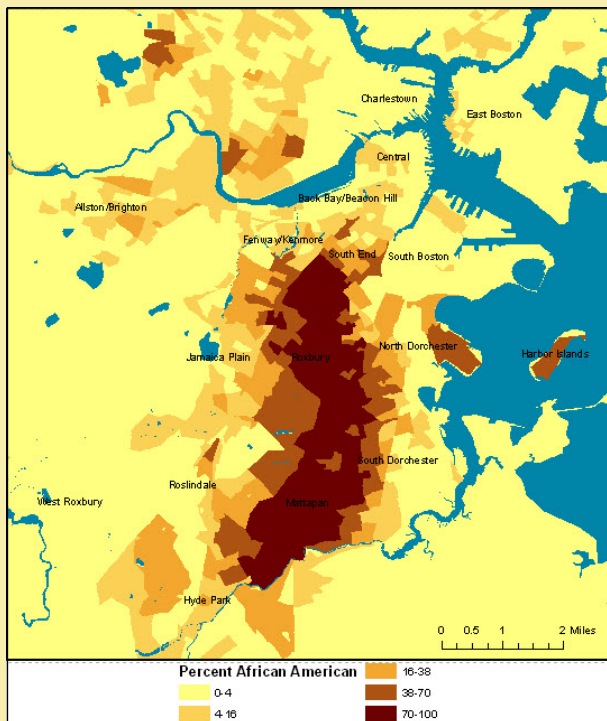
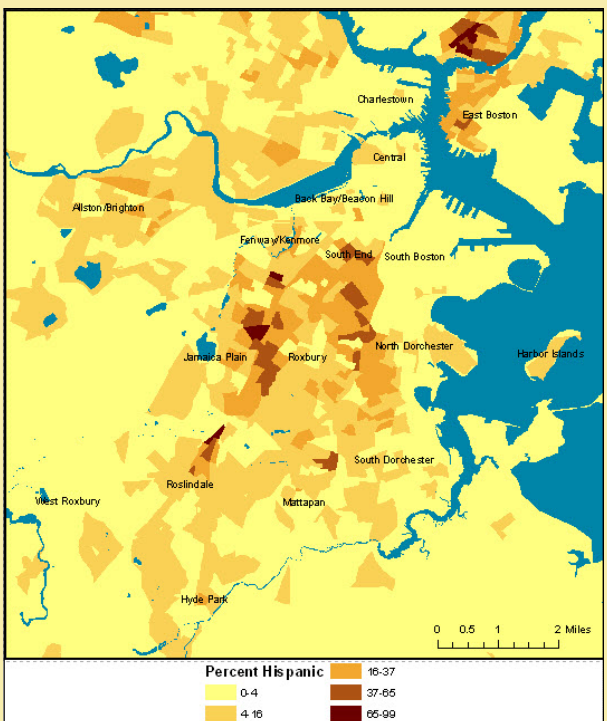


Demographic Trends Between Foreclosure Crises

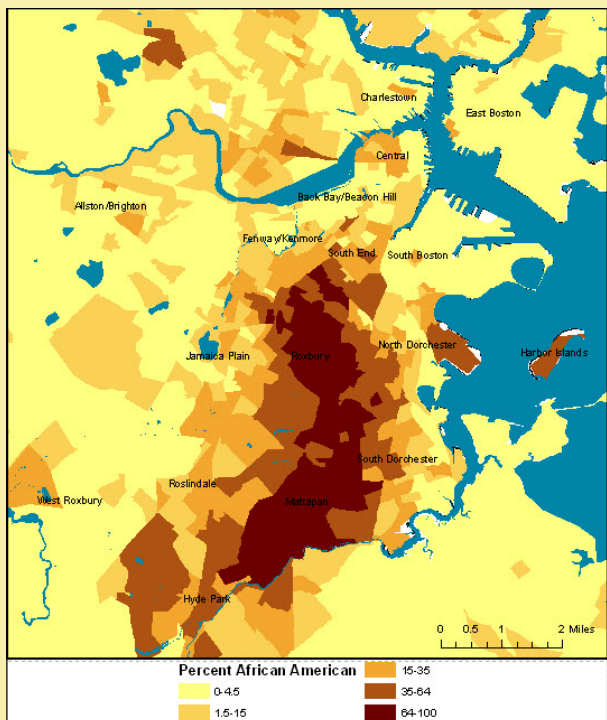
Percentage of African Americans in 1990 Census Block Groups



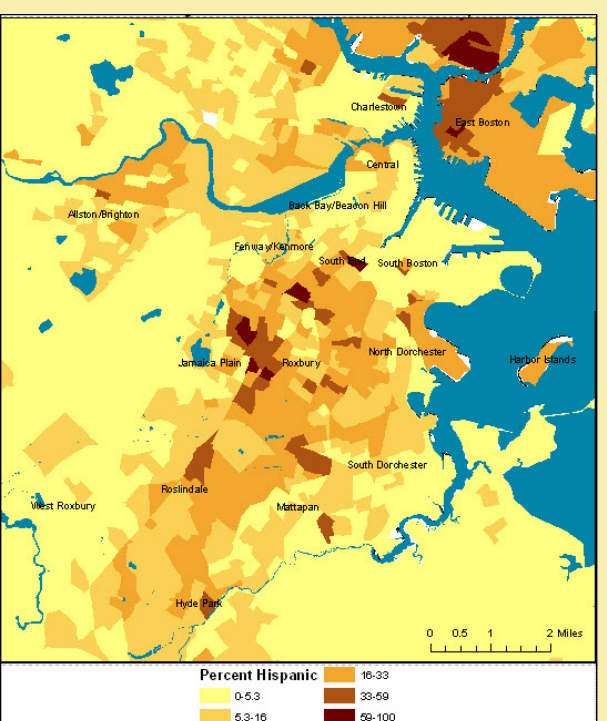
Percentage of Hispanics in 1990 Census Block Groups



Percentage of African Americans in 2000 Census Block Groups



Percentage of Hispanics in 2000 Census Block Groups



The American Nightmare: Comparing the Concentration of Foreclosures in Boston during Two Foreclosure Crises

Purpose of Study

One of the major concerns regarding the current foreclosure crisis is the clustering of foreclosures in low-income and minority communities. A significant number of papers have investigated the vulnerability of neighborhoods during the current crisis and found a correlation between foreclosures and low-income and minority populations. However, the previous research has been independent of previous foreclosure crises. This research looks to compare the clustering of foreclosures in the current foreclosure crisis with that of the foreclosure crisis in the early 1990s in Boston, Massachusetts. It will provide a means to determine whether the current foreclosure crisis is actually more densely distributed in low-income and minority communities, whether both foreclosure crises occurred in predominately low-income and minority communities, or whether foreclosures are not clustered in these communities.

Data

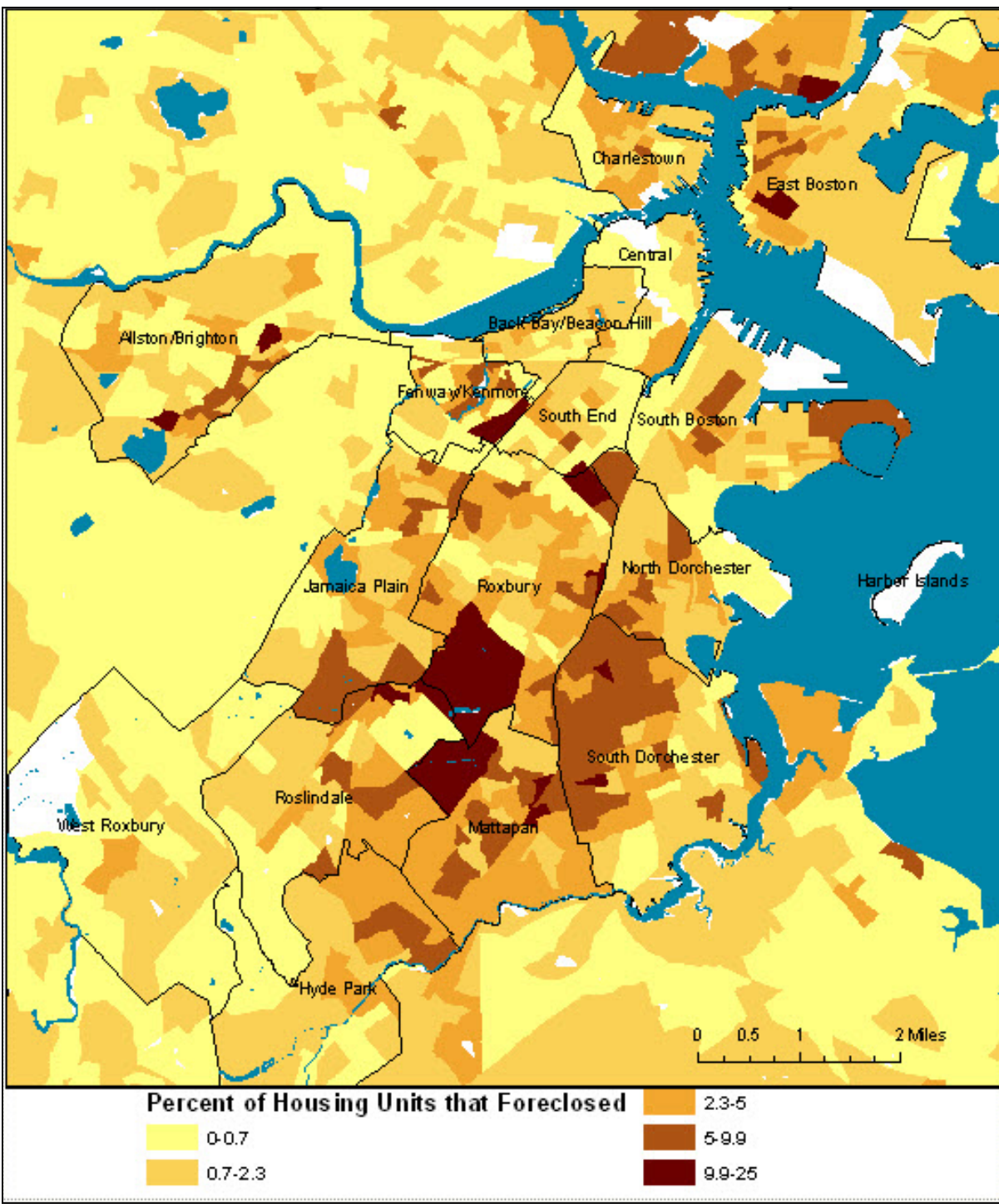
There are two main data sources for this project. The first is the Boston Federal Reserve Bank's Warren Group database, which has addresses for all foreclosures in the greater Boston area from 1988 to January 2009. The other is Census data from the 1990 and 2000 Censuses. This data was used to determine the economic and demographic characteristics of the Census block groups where the foreclosures were located.

Hypothesis

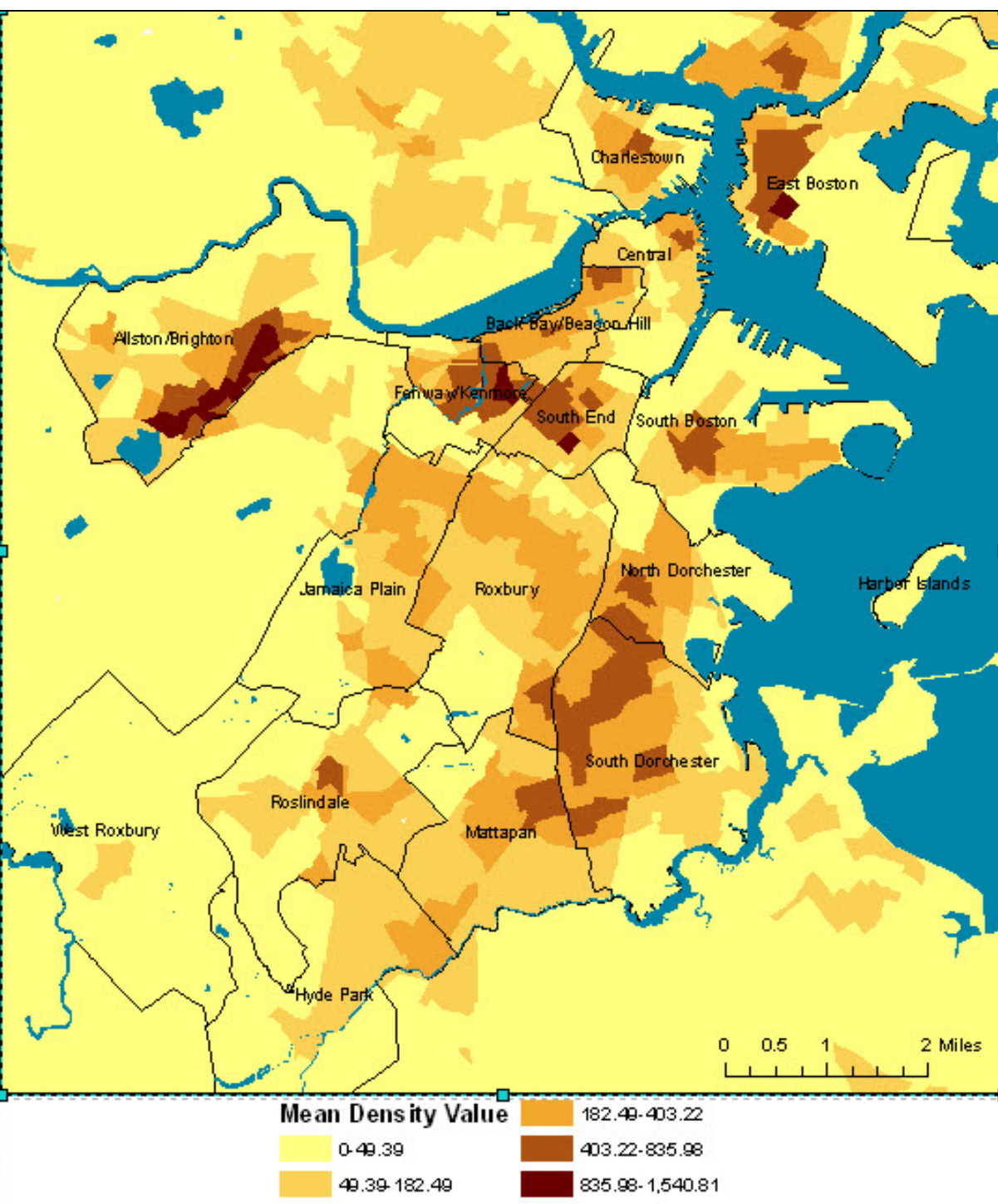
It was hypothesized that the two minority variables, the percentage of African Americans and the percentage of Hispanics in the Census block group, would have a positive relationship with the density of foreclosures. Additionally, it was hypothesized, based on the general literature on the current foreclosure crisis, that these variables would have a greater impact in the current foreclosure crisis than in the foreclosure crisis in the 1990s.

Method 1: Spatial Join

Percentage of Housing Units Foreclosed During the 1990s Foreclosure Crisis by 1990 Census Block Group



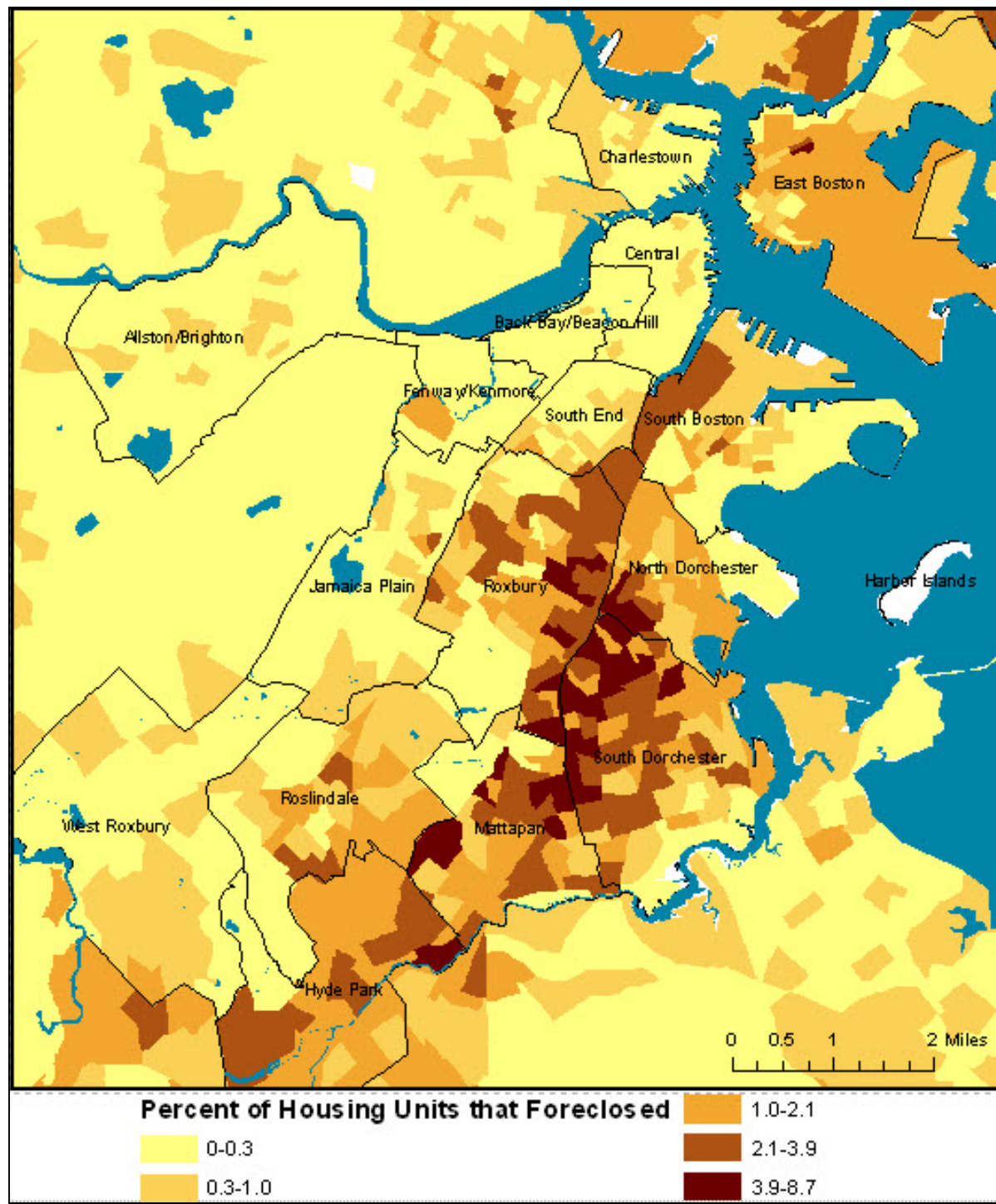
Percentage of Housing Units Foreclosed During the Current Foreclosure Crisis by 2000 Census Block Group



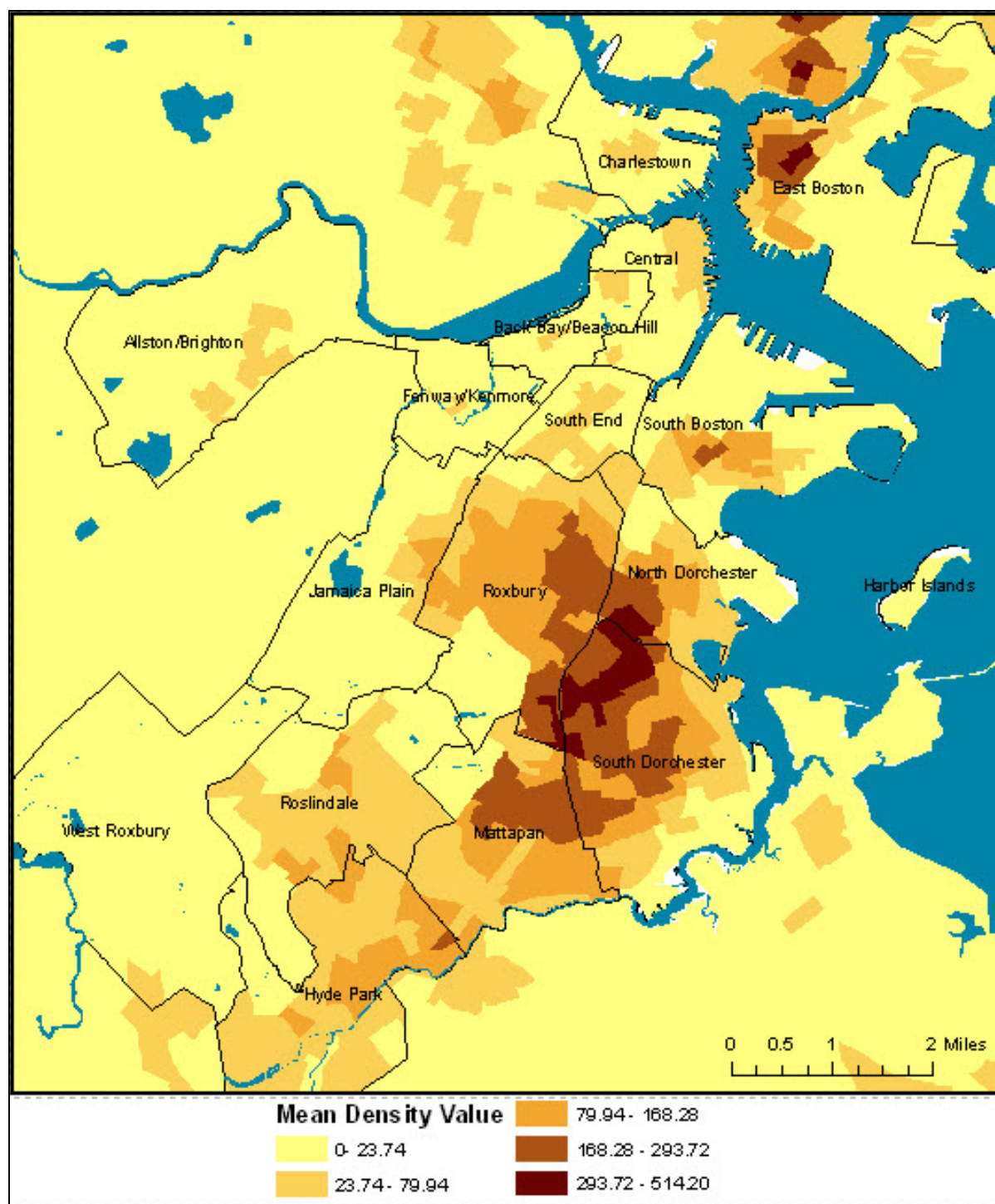
1. Geocoded foreclosures using Tiger street lines
2. Overlaid Census block groups
3. Did a spatial join of the two layers
4. Used the count of the number of foreclosures in each Census block group and the number of housing units to create a percentage

Method 2: Mean Density Value

Mean Density Value of 1990s Foreclosure Crisis by 1990 Census Block Group



Mean Density Value of the Current Foreclosure Crisis by 2000 Census Block



1. Geocoded foreclosures using Tiger street lines
2. Overlaid Census block groups
3. Created a raster density layer of the foreclosures using a 100-square meter cell size and a 402 meter radius (approximately a quarter of a mile)
4. Used the Zonal Statistics to determine the average density value for each Census block group

Model

$$\text{DensityIndicator} = \beta_1 + \beta_2 \text{Race} + \beta_3 \text{Income} + \beta_4 \text{HouseValue} + \epsilon$$

Results

The results of this research show a statistically and economically significant relationship between the percentage of African American and Hispanic residents in a Census block group and the density of foreclosures for both methods of analysis and during both foreclosure crises. The economic significance of the coefficient estimates of the variables are consistently greater in the results using the mean density value than in the results using the percentage of housing units that were foreclosed as the dependent variable. This is true for both foreclosure crises. In addition, the magnitude of the economic significance shows that the current foreclosure crisis is more densely concentrated in minority communities than the 1990 foreclosure crisis in Boston.

	1990s Foreclosure Crisis		Current Foreclosure Crisis	
VARIABLES	Percent of Housing Units Foreclosed	Mean Density Value	Percent of Housing Units Foreclosed	Mean Density Value
Percent Black	0.0429*** (0.00294)	2.622*** (0.169)	0.0260*** (0.00180)	1.686*** (0.109)
Percent Hispanic	0.0162*** (0.00373)	1.352*** (0.266)	0.0150*** (0.00181)	1.194*** (0.124)
ln(Income)	0.390*** (0.0689)	-29.66*** (5.115)	0.326*** (0.0367)	1.943 (1.590)
House Value	-0.153** (0.0756)	31.29*** (6.404)		
House Value only Occupied			-0.224*** (0.0341)	5.204*** (1.355)
Constant	-1.610** (0.718)	-42.45 (45.41)	-0.526* (0.307)	-80.67*** (18.34)
Observations	5947	5947	4985	4972
R-squared	0.108	0.183	0.183	0.320

For additional information please refer to Jessica Herrmann's Senior Honors Thesis in the Economics department at Tufts University.



Cartographer, Jessica Herrmann
Introduction to GIS
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Massachusetts State Plane NAD 83
Data Sources: Warren Group, MassGIS