

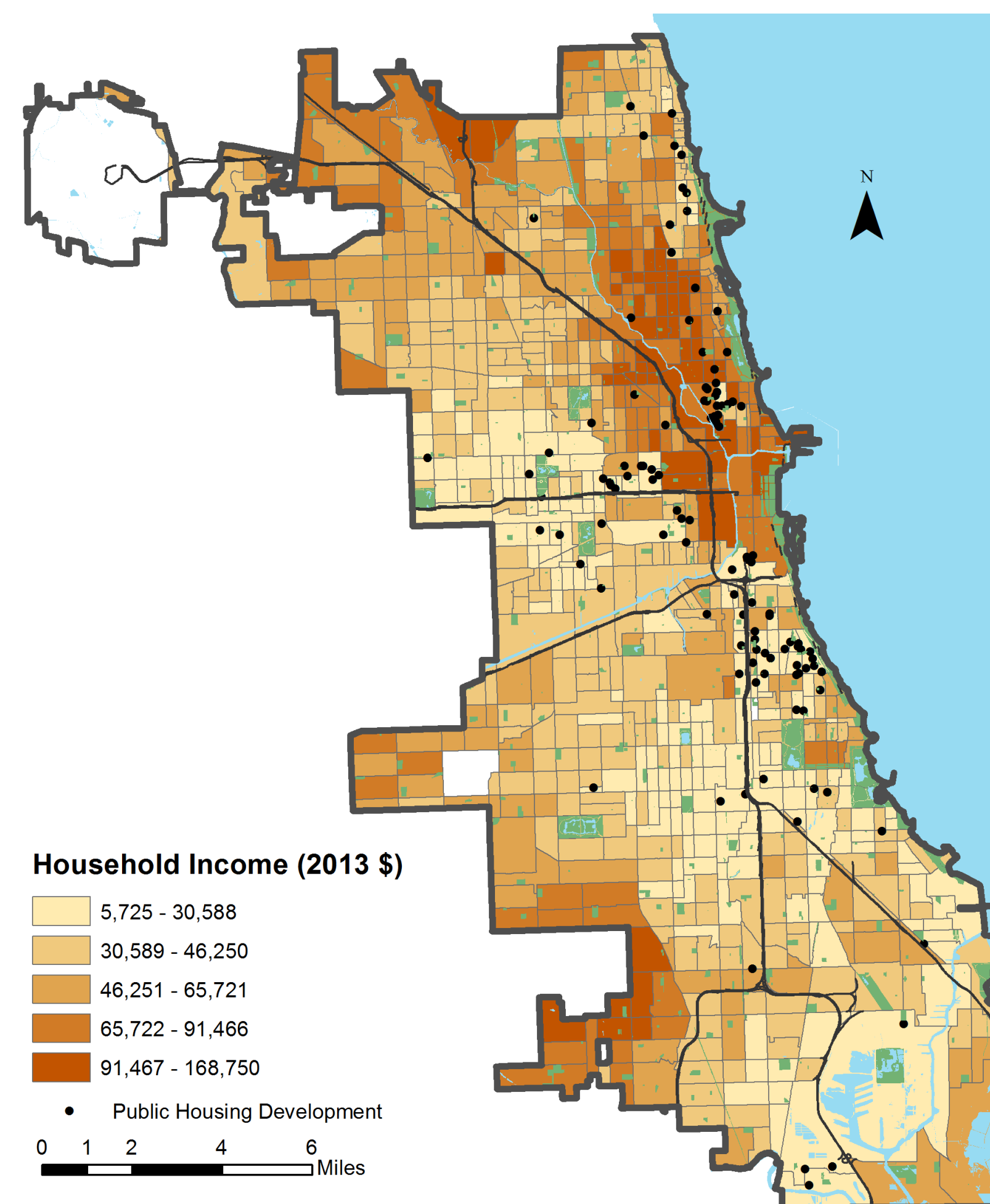
Public Housing under HOPE VI: A Spatial Analysis of Chicago

Background

The U.S. Department of Housing and Urban Development (HUD) ushered in a new era of public housing in 1992 with Housing Opportunities for People Everywhere (HOPE VI). This program drew on contemporary sociological research that posits that living in an area characterized by concentrated poverty and lack of resources adversely affects residents' opportunities and life outcomes. HOPE VI thus created a new goal for public housing: the decentralization of poverty. In 1999, the Chicago Housing Authority used funds obtained through a HOPE VI grant to drastically overhaul its public housing and move away from high-rise developments and toward mixed-income communities. This greatly reduced the number of units available to low-income Chicagoans but put the few who were rehoused in communities that are ostensibly less segregated and have more resources and lower rates of poverty. In light of the fact that almost a quarter of a million Chicagoans were displaced by HOPE VI and fewer than 6,000 were given vouchers or rehoused by 2012, this program requires a closer look.¹ It has clearly failed to meet the demand for affordable housing in Chicago, but has public housing under HOPE VI achieved true economic integration such that communities with public housing are commensurate with those without it? This project maps key social indicators to compare poverty in census tracts with and without public housing.

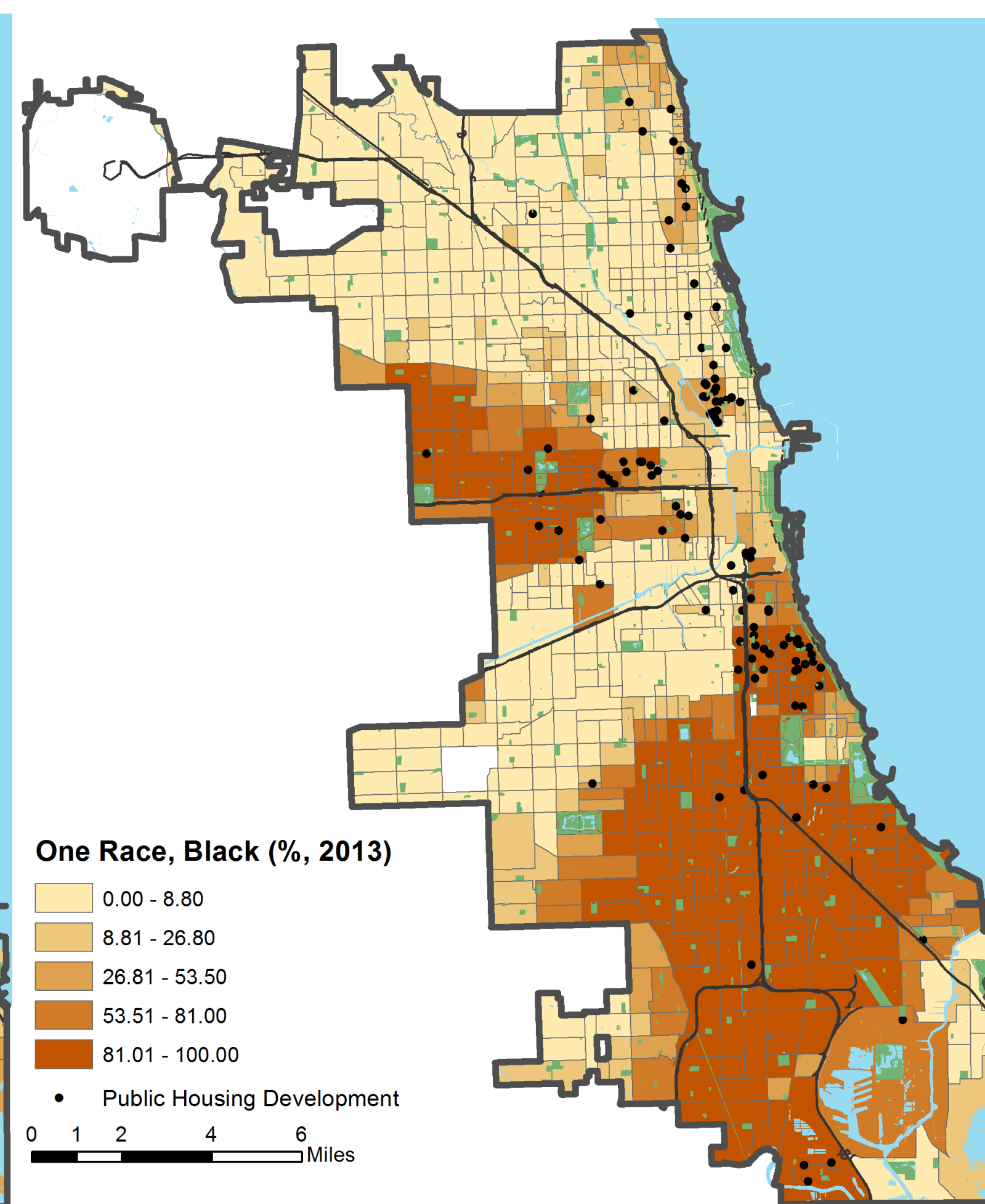
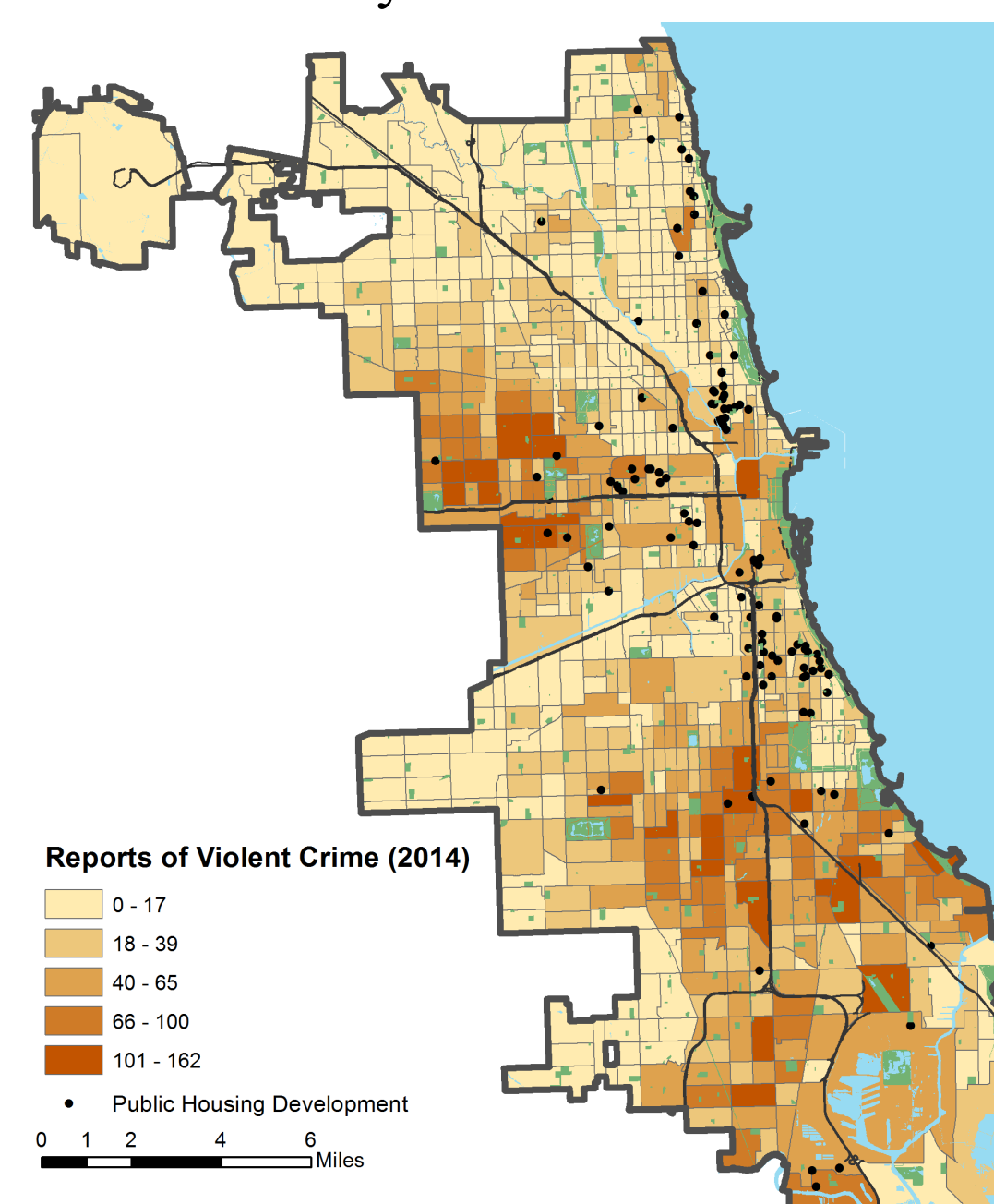
Methodology

To assess the success of poverty decentralization under HOPE VI, I mapped all traditional public housing developments in Chicago using HUD's 2013 Yearly Data Picture. These developments were transformed into mixed-income properties through HOPE VI. By joining data points to census tracts, I was able to reclassify the census tracts and enable comparison of 81 tracts that contain public housing developments and 792 that do not. I created seven maps of Chicago to analyze the distribution of a variety of indicators that measure poverty in the two comparison groups. Informed by Deichmann's work, I defined poverty using economic, social, and environmental indicators to most accurately measure poverty.²

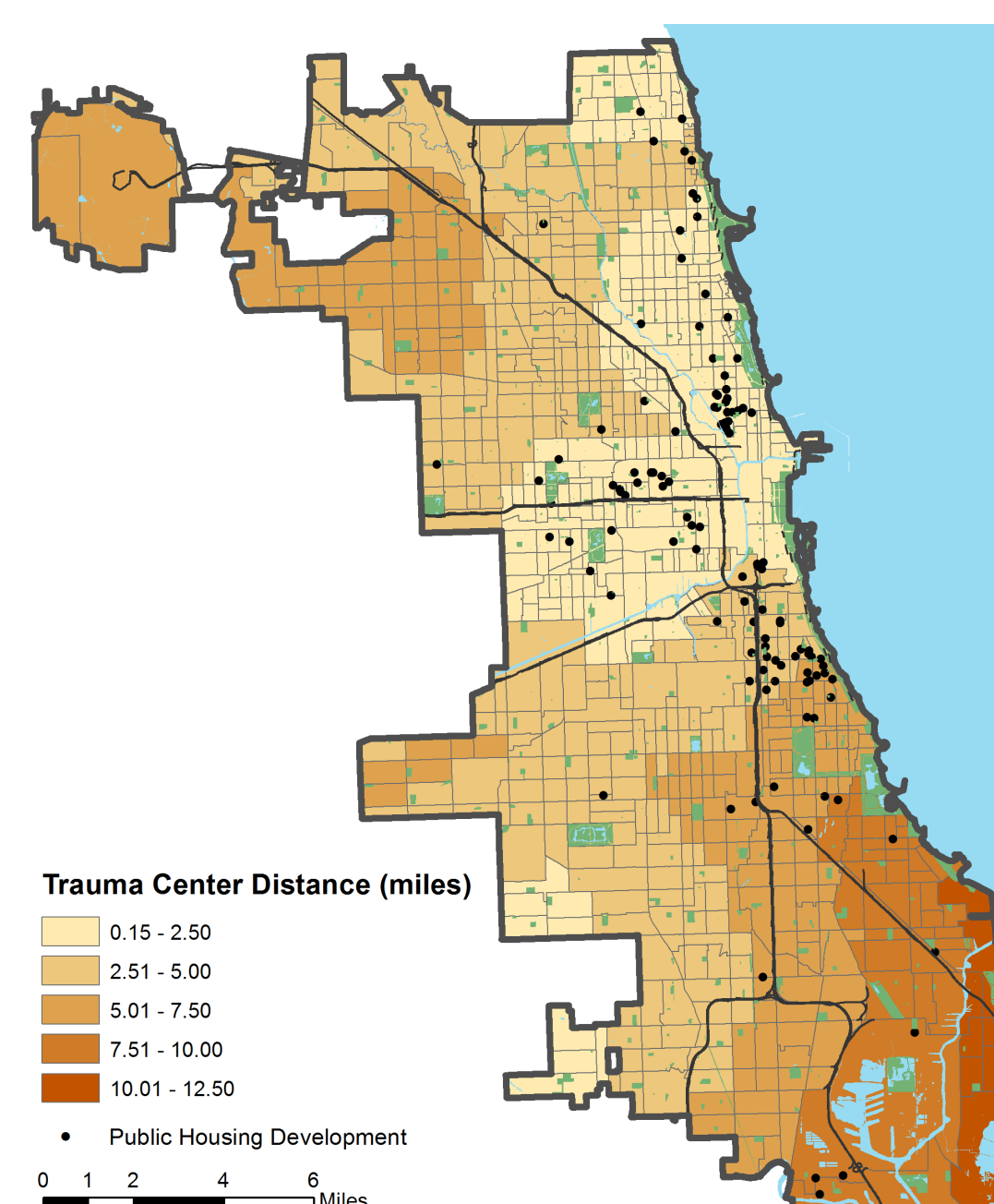


Using data from the 2013 American Community Survey 5-Year Estimates, I mapped the proportion of the population that identifies as black and the proportion of properties that are vacant in each census tract. As a third environmental measure, I used the Chicago Police Department's reports of index violent crimes (murder, criminal sexual assault, robbery, and aggravated assault and battery) between March 2014, and March 2015. I joined data points to census tracts to show the number of violent crimes reported per census tract in that year.

For social measures of poverty, I examined access to two key resources: food and

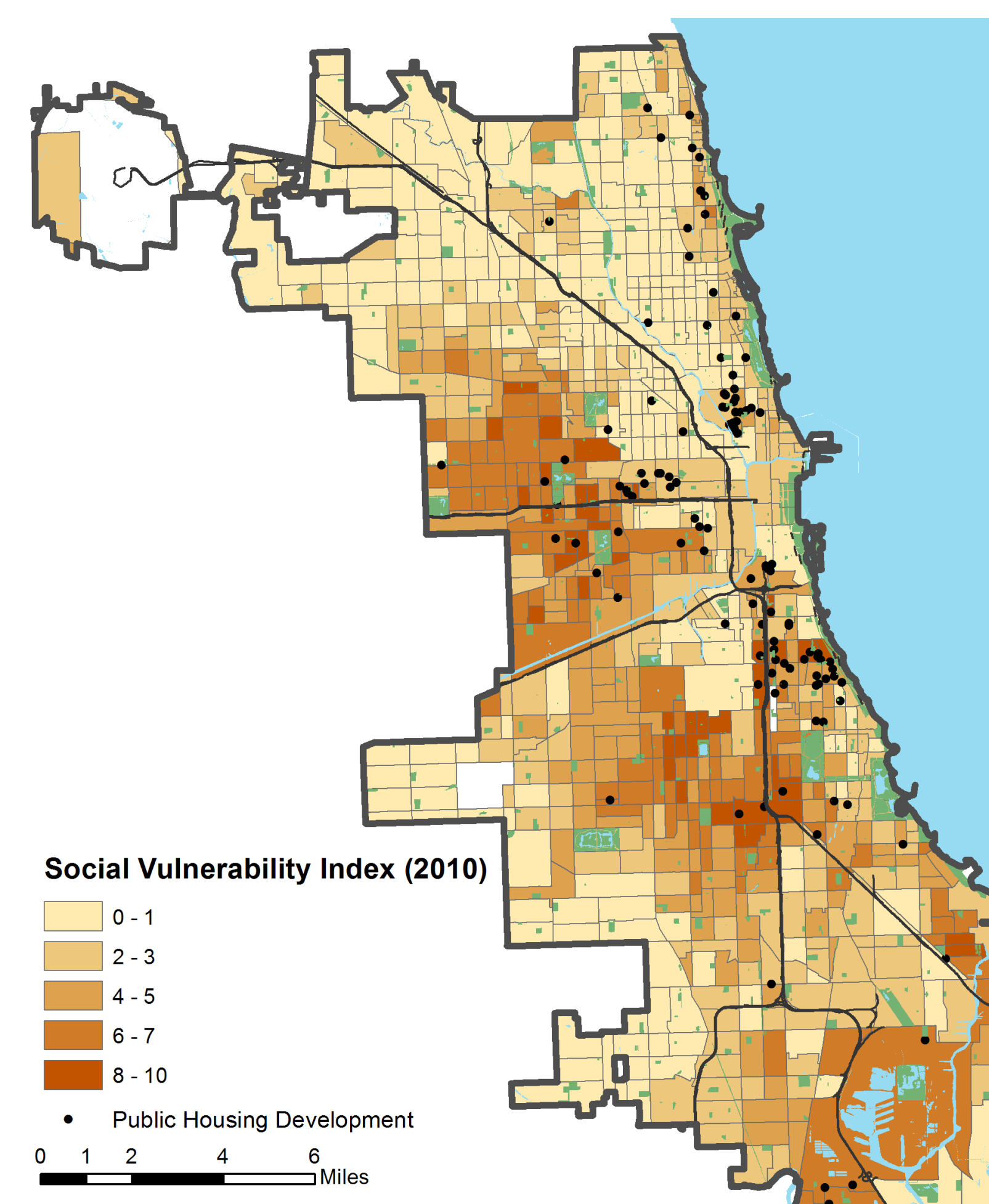
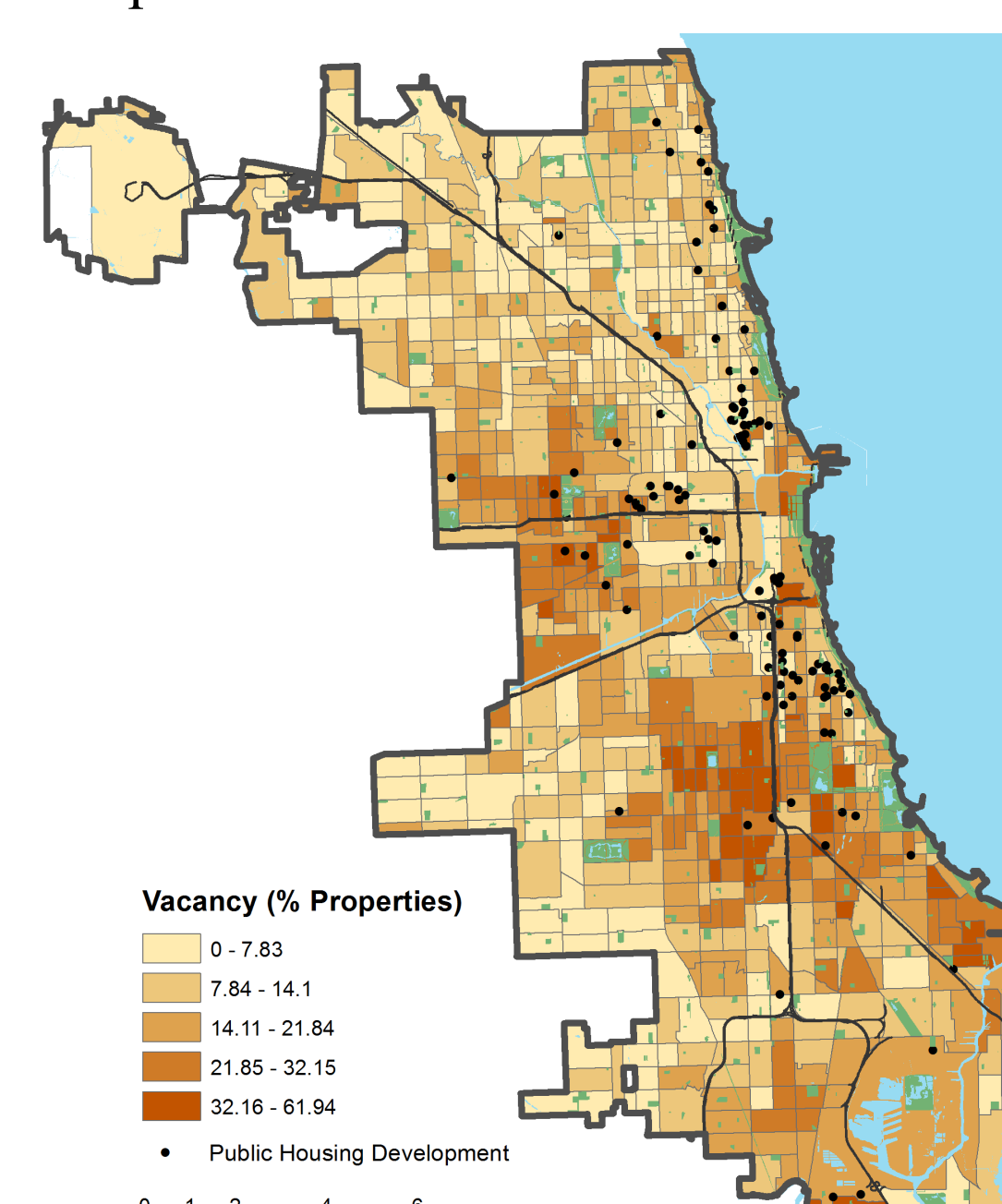


hospitals. I used the U.S. Department of Agriculture's March 2015 map of food deserts by census tract to demonstrate what percentage of the population has a low level of food access, defined as being more than half a mile from a grocery store. Building on the research of Crandall et al., I also mapped level 1 trauma centers in the Chicago area using a 2011 data set from the City of Chicago.³ Ambulances take patients in critical condition to these hospitals because they are equipped to provide immediate and comprehensive care. Crandall and colleagues established the existence of trauma deserts in Chicago, defined as areas more than 5 miles away from

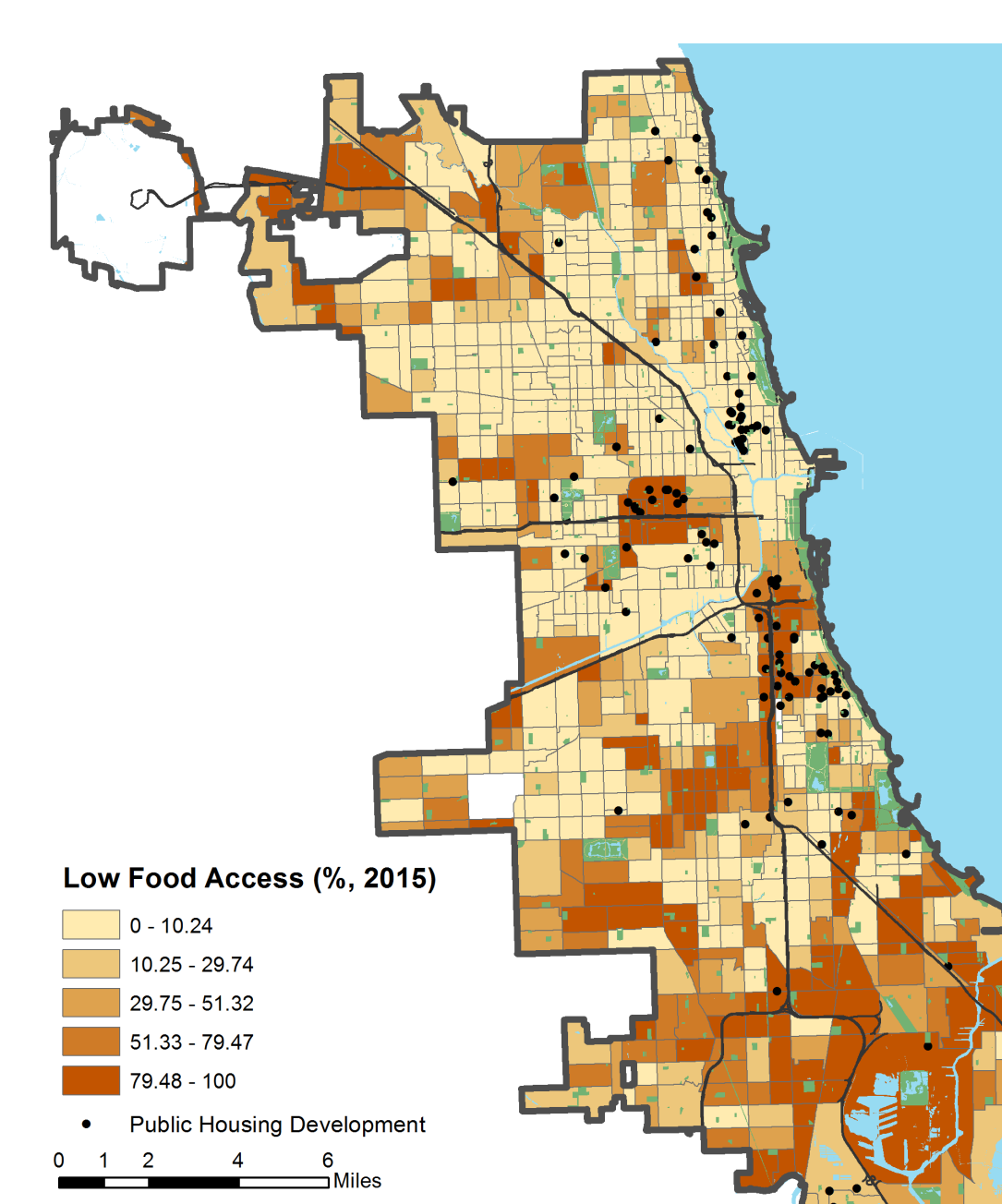


the nearest level 1 trauma center. Patients who sustain serious injuries in these trauma deserts have significantly longer transport times to the hospital, which is associated with higher mortality rates. After making a raster showing distance from a trauma center, I joined it with population data by census block. I then joined this with census tracts to determine the proportion of the population living in a trauma desert.

The Centers for Disease Control and Prevention's (CDC's) 2010 map of the social vulnerability index, a comprehensive variable measuring community resilience, provides a snapshot of each census tract and its economic



indicators of well-being. The overall vulnerability score comprises 14 indicators measuring income, poverty, unemployment, educational attainment, segregation, English proficiency, access to a vehicle, overcrowded housing, and demographics like race and average number of dependents. The scores range from 0 to 14, and a point is added for every indicator in the 90th percentile. Because the CDC's income data for income is per capita, I also used the 2013 American Community Survey 5-Year Estimates to measure household income by census tract.



I performed an independent samples t-test to evaluate the means obtained through spatial analysis and to test the significance of the differences between census tracts that have public housing and those that do not. I performed the test for measures of social vulnerability, poverty, unemployment, household income, race, trauma center access, food access, vacant properties and reported crime. Results are shown in the table below.

Conclusion

This study shows a clear failure to decentralize poverty under HOPE VI. Although the differences in measures of access to resources (grocery stores and trauma centers) and the prevalence of vacant units are not statistically significant, census tracts with public housing fared worse than those without on every other measure of poverty. The most significant disparities exist in the percentage of the population below the poverty line, percentage of the population who identifies as black, household income (in dollars) and social vulnerability index scores (all $p < .0001$). The difference between tracts with public housing and those without is also statistically significant for crime rates ($p = .0081$) and unemployment ($p = .0016$). These maps and resulting statistics illustrate the high degree of economic and racial segregation that characterizes Chicago public housing despite integration efforts under HOPE VI. Although the program's goal of poverty decentralization is a good one, in practice it not only failed to provide an adequate stock of affordable housing in Chicago but also to ensure that public housing residents truly live in areas with equal access to wealth and opportunity.

¹ Vale, L. J. (2013). *Purging the poorest: public housing and the design politics of twice-cleared communities*. University of Chicago Press.
² Deichmann, U. (1999). Geographic aspects of inequality and poverty. For the World Bank's research on inequality, poverty, and socio-economic performance. January, available at http://siteresources.worldbank.org/INTPGI/Resources/Pro-Poor-Growth/5319_povmap.pdf.
³ Crandall, Marie, Douglas Sharp, Erin Unger, David Straus, Karen Brasel, Renee Hsia, and Thomas Esposito. (2013). "Trauma deserts: distance from a trauma center, transport times, and mortality from gunshot wounds in Chicago." *American journal of public health* 103, no. 6: 1103-1109.

Public Housing in Tract	Vulnerability Score	% Under Poverty Line	% Adults Unemployed	Household Income (\$)	% Black	% Trauma Desert	% Low Food Access	% Vacant	Reported Crimes
No	2.64**	20.43**	12.60*	50,472.21**	33.66**	32.30	27.75	13.90	25.98*
Yes	4.21**	32.52**	15.96*	36,910.28**	56.14**	33.53	32.86	15.51	34.58*

** significant at $p < .0001$; * significant at $p < .01$

Cartography and Poster Design by Joyce Harduvel
May 5, 2015 for UEP 232
Data Courtesy of the American Community Survey, Centers for Disease Control and Prevention's Social Vulnerability Index, Chicago Police Department, City of Chicago, U.S. Department of Agriculture's Food Access Research Atlas, U.S. Department of Housing and Urban Development's Yearly Data Picture
Projected in NAD 1983 State Plane Illinois East