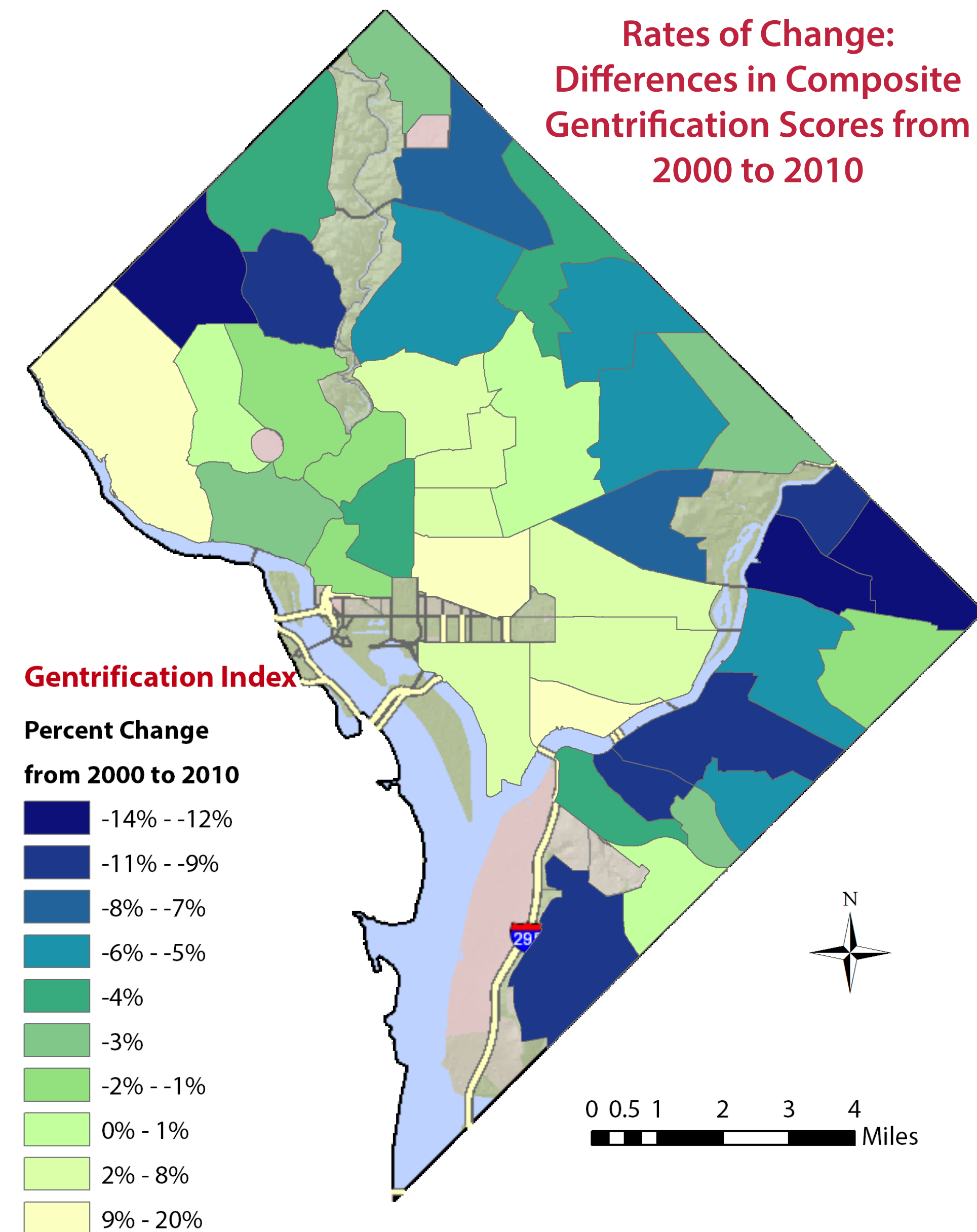# A Geospatial Analysis of Gentrification in Washington, DC

Overview

This poster offers a spatial analysis of gentrification in Washington, DC neighborhoods between 2000 and 2010. For the scope of this project, gentrification is measured by the changes that usually occur as middle class residents and business owners move into distressed areas. These changes tend to include geographically concentrated housing renovation and new real estate development, rises in property values and displacement of low-income and often minority populations. The series of maps shows changes between 2000 and 2010 in scores on a gentrification index that aggregates demographic, economic, social assistance, and crime data into a single unit of analysis. Rates of change are overlaid with 2010 building permit data to show that the highest density of construction is occuring inareas that have gentrified the most.

Methods

The analysis is based on a gentrification index that compiles 12 indicators of gentrification or neighborhood distress. In each map, the index scores are shown by neighborhood clusters, a geographic designation used by the DC government. Compiled in an Excel spreadsheet, the index is an average of scores for poverty rates, percentage of white non-hispanic residents, umployment and employment, high school degree completion, average family income, per capita enrollment in the Supplemental Nutrition Assistance Program and Temporary Assistance for Needy Families, rates of violent and property crime, number of property sales, and average housing prices. Each indicator was scaled appropriately so the index score would capture the trends in a meaningful way (i.e., highly gentrified areas are associated with high housing values but low unemployment.)

Rates of Change: Differences in Composite Gentrification Scores from 2000 to 2010

Gentrification Index

Percent Change from 2000 to 2010

- -14% - -12%
- -11% - -9%
- -8% - -7%
- -6% - -5%
- -4%
- -3%
- -2% - -1%
- 0% - 1%
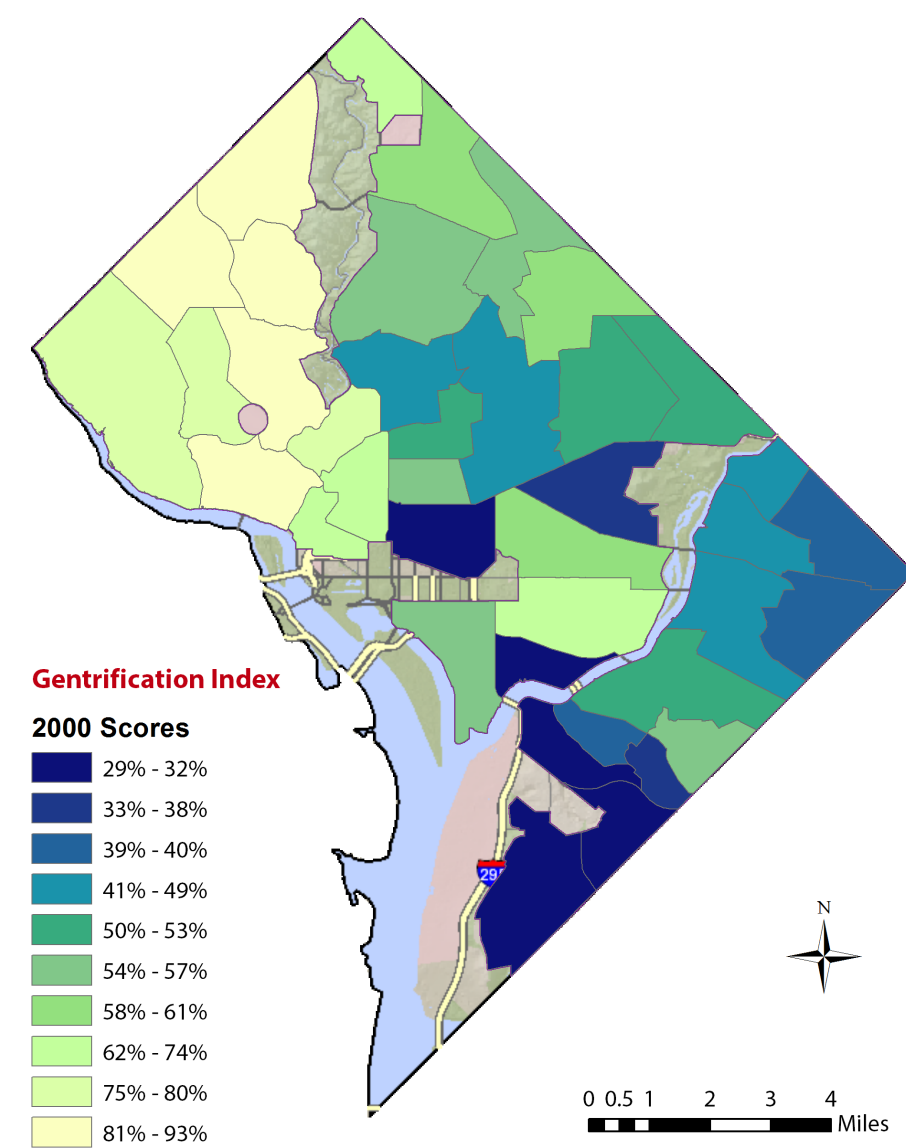- 2% - 8%
- 9% - 20%

Results

The gentrification index maps from 2000 and 2010 both show a similar pattern that levels of prosperity and neighborhood economic health tend to decline moving from west to east. A quick comparison of the two shows a growing disparity among neighborhoods, characterized by more concentrated wealth in the northwest and poverty in the southeast and east, which have so far been mostly neglected by gentrifiers.

"Rates of Change" tells a different story, showing areas that scored the highest on the gentrification index in the lightest shades. The most change (between 9 and 20 percent) occurred in the Palisades, Downtown/Chinatown, Southeast/Navy Yard. Change occurred at a slower but still significant rate (2 to 8 percent) in neighborhoods that are consistently described as gentrifying: Columbia Heights, Cardozo/Shaw, Logan Circle, Bloomingdale, and Capitol Hill.
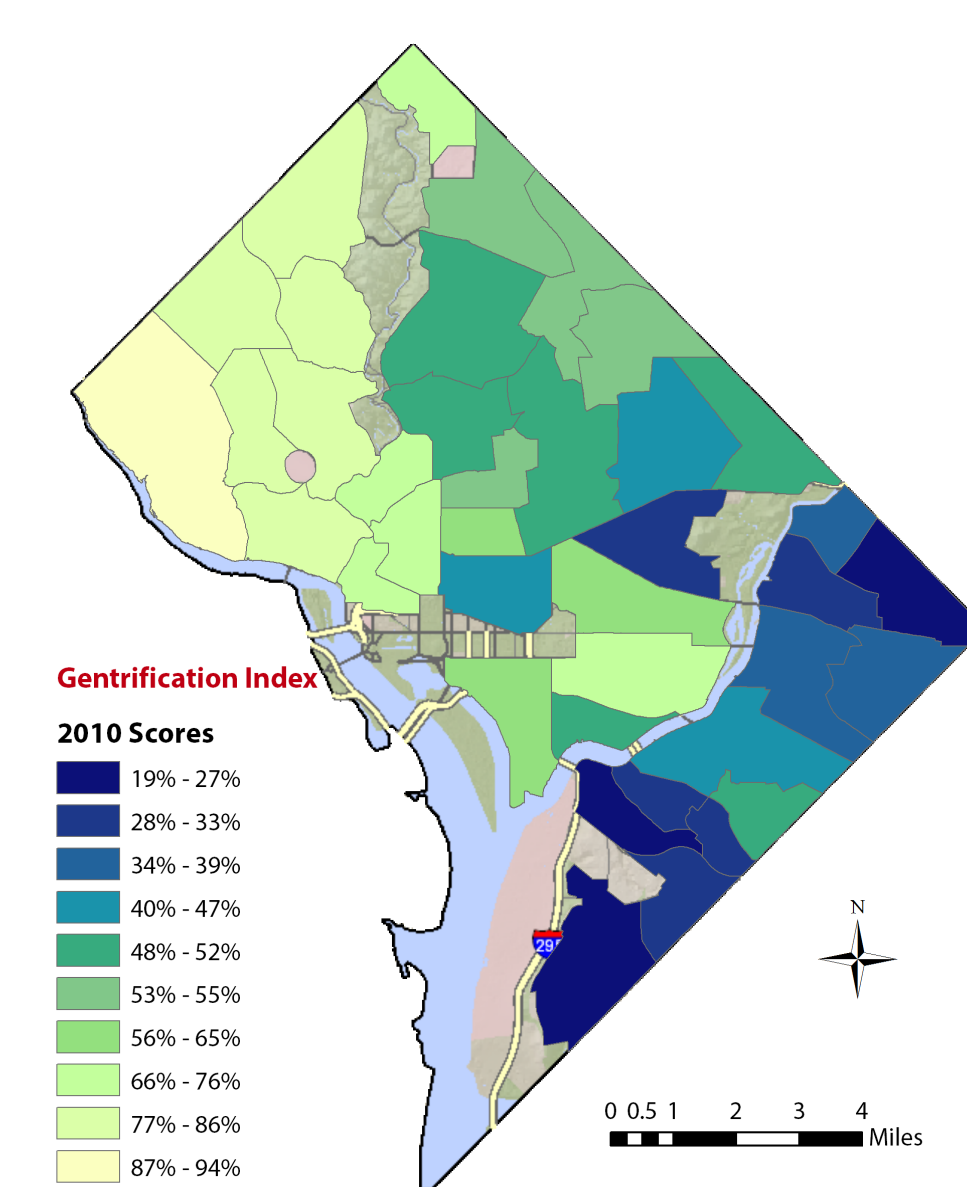
The neighborhoods that declined the most according to the gentrification index (between -14 and -12 percent) were Friendship Heights, Mayfair/Hillbrook, and Deanwood. At the next level of decline (-11 to -9 percent) were Van Ness, Twining/Fairlawn, Congress Heights/Bellevue, and Eastland Gardens/Kenilworth.

The largest map shows "Rates of Change" overlaid with a density raster showing the concentration of construction permits acquired in 2010. This map shows that the highest concentration of construction in 2010 occurred in the Downtown/Chinatown area, which also scored high on the Rates of Change map. Because this analysis included all building permit data, the construction probably includes offices and housing.
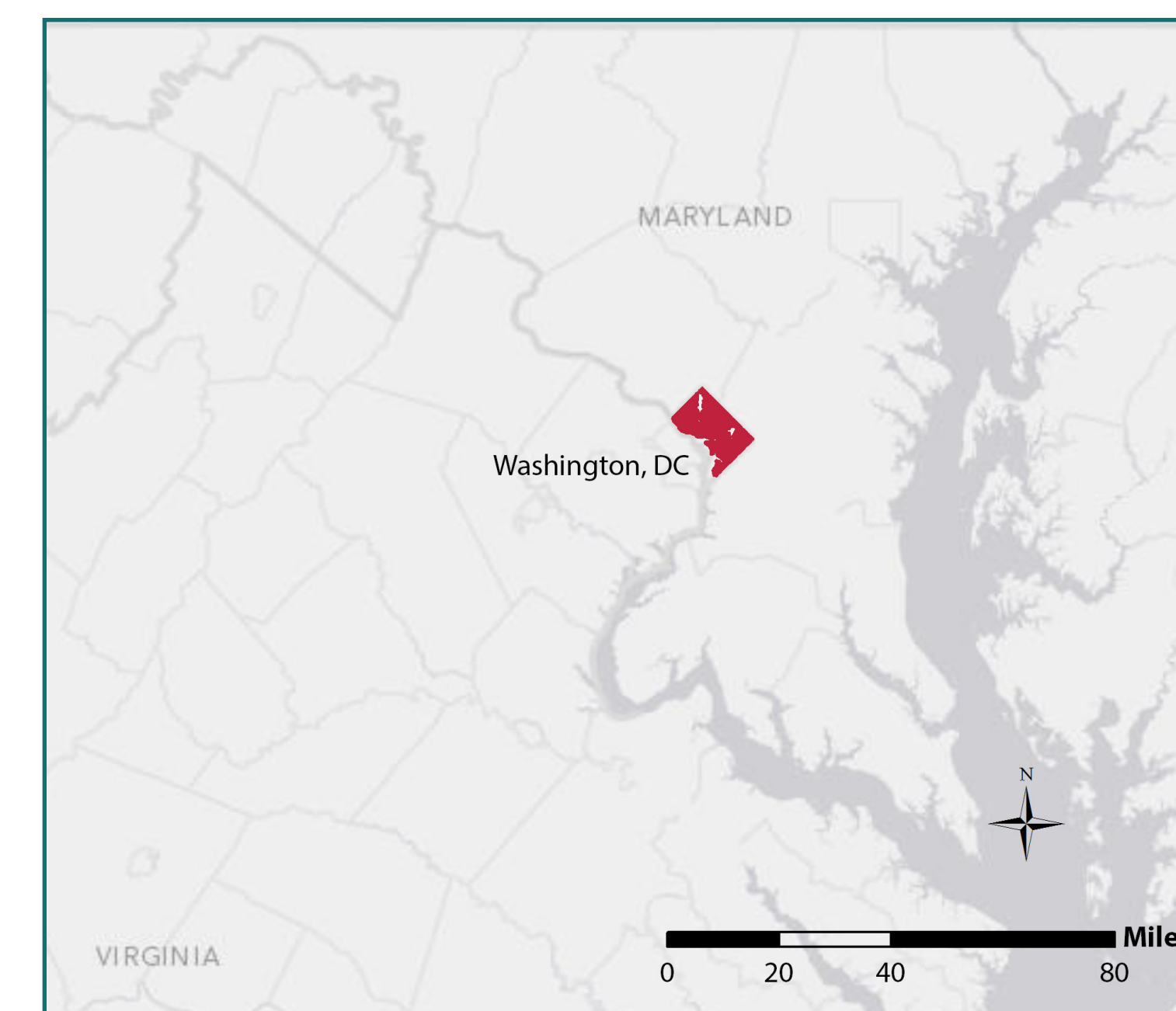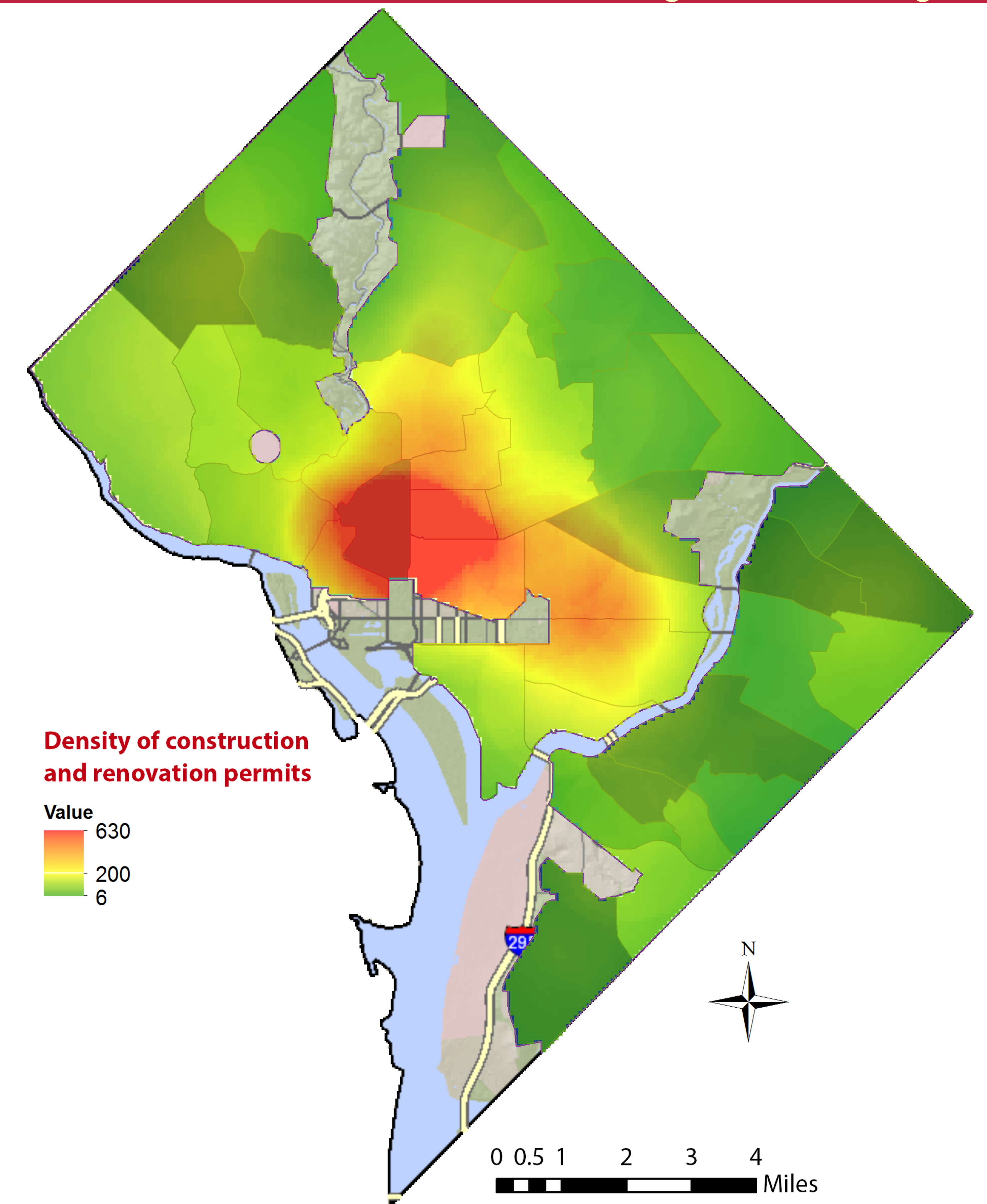
2000 Gentrification Index

Gentrification Index

2000 Scores

- 29% - 32%
- 33% - 38%
- 39% - 40%
- 41% - 49%
- 50% - 53%
- 54% - 57%
- 58% - 61%
- 62% - 74%
- 75% - 80%
- 81% - 93%

2010 Gentrification Index

Gentrification Index

2010 Scores

- 19% - 27%
- 28% - 33%
- 34% - 39%
- 40% - 47%
- 48% - 52%
- 53% - 55%
- 56% - 65%
- 66% - 76%
- 77% - 86%
- 87% - 94%

Limitations

These maps must be interpreted with caution. Because the 2000 and 2010 maps represent static snapshots, they show socioeconomic status of neighborhoods during those years. People who are familiar with DC will recognize the prosperous upper northwest quadrant, which contains wealthy neighborhoods like Georgetown. The dark blue in the east and southeast represents impoverished areas like Historic Anacostia. The map that combines construction density and "Rates of Change" is limited to construction in 2010, as 2000 data were unavailable. The permits include all types of construction; it might have been useful to look at housing renovation only. It would be interesting to analyze a longer time period for building permit data to capture construction activity prior to 2010. Because the datasets are immense, it would be useful to look at a cross-section by looking at the same three-month period over five to ten years.

Construction Concentrated in Areas with High Rates of Change

Density of construction and renovation permits

Value
- 630
- 200
- 6