



Analysis of the Spatial Relationship Between Crime and Non-Owner-Occupied Housing in Denver, Colorado

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Introduction

Crime is influenced by a variety of factors; Shaw and McKay (1942) posit that residential instability is one, among others, in their social disorganization theory. Non-owner-occupied (NOO) housing is an indicator of residential instability, as it is common for tenants of NOO homes to change more often than owner-occupied homes. This exploratory research sought to analyze this idea by looking at the geospatial relationship between crime and NOO housing in Denver using the program ArcGIS.

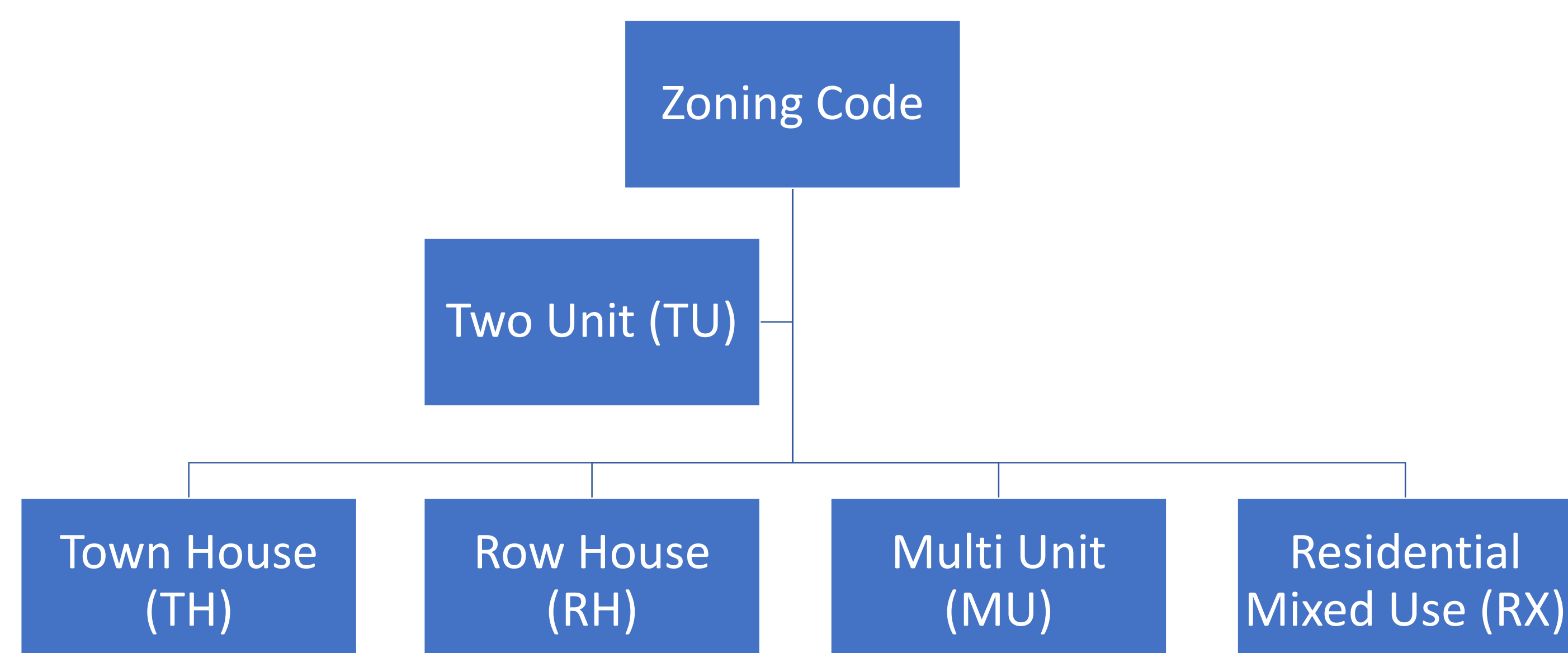
Methods

The data used in this analysis is open source data taken from the Denver Open Data Catalog, and the crime data was collected from the past five and a half years. The crime data was broken down for different maps by category; all crime, drug and alcohol offenses, residential property crime and public disorder offenses. From the data available, two possible methods for selecting NOO housing from owner-occupied housing were devised. These two methods were then used in the creation of a variety of maps which compared areas with high concentrations of crime to areas with high concentrations of NOO housing.

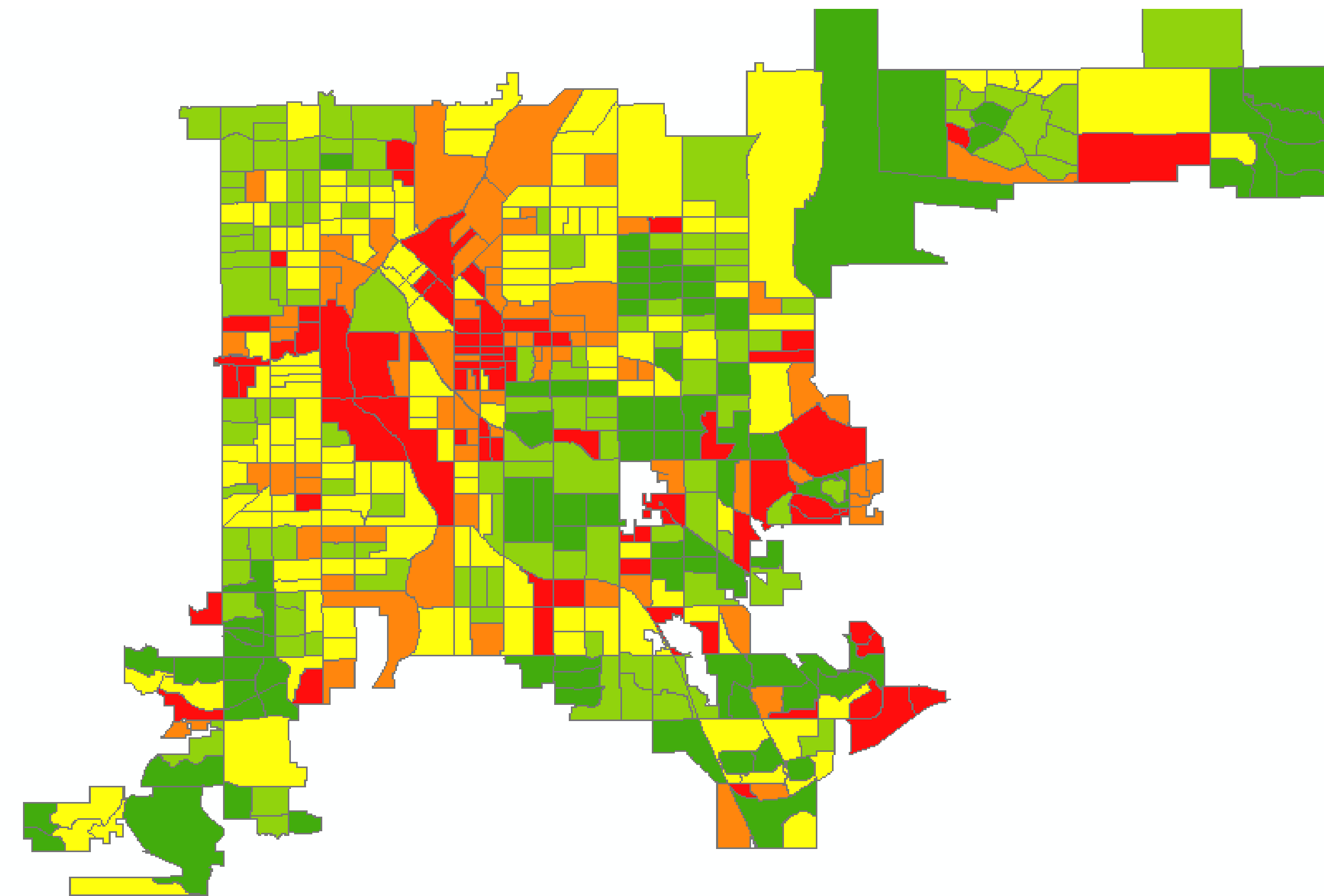


Census Data Calculation

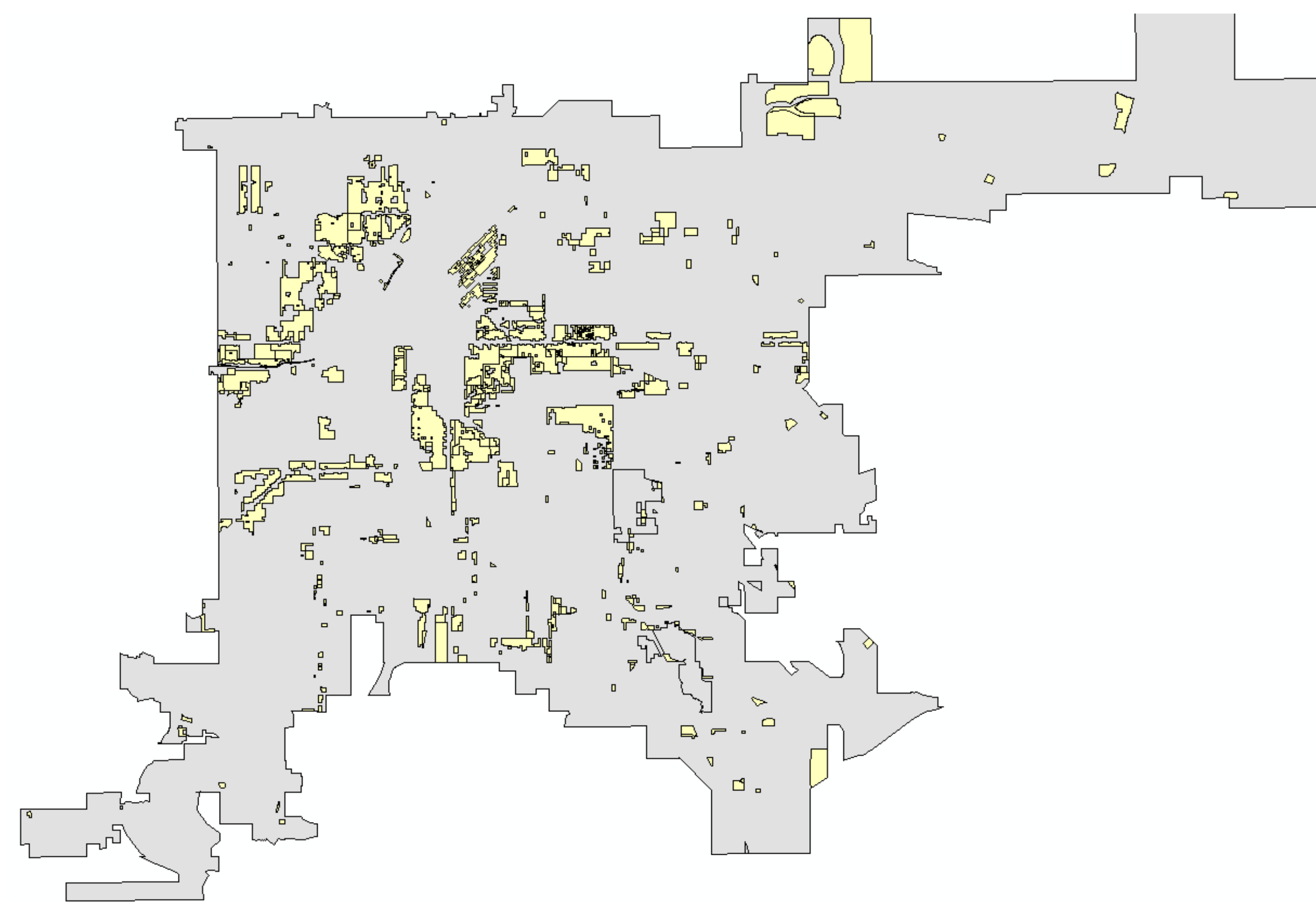
$$\frac{\text{Houses Rented per Block Group}}{\text{Total Housing Unit}} = \text{Percent of Rented Homes per Block Group}$$



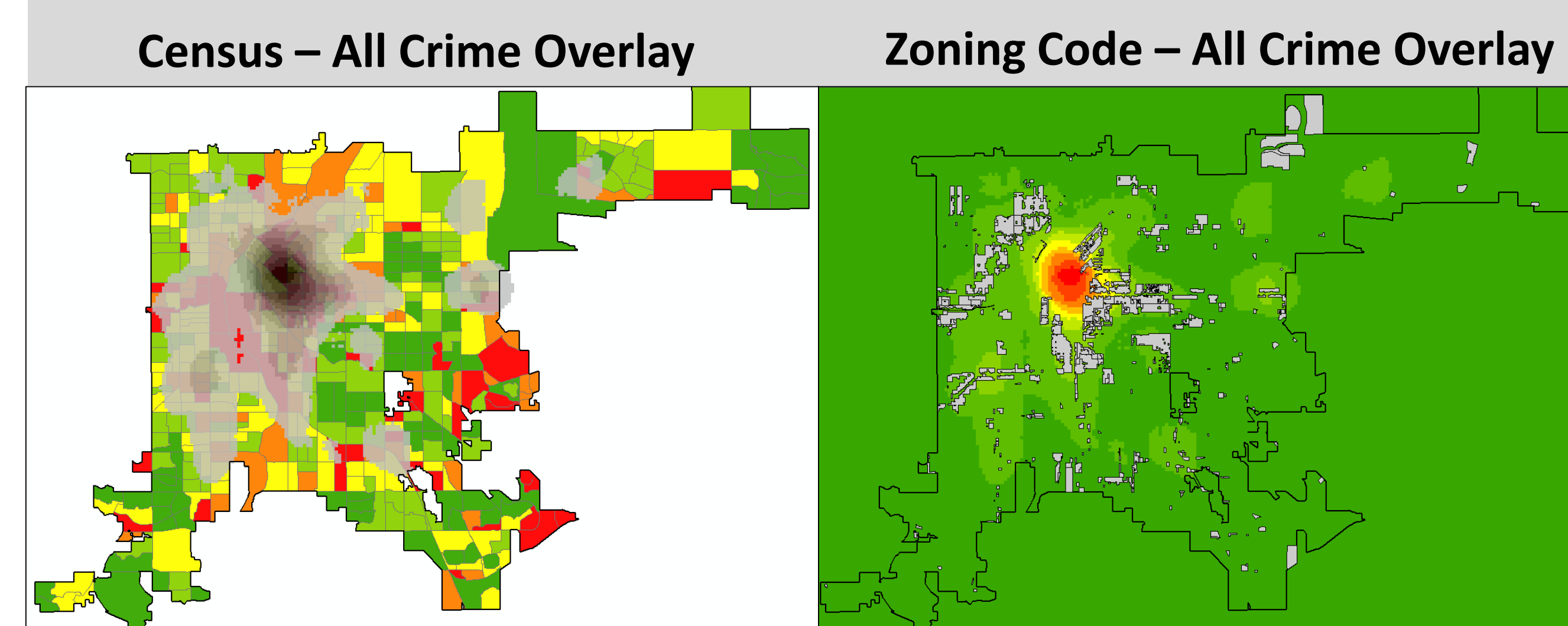
Census Data – Percent of Rented Housing



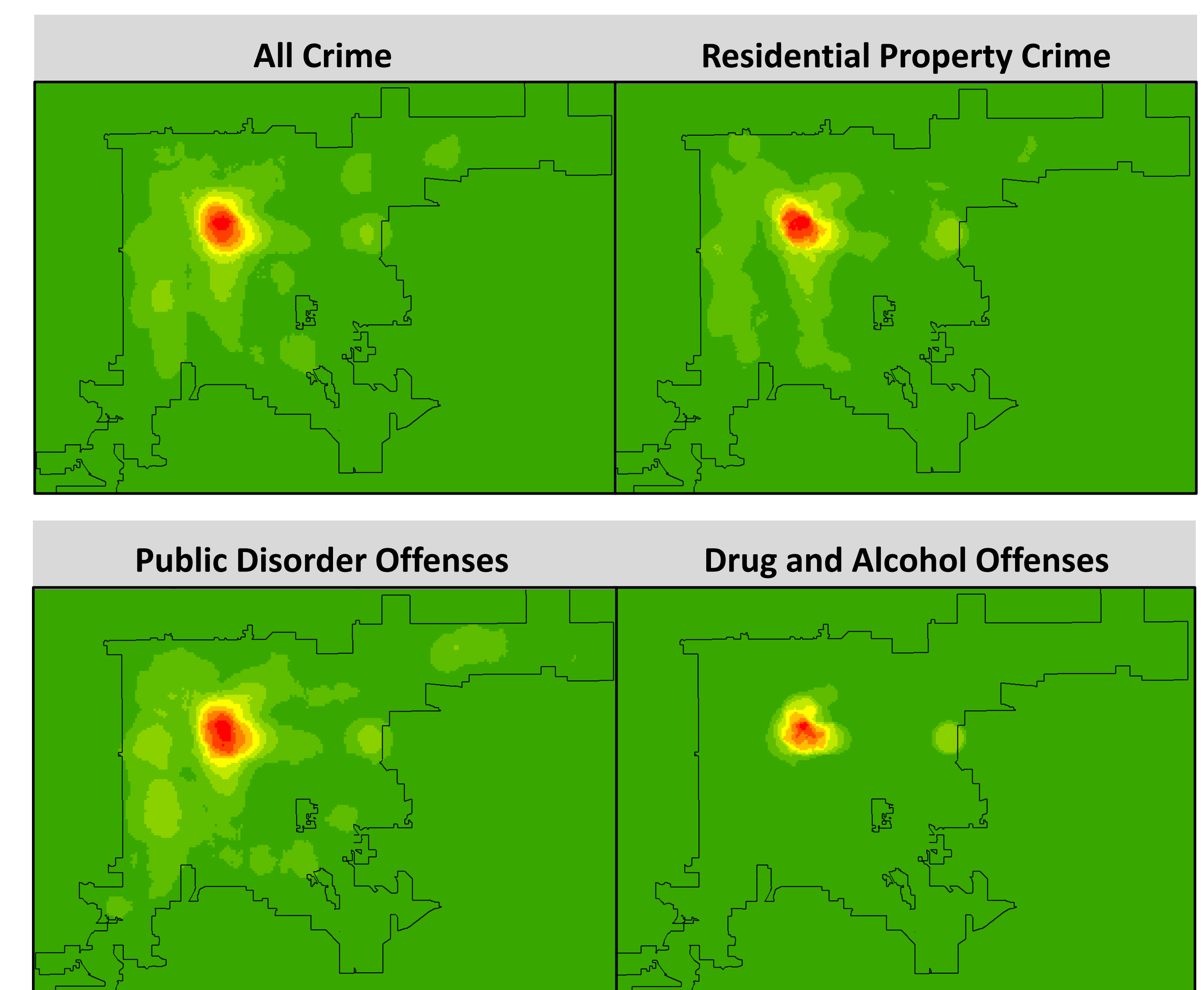
Zoning Code – Higher Likelihood of NOO Housing



Overlays



Crime Point Densities



Findings and Conclusion

Using the census data provided, a more inclusive measurement using the percentages of rented homes over all housing units in each census block was created. However, this data is not available in point data on an individual level; therefore, this analysis is limited. The census block group has a rather large land area and it is unclear where the concentration of NOO housing is highest in that area. On the other hand, using the zoning code method provided data on much smaller land areas, allowing small pockets with a high potential for NOO housing to be more visible. The downside with this method of measuring NOO housing is that it potentially includes properties that are owner occupied and excludes NOO properties that don't fall within the zone in which it would be most probable to find them.

References and Acknowledgements

My thanks to the coordinators of the Summer Undergraduate Research Fellowship (SURF) 2017 program and the donors whose contributions made this valuable academic experience possible.
 Crime. (2017, July 14). Retrieved July 17, 2017, from <https://www.denvergov.org/opendata/dataset/city-and-county-of-denver-crime>
 Shaw, C. R., McKay, H. D., & Hayner, N. S. (1942). *Juvenile delinquency and urban areas: A study of rates of delinquents in relation to differential characteristics of local communities in American cities*. Chicago, IL: University of Chicago Press.
 Extended reference list available upon request.