

# Safe Living for All:

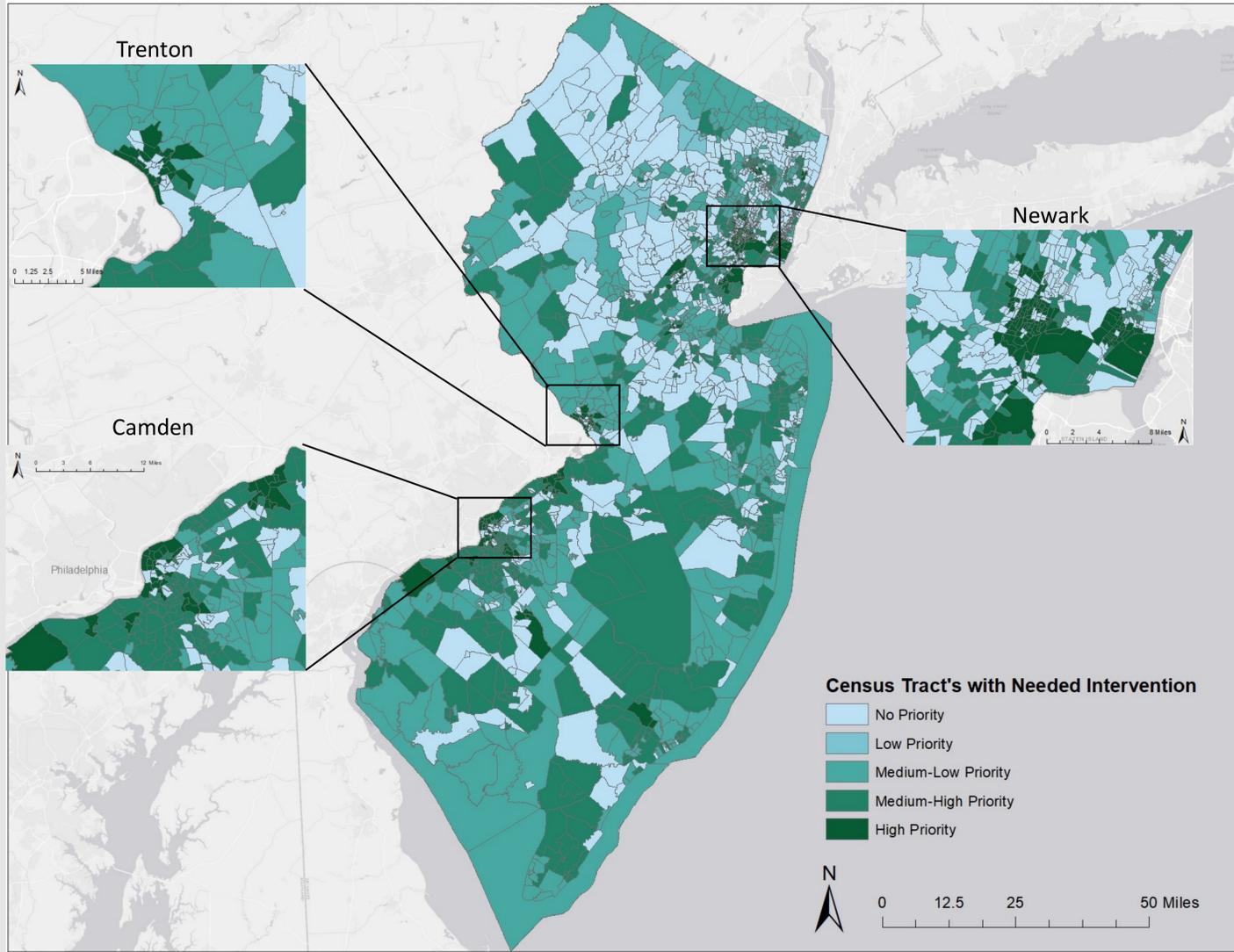
# Environmental Justice Communities in NJ

## Introduction

Pollution is known to have taken a toll on human health; but these effects have not been uniform across the globe and have instead been focused on certain communities, commonly defined as environmental justice communities. By definition, an environmental justice community is one that is majority people of color, predominantly comprised of low socioeconomic class, and experiencing an environmental toxin in high concentrations. This term was first coined in 1987 in the United Christ Church's Racial Justice Report *Toxic Wastes and Race in the United States* along with the supporting term environmental racism. The report describes how the movements focused on minority communities living in areas exposed to environmental toxins from or created by a hazardous and toxic waste facilities. In the decades to follow, this definition has maintained its relevance and evolved as the definition of environmental toxins has changed and updated itself with the presence of newly discovered chemicals and chemical sources. An example of a community experiencing an environmental injustice is Flint Michigan where a majority black and low income communities disproportionately experienced a drastic increase in lead concentrations in their water causing incredible damage to the community. By supporting this movement, many communities have received support and are moving towards a cleaner and healthier living situation.

An issue within the environmental justice movement is in the identification of such communities. Due to the changing nature of environmental toxins and the complexities of race and ethnicity, these communities

are difficult to identify through data use and are instead reliant on the community action. Therefore, many states and local governments lack the accurate knowledge as to what communities are in need of additional support. This project seeks to remedy this by creating a tool capable of finding this communities through the use of spatial analysis methods. This analysis will determine and identify possible environmental justice communities within the state of NJ and identify what communities are in need of more support by combining and analyzing cancer risk and census data for the state.



## Methodology

This project was based on a raster analysis over the state of NJ which combined four central variables:

- 1) Cancer risk
- 2) Presence of Water Contamination
- 3) Median Income of Households,
- 4) Percentage of Black Communities

Each data set was created at the census tract level for greater specification in the analysis. To create a set of central scoring values, all variables were rescaled from their original values and given a value between 1 and 5 by utilizing natural breaks in the data. These were then combined using a weighted overlay to determine an environmental justice score for each census tract area, these scores were then used to ultimately identify what areas were of greatest concern to the Environmental Justice movement. In the weighted overlay, all data sets were given equal weighting.

## Results

Areas of most concern to the environmental justice movement were centered around major metropolitan areas of NJ. The three greatest areas of concern were census tracts in Newark, Trenton, Camden. Camden and Newark, which neighbor major cities, had more clustered census tract areas of concern than in Trenton. Interesting to note is that no area in NJ had a score of 5, which was the highest score possible in the analysis. This shows that no area in NJ is experiencing the worst effects of the four variables in the analysis.

## Conclusion

Through the creation of this map, this project demonstrates the impact of spatial analysis in identifying environmental justice communities. Local governments could utilize this tool to potentially improve their analysis of the disproportionate effect environmental toxins have on their communities. Existing limitations of the data include the fact that new identified census tracts were paired with older demographic data so some census tracts had no data associated it with and only the black demographic was used, rather than all communities of color.

## Spatial Analysis Factors

### Water Contamination

The total area of groundwater contamination in each census tract

### Cancer Risk

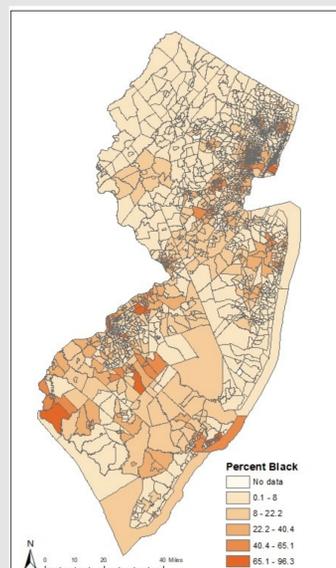
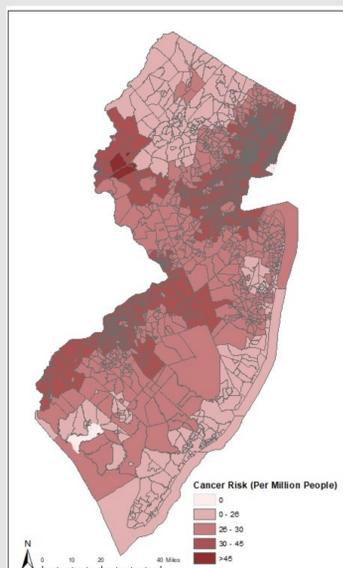
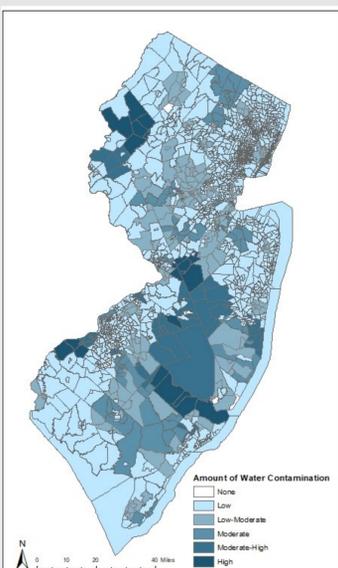
The average cancer risk in each census tract from air toxics

### Median Income

The average household median income in each census tract

### Black Demographic

The percentage of the population who is black in each census tract



## Additional Information

Cartographer: Christopher Hoerner

Date: December 12, 2019

Sources: U.S. Census Bureau, NATA, NJDEP, ESRI

Projection: NAD 1983 StatePlane NJ FIPS (US Feet)

Course: CEE 187 Geographical Info System

Header Photo: Wikimedia