

COVID-19 and Vaccinations in Staten Island

Kevin Dong, 2nd Year, Math and Computer Science

GEG 212 INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS), FALL 2023, PROF. AURASH KHAWARZAD

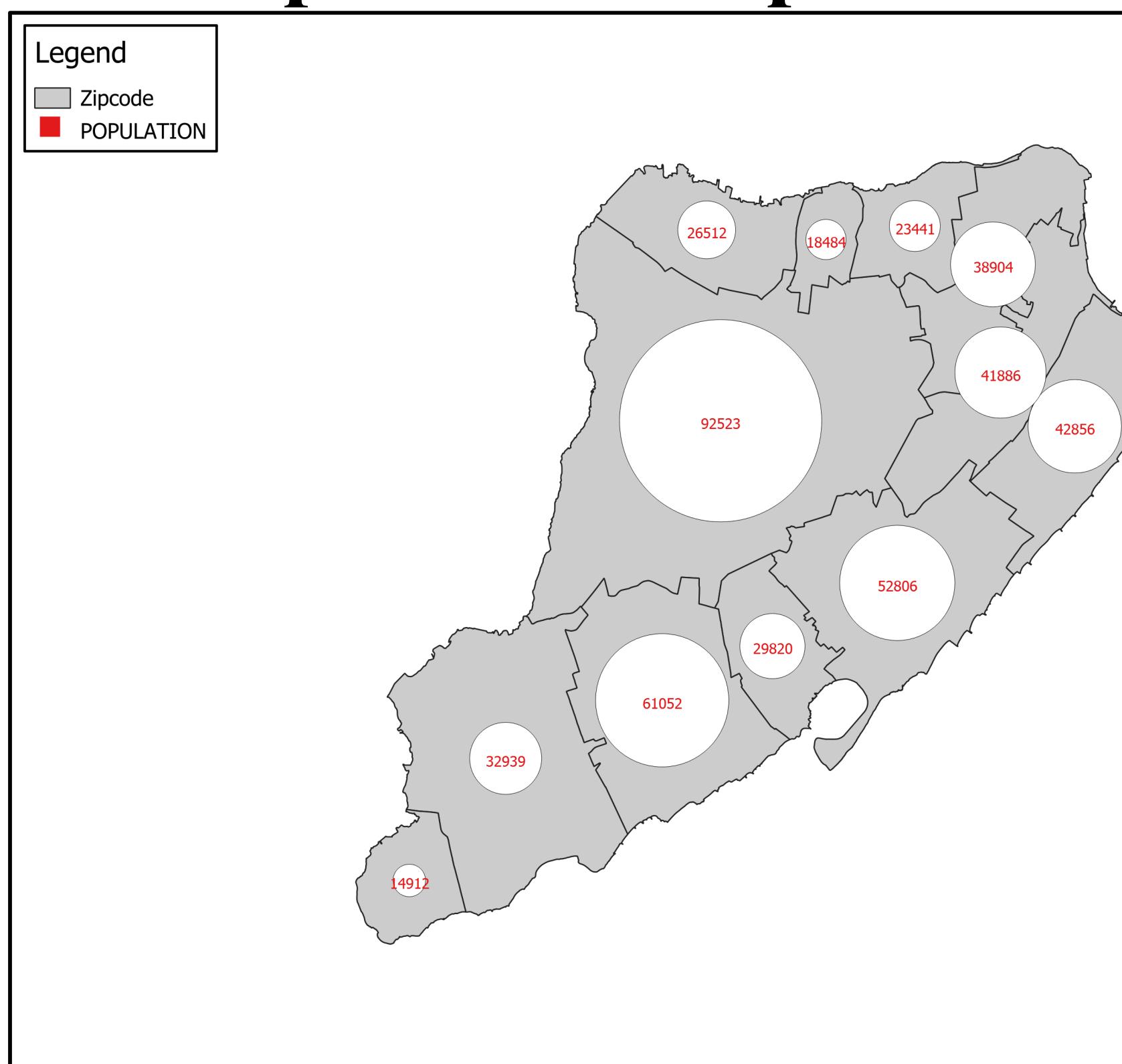
Overview

The worst of the COVID-19 pandemic has pasted, but “COVID-19 is still around and poses a threat to the health of New Yorkers” (*What You Need to Know About COVID-19 Now*, 2023). From dead family and friends to long COVID. It still continues to infect and kill people now, but at much lower rate than at its peak. It has and will continue to impact our present and future. “The number of working-age Americans with a disability who are employed has increased by an estimated 1.5 million people, census data show” (Paris, 2023). The rise of new COVID variants and waning immunity means it still important for people to get the new and updated vaccines. This project will discuss the distribution of total COVID-19 cases, deaths, and vaccination rates in Staten Island. How they differ on a myriad of different factors and why. For this project, the factors I will focus on is minority & poverty rate. Where there are gap in vaccination rates and where I proposed to place five vaccination centers to fill those gaps. I will discuss some of the factors leading to those gaps and why I proposed the vaccination centers to be placed where they are.

Data and Methodology

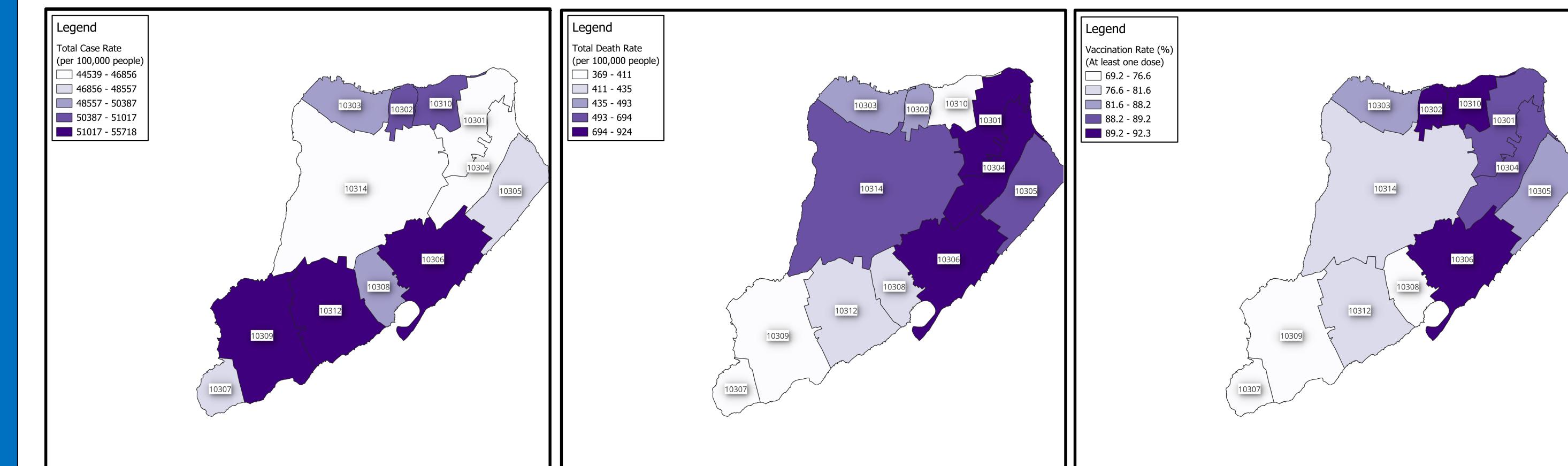
All the COVID-19 and population data used comes from NYC Department of Health, retrieved from nyc.gov/site/doh/covid/covid-19-data-neighborhoods.page on 12/4/23. This data will be used to create four maps to show total population, case, death, and vaccination rates per zip-code. The demographic and poverty data used comes from Social Explorer, retrieved from socialexplorer.com/profiles/essential-report/index.html on 12/4/23. This data will be used to create two maps to show the minority and poverty rate per zip-code. These maps will be used to show how these factors are connected. All the maps were made on open source GIS software, QGIS. All the maps uses a shape file of the zip-codes of Staten Island. Map 7 uses an Open Streets Map layer and for the points, a Delimited Text Layer. Map 1 is a diagrammatic map where the size of the circles represent the relative size of the population compared to other zip-codes and the number inside is the total population of the zip-code. Map 2-6 are maps with color-graded data. They all use equal count with five classes, except for map 4 which uses equal interval. Map 7 shows where my five proposed new vaccination centers are on the map. The CRS is EPSG:2263 for all maps.

Map 1: Total Population

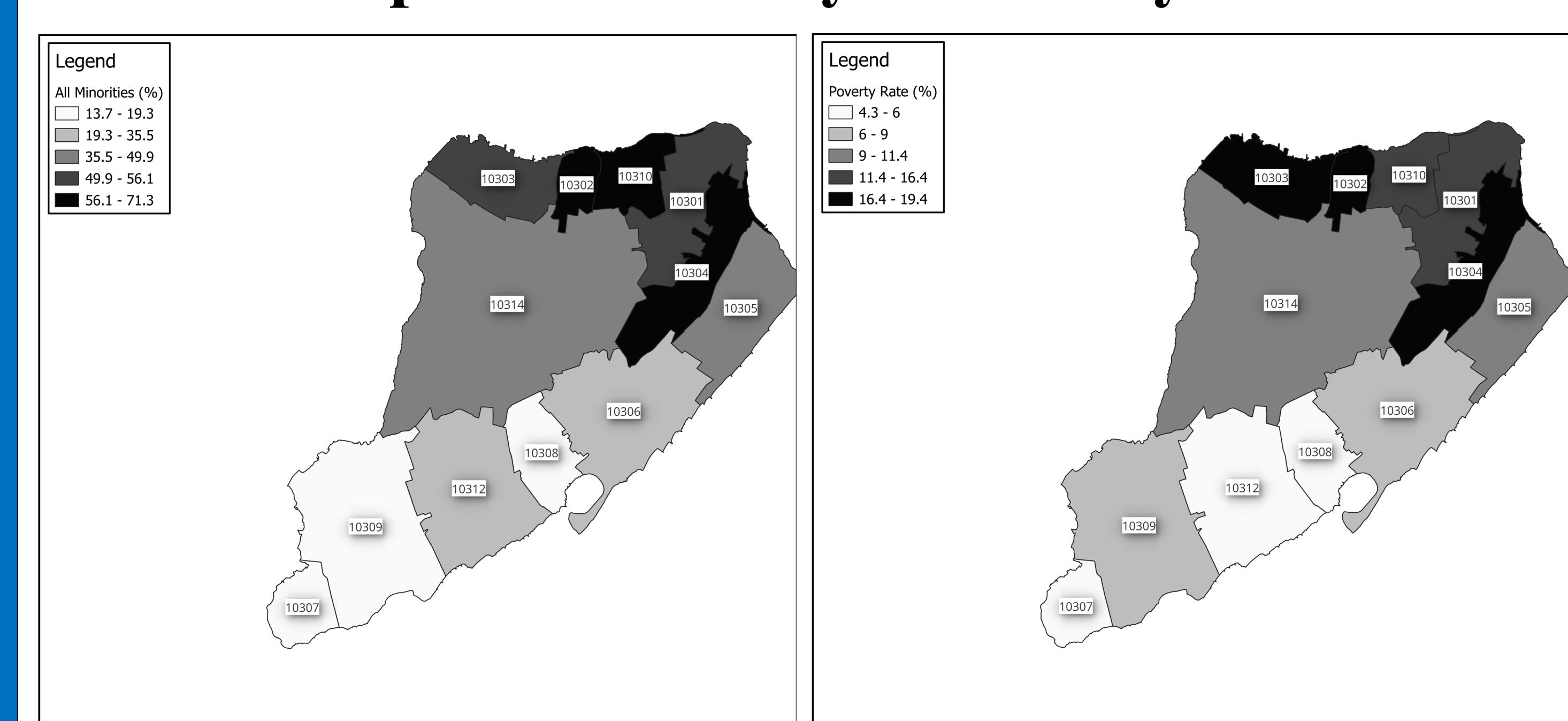


This is a diagrammatic map where the size of the circles represent the relative size of the population compared to other zip-codes and the number inside is the total population of the zip-code. The zip-code with highest population is 10314 (Bloomfield/Freshkills Park) at 92523. The zip-code with lowest population is 10307 (Tottenville) at 14912. The majority of the population of Staten Island lives in the south shore (zip-codes: 10306, 10307, 10308, 10309, 10312, 10314). The minority of the population of Staten Island lives in the north shore (zip-codes: 10302, 10303, 10304, 10305, 10310). I will use these geographic division for the rest of my analyses.

Map 2-4: Total Case, Death, Vaccinations Rates



Map 5-6: Minority & Poverty Rate



Map 7: Proposed Vaccination Locations



Conclusion

The distribution of total COVID-19 case, death, and vaccination rates on Staten Island has differed based on many different factors such as population, geography, and minority & poverty level. Staten Island can be split into two parts (north and south shore). The north shore has less people and land area. It has the greater vaccination and death rate. It is less white and poorer. The south shore has more people and land area. It has the greater case rate. It is whiter and richer. Some ways to deal with low vaccinations rates in Staten Island are to increase education, outreach, and accessibility. My five proposed vaccination location will increase accessibility and can be used for education and outreach. Education is needed to counter misinformation and vaccine skepticism. Outreach is needed to inform people of the new and existing vaccination location open. “Updated COVID-19 vaccines for the 2023-2024 season are recommended for everyone 6 months and older. They are designed to protect against newer COVID-19 variants and to increase people’s protection against the virus” (*What You Need to Know About COVID-19 Now*, 2023). The rise of new COVID variants and waning immunity means it still important for people to get the new and updated vaccines.

References

- Goldstein, J.G. (2023) *N.Y.C. Life Expectancy Dropped 4.6 Years in 2020, Officials Say* [Online]. Available at: <https://www.nytimes.com/2023/04/07/nyregion/nyc-covid-deaths.html> (Accessed: 11 December 2023)
- Paris, F.G. (2023) *Can’t Think, Can’t Remember: More Americans Say They’re in a Cognitive Fog* [Online]. Available at: <https://www.nytimes.com/2023/11/13/upshot/long-covid-disability.html> (Accessed: 11 December 2023)
- What You Need to Know About COVID-19 Now* [Online]. Available at: <https://www.nyc.gov/site/doh/covid/covid-19-main.page> (Accessed: 11 December 2023)