Urban Studies 2000 Assignment #4: Mapping Portfolio

Introduction

For this mapping portfolio, I really wanted to look into an environmental, and climate based issue. I had already looked at educational issues in class and could not repeat them. I spend most of my time in my studies looking at those two policy focuses. For this, the general theme was the intersection of Age, Income and Race in relation to heat vulnerability. I had hoped to do some more complicated measures, by including public pools and splash pads, and using a choropleth map to grade the average distance one lives away from a free cooling area. I also hoped to look at asthma cases under 18 but the shape files from the Philadelphia open source data website were not cooperating, and I could not figure out how to download data from the other site with health data. So I went to look for other things within the ACS Survey and what was downloadable off of Open Data Philly. I wanted (needed) to showcased my ability to use several data displaying tools on a map

Because I am looking at age, income and race in relation to heat vulnerability, I have a few hypotheses, and social questions to ask, especially are disadvantaged youth more at risk for heat vulnerability, and are Black youth more at risk than White youth. There is also a map of three coverage, to see if greenspace, and tree canopies might have an intersection with there is or isn't increased heat vulnerability, and perhaps that planting more trees and increasing the canopy could Though, I cannot do any data analysis, or check for statistical significance or anything that would verify this at all. The social science problem I am trying to solve, or rather investigate, is environmental inequality.

Environmental inequality is a major issue because extreme heat, cold and weather events happen more and more often. We rarely think about who they affect when they happen. And in most cases, they disproportionately affect non-white, and disadvantaged communities. This is why understanding how and why and to whom these issues happen is important.

My hypothesis is that in this case,

Null: There is no relation between race, income and heat vulnerability.

H : There is a relation between race, income and heat vulnerability.

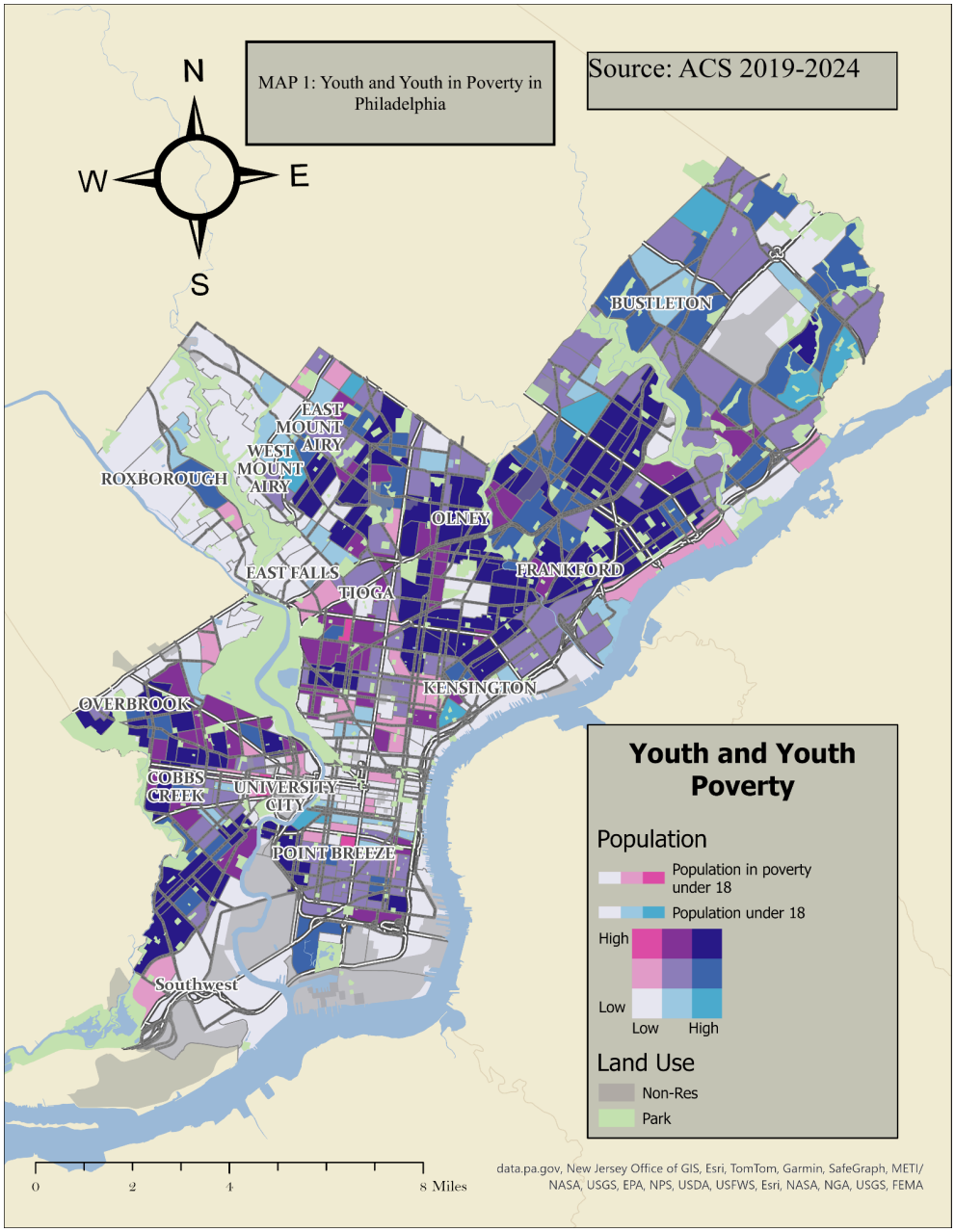
H_1 : Black residents of philadelphia have a higher heat vulnerability index generally

H_2: Lower income residents of philadelphia have a higher heat vulnerability index generally

Again because this is a map, it's not looking to verify these hypotheses but rather look and investigate them. I will go map by map, looking at the points each makes, some more directly related, some drawing others, helpful information to more questions I am asking outside of the hypothesis or concerns like youth inclusion and trees vs open space for both the why, and who it affects.

Bronk

Maps



In this map, I wanted to place both where youth live, and where youth in poverty live in comparison just to see both where a significant amount of youth live, for comparison of later information and also in comparison to youth in poverty, because we look at poverty later. So this map looks at both. If a space is dark blue, it is a region where there are alot of children, but a lot of them (relatively are in poverty), The bivariate choropleth map in this way visually shows us some of the normalization of the data. This is something to compare to later when we look at the rest of the data, not necessary for the hypothesis but interesting and relevant.

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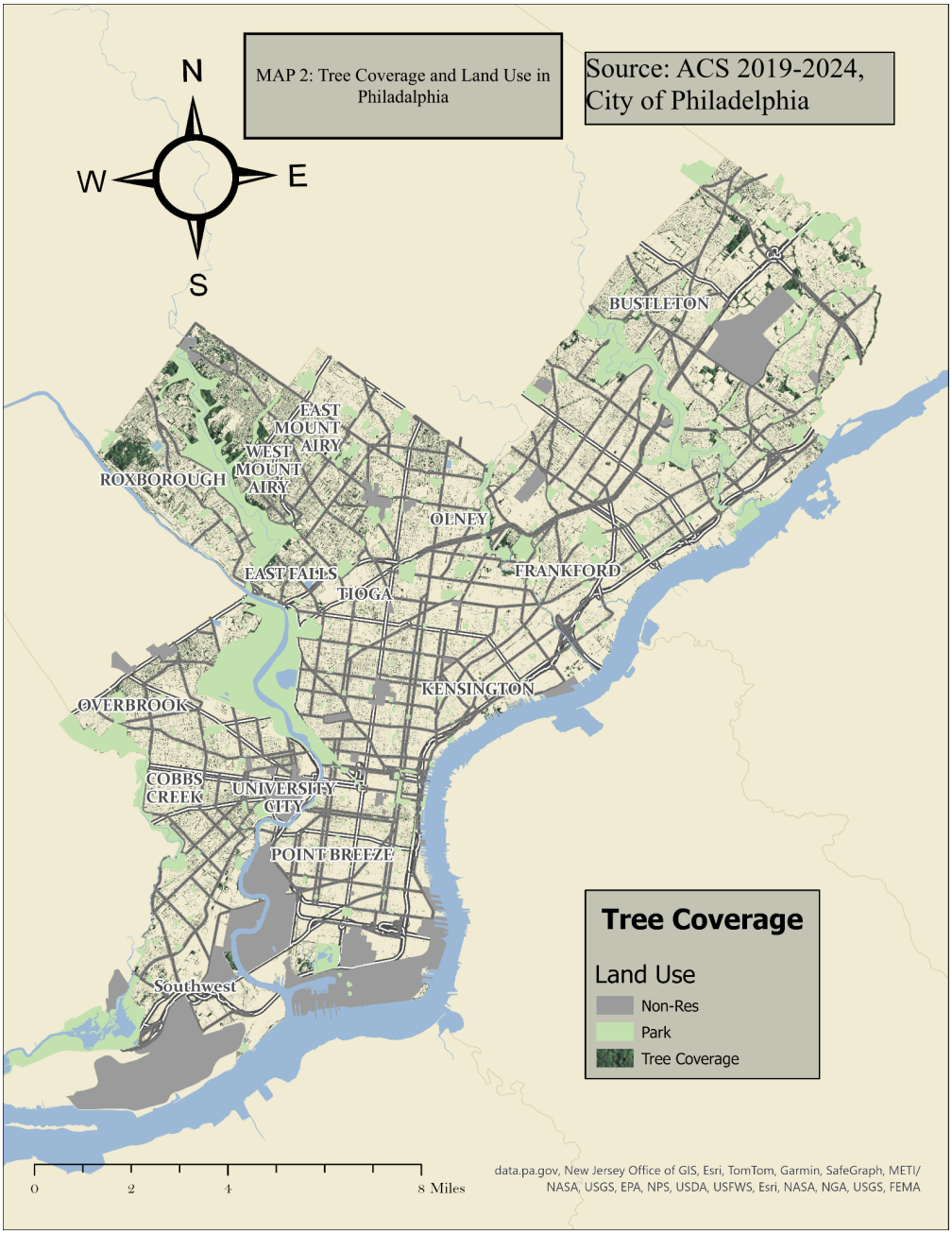
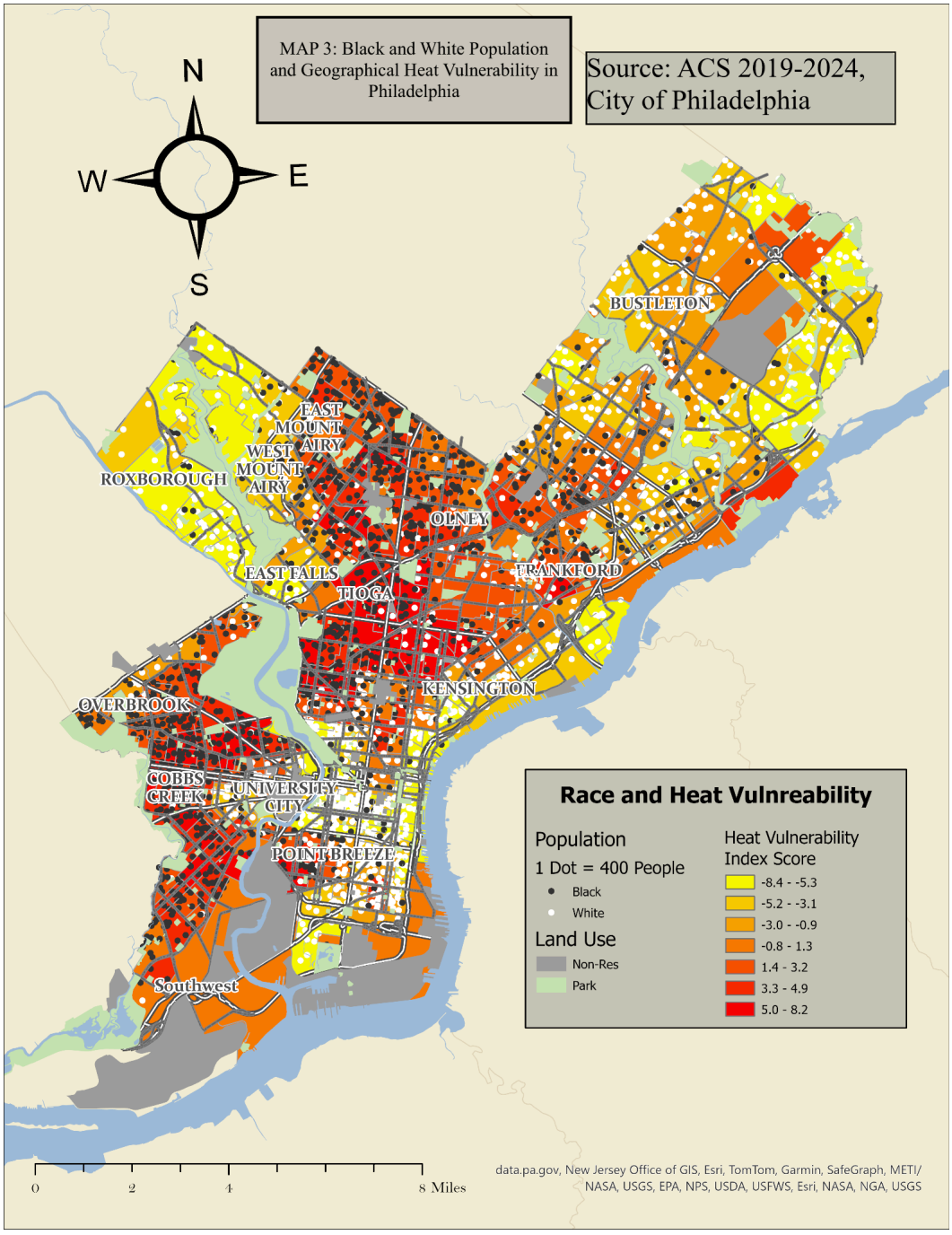
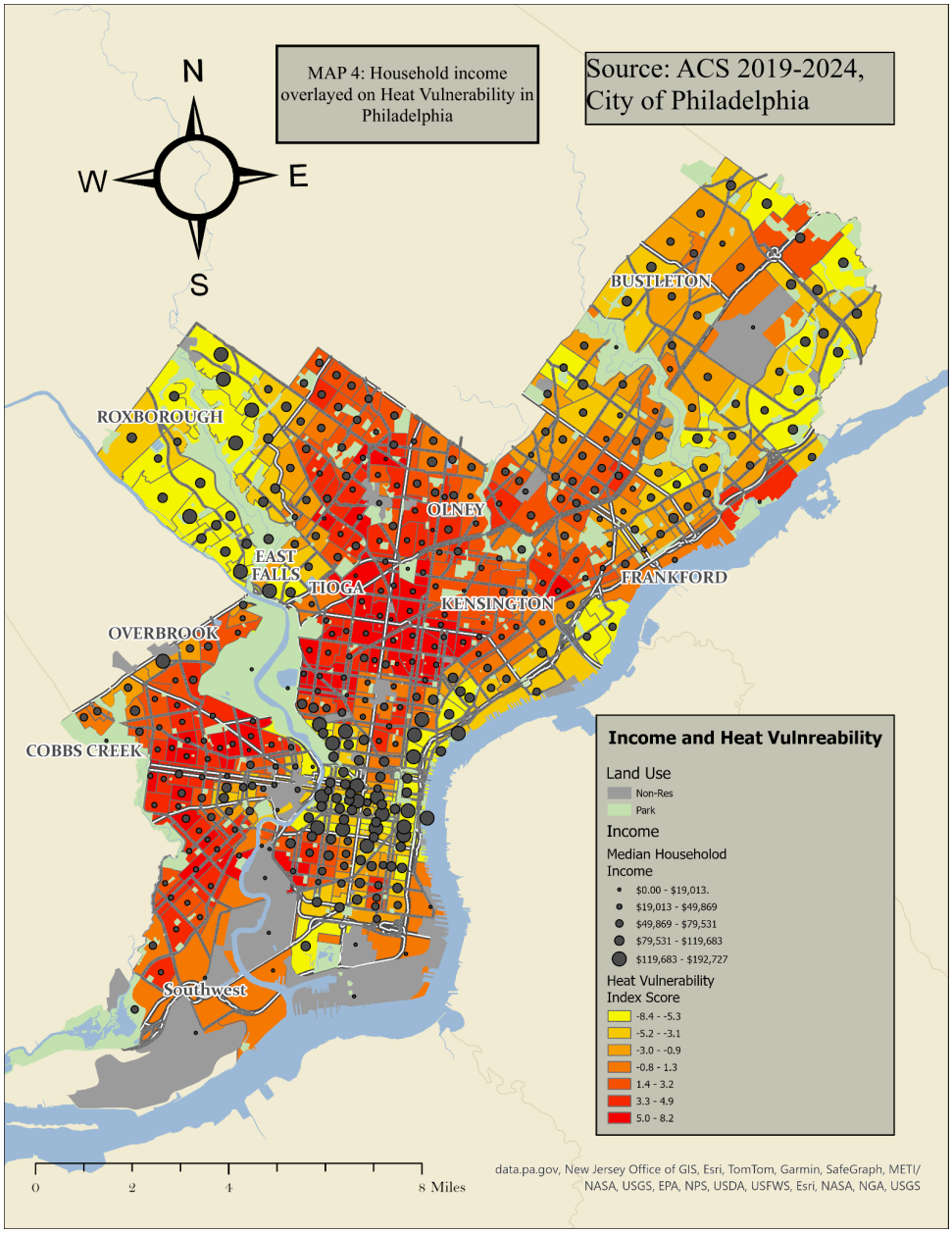


Again this map is not directly related to the hypothesis but was in an attempt to find solutions. This is a map of tree coverage in philadelphia. I think looking a it compared to both race and income in reference to heat vulnerability index would be interesting, to see if there was any relation (while ignoring park use, this is just street and non-park, non-non-res cover) Looking at this map in comparison to rest of the data makes it seem like tree coverage wasn't a great indicator of heat vaunder bitly (looking in comparison because overlaying this ona heat vulnerability index map would have been impossible to use). I thought it was worth a shot.

Bronk

This map looks at Race (Black or White) and Heat Vulnerability Index score in Philadelphia. This ties directly to my hypothesis as it was part of the main and one of the alternates. I find this shows that the black population of Philadelphia is way more often in locations with a way much higher Heat Vulnerability Index score (red is a larger number and considered more at risk). White residents tend to live in places with lower Heat Vulnerability Index scores. This proves the first half of the null hypothesis incorrect and my H_1 correct.





This map looks at Income and Heat Vulnerability Index scores in Philadelphia. This ties directly to my hypothesis as it was part of the main and the second of the alternates. I find this shows that the lower income populations of Philadelphia are way more often in locations with a much higher Heat Vulnerability Index score, while higher income residents tend to live in places with lower Heat Vulnerability Index scores. This proves the half of the null hypothesis incorrect and my H_2 correct.

Conclusion Looking at all four maps together in tandem with my hypothesis, we have a few takeaways.

Null: There is no relation between race, income and heat vulnerability.

H_1 : Black residents of philadelphia have a higher heat vulnerability index generally

H_2: Lower income residents of Philadelphia have a higher heat vulnerability index generally

I would argue that the Null was rejected in these maps, due to the visible connection between race and income on Map three and Map four. Both of these make it such that H_1 and H_2 would be proven correct. This would argue as a collective that Black and/or lower income individuals experience heat vulnerability at a much higher rate than those who were White and/or Higher income. This goes to prove even further the discriminatory effects of inadvertent climate injustice and would only become more and more of a problem as the extreme climate events or temperatures increase. If this were only to increase, it is clear a solution would need to be found. In these maps, I attempted to see if tree coverage would be an indicator of lower heat vulnerability, and perhaps therefore a viable solution. What I found was not the opposite, but not true. Tree coverage had no indication of whether heat vulnerability was higher or lower, so not a viable solution. Looking at the youth, and youth in poverty map together with the other two maps, you can see, in locations where there are a lot of children, there is higher heat vulnerability. These findings indicate a clear pattern and issue, that there are issues of structural inequality tied directly to climate and climate change issues, and it's an issue we need to address as we head to the future.