Future Optimal YMCA Locations In Philadelphia

Josh Goodrich
Professor Pomeroy, History & Political Science Dept.
York College of Pennsylvania

Introduction –

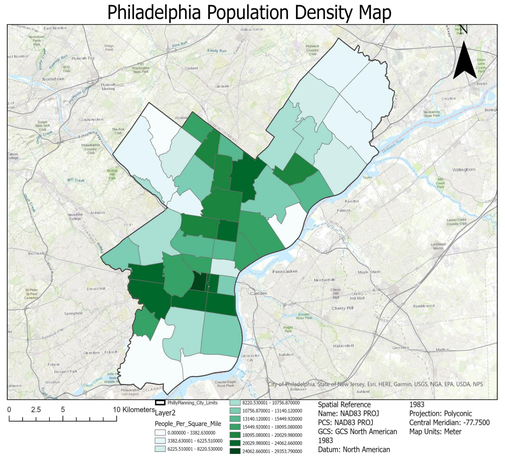
The working question of this project is: where is the optimal location for a YMCA in the city of Philadelphia? The purpose of this project is to locate future optimal YMCA locations in Philadelphia using a variety of factors, weighing them accordingly, and taking the best score of this weighting process.

Dataset	Type	Source
ACS Median Household Income Variables	Polygon	Environmental Systems Research Institute
Majrivrs	Line	Pennsylvania Spatial Data Access
Philadelphia State Roads	Line	Pennsylvania Spatial Data Access
Philly Planning_City_ Limits	Polygon	Pennsylvania Spatial Data Access
Philly Zipcodes by Population	Polygon	Pennsylvania Spatial Data Access
YMCA's in Philadelphia	Point	Google Earth

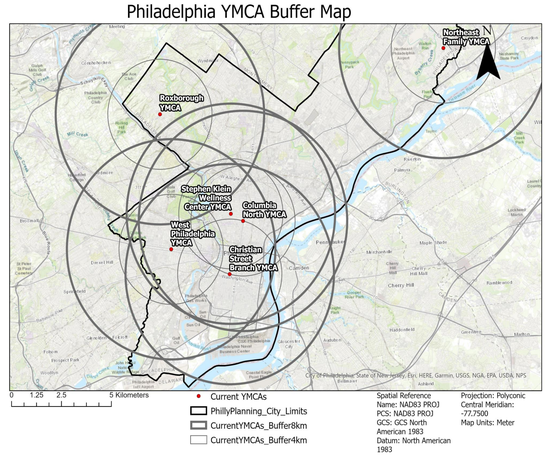
Study Area – The City of Philadelphia

The city of Philadelphia is in Pennsylvania at coordinates 39.9526° N, 75.1652° W. It has a population of 1,584,064 (United States Census, July 2019). Philadelphia is mostly flat except for the northwestern are and is flanked by two rivers: the Delaware and Schuylkill.

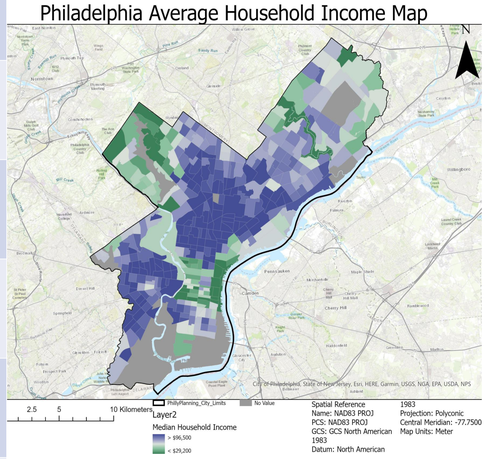
Philadelphia Population Density Map



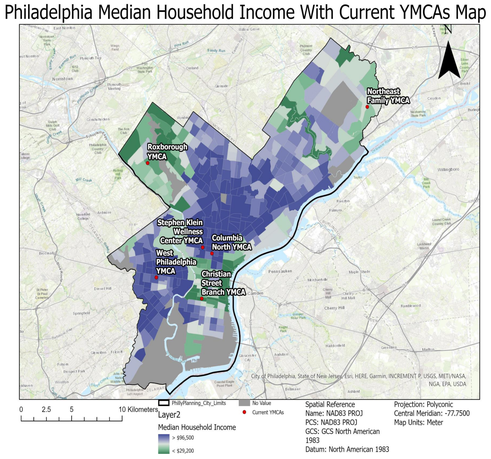
Philadelphia YMCA Buffer Map



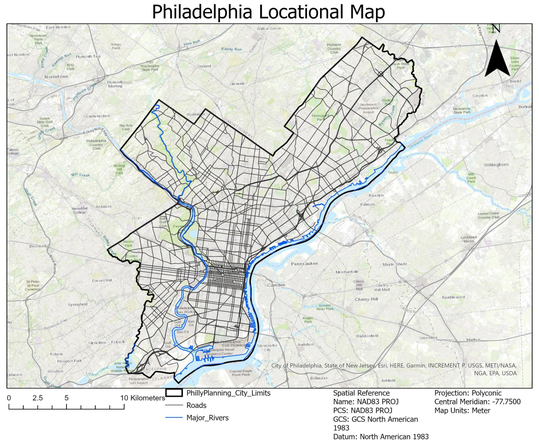
Philadelphia Average Household Income Map



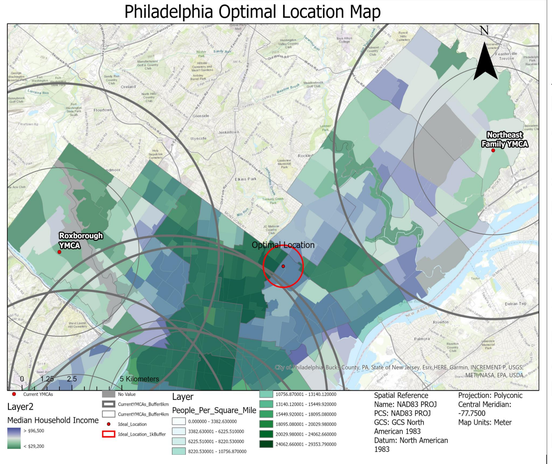
Philadelphia Median Household Income With Current YMCAs Map



Philadelphia Locational Map



Philadelphia Optimal Location Map



Analysis

– For the analysis, I created a scoring system using the criteria of YMCA's in Philadelphia, Philly Zipcodes by Population, and ACS Median Household Income Variables. They were all scored from zero-to-ten, ten being the best. Population and median household income were divided into ten equal intervals. Low median income and High population per square mile were given a ten. Both criteria were scored using a one kilometers in diameter circle averaged together. I created two buffers around the YMCA's. One was eight kilometers; the other was four kilometers. Outside of eight kilometers gave ten points, being between buffers gave five, inside two gave zero. For these buffer areas, I produced eight kilometers through average commutes of cars (25.8 km), bikes (16.1 km), and walks (.8 km) (I valued the walking two times as much) (Harris, 2019) (What is a reasonable distance to bike to work?, n.d.) (Redmon, 2013). This produced 8 km and represents the service area of a YMCA.

Conclusion

– Through the scoring of the three criteria mentioned above, the data determined where the ideal location would be. This location scored 8.6, 6.5, and ten for median household income, population density, and YMCA buffer, respectively. This gave a overall score of 8.4 out of ten for this location, scoring the highest overall. Future steps for this project would be to introduce new factors, such as space to build the YMCA and higher family concentration.

Citations

Access Data. Pennsylvania Spatial Data Access. (n.d.). https://www.pasda.psu.edu/.

Esri. GIS Mapping Software, Location Intelligence & Spatial Analytics. (n.d.). https://www.esri.com/en-us/home.

Google. (n.d.). *Overview*. Google Earth. https://www.google.com/earth/.

Harris, D. (2019, January 10). *How far do americans drive to work on average?* https://itstillruns.com/far-americans-drive-work-average-7446397.html.

Philadelphia city, Pennsylvania. U.S. Census Bureau QuickFacts. (2019, July 1). https://www.census.gov/quickfacts/philadelphiacitypennsylvania.

Redmon, T. (2013, January 31). *Pedestrians and Transit - Safety: Federal Highway Administration*. Safety. https://safety.fhwa.dot.gov/ped_bike/ped_transit/ped_transguide/ch4.cfm

What is a reasonable distance to bike to work? Bike Commuter Hero. (n.d.). https://bikecommuterhero.com/what-is-a-reasonable-distance-to-bike-to-work/#:~:text=For%20a%20person%20of%20average,the%20end%20of%20the%20week.