

Beat the Heat

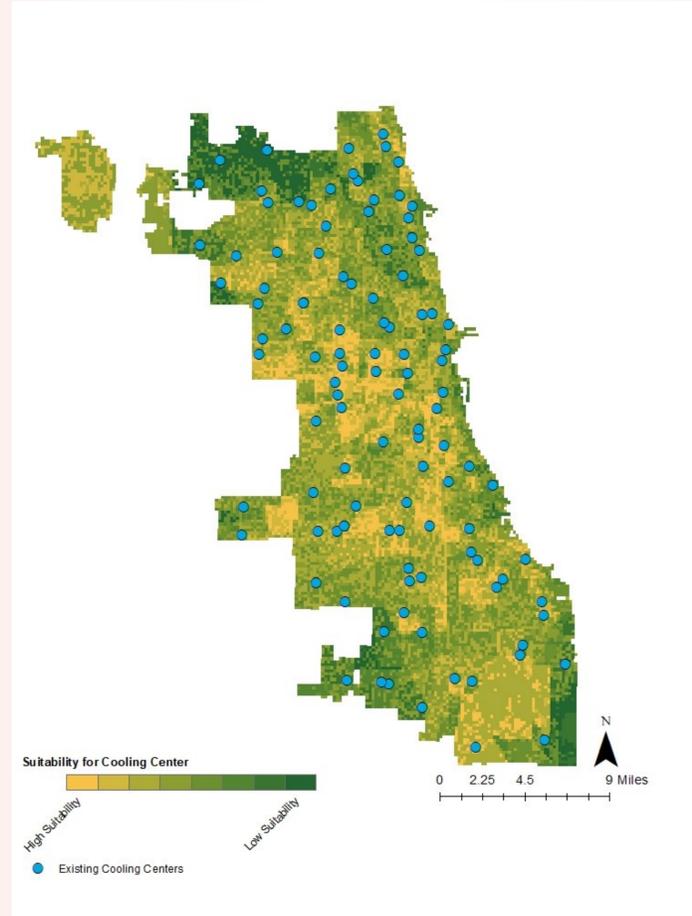
A Suitability Analysis of Cooling Centers in Chicago

Ella Brady

Introduction to GIS

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Suitability Analysis



tion, Low Median Income, and High Percentage Impervious Surface data was converted into raster data, re-classed, and factored into the greater suitability analysis with the re-classed Low Tree Canopy data. Finally, the cooling centers for the city of Chicago were geocoded and overlaid onto all of the maps.

Conclusions and Limitations

The geocoded cooling centers turned out to be decently distributed, and the areas with high suitability were closer to the middle of the city. The largest disparity between the presence of cooling centers in areas of high suitability occurred in the Southwest Side and Far Southeast Side of the city, and the areas in which there was low suitability for cooling centers and a presence of cooling centers were the Far Southwest Side, the Far Northwest side, and North Lincoln.

The results of this analysis would be different if all of the data was converted to vector data and the analysis was conducted through census tracts. Further research would need to be done in order to determine where the implementation of new cooling centers would be possible, and what the correct weight of each of these factors would need to be in order to best determine heat vulnerability.

Sources: 2010 National Census, City of Chicago Data Portal, Chicago Metropolitan Agency for Planning, American Community Survey 5 Year Data (2012-2017)

Projection: Transverse Mercator

Projected Coordinate System: NAD 1983 State Plane Illinois East Fips

Why Cooling Centers?

On Tuesday, January 29th, 2018, Chicago entered a cold streak that not only broke the city's record for longest consecutive hours of subzero weather, it ranked the fourth-longest cold streak on record, ending Thursday, January 31st, around midnight. During this time, the city as well as other residencies opened up various warming centers in order to lend aide to those who may be especially vulnerable to the effects of the extreme cold. Although the winter has passed this year, the climate of Chicago is classified as hot-summer humid continental, and will suffer a period of extreme heat as well. This project examines demographic and environmental factors that heighten vulnerability to extreme heat, and conducts a suitability analysis of this data juxtaposed to the existing cooling centers in the city. As our climate becomes more volatile, this spatial analysis helps visualize where the right locations for the next cooling centers might be.

Methodology

This project utilizes four factors in order to examine heat vulnerability: High Percentage Elderly Population, Low Median Income, Low Tree Canopy, and High Percentage Impervious Surface. The data for High Percentage Elderly Population and Low Median Income came from census data and were joined to census tracts and normalized. Low Tree Canopy Data was a raster data set that was re-classed and reversed so that the data used for the suitability analysis contained spaces in which there was low tree canopy. The data used for High Percentage Impervious Surface were spaces in which there was greater than 60% impervious surface. The High Percentage Elderly Popula-

Age

Income

Tree Cover

Impervious Surface

