



Environmental Justice Assessments

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What is Environmental Justice?

United States Environmental Protection Act:

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

This goal will be achieved when everyone enjoys:

- The same degree of protection from environmental and health hazards, and
- Equal access to the decision-making process to have a healthy environment in which to live, learn, and work.

What is Environmental Justice?

Risk - environmental factor and frequency

- Natural
- Human-Made Mechanical
- Human-Made Societal

Vulnerability - individual characteristics

Adaptation - addressing an effect of climate change

Mitigation - addressing the cause of climate change



Why is this important for our community?

Some of our communities have been marginalized and underserved

iCAP 2020: Objective 8.3 Environmental Justice Plan

The University is a large player in our community, and integrated approaches and communication work best

Assessment Methodologies

Simple Indicators

- EJSCREEN

Weighted Indicators

- CalEnviroScreen
- ILSFA

Calculation of CalEnviroScreen Score for tract 6019000300

	Pollution Burden		Population Characteristics	
	Exposure Indicators	Environmental Effects Indicators*	Sensitive Population Indicators	Socioeconomic Factor Indicators
Component Score	80.40	$(0.5 \times 40.70) = 20.35$	97.66	81.16
Average of Component Score	$100.75 \div (1 + 0.5) = 67.17$ <i>Pollution Burden is calculated as the average of its two component scores, with the Environmental Effects component half-weighted.</i>		$178.82 \div 2 = 89.41$ <i>Population Characteristics is calculated as the average of its two component scores.</i>	
Scaled Component Scores (Range 0-10)	$(67.17 \div 81.19^{1**}) \times 10 = 8.273$ <i>The Pollution Burden percentile is scaled by the statewide maximum Pollution Burden scores.</i>		$(89.41 \div 96.43^{***}) \times 10 = 9.272$ <i>The Population Characteristics percentile is scaled by the statewide maximum Population Characteristics scores.</i>	
CalEnviroScreen Score	$8.273 \times 9.272 = 76.71$ A score of 76.71 puts this census tract in the 95-100 percentile or top 5% of all CalEnviroScreen scores statewide.			

* The Environmental Effects component was given half the weight of the Exposures component.

** The tract with the highest Pollution Burden score in the state had a value of 81.19.

*** The tract with the highest Population Characteristics score in the state had a value of 96.43.

Data Sources

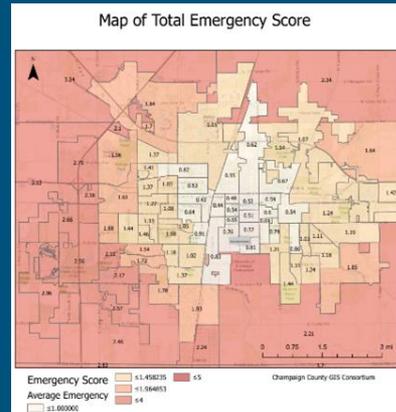
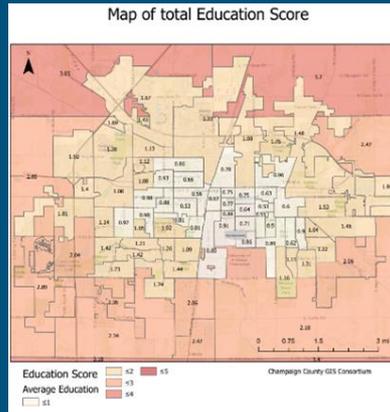
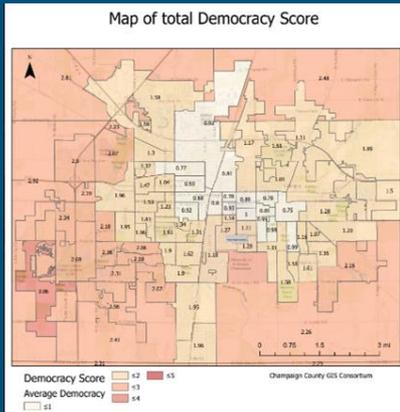
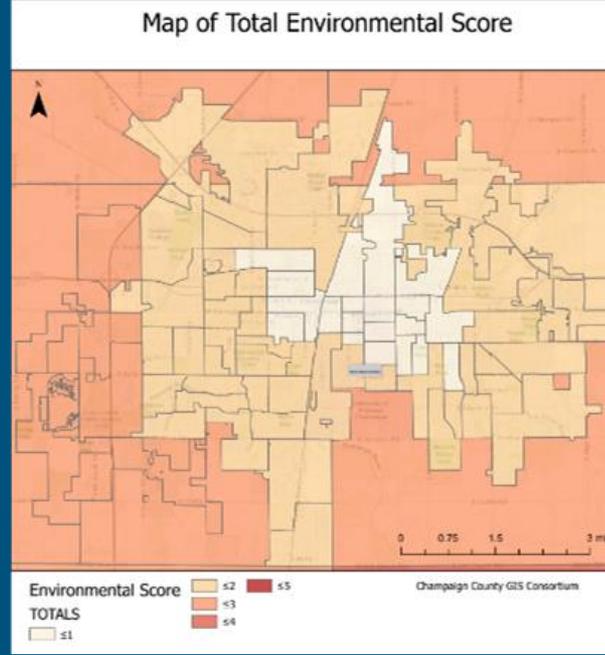
The Champaign County GIS Consortium

Used for the environmental score maps

Multi-Resolution Land Characteristics Consortium - NLCD 2016 Land Cover

Used for the tree maps

Maps!

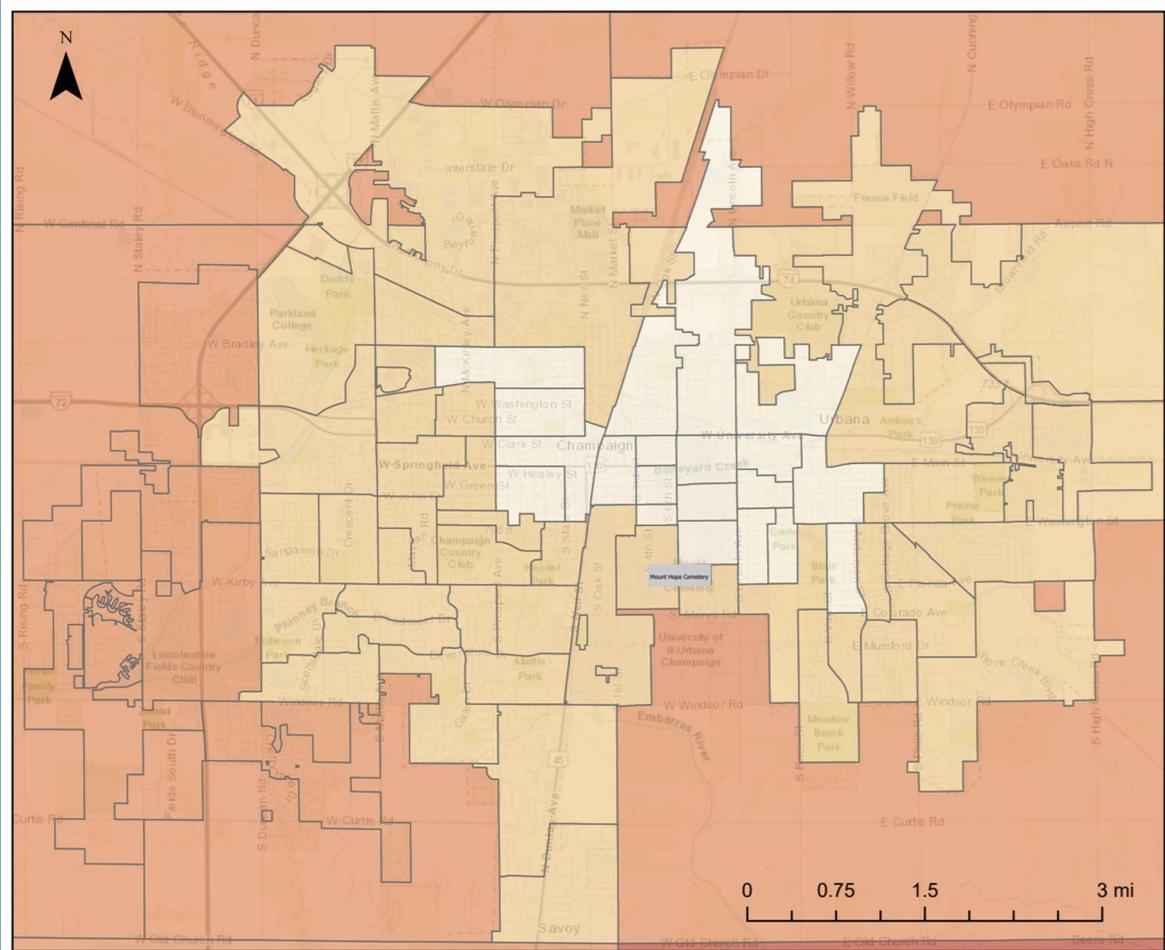


Total Environmental Score

Data comes from the Champaign GIS Consortium and was used to specify precincts, and feature locations.

The red levels indicate need for improvement as distances to features are farther away.

While much of the area near the University has short distances to nearly all features (with the exception of recreational areas) areas in southern Champaign and Savoy consistently have distances that are much greater.



Champaign County GIS Consortium

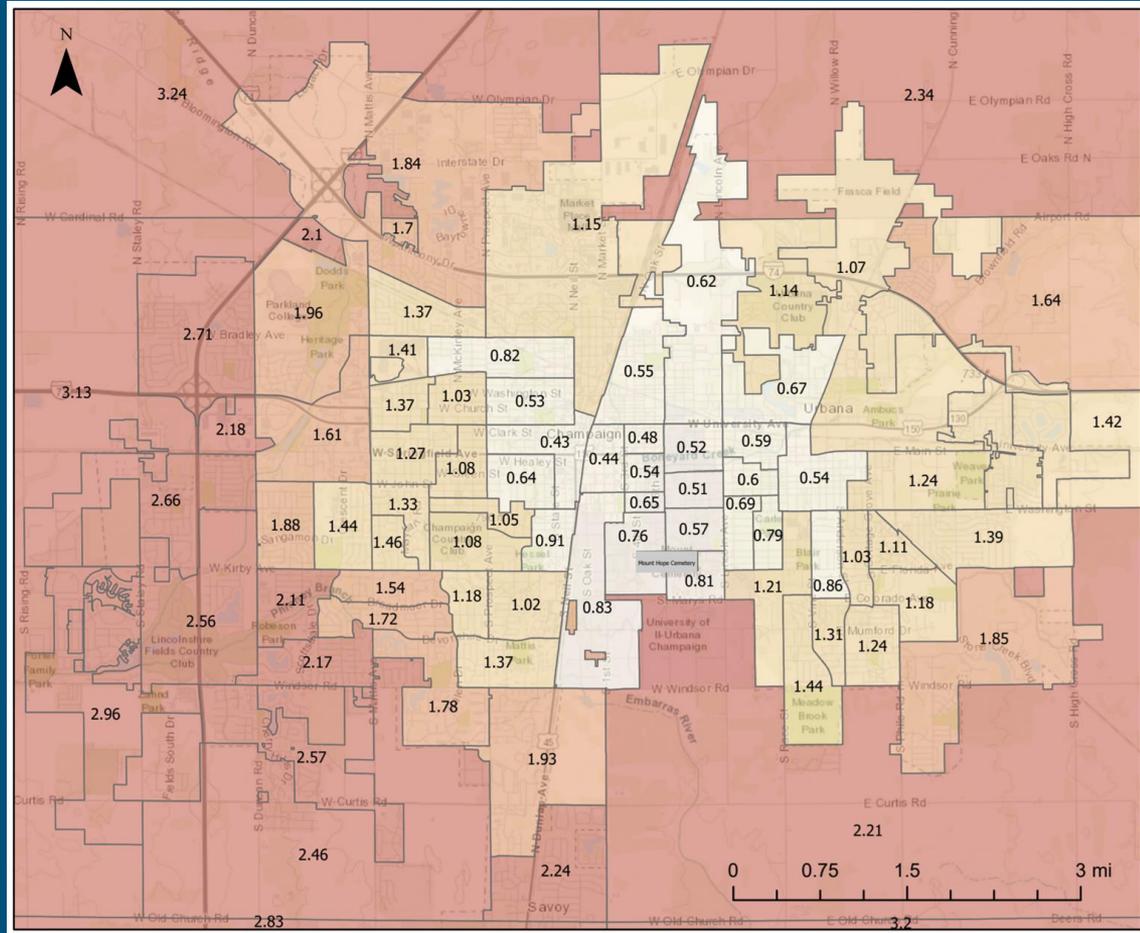
Emergency Score

ambulance operation points, mental health facilities, hospitals, clinics, fire stations, police stations, and jails (not really any jails in chambana)

The Emergency score was again similar to democracy and education categories as it did well near the university and central Champaign and then drastically fell further from the city center.

This is likely due to the higher concentration of hospitals and mental health centers near the university as well as the presence of the Carle hospital which has multiple buildings near campus that deal in a variety of fields.

Additionally there are more police stations near campus than anywhere else in Champaign. While we had discussed the possibility of police stations having a negative effect due to over policing of an area, I feel that in this case the police tend to have a more positive than negative impact on the surrounding community.

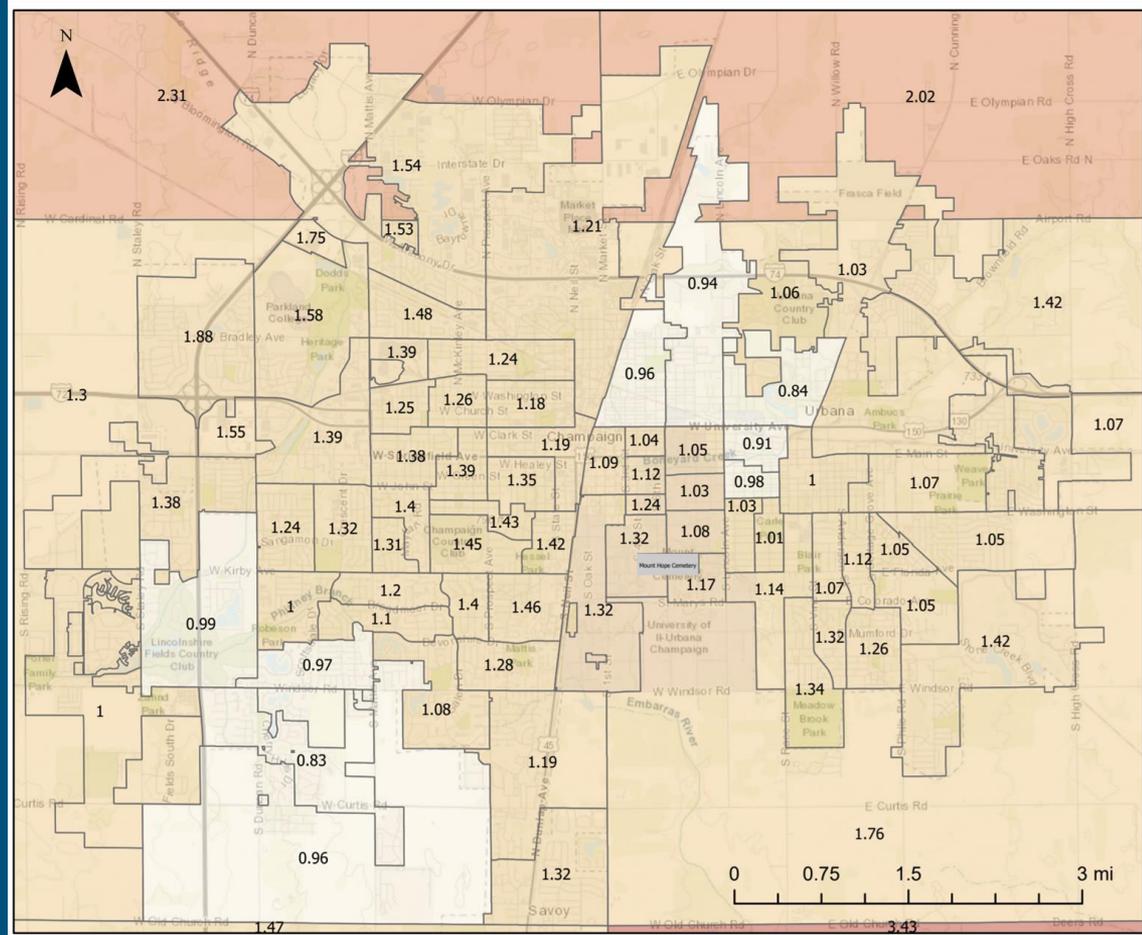


Recreation Score

forest preserves, public golf courses, parks, lakes, misc recreational centers

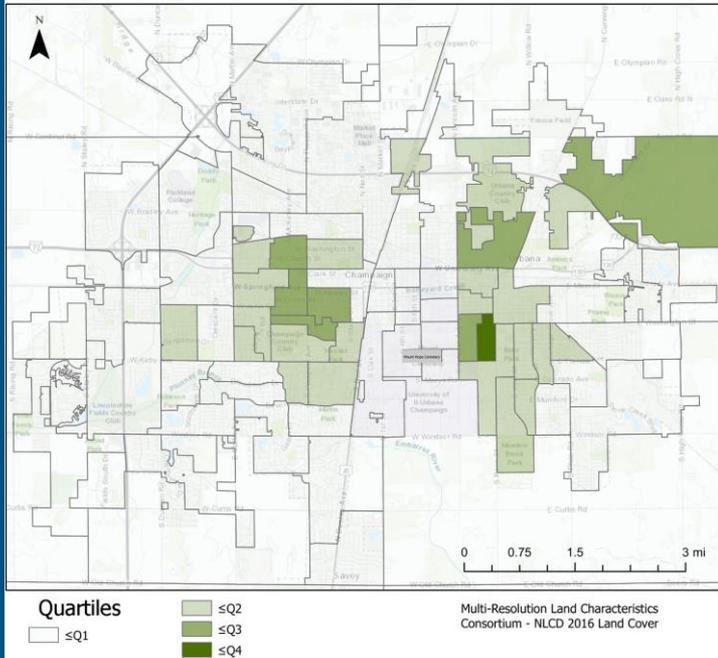
Recreational areas are different from the other categories looked at as the university and immediate areas actually have a somewhat lower score than areas in Northern Urbana and Southern Champaign.

This could be due to a number of things such as an intensification of commercial and educational buildings or urban development in general.

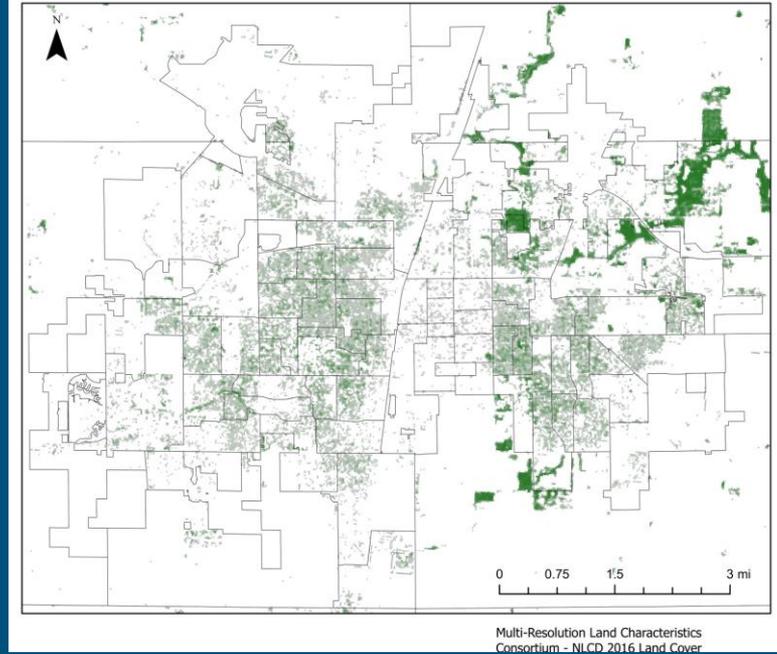


Tree Coverage Maps

Comparative Tree Coverage Across Precincts



Tree Coverage Across Champaign-Urbana



Direction for Future Work

1. Data Gathering
 - a. Additional Data Sets
 - b. Spatial scale
 - c. Time scale
2. Final Score Methodology
3. Qualitative Information

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Image Credits

[1] - <https://media.nationalgeographic.org/assets/photos/000/204/20429.jpg>

[2] - <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>