

# CUTR

CENTER for URBAN  
TRANSPORTATION  
RESEARCH

## Spatial Analysis of Pedestrian Crashes in Low-Income Areas



**10th University Transportation Centers Spotlight  
Conference: Pedestrian and Bicycle Safety**

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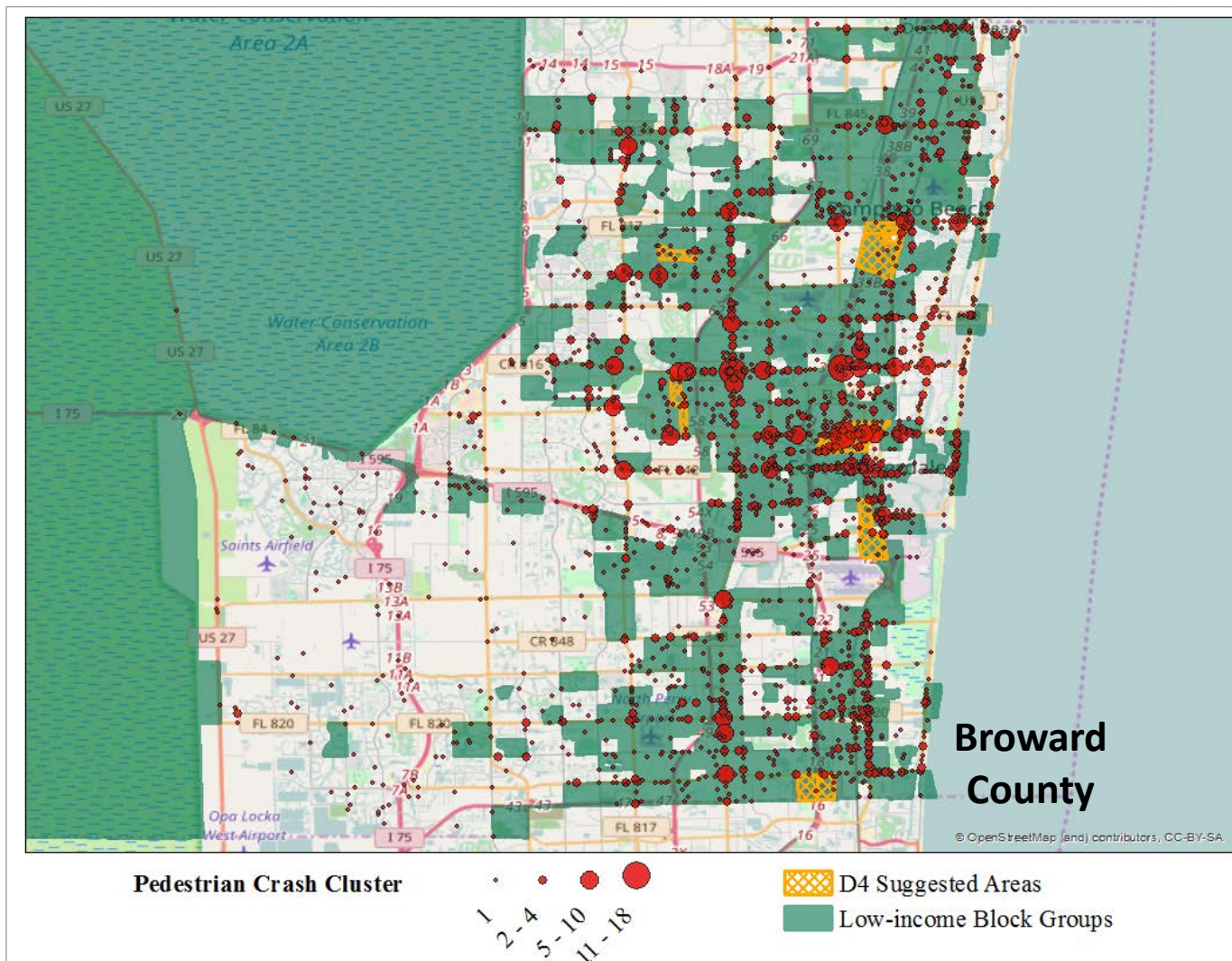
December 2, 2016

# Introduction

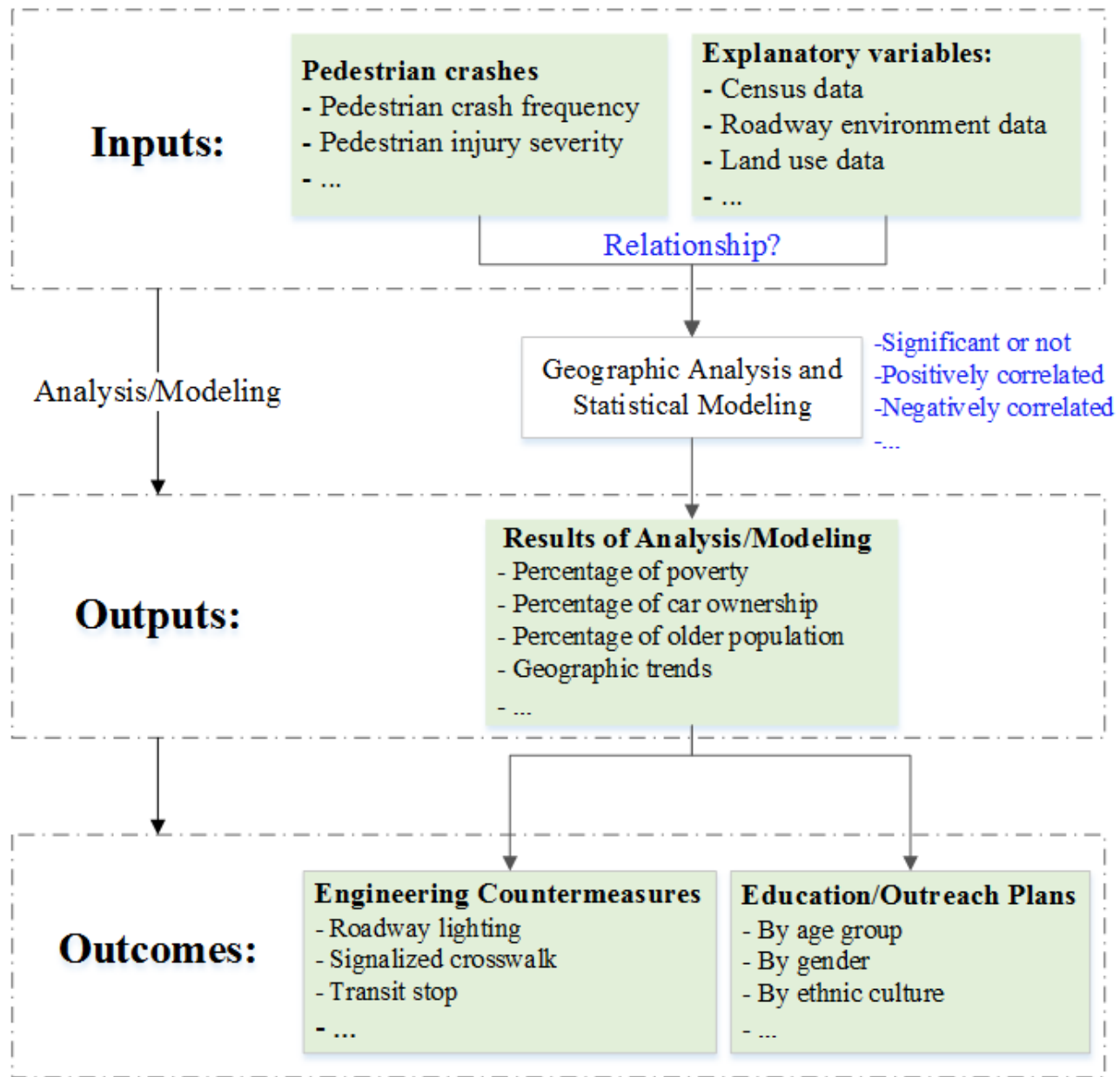
Pedestrian crash rates were disproportionately higher in low income areas

**Low-income BGs:**  
poverty rates >15%  
or per-capita income < \$21,559

*From: Governing (2014)*



# Method



# Data Collection and Compilation

- **Crash data:** FDOT Crash Analysis Reporting (CAR) System
- **Demographic factors:** U.S. Census Databases
- **Road environment factors:** FDOT TranStat GIS, Transit
- **Land use types:** Property appraiser, HERE, License files



United States Census Bureau  
AMERICAN FactFinder

Search - Use the options on the left (topics, geographies, ...) to

Your Selections  
Your Selections is empty  
load search | save search

search using the options below:

Topics (age, income, year, dataset, ...)

Geographies (states, counties, places, ...)

Race and Ethnic Groups (race, ancestry, tribe)

To search for tables and other files

1 Enter search terms and an option

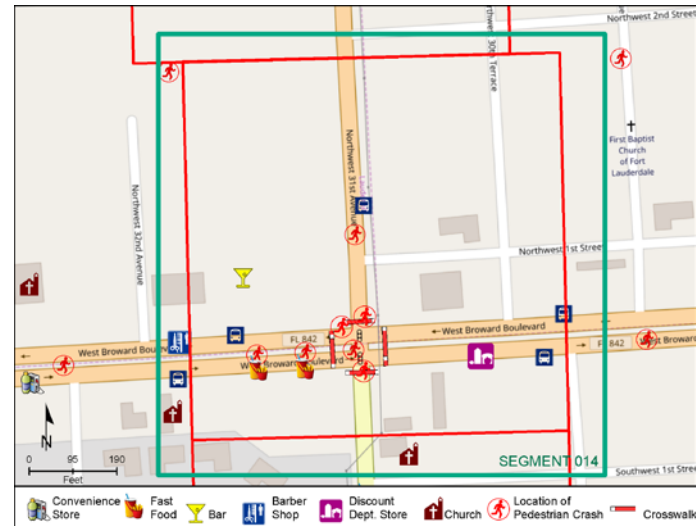
topic or table name

topic | race/ancest

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Select from Topics, Race and E

- these are added to 'Your St
- the Search Results are upc



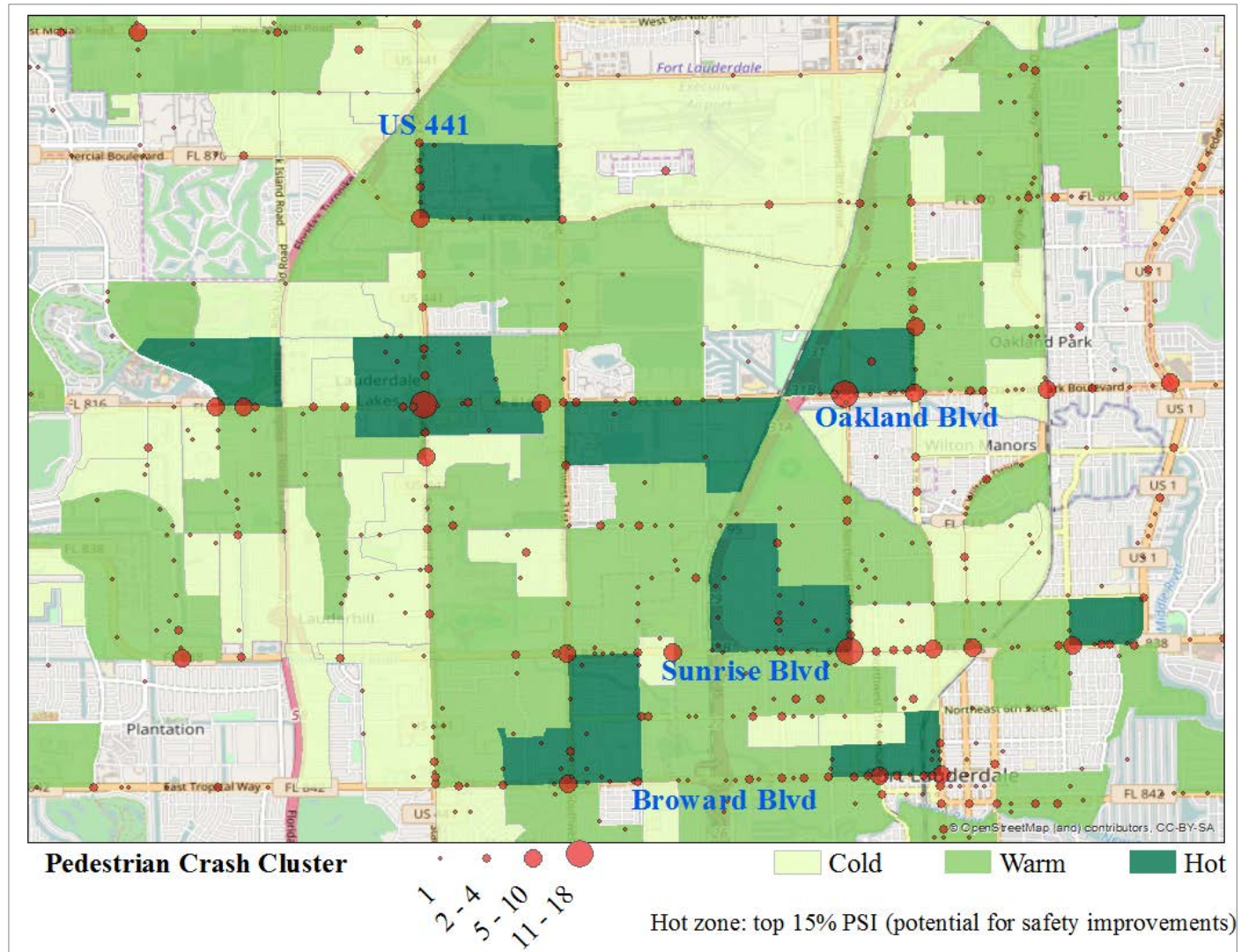
# Analysis and Results

Average Effects (-)	Demographic Factors	Average Effects(+)
	Public transit or bike (%)	0.052
	Low education level (%)	0.047
	Zero-car ownership (%)	0.043
	Minority-African American (%)	0.019
-0.055	Older population (%)	
Average Effects (-)	Road Environment Factors	Average Effects(+)
	Intersections (#)	0.082
	Traffic signals (#)	0.655
	Bus stop per mile (#)	0.170
-0.012	Lower-speed roads (%)	
Average Effects (-)	Land Use Types	Average Effects(+)
	Discount stores (#/mi <sup>2</sup> )	0.226
	Convenience stores (#/mi <sup>2</sup> )	0.071
	Fast food restaurants (#/mi <sup>2</sup> )	0.069
	Grocery stores (#/mi <sup>2</sup> )	0.057
	Barber shops (#/mi <sup>2</sup> )	0.049

# Prioritized Low-income Areas

**Hot zone:** top low-income areas with more crashes than other areas with similar features

**Cold zone:** low-income areas with less crashes compared to other similar areas



# Countermeasures/Outcomes

## Engineering Countermeasures

- Improved pedestrian features at specific intersections with certain land use types
- Street lights at transit stops
- Slow-speed zones at some streets and traffic calming
- Enhanced-visibility crosswalks
- Rectangular Rapid Flashing Beacon
- Landscaping barriers at some locations
- Roadway lighting and lighting level improvement
- Road Safety Audit (RSA)
- Refuge islands
- .....

## Education/Outreach Plan

- Development of education/outreach plan focusing on prioritized low-income areas
- Education on traffic rules and laws, and nighttime safety for drivers, pedestrians and bicyclists in low-income areas
- Pedestrian safety grassroots education
- Business sweeps on identified high-crash corridors in low-income areas
- Safety/infrastructure education tip cards
- Social media outreach
- Partnership with specific stores
- .....

# Questions



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