



Data, Resources, and Mapping for Program Planning (How do you find what you need?)

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Diabetes and Obesity Epidemiologist

Objectives

- Provide a tutorial on
 - Selecting indicators
 - Selecting data sources
 - Visualizing data
 - Interpreting data
- Provide examples
 - Urban and Rural Environment

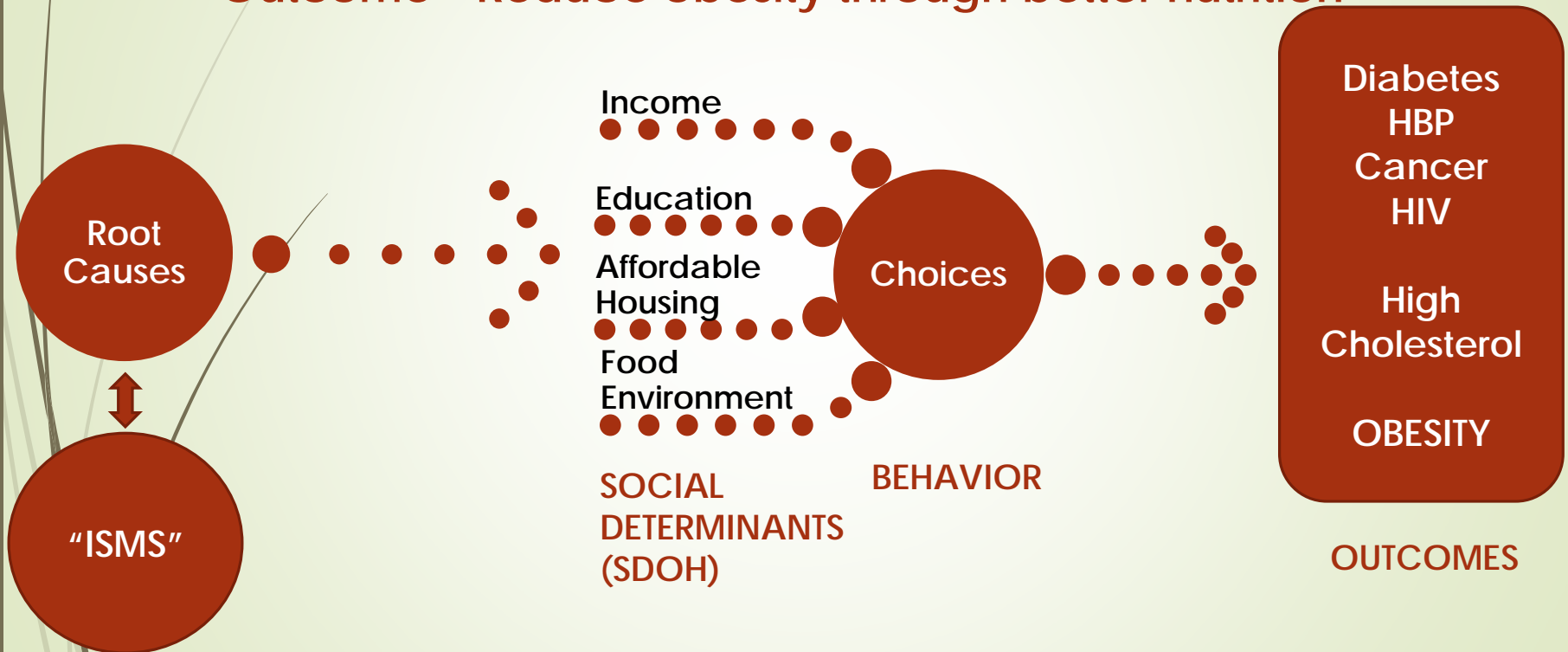
Poll Question 1

How does your organization select communities for intervention?

- a. Population and/or Population Density
- b. Social Determinants of Health (excluding Race/Ethnicity)
- c. Race/Ethnicity
- d. Existing Relationship or Capacity
- e. All of the above

When confronting barriers to access, social determinants can dictate our choices.

Outcome - Reduce obesity through better nutrition



Poll Question 2

Does your organization utilize maps for selecting communities for intervention?

- a. Yes
- b. No

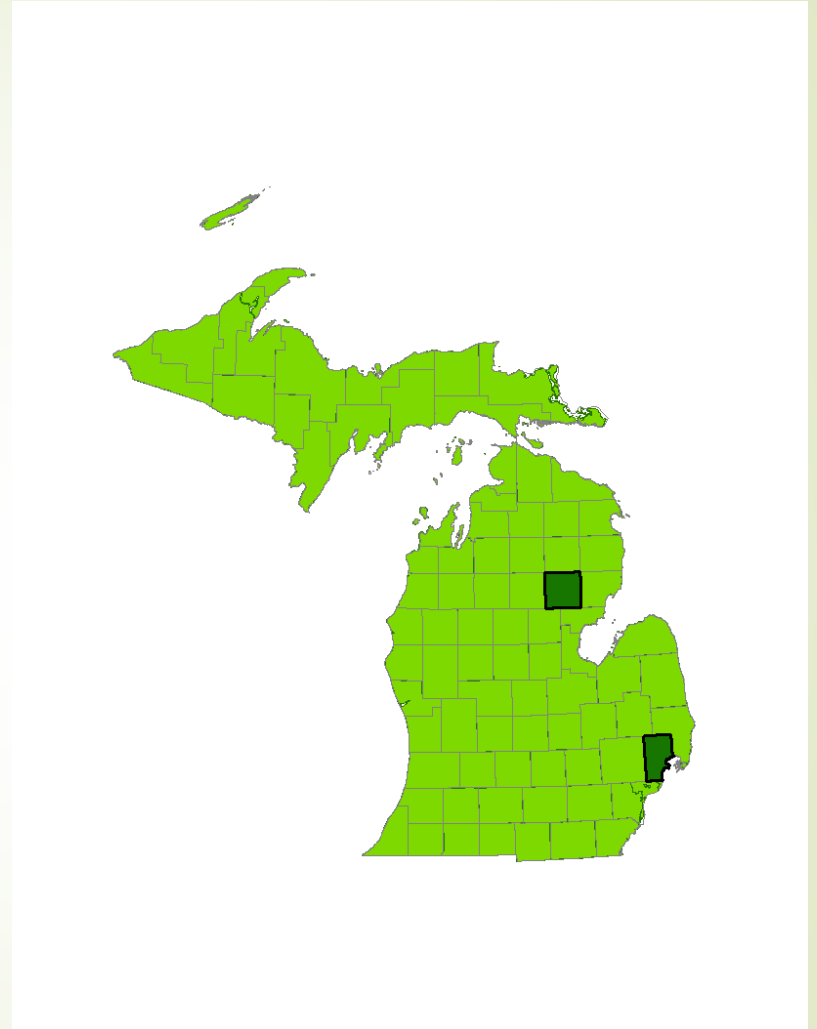
Maps allow us to visualize community characteristics based on geography.

- Population size (density) and SES Characteristics
- Environment
 - Built
 - Neighborhood
- Population for intervention - Comparison
 - SDOH
 - Resources (Champions)
 - Social Capital (Gatekeepers)
 - Specific Sites for intervention (e.g., Corner Stores)

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Maps can be used to make data-driven decisions for program planning.

- City of Warren (48089 area) - Macomb County
- Ogemaw County

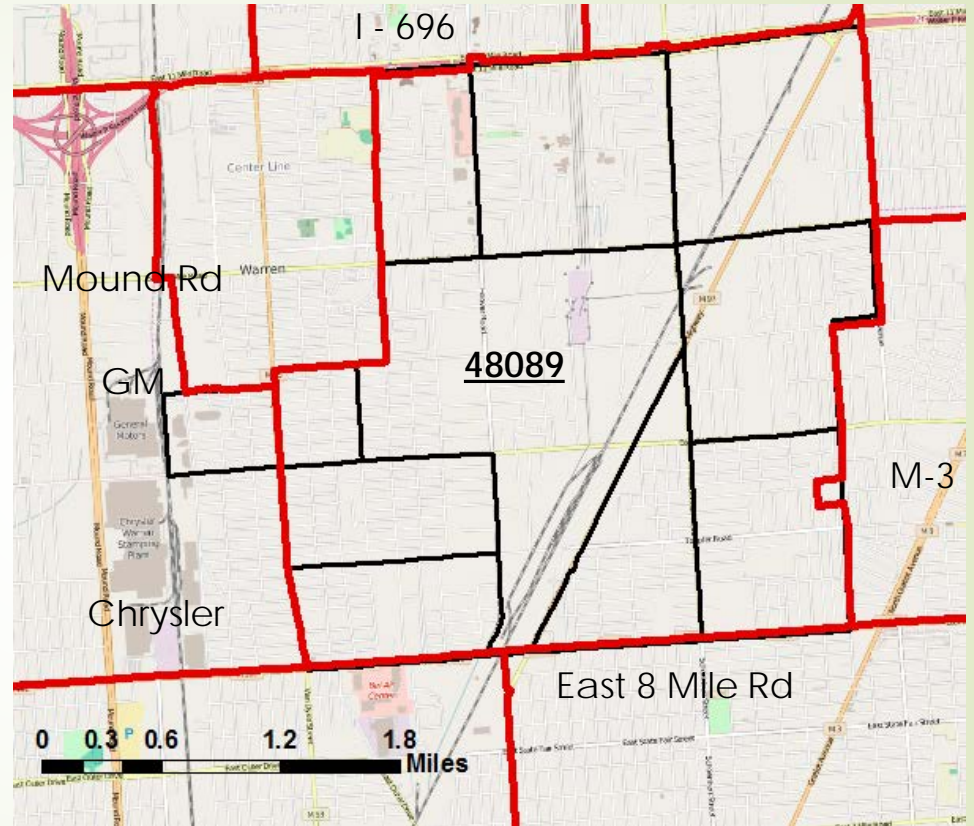


Warren 48089

- About 30,000 residents in 8 square miles
- High need composite scores from other sources
- What are the SDOH by region?
- Why do we use census tract (black) and not zip code (red)?

Renumber/rename for 11 digit geographic ID

Open Street Map
US Census Tiger Products



Maps

- Population
- Income to Poverty Ratio
- Food Environment
- Food Retailers
- Assets

Poll Question 3

Do you feel confident in using the interactive on-line tool American Factfinder to select population characteristics provided by the US Census?

- a. Yes
- b. No
- c. What's that?

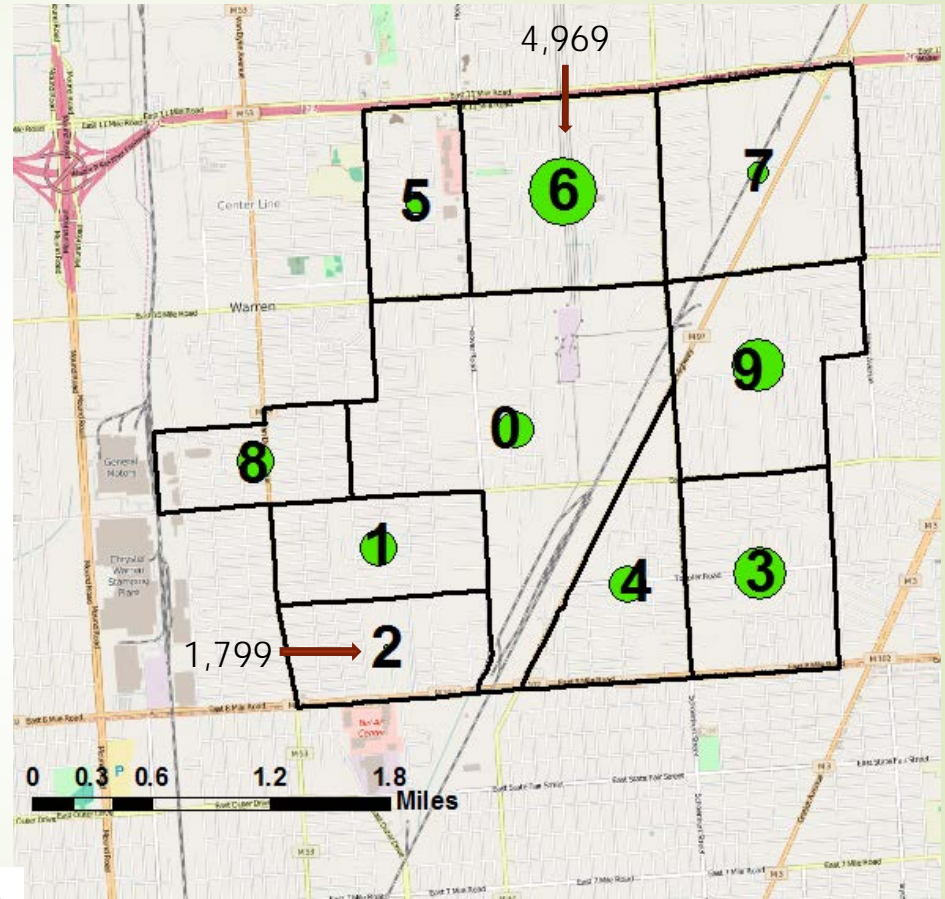
Population

- Total persons in occupied housing units (owned and rented combined)
 - Exclude group settings

- All ages

Map 1: Population

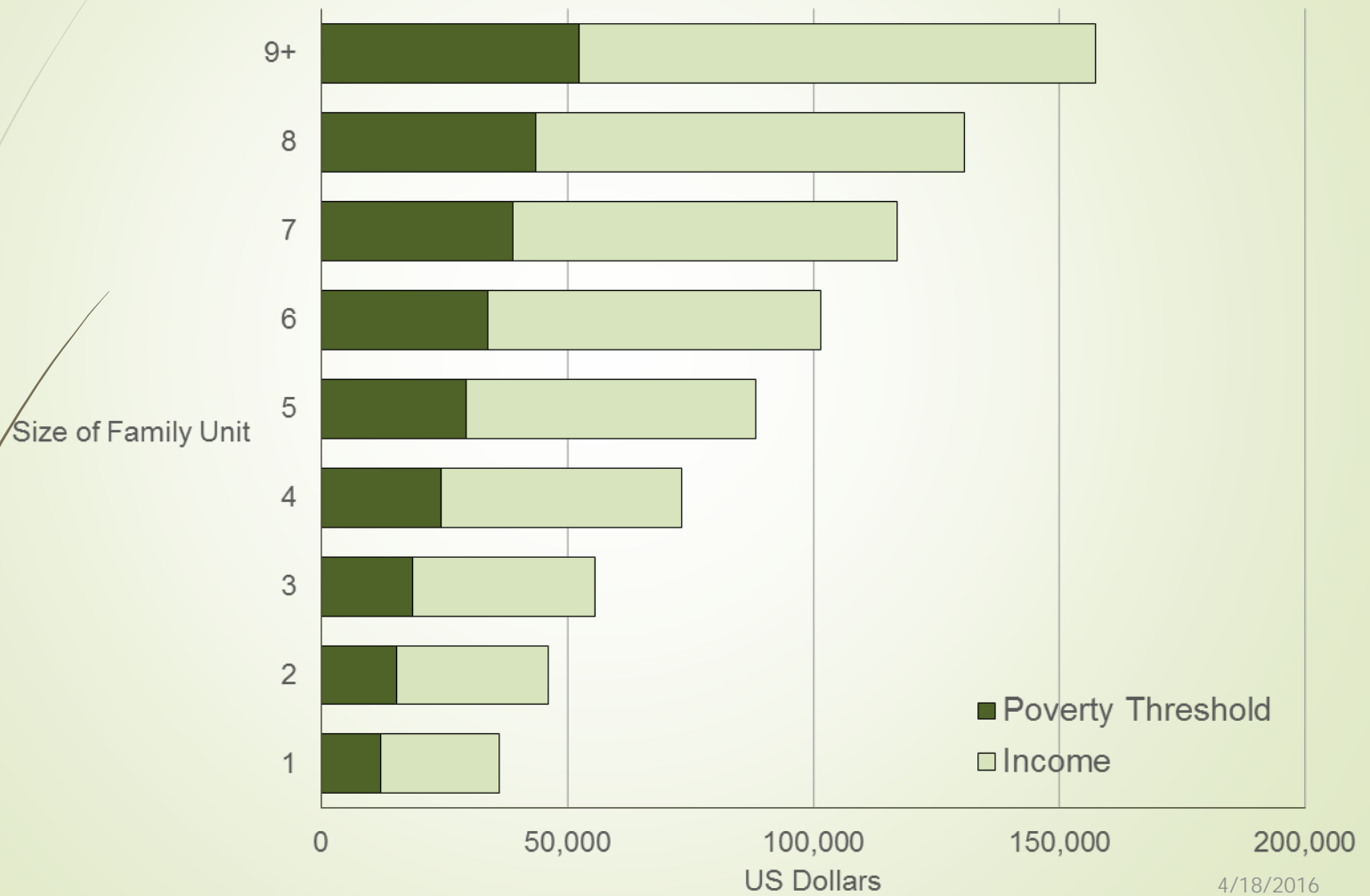
- Estimated count of residents in census tract
- ↑ Population count ↑ Circle size



American Community Survey, 5 year estimate
2009-2013 (B25008 Table)

Income to Poverty Ratio (IPR)

Income and Poverty Threshold for IPR = 2



Income to Poverty Ratio

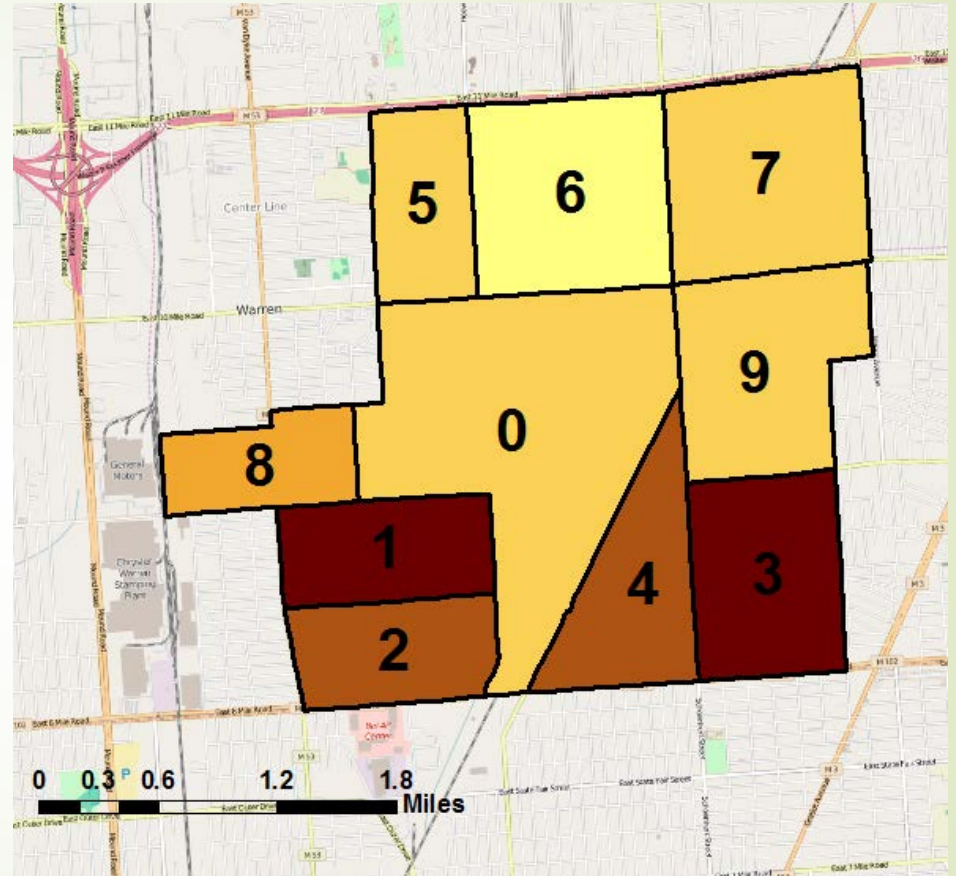
- % of residents with income less than twice their poverty threshold by census tract
- For example,
 - WIC – Below 1.85
 - Medicaid Expansion Eligible – Below 1.38
 - Poverty – Below 1.00
- People with income above eligibility for government services

Map 2: IPR < 2X Poverty Level

- % residents with income less than twice their poverty threshold by census tract



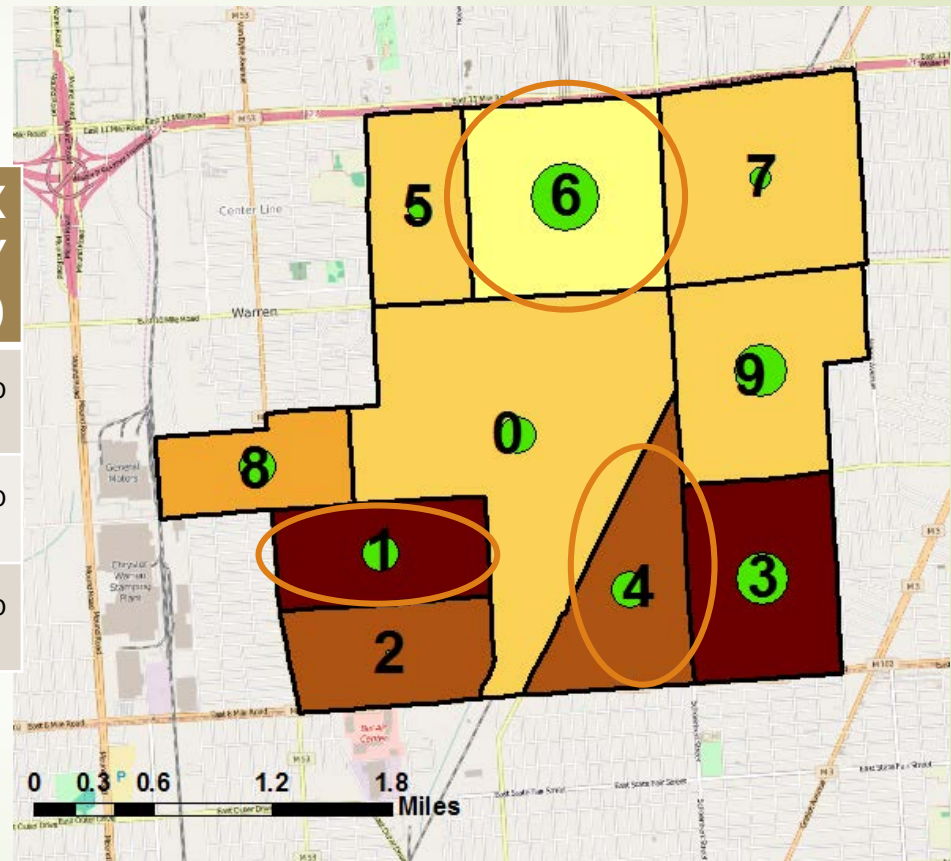
Higher percent of residents



American Community Survey, 5 year estimate
2009-2013 (C17002 Table)

Map 3: Population and IPR < 2X Poverty Level

#	POPULATION	DENSITY (PER SQ MI)	IPR < 2X POVERTY LEVEL (%)
1	3,256	LOW	74%
6	4,969	HIGH	28%
4	2,993	MEDIUM	62%



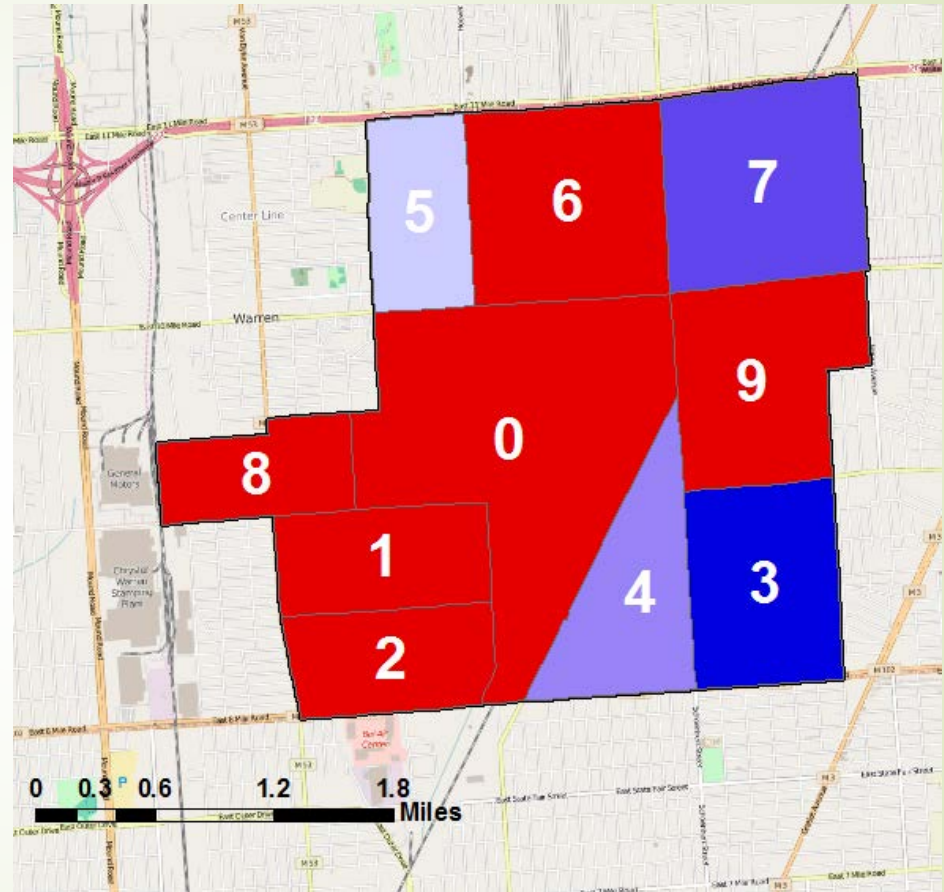
American Community Survey, 5 year estimate
2009-2013 (B25008 and C17002 Tables)

Healthy Food Environment

- % of Food Retailers offering healthy options in census tract

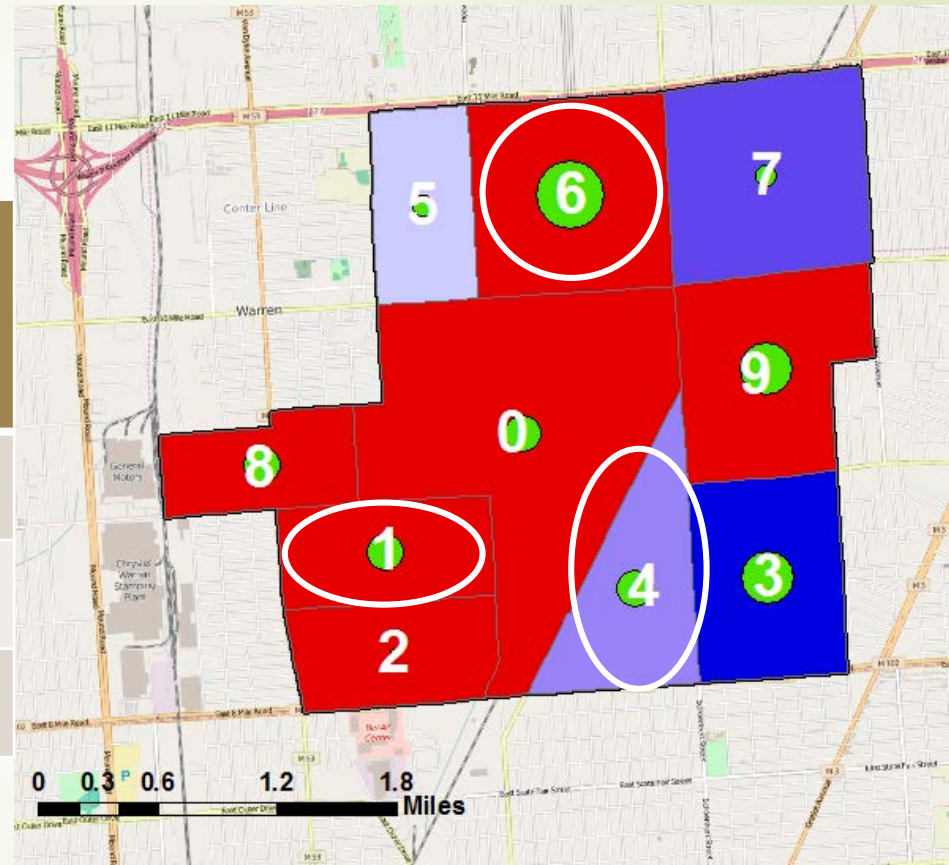


Healthy food retailer =
Supermarket or Large Grocery Store



How many residents are impacted by food environment?

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ACS 5-year estimate, 2009-13 and Nielsen Business-Facts 2015.2

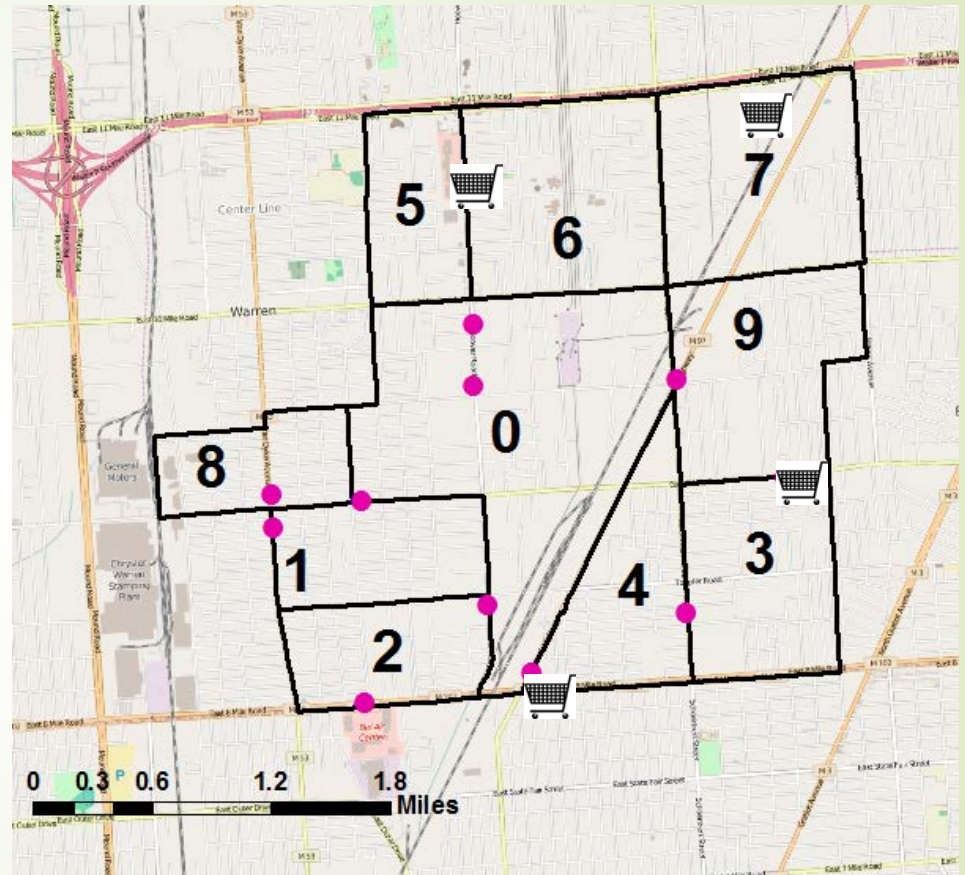
Who can help make things happen?

ASSETS

- Food Environment
- Champions
- Gatekeepers
- Physical Activity Organizations and Venues

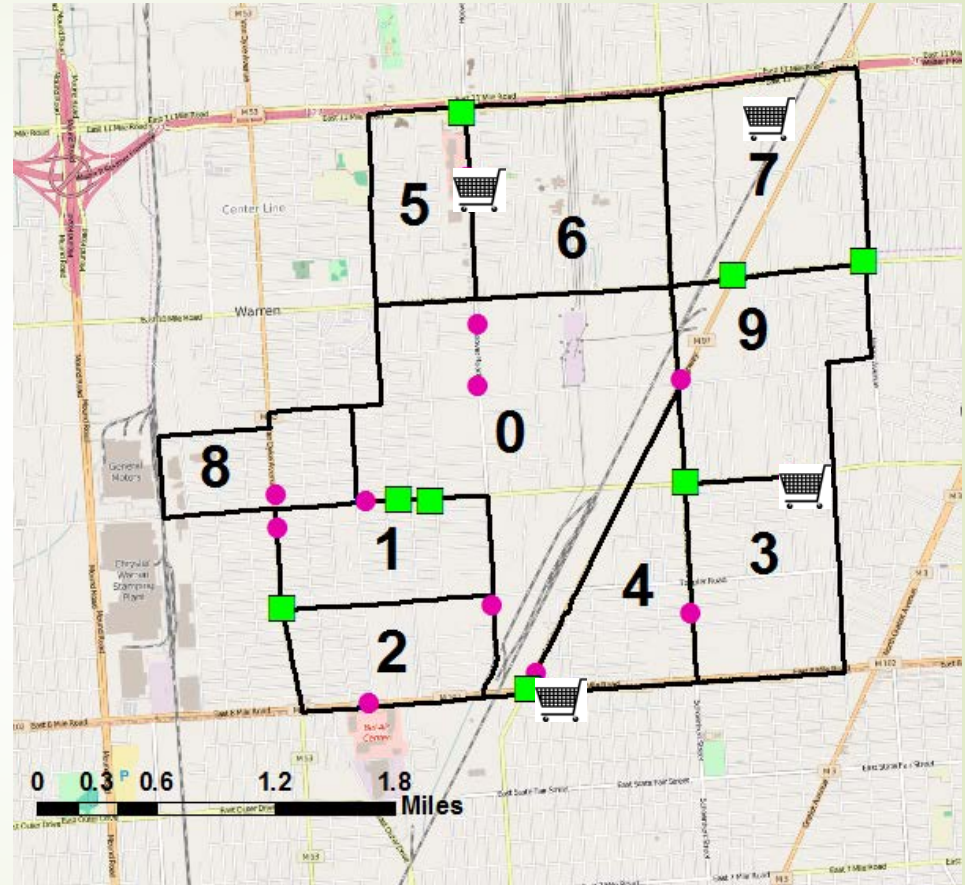
Food Retailers

- 4 Supermarkets (Carts) – Healthy Food Retailers
- 10 Small Grocery Stores (Fuchsia)



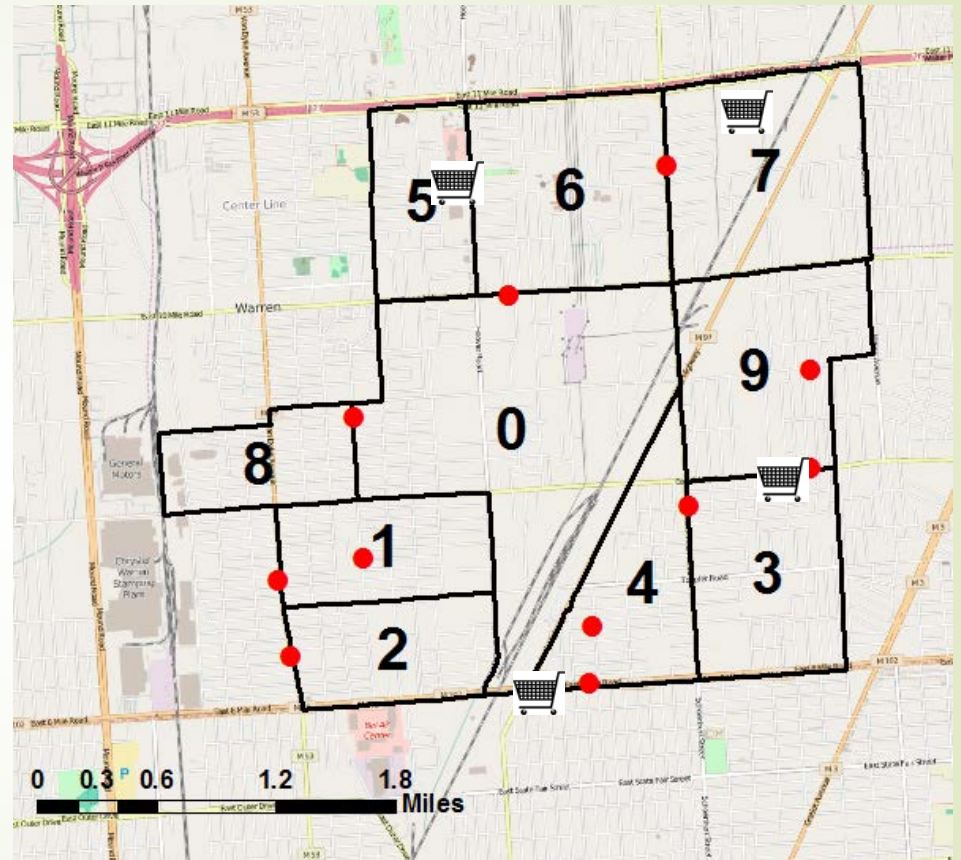
Food Retailers

- 4 Supermarkets (Carts)
- 10 Small Grocery Stores (Fuchsia)
- 8 Convenience Stores (Green)
- Exclude Gas Stations
- Small grocery and convenience stores
- Worksite Wellness
- Corner Store initiative
- WIC eligible stores improving selection



Food Retailers – Potential Problems

- 4 Supermarkets
- 11 LIQUOR STORES (Red)



Nielsen Business-Facts 2015.2 (InfoGroup)

Who can help make things happen?

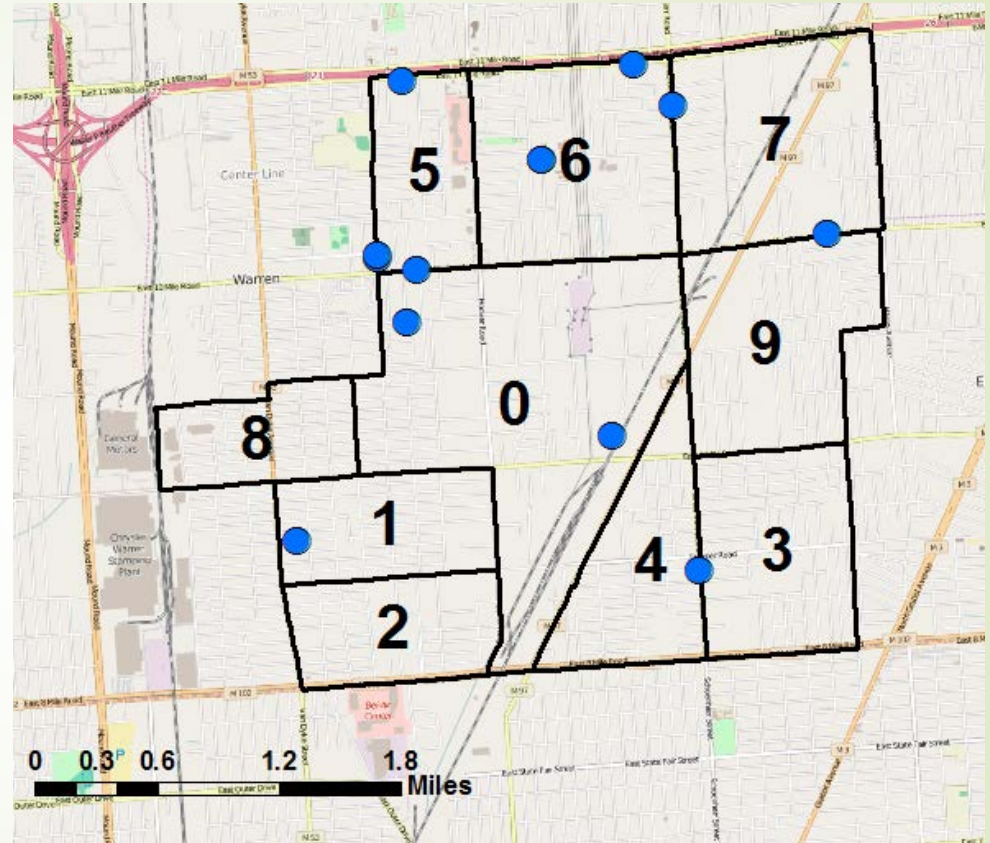
ASSETS

Where are the gaps?

- Food Environment
- Champions - Those active in community
 - Faith-based organizations
 - Neighborhood associations
- Gatekeepers – Trust builders
 - Elders
 - Local Advocates
- Physical Activity Organizations and Venues
 - Urban Parks
 - Recreation Centers
 - Community Centers with PA programs

Who can help make things happen?

- CHAMPIONS (Blue)
 - Mt Calvary (Region 1)
 - Lord of Harvest (Region 4)
- GATEKEEPERS (Blue)
Warren Parks and Recreation

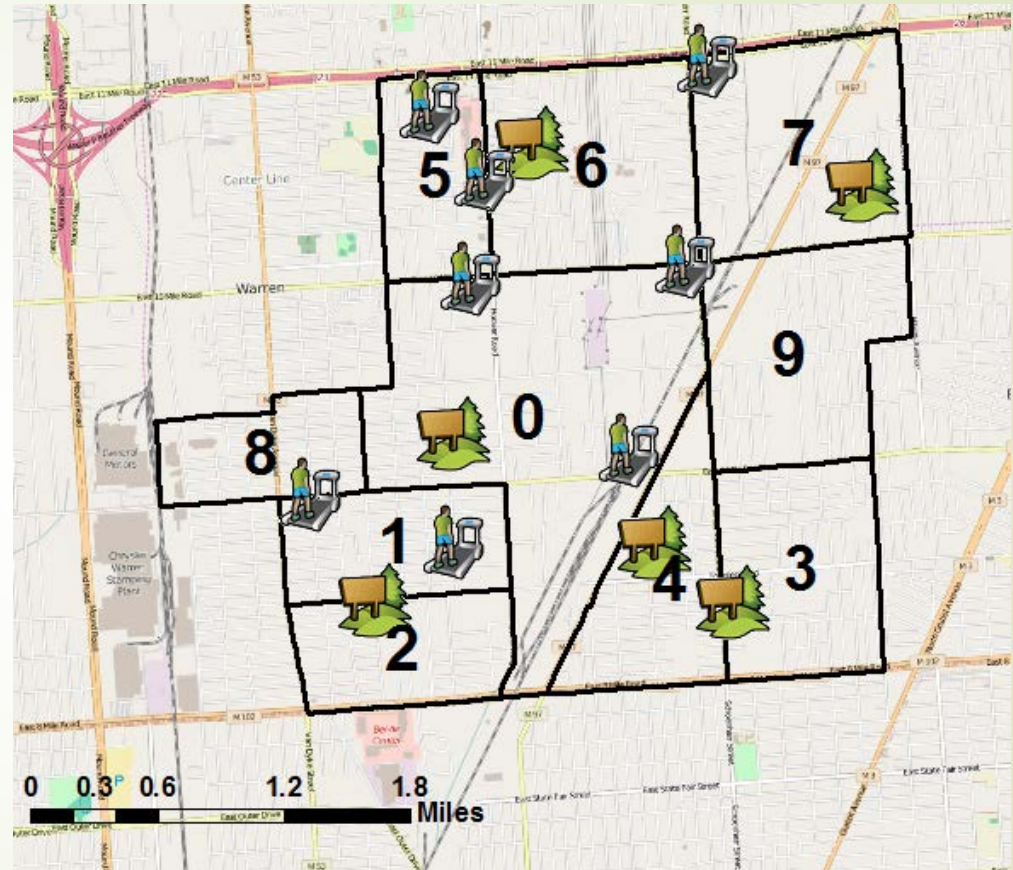


Who can help make things happen?

○ PA PROGRAMS/VENUES

- Wiegand Park (Region 1)
- Jenny Craig (Region 6)

Warren Parks and Recreation



Summary

Regions	1	4	6
Population	3,256	2,993	4,969
Population Density	LOW	MEDIUM	HIGH
IPR < 2X Poverty Level	74%	62%	28%
Healthy Food Score	0	25%	0
Food Retailers	No Supermarkets 2 Small Grocers 3 Convenience Stores	1 Supermarket 3 Small Grocers	1 Supermarket 1 Small Grocers 1 Convenience Store
Assets	1 Champion 2 PA	1 Champion 1 PA	3 Champions 3 PA

PA – Physical Activity Organizations and Venues

Poll Question 4

Three community profiles were presented. If your organization was interested in planning and implementing a corner store initiative, which community snapshot would you select?

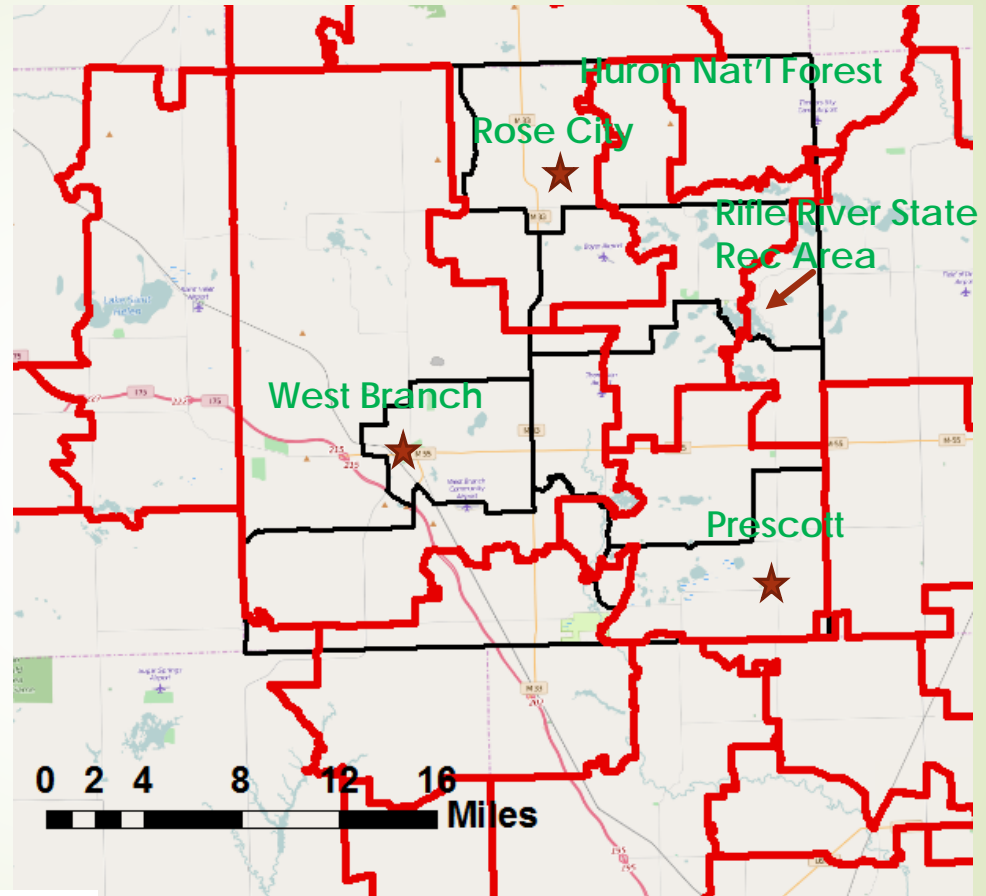
- a. Region 1
- b. Region 4
- c. Region 6

Ogemaw

- About 20,000 residents in 500 square miles
 - Warren - 30,000 residents in 8 square miles
- Lakes and Green Space
- Zip codes (red) and census tracts (black) large
- Profile of whole county

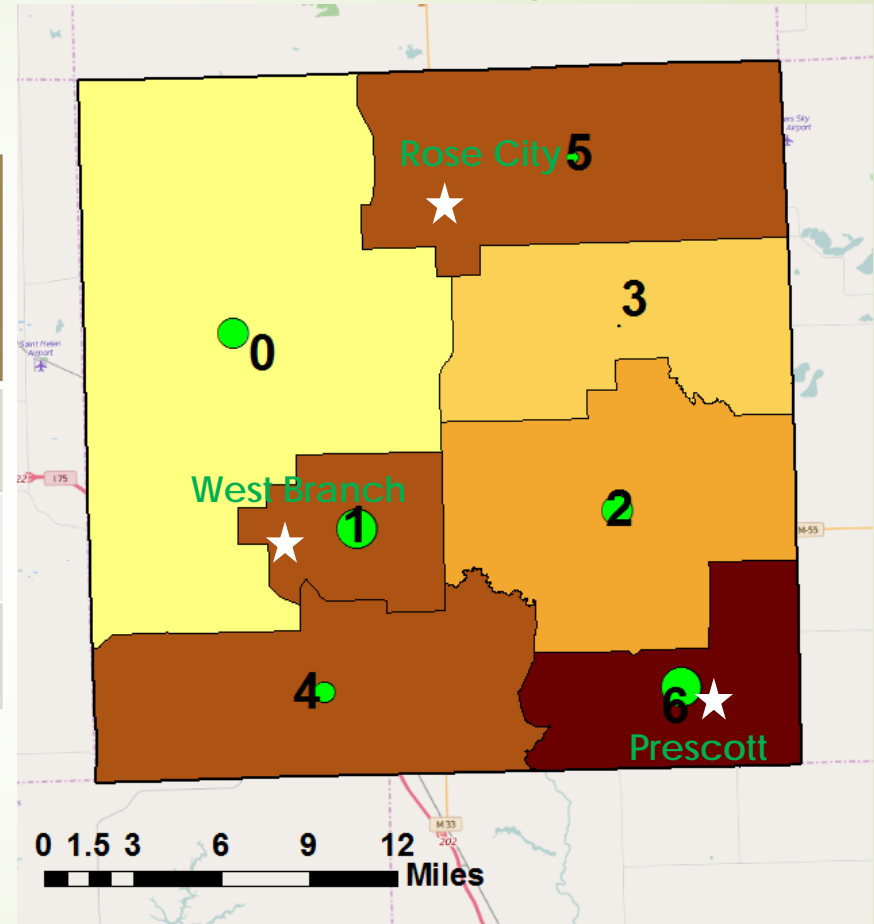
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Population and IPR < 2X Poverty Level

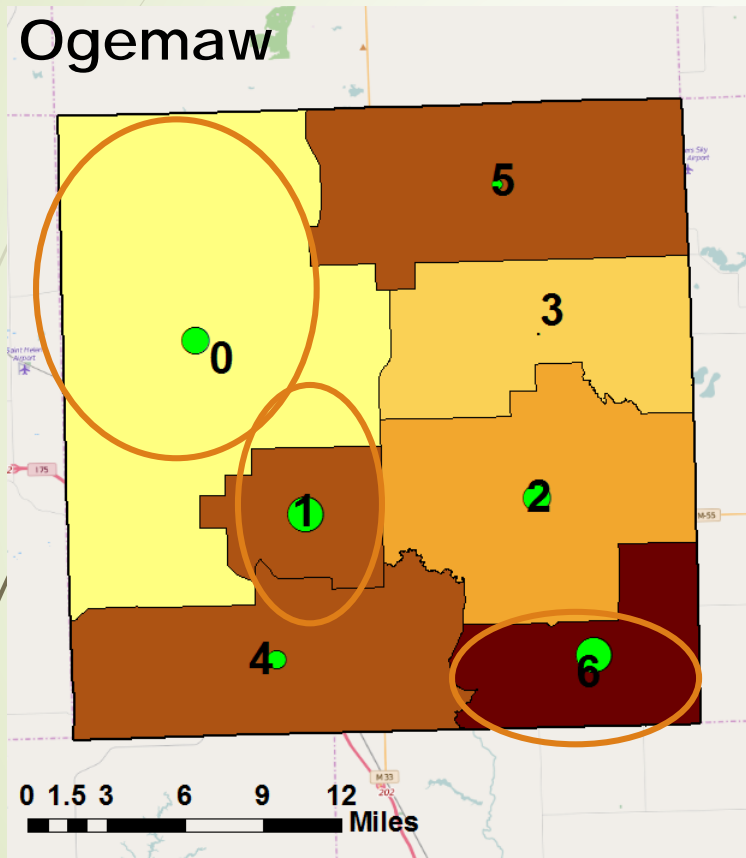
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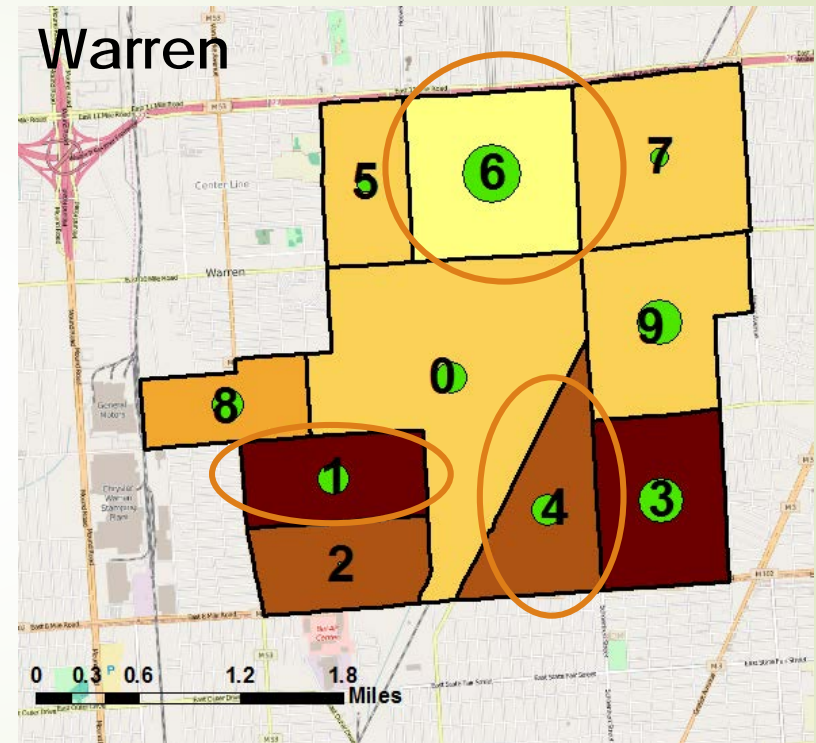
American Community Survey, 5 year estimate
2009-2013 (B25008 and C17002 Tables)

Population and IPR – Urban and Rural Comparison

Ogemaw



Warren

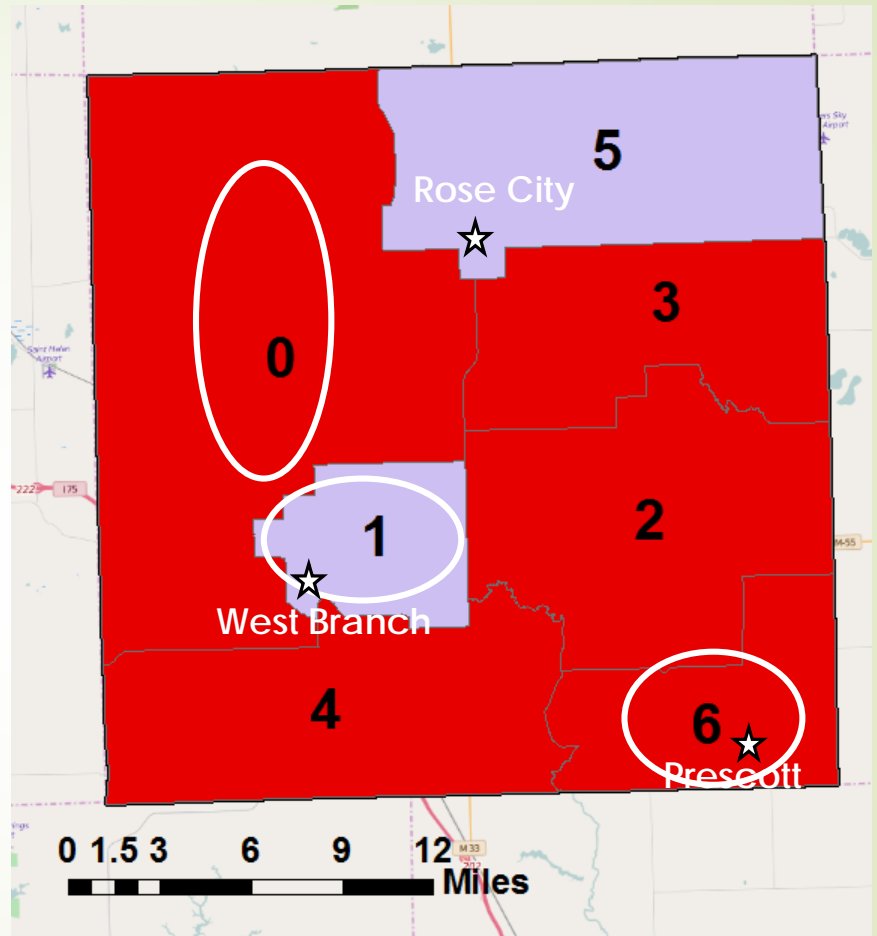


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Healthy Food Environment

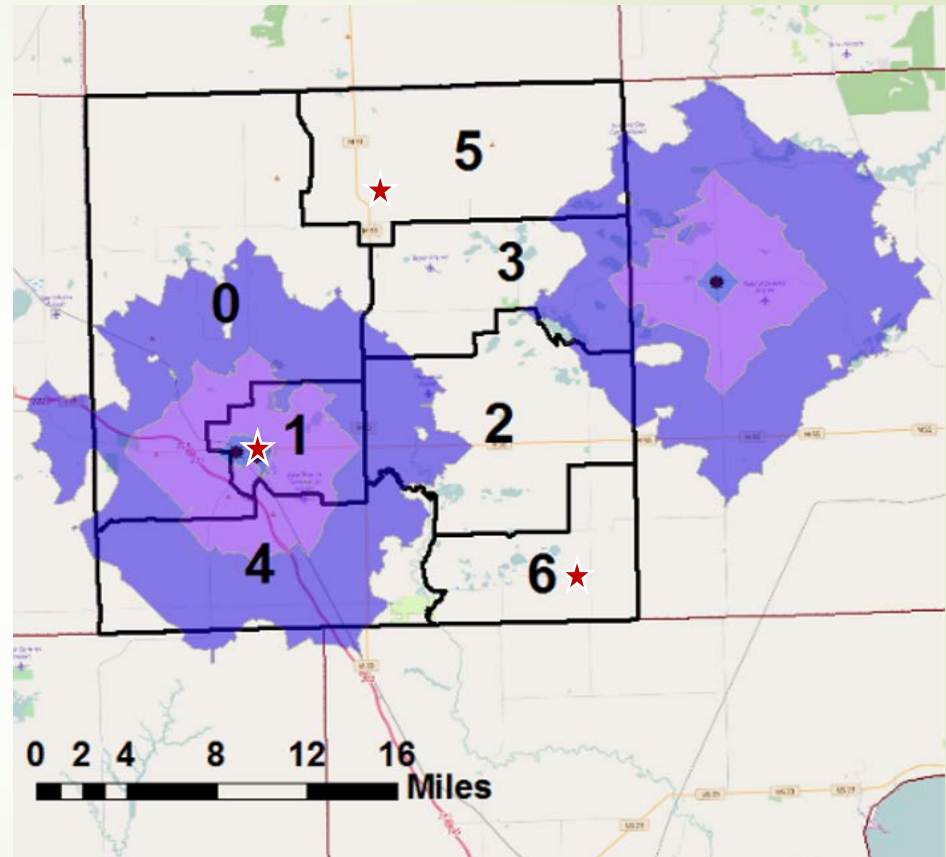
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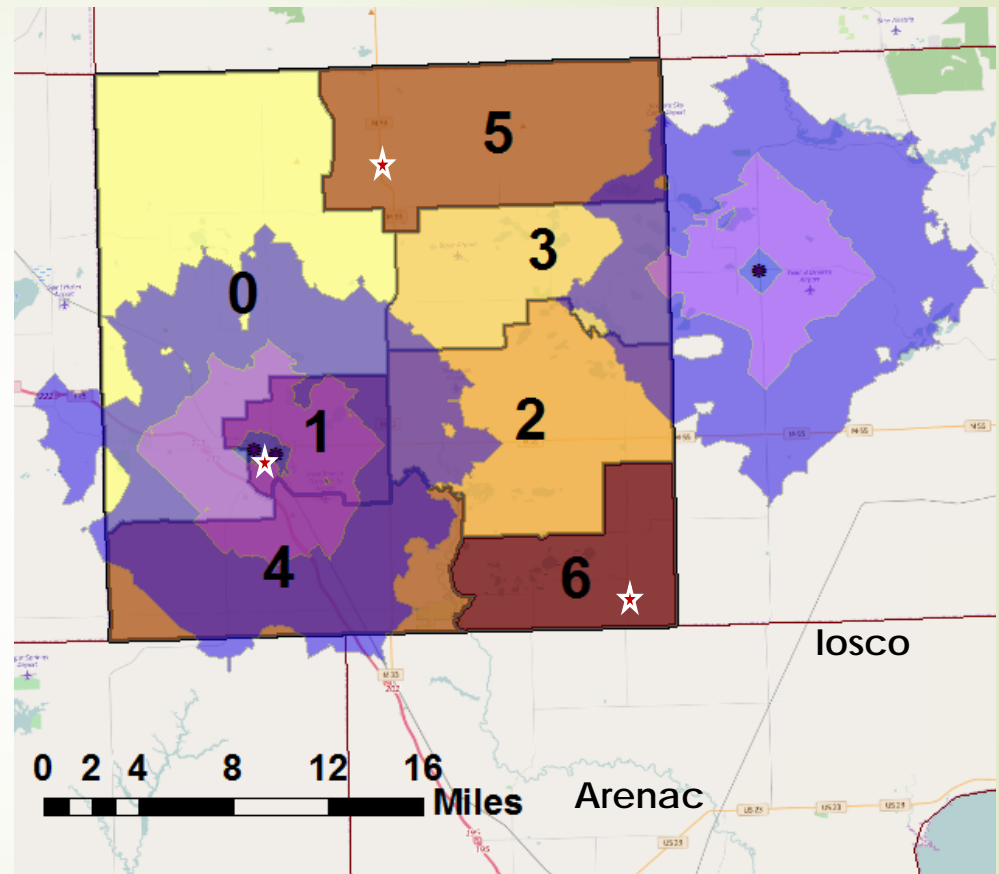


Access to Supermarkets

- Cities (Stars)
 - West Branch
 - Rose City
 - Prescott
- 3 Supermarkets (Asterisks)
- Driving Distances
 - Based on distance
 - 1, 5, and 10 miles

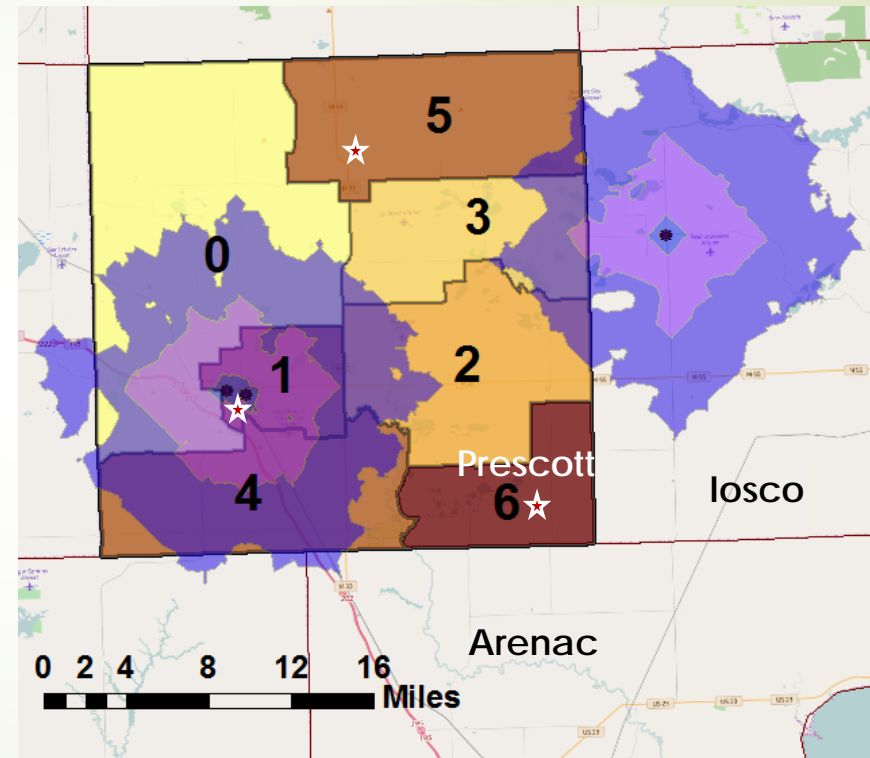


Residents living in poorest region have limited access to healthy food retailers.



Barriers to Access

- Ratio- Stores:Population
- Distance and Time Spent
- Grocery Cost
- Fresh Food Shelf Life
- Available Transportation
- **Social Cohesion**



Poll Question 5

Do you feel that you have access to data sources that provide information related to food environment, food access, and physical activity measures that would assist in program planning, implementation, and evaluation?

- a. Yes
- b. No

American Factfinder

- <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>
 - Population in occupied housing (B25008)
 - Income to Poverty Ratio (C17002)
 - Education Level for adults 25 Years of age and older (B15003)
 - Affordable Housing proxy for disposable income (B25106)
 - Select Physical and Financial Conditions aka property condition (B25123)
- For county, one-year estimate is fine.
- For census tract or place like a city five-year estimate recommended.

Community Commons

- ▶ <http://communitycommons.org>
- ▶ <http://www.communitycommons.org/groups/childhood-obesity-gis/eshe/>
- ▶ Data such as (healthy food environment) is given on county level, which may not be useful for program planning.

American Community Survey (ACS)

- ▶ 2% of US households asked to complete the survey annually
- ▶ Ongoing annual survey sponsored by the U.S. Census
- ▶ Collection - Information about demographics, jobs and occupations, educational attainment, veterans, types of occupied housing, and other topics
- ▶ Trends over time used by government agencies, businesses, universities and community organizations for community planning.
- ▶ Mandatory (part of the decennial census)
 - ▶ Replaces the "long form" asked every 10 years

To learn more, see

<http://www.census.gov/programs-surveys/acs/about.html>

American Community Survey – SDOH Tables

- B25008 – Total Population in Occupied Housing
- C17002 - Ratio of Income to Poverty Level (IPR) in the Past 12 Months
- B15003 - Educational Attainment for the Population 25 Years and Over
- B25106- Tenure by Housing Costs as a Percentage of Household Income in the Past 12 Months (Proxy – Disposable Income)
- B25123 - Tenure by Selected Physical and Financial Conditions (Proxy-Housing and Neighborhood Conditions)

LIMITATIONS

- Aggregated Data/Estimate
 - Five years of data averaged – not dynamic
 - Margin of Error, i.e., how confident are we that survey estimate represents the true population estimate?
- Marketing data
 - Susceptible to low response rates
 - Limited number of data pulls per year
- Impersonal – Not individual experiences
- Cannot represent how the community functions as a whole
 - Social cohesion
 - What the community believes are its needs?

Resources \$\$

- Nielsen Marketing -
<http://www.nielsen.com/us/en.html>
- ESRI – ArcGIS Platform
<http://www.esri.com/>



Popular Free GIS Software

- ▶ QGIS: Free GIS Desktop with Graphic User Interface and stable release. The most similar software to ArcGIS Desktop. It was built on following components:
 - PostGIS: an open source object-relational database with support for geographic objects.
 - Grass GIS: an open source Geoprocessing tool sets for managing, displaying, and analyzing geographic datasets.
 - MapServer: an open source development environment that enabled spatial application on internet. (includes providing the Satellite images for mapping)



Open Source GIS

- ▶ **Open Source Geospatial Foundation (OSGeo)**: a non-profit NGO supporting most of open source GIS project. Five board categories of projects are supported by OSGeo:
 - Web Mapping
 - Desktop Application
 - Geospatial Libraries
 - Metadata Catalogs
 - Outreach Project



More GIS Resources

- ▶ Useful listing of resources:
 - Tips for making maps
 - Spatial Data sources
 - Software/tools (including free software)
 - Map making resources
 - Online public health maps
 - Public health data
 - Social determinants of health data
 - Environmental health data
 - User communities

<http://www.cdc.gov/dhdsp/maps/gisx/resources/index.html>

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Q & A and Discussion