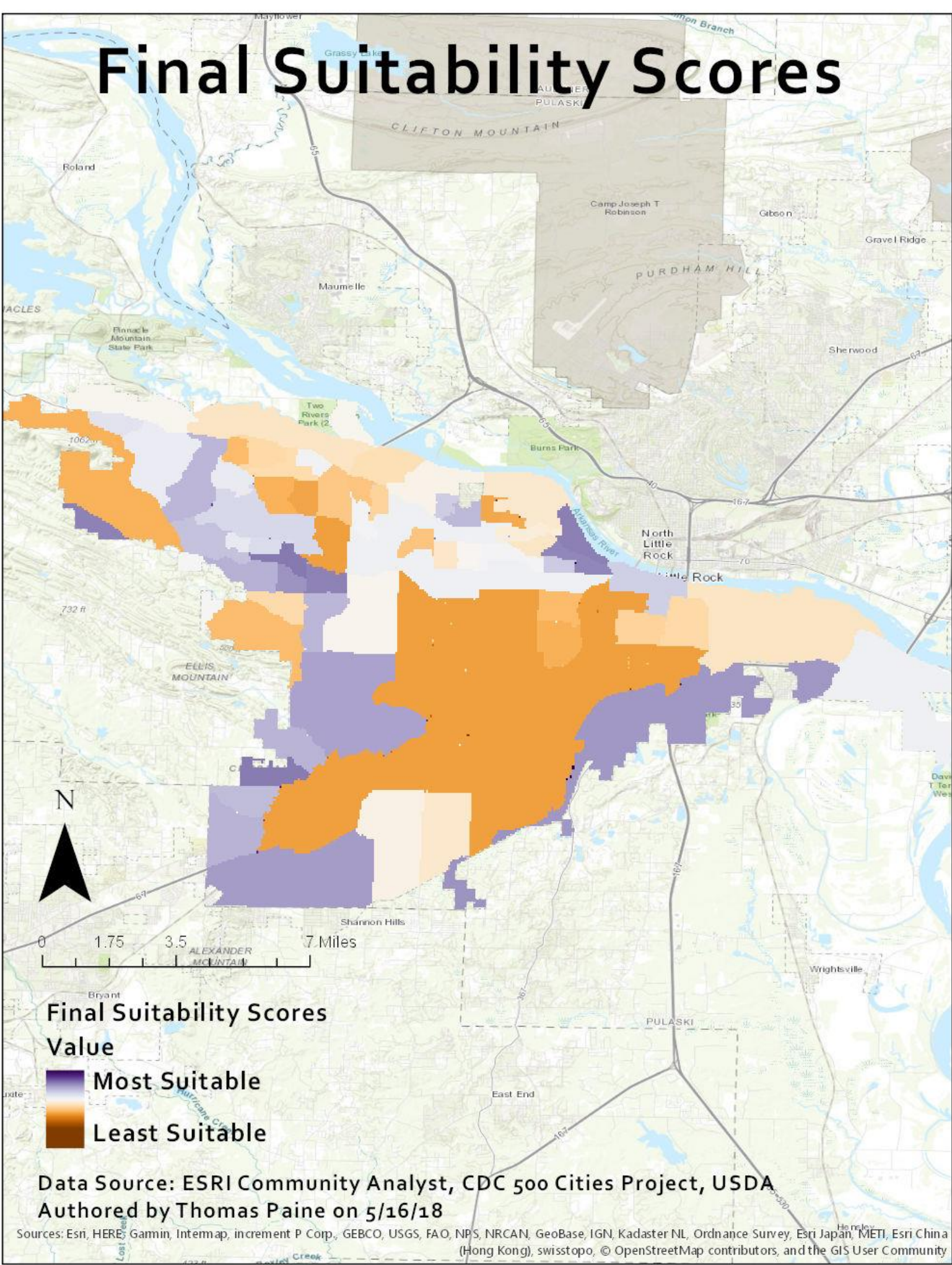**Background:**

For this suitability analysis, I chose to study the best places to put community gardens in the city of Little Rock, Arkansas. This is because Little Rock is classified as the most obese city in America. My organization for this project is the Food is Free project, a non-profit who goes to communities and helps establish community gardens in neighborhoods across the country. This organization helps people regain control of their health by growing fresh food in their front lawns. These projects help communities become stronger since they work together to build these gardens and later have plots on them allowing people to reconnect with neighbors, something we have lost overtime.
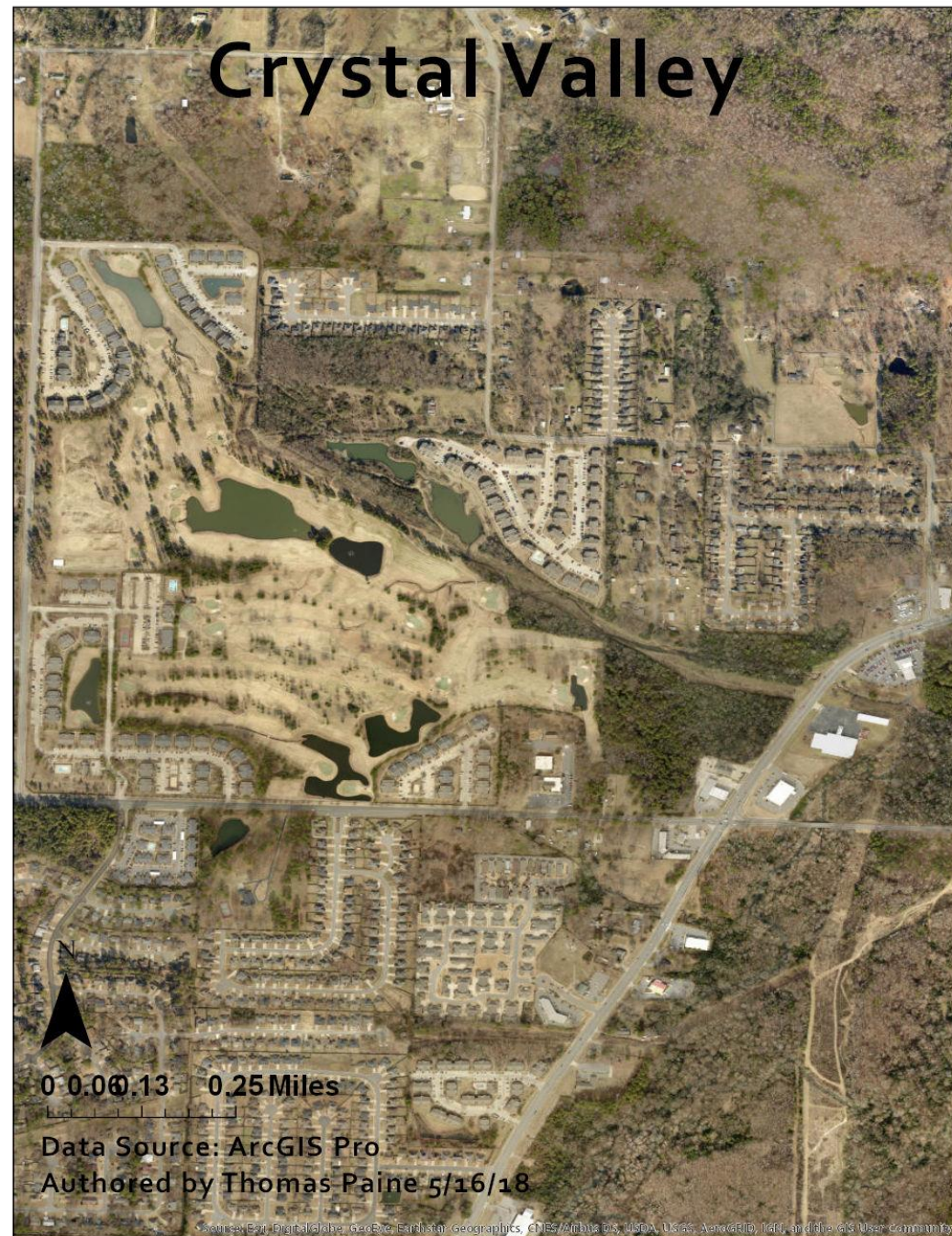
Stronger Communities, Healthier People
by Thomas Paine

Methodology:

To find the most suitable area for gardens to be built, the five variables used were annual household income, ownership of vehicles, number of total households, access to a grocery stores, and obesity. Information was gathered from ESRI's Community Analyst, CDC's 500 Cities Project, and the USDA. All data was vector data, to get it all on the same scale I used the polygon to raster tool to transform each layer into raster data. After all data was converted to raster data, I used the rescale by function tool to get the data to a common scale of one through ten. Lastly, after all data was scaled, I used the weighted sum tool to add all the layers together and produce my final suitability layer.
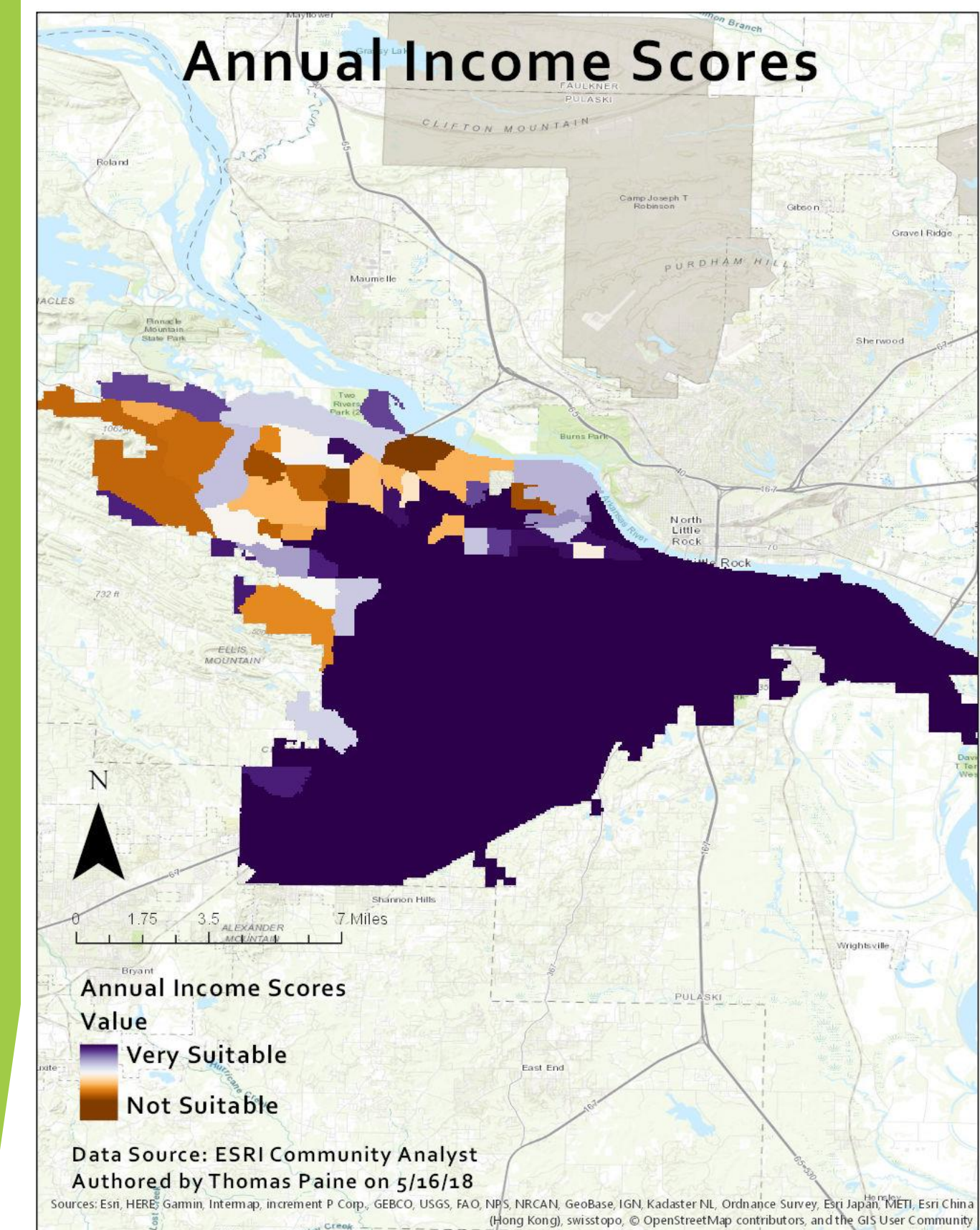
Final Suitability Scores

Final Suitability Scores
Value
Most Suitable
Least Suitable

Data Source: ESRI Community Analyst, CDC 500 Cities Project, USDA
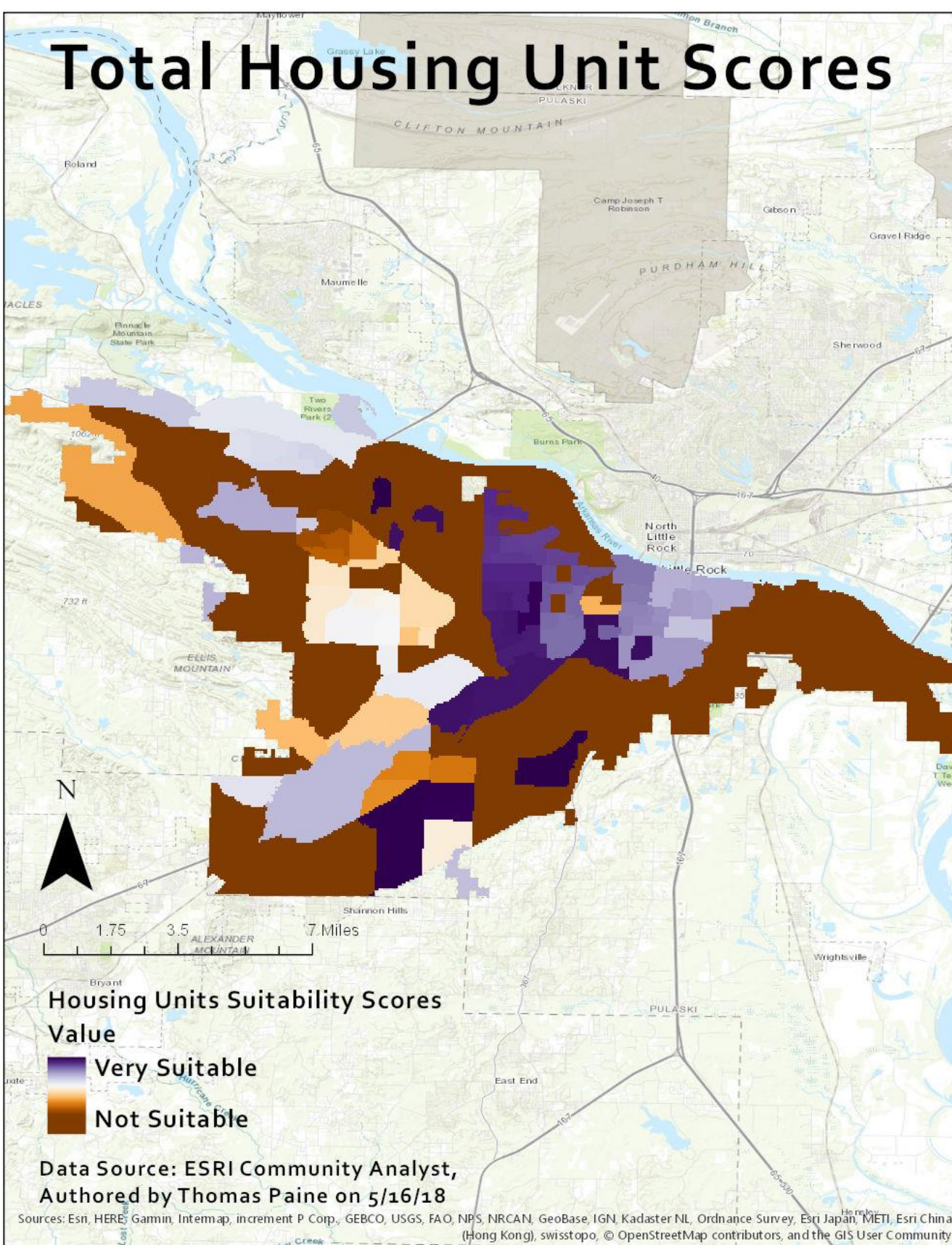Authored by Thomas Paine on 5/16/18

Findings:

After the suitability analysis, I was able to find four potential areas in which gardens might be built. The four neighborhoods are Crystal Valley, Breckenridge, Pulaski Heights, and Chenel Valley. The lowest value given is 14.50, while the largest is 47.85, both scores are out of 50. The mean of the data is placed at 30.01 points, and the standard deviation is at 5.91.

Top Sites:

1. **Breckenridge: 40.71**
2. **Crystal Valley: 40.55**
3. **Pulaski Heights: 40.38**
4. **Chenel Valley: 40.23**

Breckenridge

Data Source: ArcGIS Pro
Authored by Thomas Paine on 5/16/18

Crystal Valley

Data Source: ArcGIS Pro
Authored by Thomas Paine 5/16/18

Pulaski Heights

Data Source: ArcGIS Pro
Authored by Thomas Paine on 5/16/18

Chenel Valley

Data Source: ArcGIS Pro
Authored by Thomas Paine on 5/16/18

Annual Income Scores

Annual Income Scores
Value
Very Suitable
Not Suitable

Data Source: ESRI Community Analyst
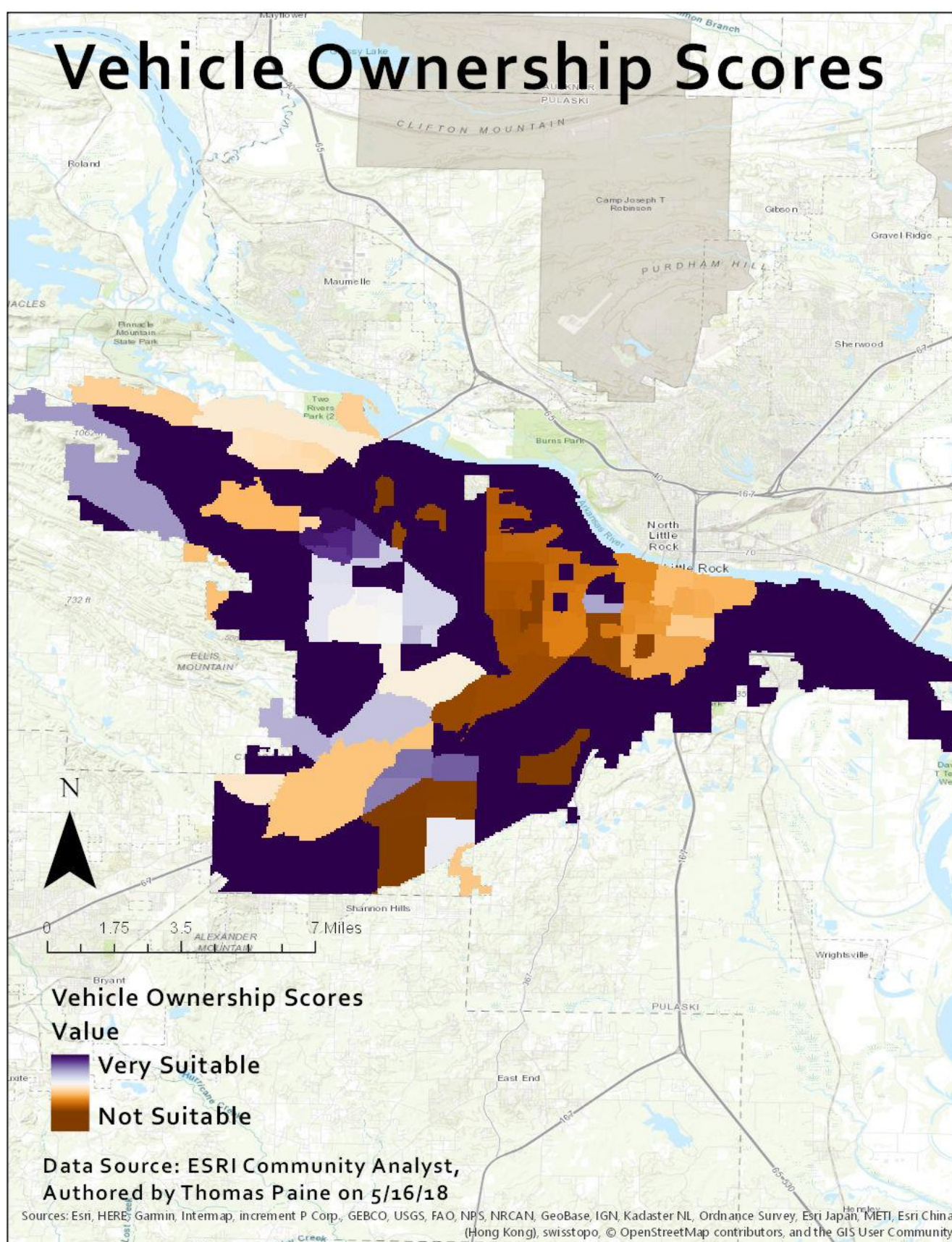Authored by Thomas Paine on 5/16/18

Income is a major factor of health. Income is often a determining factor if you are able shop for healthier foods. Many lower income groups might not have the resources to buy fruits and vegetables which can impact health outcomes. It is transformed as MS small since less desirable areas will have higher incomes, while lower income areas will be more suitable.

Total Housing Unit Scores

Housing Units Suitability Scores
Value
Very Suitable
Not Suitable

Data Source: ESRI Community Analyst,
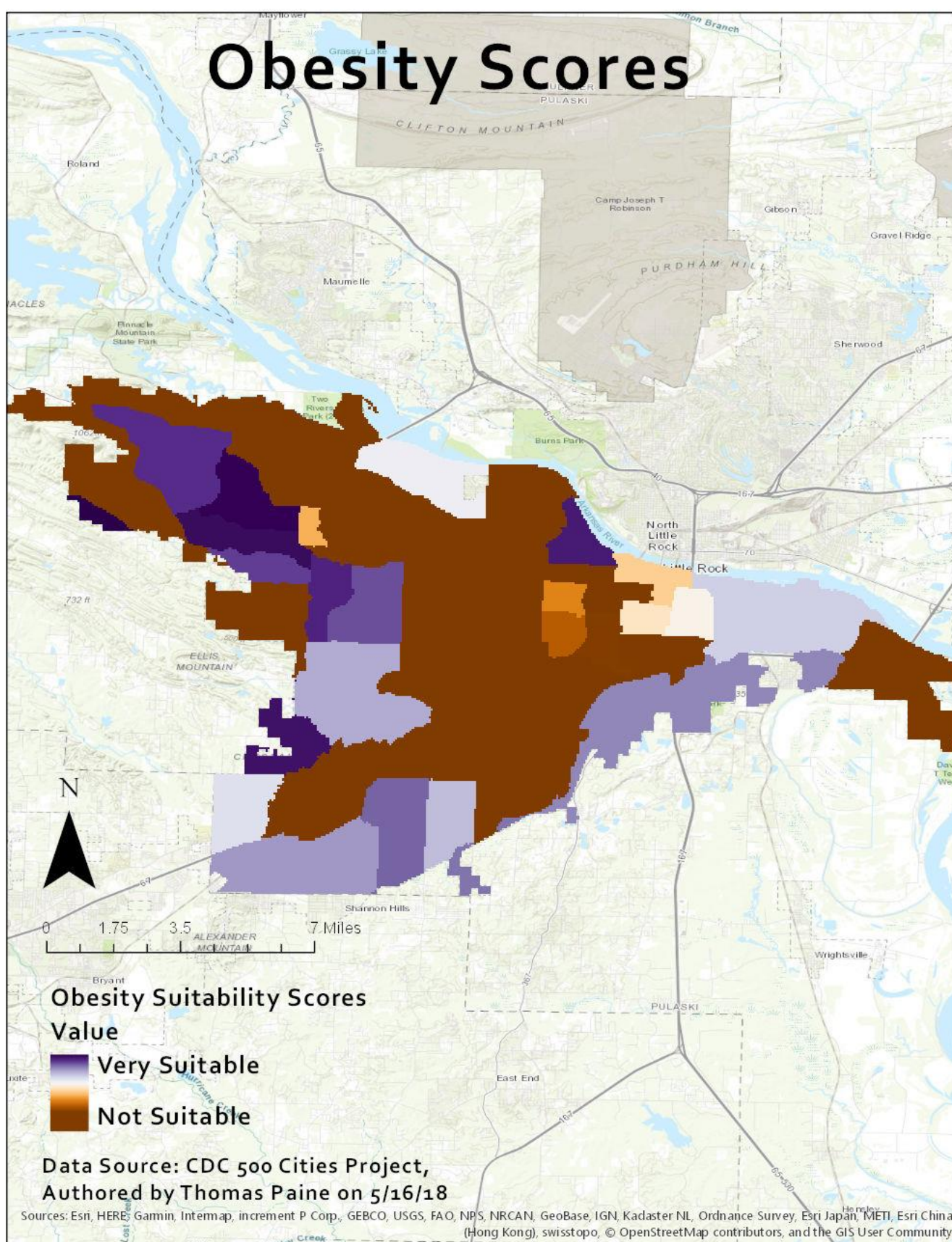Authored by Thomas Paine on 5/16/18

Housing units are important because the gardens are to be built on willing homeowners' lawns. This provides a guaranteed space within urban areas. The data was transformed using MS Large since this tells us what areas have the largest number of housing units. More housing is more desirable, less housing would be less desirable.

Vehicle Ownership Scores

Vehicle Ownership Scores
Value
Very Suitable
Not Suitable

Data Source: ESRI Community Analyst,
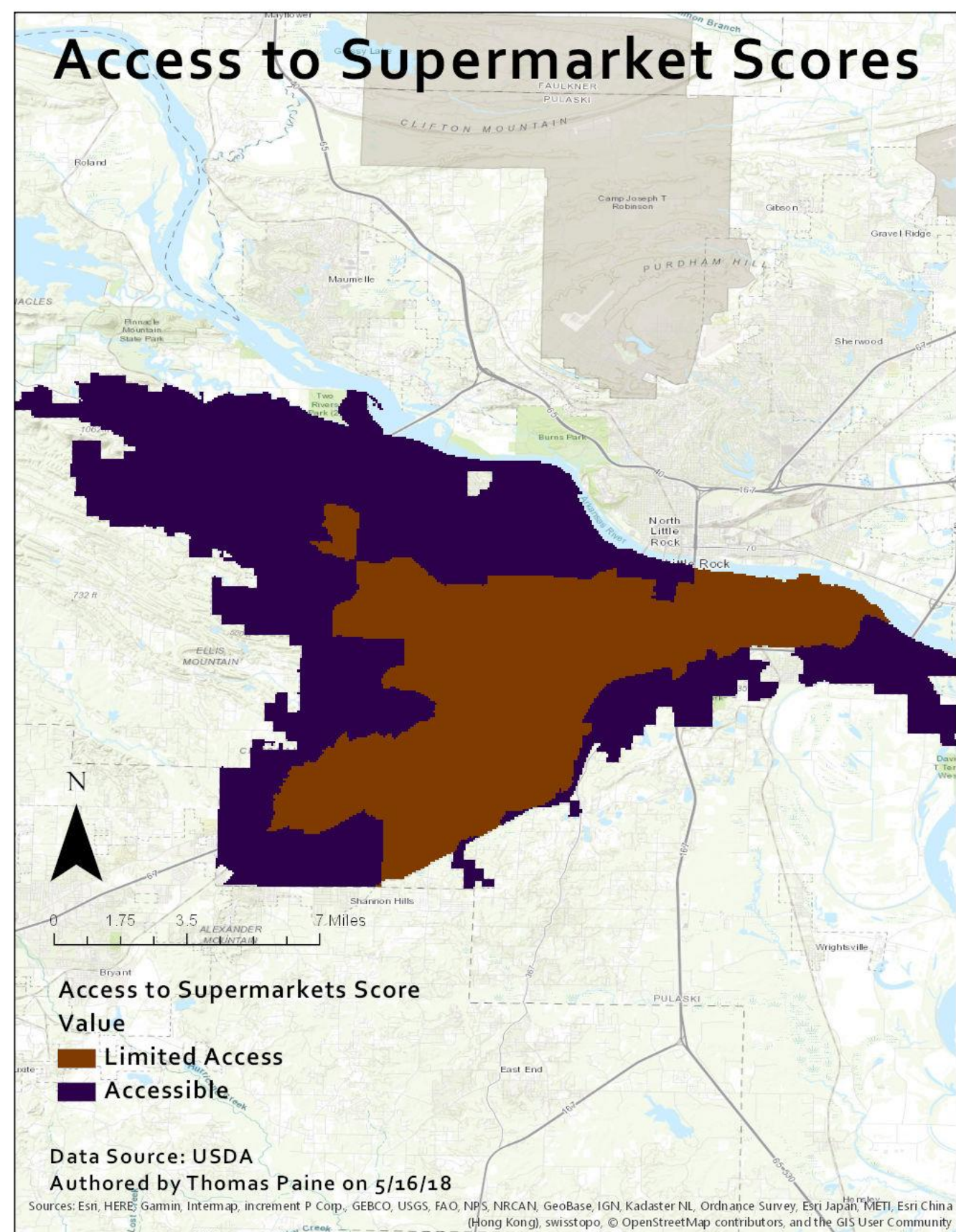Authored by Thomas Paine on 5/16/18

Vehicle ownership is a critical factor, people are not willing to walk more than a half mile to reach a destination. These gardens are to be built in areas with less vehicle ownership. These areas might have residents who struggle to get around. The data was transformed with MS Small so the less vehicles there are the better suited the site is.

Obesity Scores

Obesity Suitability Scores
Value
Very Suitable
Not Suitable

Data Source: CDC 500 Cities Project,
Authored by Thomas Paine on 5/16/18

Obesity is a massive killer in the US. The point of these gardens is to foster healthier lifestyles. This layer looks at and identifies the tracts with the highest obesity rates using MS Large, tracts with higher obesity rates are the most suitable.

Access to Supermarket Scores

Access to Supermarkets Score
Value
Limited Access
Accessible

Data Source: USDA
Authored by Thomas Paine on 5/16/18

Food deserts are common in lower income areas since quality supermarkets are often not built in these neighborhoods. It was important to look at census tracts and observe if they are or are not within a half mile of any grocery stores and locate gardens in food desert areas.