

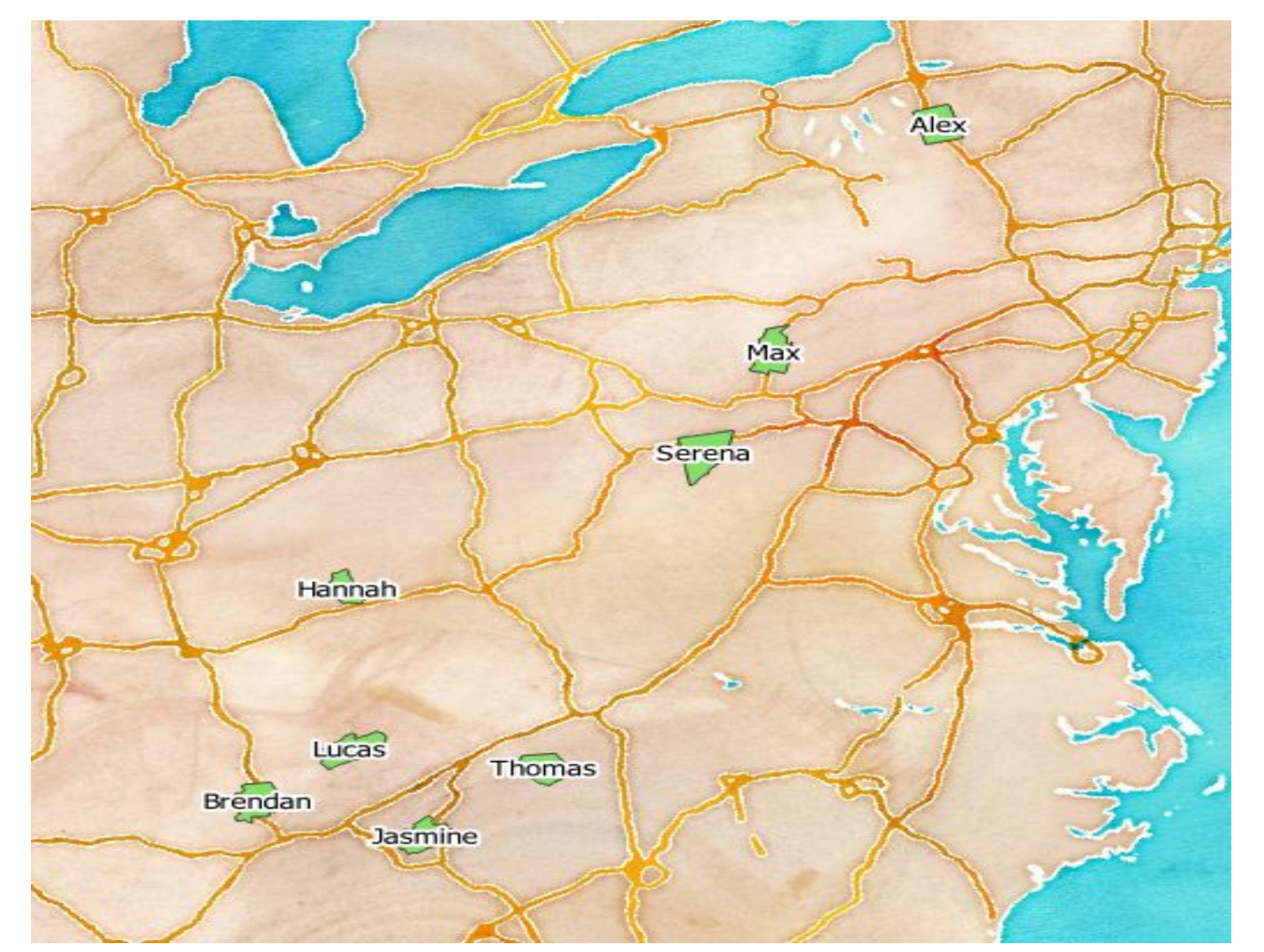


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Blount County's New Frontier: Smart Neighborhoods

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Introduction

The goal of this project was to use spatial analysis with the Geographical Information Science (GIS) software to determine the ideal location for a smart neighborhood in Blount County, Tennessee

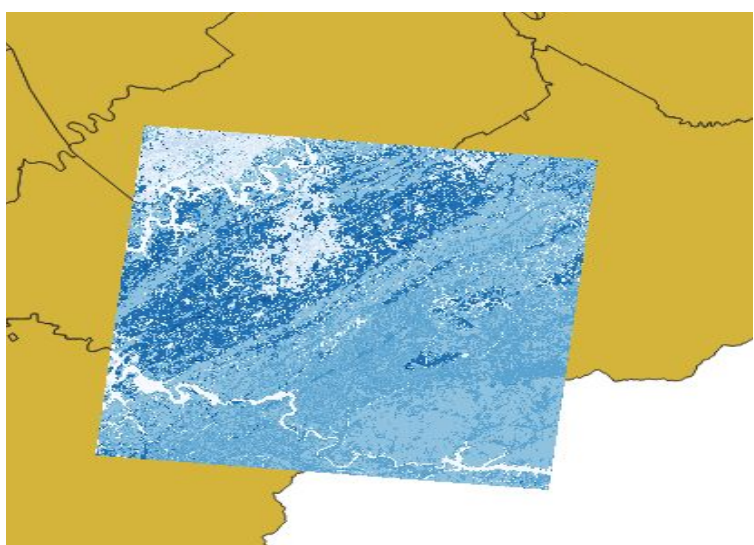
What is a smart neighborhood? A smart neighborhood is an efficient community that:

- ❖ Uses technology to reduce electricity waste and energy costs
- ❖ Uses electronics to collect data to efficiently improve operations
- ❖ Rids fossil fuels in general
- ❖ Takes advantage of energy and natural innovations such as solar or hydro power
- ❖ Has amenities directly in the neighborhood so that people do not have leave
- ❖ Has electric charging stations and schools nearby
- ❖ Results in less stress on power grids, lower wholesale and retail energy prices, and significant reductions in net greenhouse gas emissions

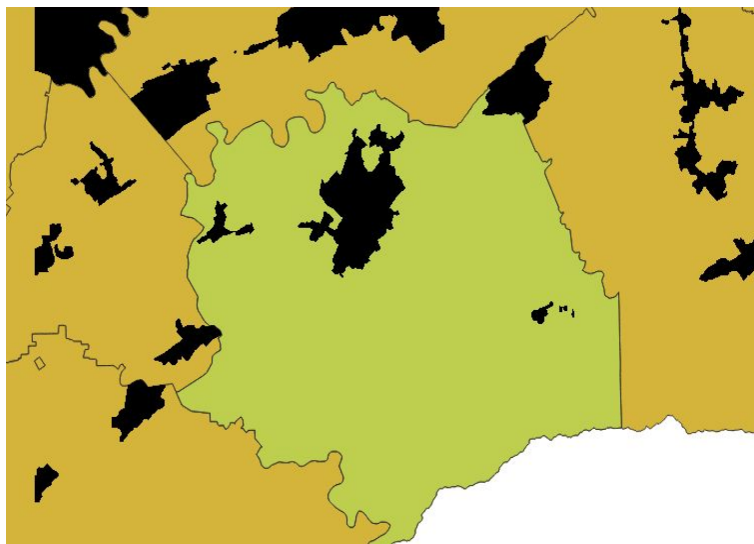


Background

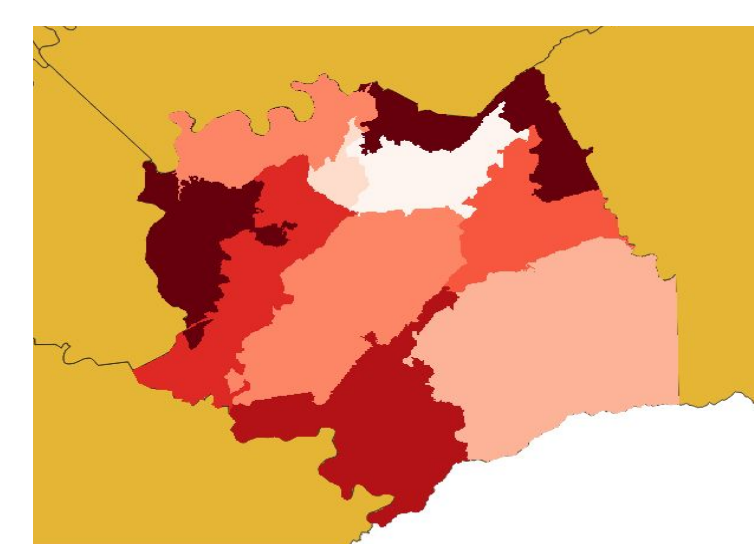
- ❖ First, the correct data sets were found
 - National Land Coverage Database



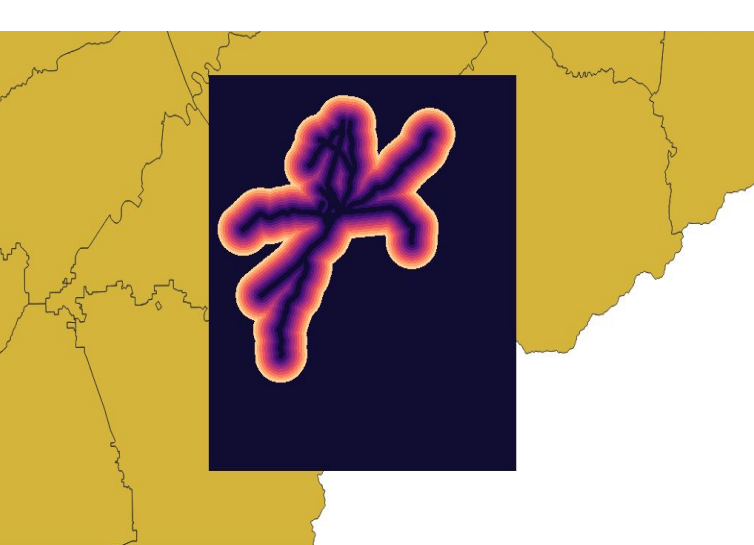
- City limits



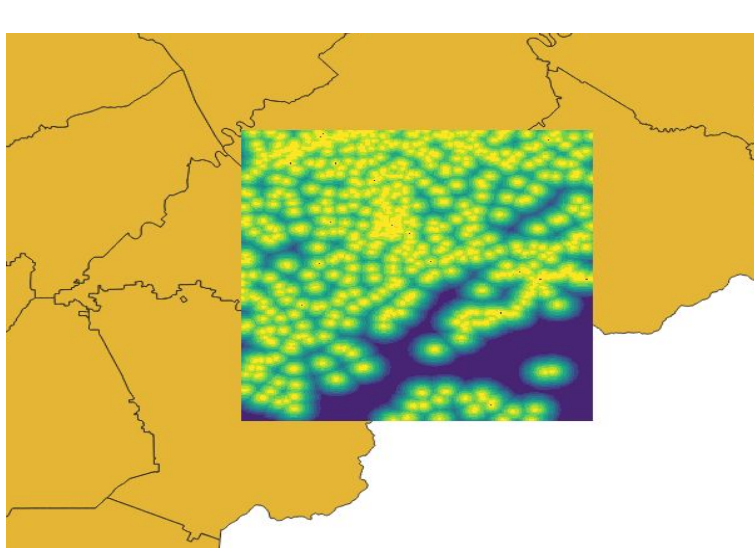
- Crime rate based off zip codes



- Roads and high traffic



- Amenity distance

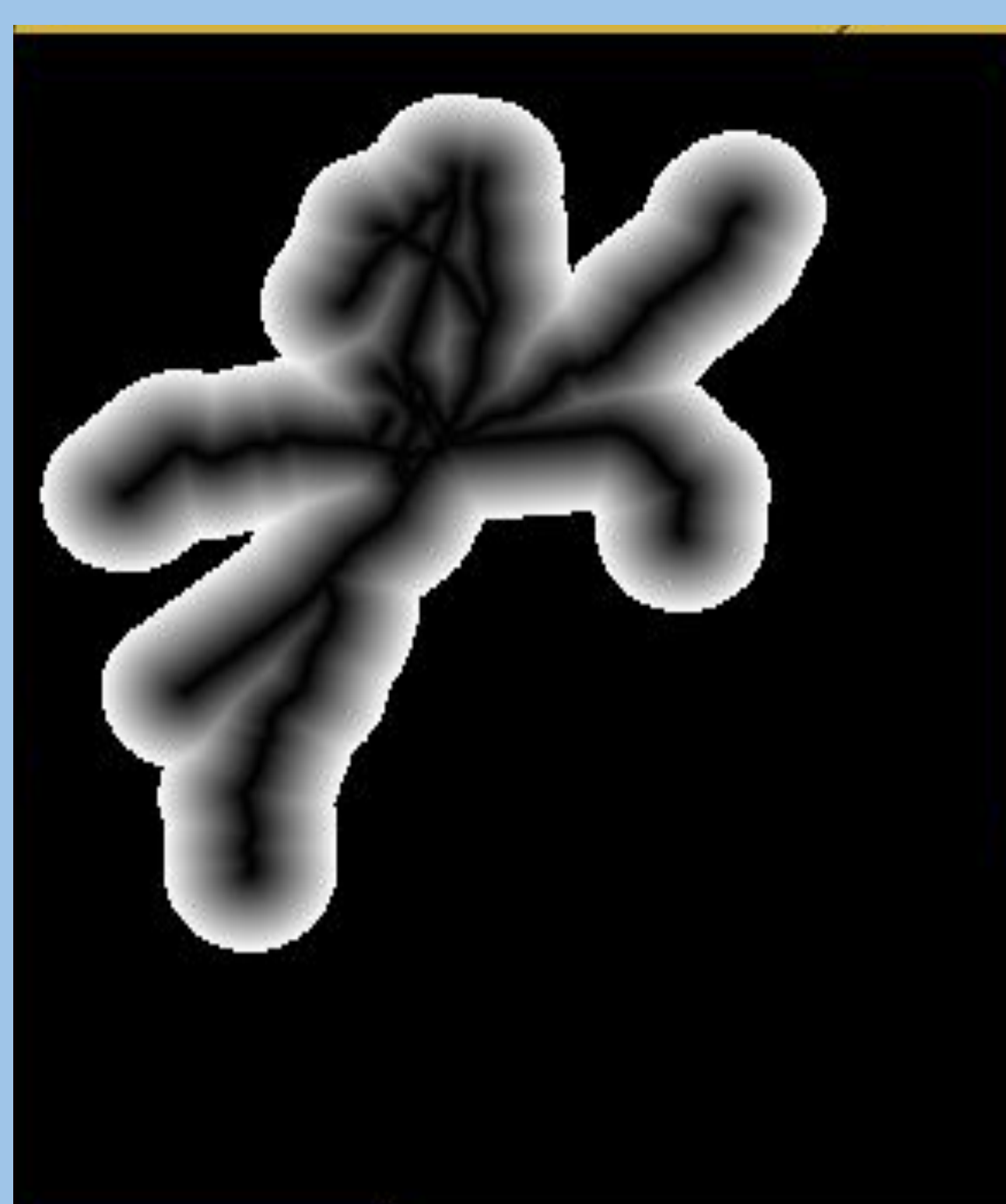
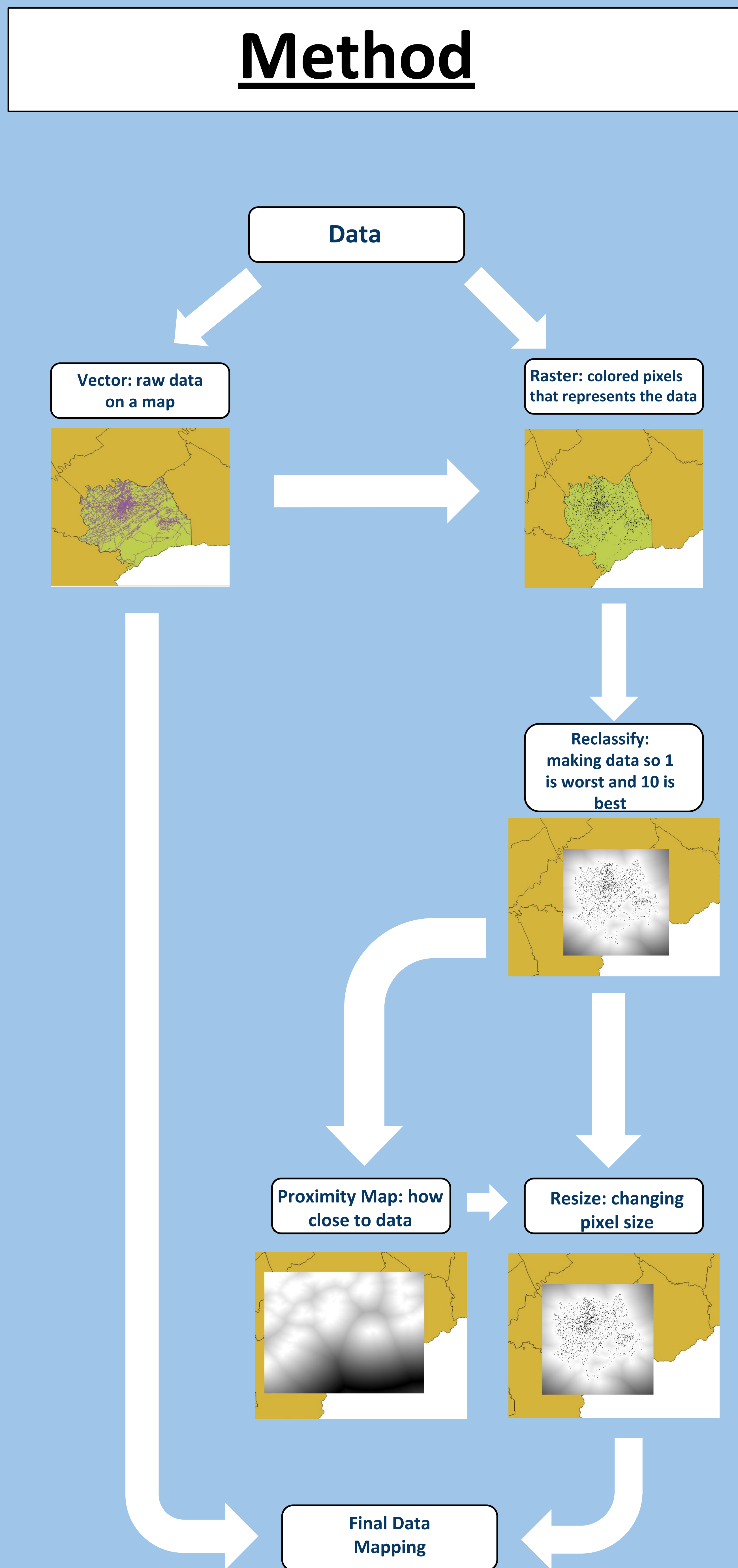


- ❖ The information on Blount County was found through several resources online.
- ❖ Once the data was compiled, it was entered into Quantum Geographical Information Science (QGIS), a geographical data compiling software.

Materials

- ❖ QGIS Software
- ❖ Google Drive

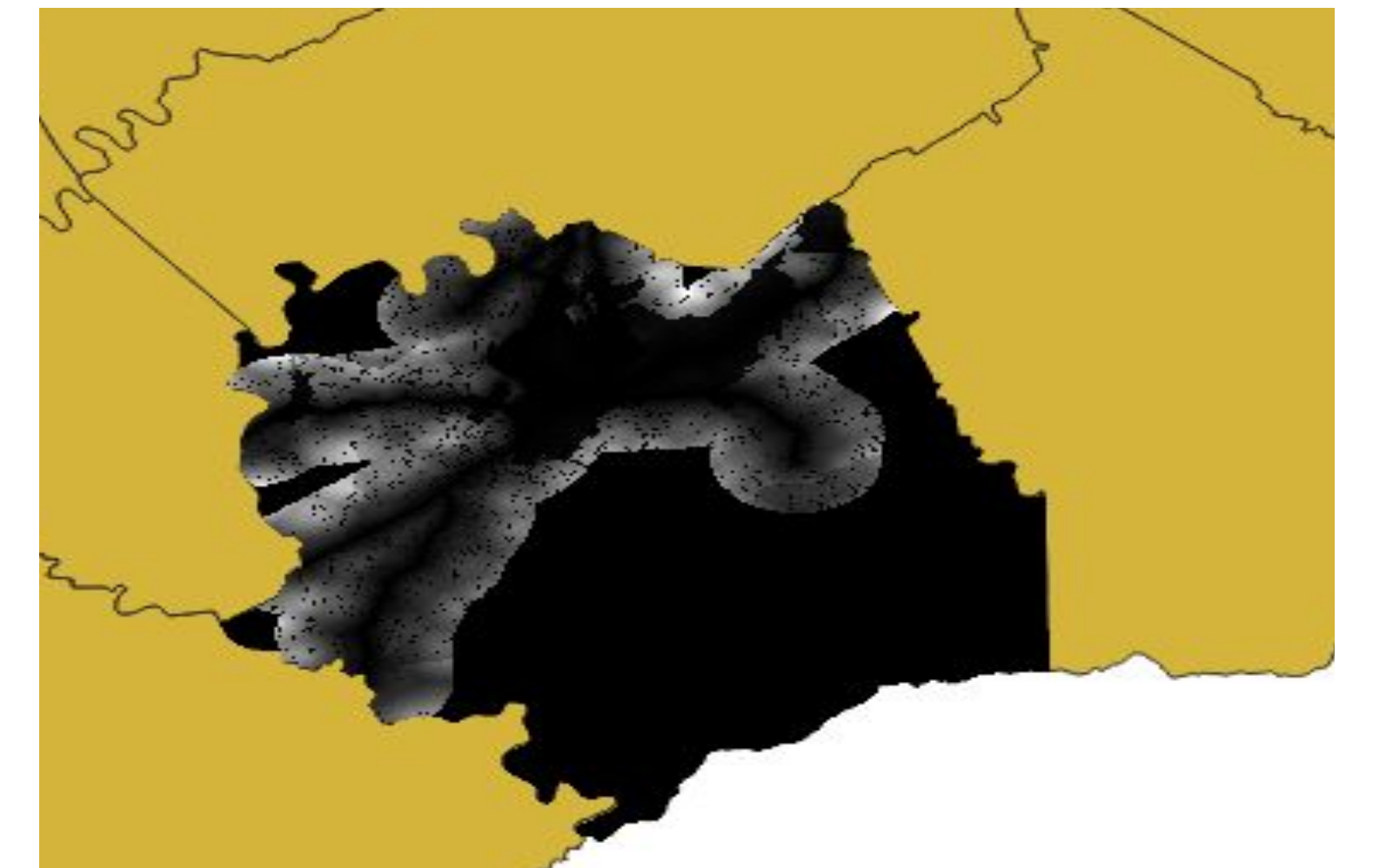
Method



Details of the Method:

Data was collected from various spatial data websites had to be downloaded and extracted. Once extracted, the files were uploaded into QGIS and added onto the map as a vector layer. Some layers were not sufficient as a vector layer; they had to be converted into a raster layer using a vector to raster converter. After converting some into rasters even then some were not perfect. For example, the crime data scales had to be flipped, so ten was the best, and one was the worst by entering a set of equations into a calculator. Once reclassified, some data still needed to be resized, which is just playing around with pixel sizes until the right map. Proximity map was just how close the neighborhood wanted to be to data like a highway. Then the map was done.

Results



All Data Layers Joined Together



Possible Locations for the Smart Neighborhood



Final Location

Conclusions

- ❖ In conclusion, smart neighborhoods would be the most optimum living environment given the terms of convenience, efficiency, and overall comfort.
- ❖ By inputting data research into the QGIS system, overlapping data and information can be analyzed for the best area for development.
- ❖ Provided evidence and results the best place for smart neighborhoods in Blount County is near the corner of Central Point Road and Martin Mill Pike in Rockford, Tennessee.
- ❖ Integrating research with QGIS discloses the optimal locations for future planning of developments and communities.

Acknowledgements

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Citations

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