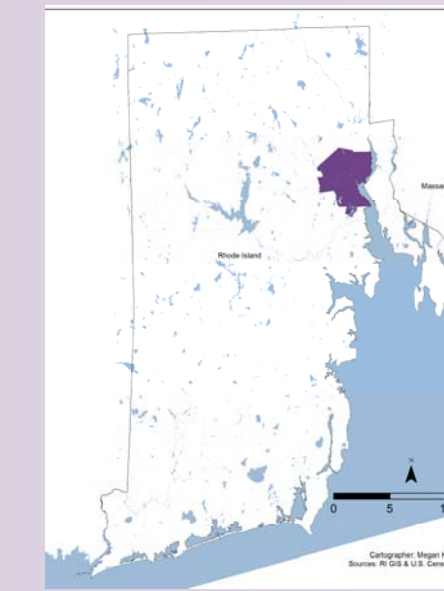


Mapping Opportunities for Seniors in Providence, Rhode Island

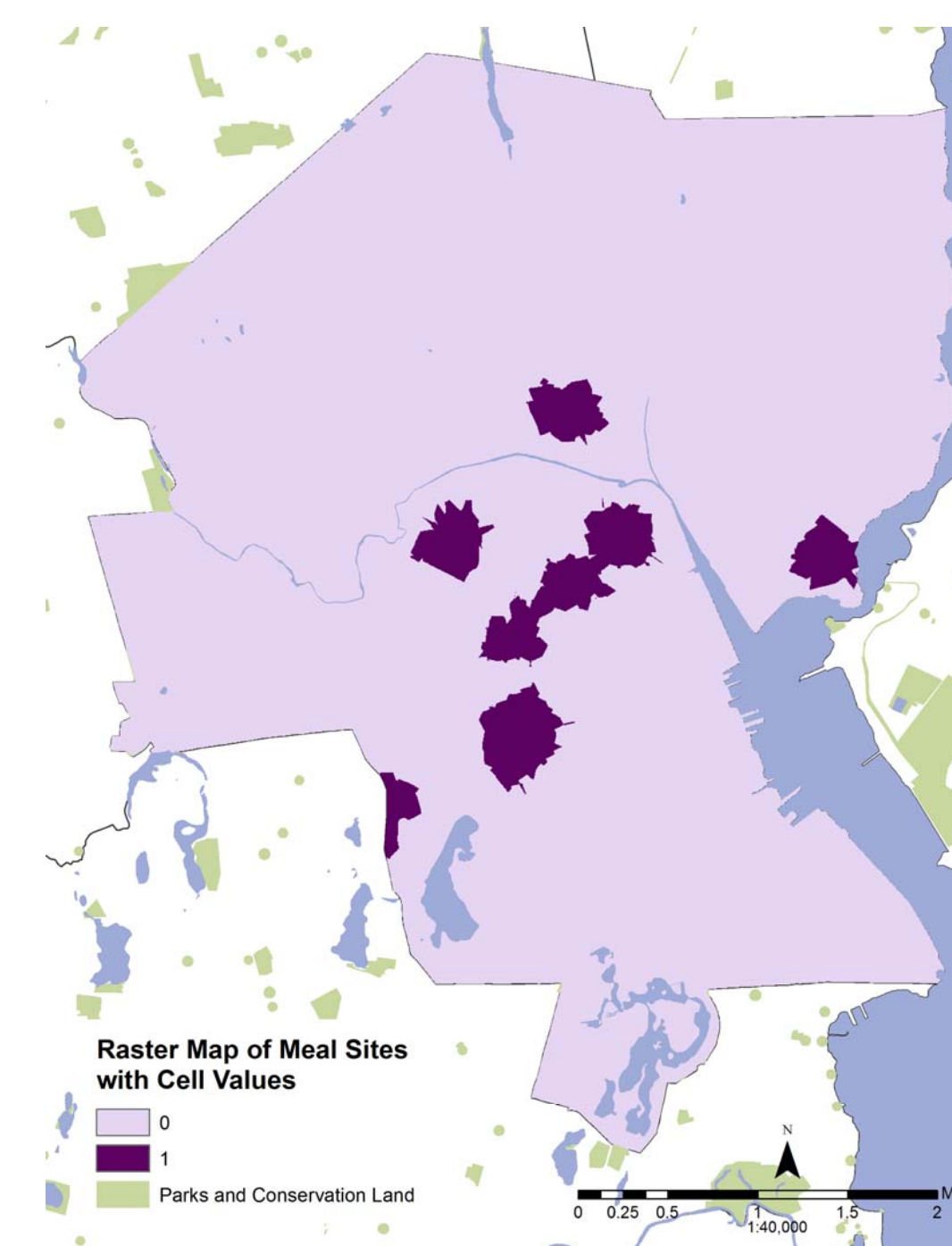
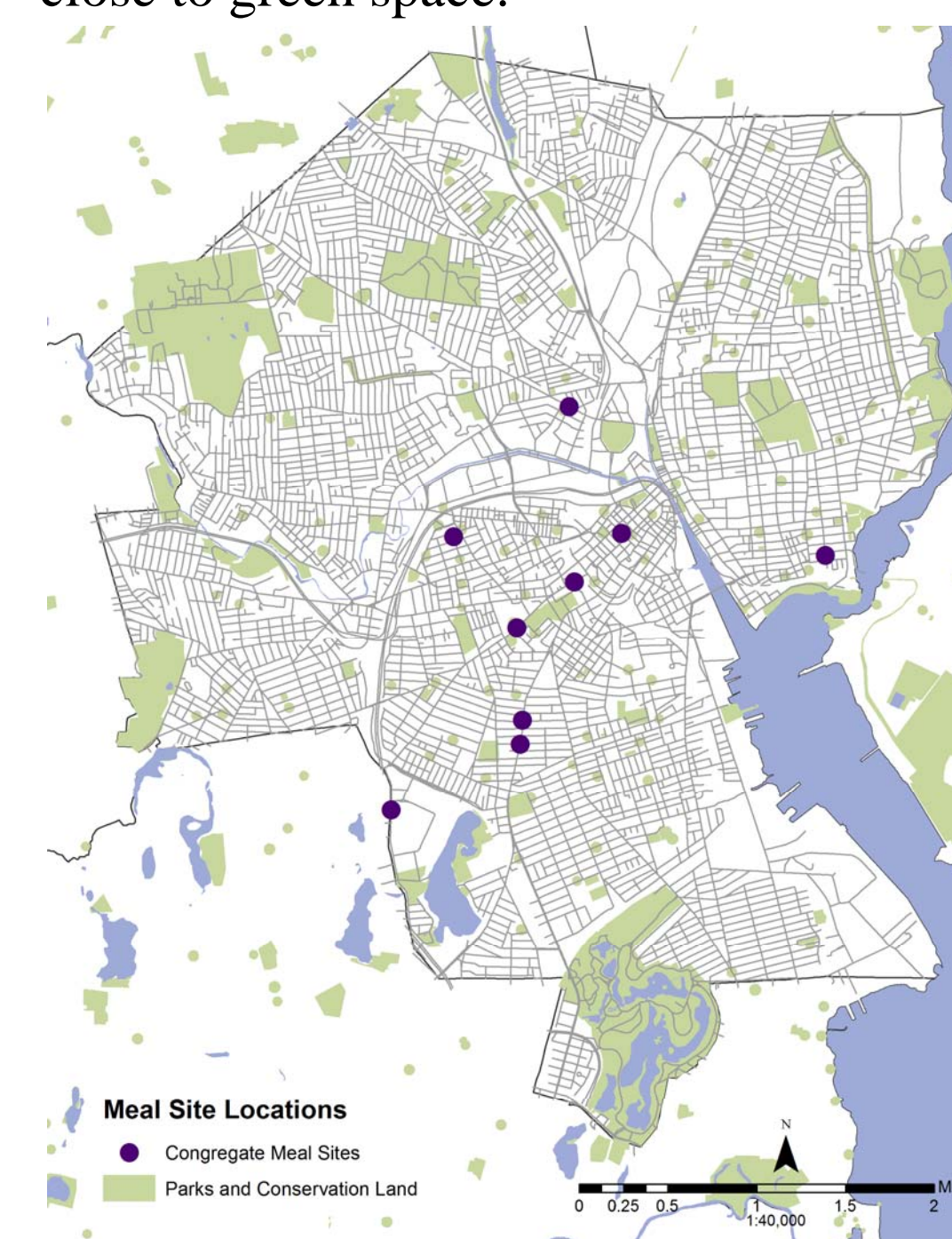


Sources for all Maps: Rhode Island GIS, Reference USA, and the City of Providence Website, 2011

Cartographer: Megan Krey, December 2011, Tufts University

Purpose

The population of the United States is rapidly aging and cities across the country need to plan how to best meet the needs of their elderly residents. According to the 2006-2010 American Community Survey, 10.6% of Providence, Rhode Island's population is over 62 years old. Thus it is vital that both city leaders and residents know which areas of the city offer the most opportunities for older adults to live active and independent lives and which areas are in the most need of future investment. The purpose of this project is to map which areas of Providence have the most opportunities within a 1/4 mile distance. The table below lists the types of services and opportunities that were mapped and why these opportunities were chosen. Since I was unable to include proximity to parks in my analysis, each map displays the locations of parks to show which areas of the city are close to green space.



Method

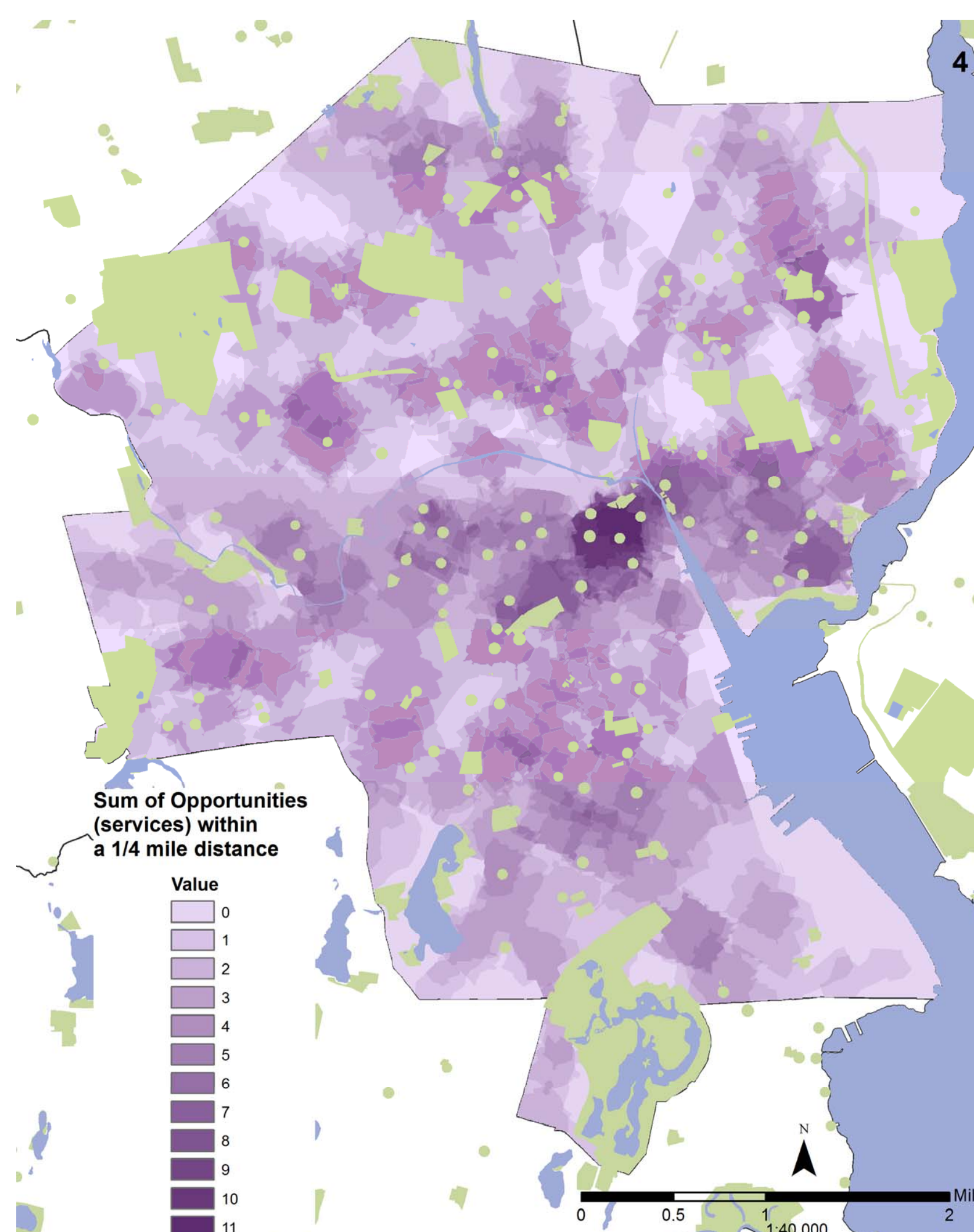
To begin, I mapped all the points for each of the twelve "opportunity factors". The data was gathered from the Rhode Island GIS data library and geocoding addresses of services gathered Reference USA and internet research. I mapped each service separately and put the points on Providence street network (Map 1). Using the "Service Area Analyst" tool in ArcMap, a polygon representing a 1/4 mile

distance along roads from each point was generated (Map 2) in order to represent a walkable distance. For bus stops, a distance of 1/8 mile was used because for elderly people it is critical that they have close access to transportation.

Each of these "walkable" polygons was converted into a raster dataset with a cell size of 20 feet by 20 feet. All of the raster cells within each of the "walkable polygons" was given a value of one and all of the raster cells outside of the polygons was given a value of zero (Map 3). All of these services were valued the same because different services hold different importance for different seniors. For example, very independent seniors would most likely value museums and clubs high while more impaired people would value meal sites high.

Then I added the value of the cells of all the services which resulted in a map showing opportunity areas ranging from having access to zero opportunities to having access to eight opportunities (Map 4). Although I summed twelve factors, the highest opportunity score was eight meaning that no area of the city has an optimum "opportunity score".

Opportunity Factors	Reason
Senior and Adult Day Health Centers	Socialization
Congregate Meal Sites	Meals and socialization
Hospitals	Health care
Libraries	Socialization and access to computers
Schools	Volunteer Opportunities
Colleges and Universities	Learning opportunities
Gyms	Exercise
Museums	Volunteer Opportunities
Clubs	Socialization
Grocery and Convenience Stores	Meeting daily needs
Pharmacies	Meeting daily needs
Bus Stops	Transportation



Analysis and Conclusions

In order to better visualize the data, I created a raster map classifying areas of having low (0-3), medium (4-7) and high opportunity scores (8-11). This shows that the areas with the most opportunities are concentrated in Downtown Providence (Map 5). This supports the need to endorse and act upon the burgeoning trend of developing higher density communities in urban areas. Providence's has spent the last 15 years revitalizing the downtown area and this data proves the revitalization has been working and should continue. Both city officials and private developers should capitalize on the wealth of opportunities in this area and build more senior housing in the downtown.

Comparing the opportunity scores to the locations of elderly housing and the 2000 Census block group data leads to very different conclusions. All of the low-income senior housing is located near or within an area with a medium to high opportunity score which is not surprising since many meal sites and senior centers are located in these developments. In comparison, four out of the eight private assisted living facilities are located in low opportunity areas which may be due to the fact these facilities are more residential and provide transportation and private amenities to residents. In contrast, the census data shows areas with the most residents over 65 years old have the lowest opportunity scores, like in the northeast corner of the city. Therefore city officials and private developers should also focus on how to provide needed services or transportation options to these areas.

Hopefully, this analysis can be used by other cities to identify areas that offer the most opportunities for aging people.

