

Introduction

The aim of this project is to suggest to local officials where social services for elders would best be applied and also to act as an assistive tool for seniors seeking residence in neighborhoods where high levels of livability are experienced. This analysis is based on the assertion that the location, age, and condition of one's home can be an indicator to whether an individual possesses the assets and advantages needed to age successfully.

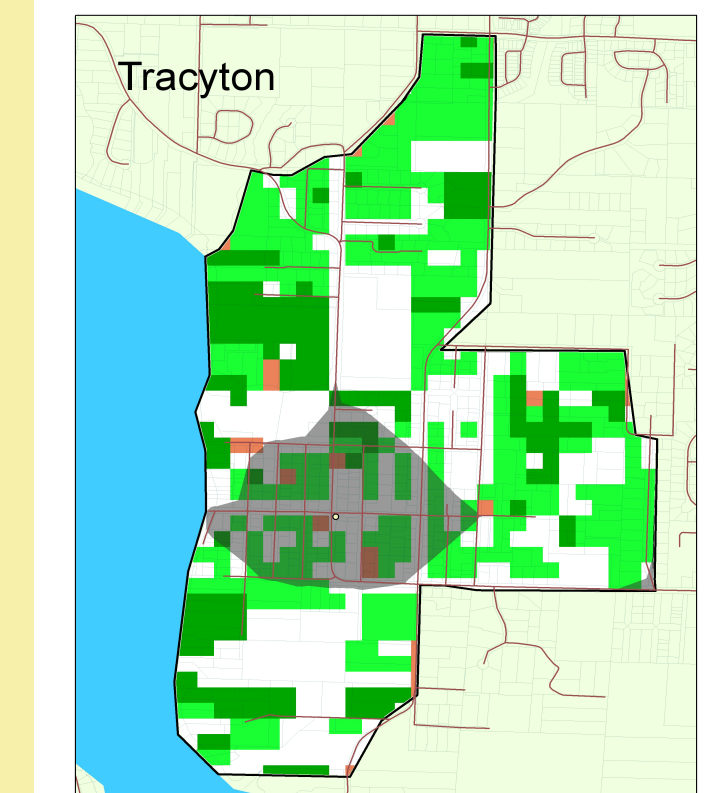
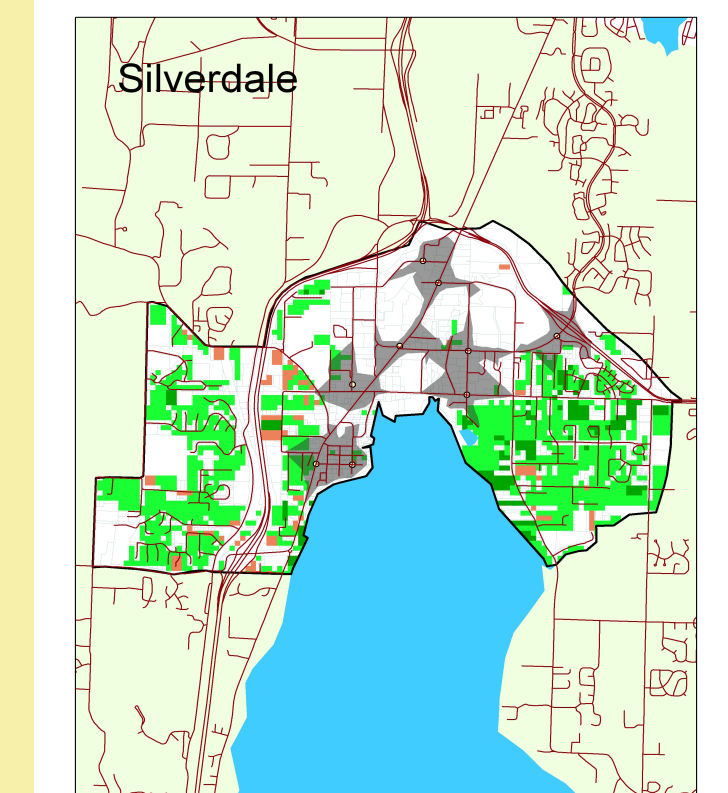
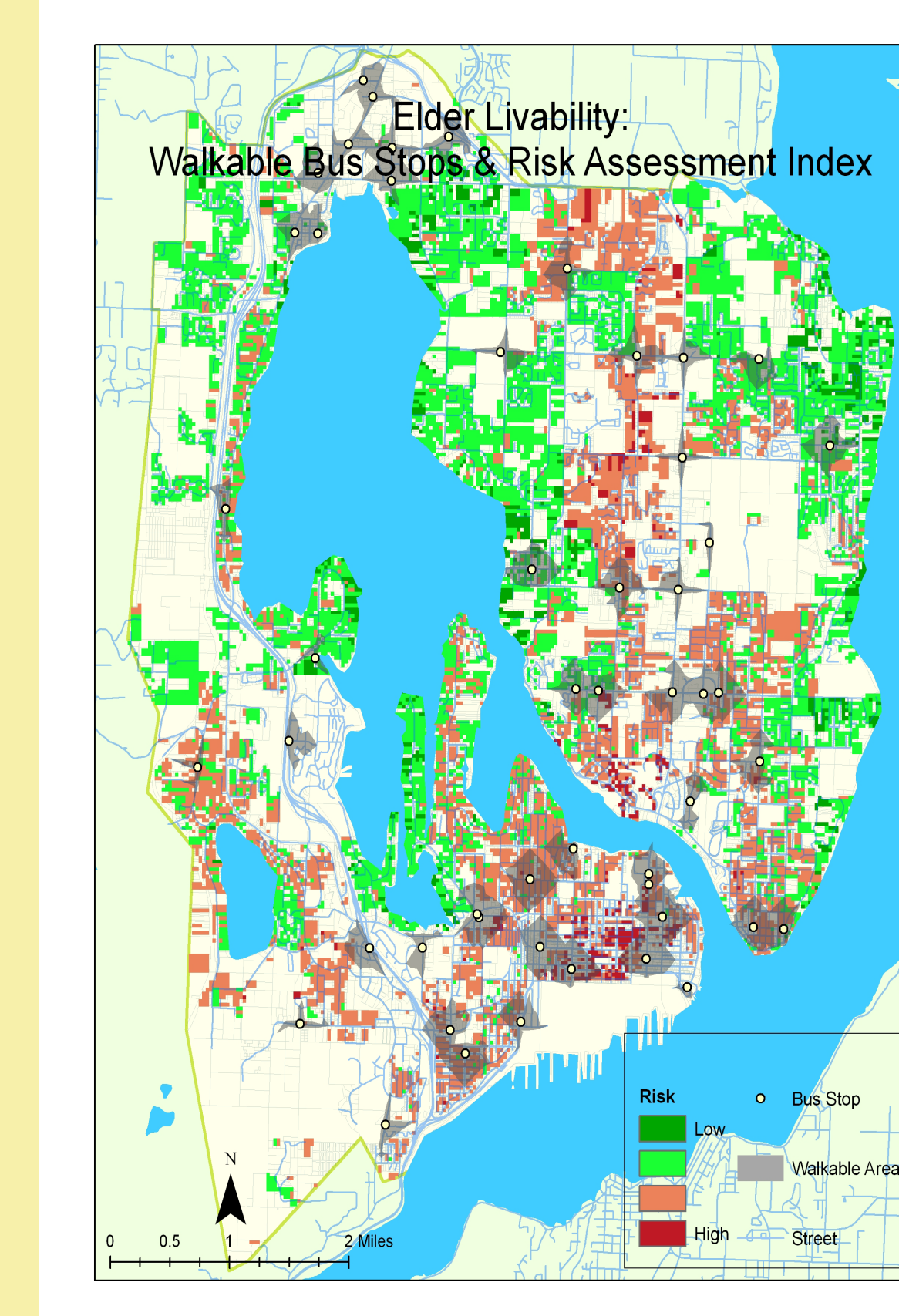
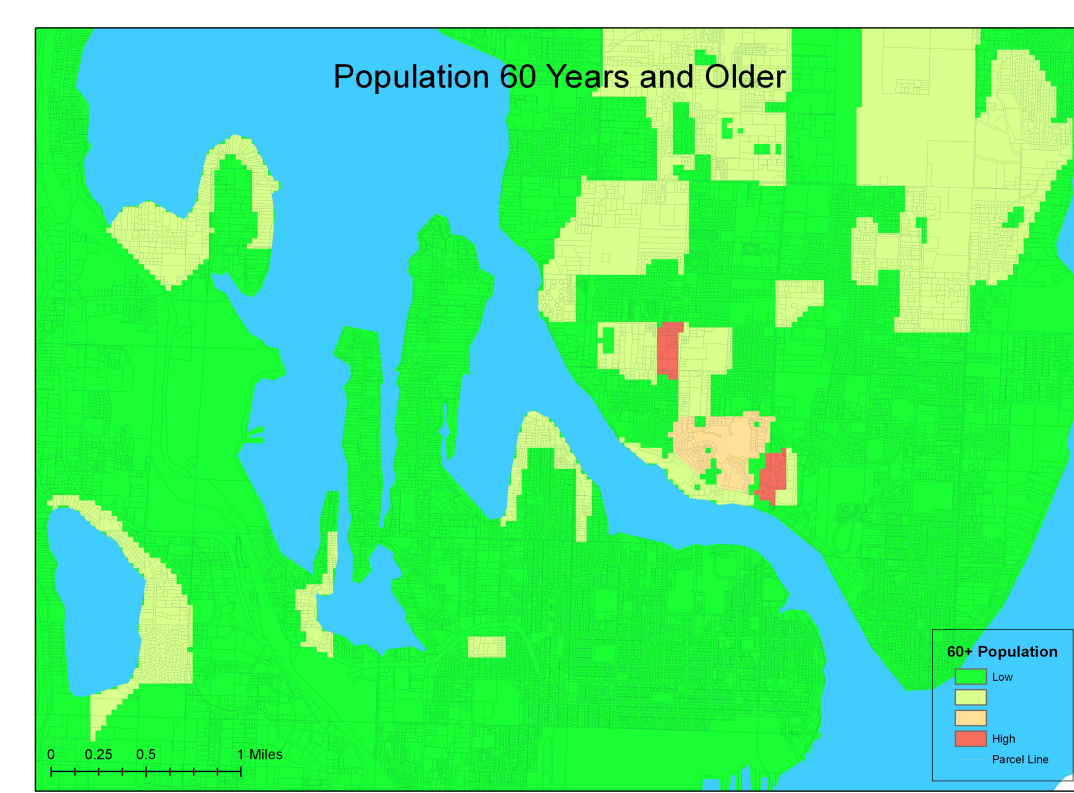
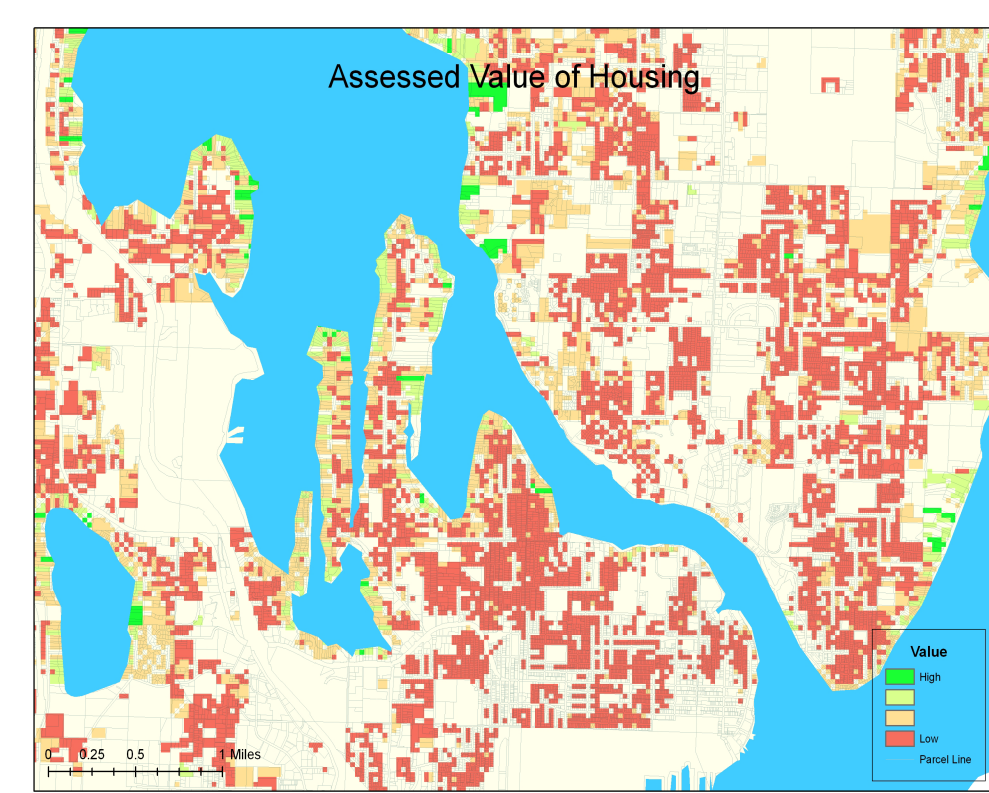
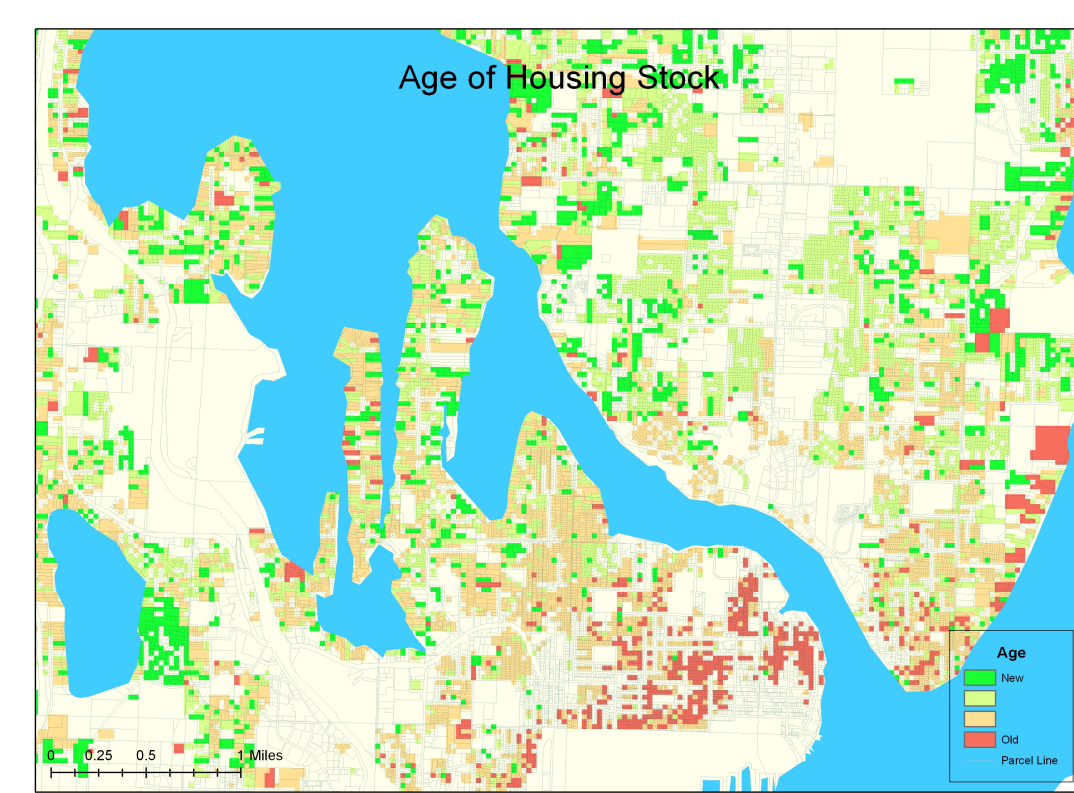
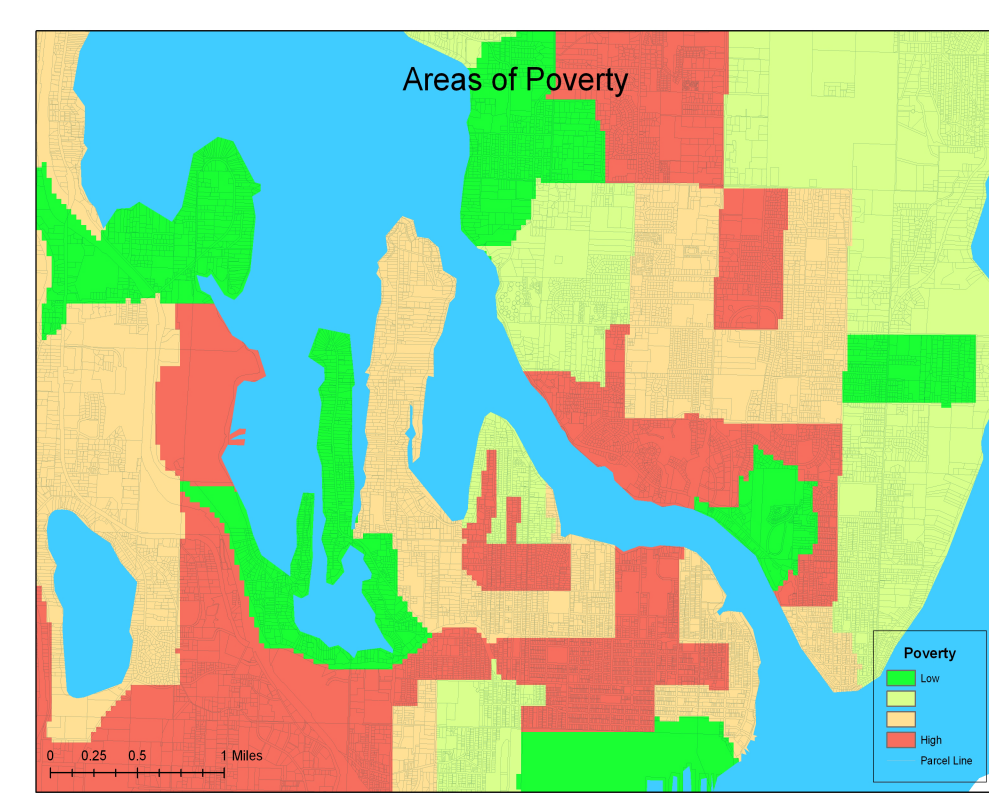
As of 2009 there were 112 million households in the United States and a full 23% contained a resident 60 years of age or older (Pynoos et al., 2009). Providing suitable housing for this demographic can alleviate some chronic health problems known to be caused by poor housing conditions such as obesity, asthma, diabetes, and other ailments (Jacobs et al., 2009). Home ownership is the main source of wealth for elders, who nationally enjoy a home ownership rate of 78%, however, inability to maintain one's home due to age related ailments can result in greatly diminished value (Struthers 2005). Beyond the physical condition of one's home, where it is geographically situated can also be an indicator of successful aging. Social isolation, which can be the result of lack of transportation, has been associated with, "... mental illness, distress, dementia, suicide, and premature death" (Hawthorne, 2006, p. 522).

Assessing Senior Citizen Livability in Dyes Inlet Neighborhoods: Risk Assessment Index & Walkable Bus Stops



Sources

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 Jacobs, D.E., Wilson, J., Dixon, S.L., Smith, J., & Evens, A. (2009). The Relationship of Housing and Population Health: A 30 Year Retrospective Analysis. *Environmental Health Perspectives*, 117 (4), 597-604. JSTOR: <http://jstor.org/stable/25478164>
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Suggested Elder Neighborhoods

Objective

This analysis seeks to locate areas needing greater attention from local officials when allocating social services and to assist elders in locating neighborhoods suitable to their needs. To this end the analysis will locate areas that contain: housing stock that is old/aging, areas where the assessed value of the home is low, area poverty levels, and areas where those 60 years of age and older reside. These four elements make up the Risk Assessment Index and will be utilized when assessing neighborhoods for elders in the Dyes Inlet area. Locating the cross-section of these demographics and housing variants will at once demark areas in need of services and provide locations to elders searching for livable neighborhoods.

Finding suitable distances from bus stops is also an integral portion of this analysis and elder health. Insuring reliable transportation routes can increase independence and quality of life for elders. When poled elders responded that walking over a quarter mile to reach a point of public transportation was asking too much (O'Sullivan 1996). Thus, the service area for this analysis reflects that distance as an indicator of public transportation being within an acceptable distance from residences. I hypothesize that more urban areas and commercial centers would have both high rates of transportation and poverty.

Results

The results of my analysis answer what I had hoped to find when designing my project. I was able to locate specific areas in the Dyes Inlet area in need of greater social services and areas suitable for seniors to locate to with expected success. The maps below illustrate the ranking of Dyes Inlet neighborhoods in terms of the Risk Assessment Index and walkable bus stops. As seen from the illustrations below, often neighborhoods ranking high in walkable bus stops are positioned at the bottom levels of the Risk Assessment Index. This could very well be an example of current service locations being placed within the areas that need them most. As was my hypothesis, the more urban areas of Bremerton (West Bremerton, East Bremerton, and Silverdale) were subject to better transportation, however it was West and East Bremerton only that rated high on the Risk Assessment Index. Silverdale, though a commercial center, rated amongst the lowest for the cross-section comprising the Index.

Based on my findings elders would consider both Silverdale and Tracyton as amongst the favorable neighborhoods in the Dyes Inlet area to reside in. The combination of available transportation and a high rating on the Risk Assessment Index put these neighborhoods at the forefront of resident choices. Silverdale, however, is lacking in available housing within the quarter mile service area, though the service could easily be expanded given established routes. West Bremerton, Pine Crest, and Sherman Heights stand as examples of neighborhoods that might not suit the needs of seniors and should receive more focus in social services. West Bremerton is scored worst on the Risk Assessment Index but based off of available public transit routes local officials already seem to be applying advanced services to the impoverished area. While Pine Crest is noted to be a neighborhood in need I find that Sherman Heights may be in need of the most immediate attention in the effort to assist the senior population. While scoring low on the Risk Assessment Index, what is most startling is the complete lack of public transportation in the area. As mentioned in the Introduction, isolation can cause a host of ailments in the senior population, thus, my strongest recommendation is to establish transit lines to the Sherman Heights neighborhood.

Methods

Shapefiles:

I obtained data tables and shapefiles from Kitsap County and the U.S. Census. After preparing the data in Microsoft Excel I joined tables to shapefiles in ArcMap. I then clipped all of the data using Analysis Tools/Clip to fit my research area.

Editor/Create Feature Class:

Using the Create Feature Class tool and the Editor tool I was able to create the following shapefiles for my analysis: Base map of the Dyes Inlet research area polygon, 16 neighborhood polygons, and 51 bus stop points. I attained the neighborhood boundaries from a local real estate agency's web page, I found the locations of bus stops used in the analysis on the Kitsap Transit web page, and the base map was modeled from U.S. Census tracts that surrounded Dyes Inlet.

Symbology/Rasterize:

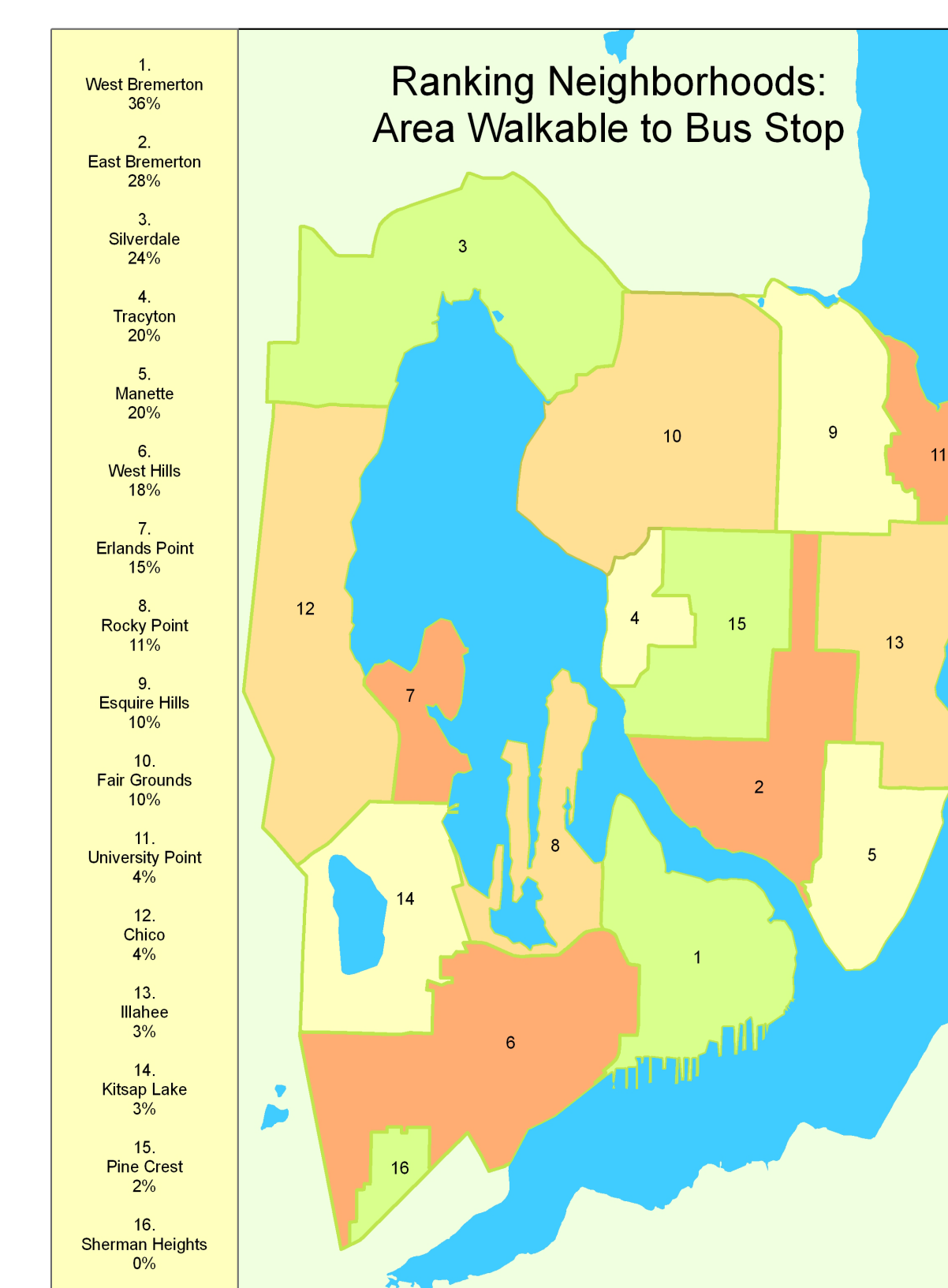
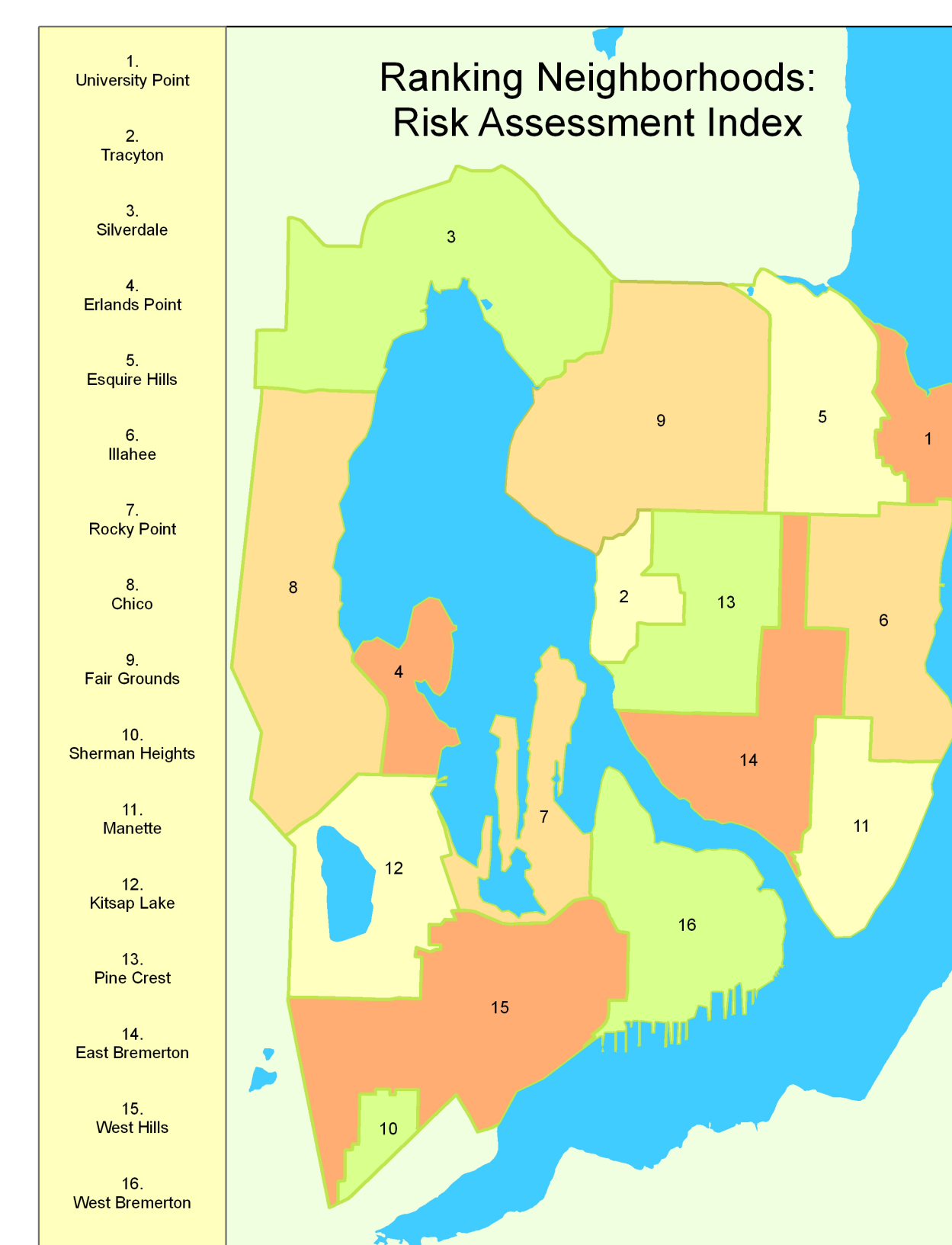
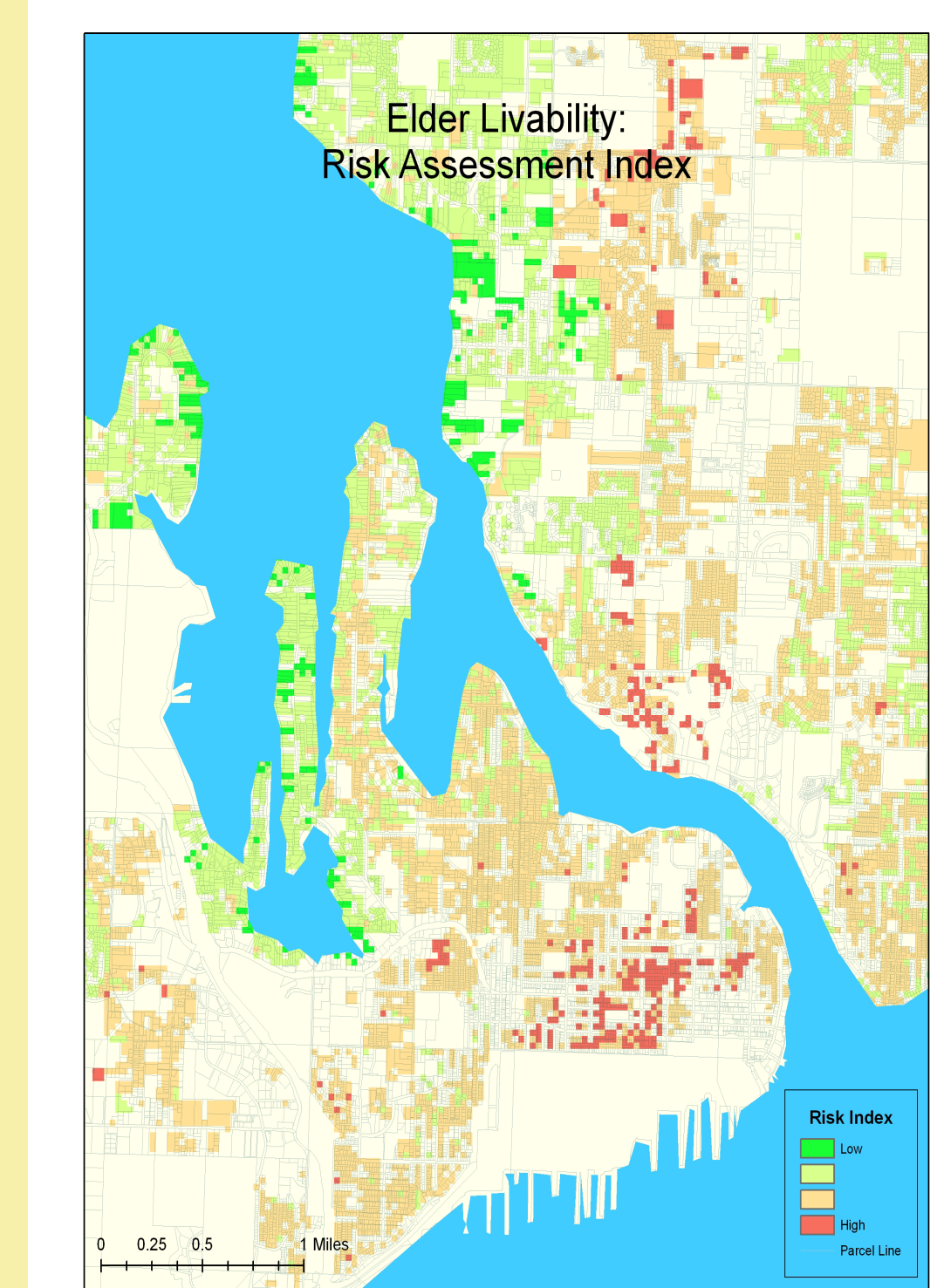
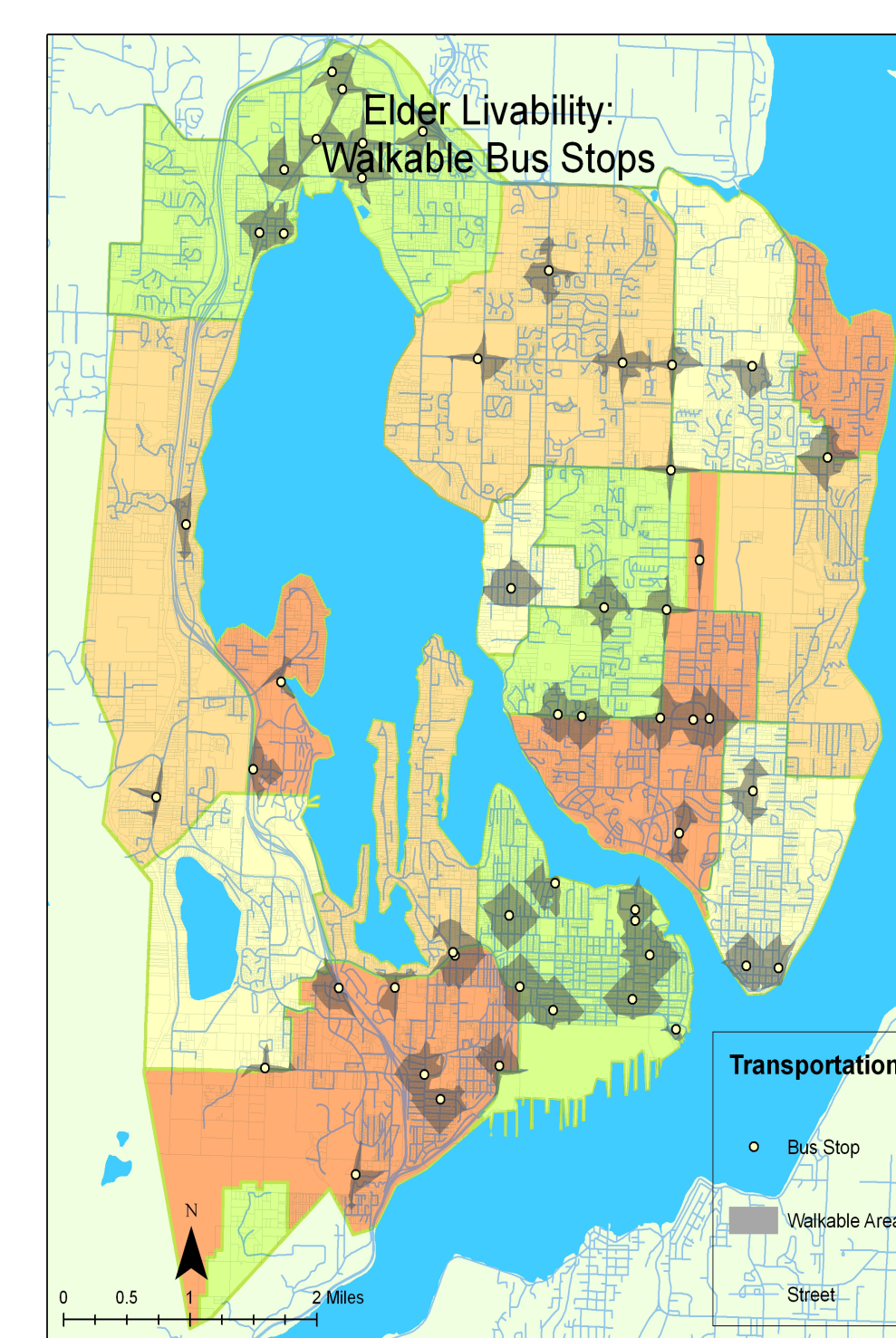
Using the Symbology dialog I adjusted the attributes for associated shapefiles to reflect the expression of: age demographic, poverty levels, age of housing stock, and assessed value of housing stock. After this was accomplished I rasterized this data creating four separate rasters. I then combined these rasters using an Overlay technique to form the Risk Assessment Index.

Network Analysis:

I utilized Network Analysis in determining the quarter mile service area for each of the 51 bus stops. In ArcToolbox I created the service area, added locations, and ran the analysis.

Zonal Statistics/Spatial Join:

I performed Zonal Statistics for each Neighborhood to determine the average score received according to the Risk Assessment Index. I then Performed an Intersect for each neighborhood and associated bus stop service area. Using the Statistics tool in each neighborhood's Attribute table I was able to calculate the total percentage of area covered in each neighborhood by a quarter mile bus stop area.



Neighborhoods in Need of Focussed Services

