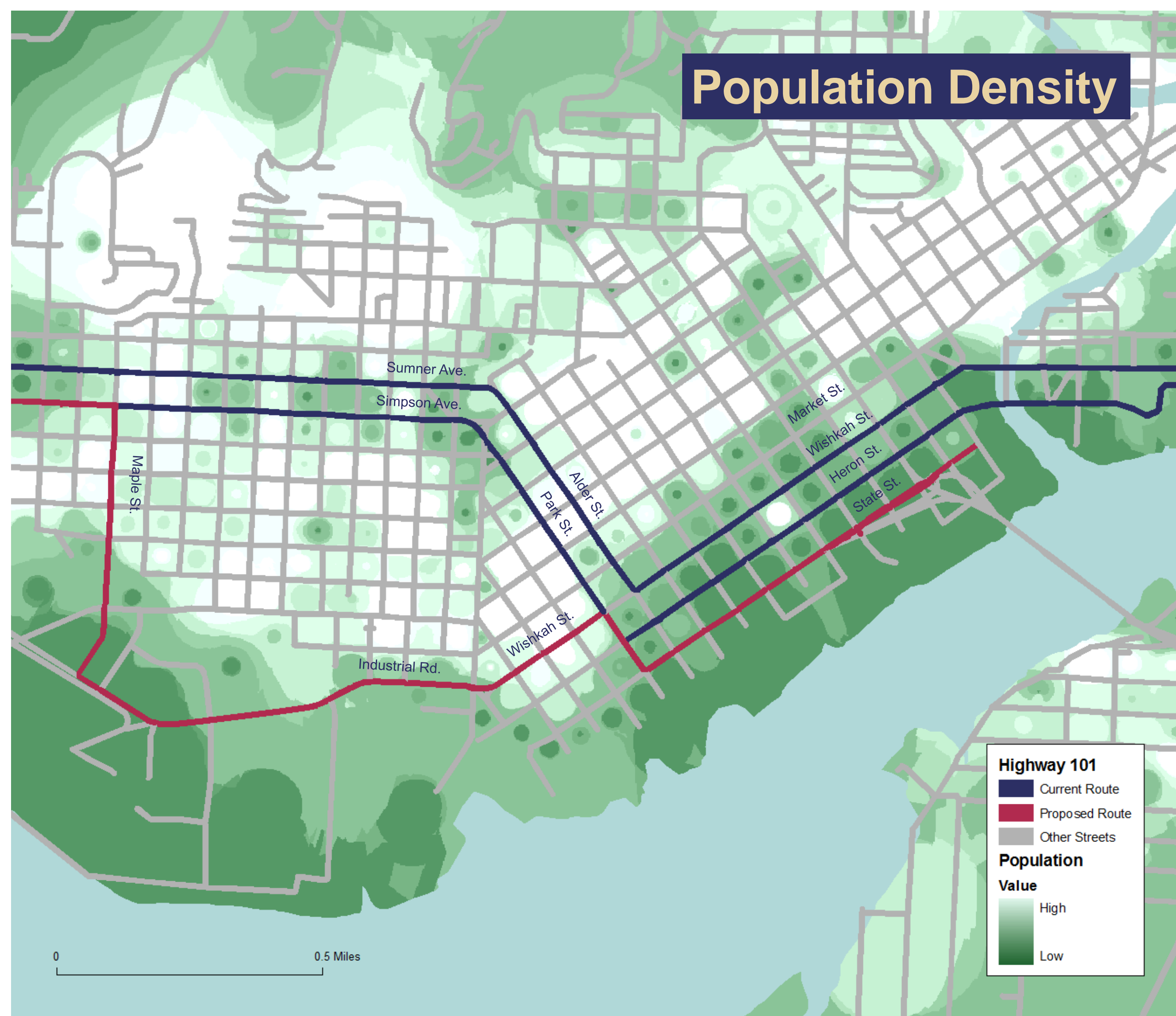
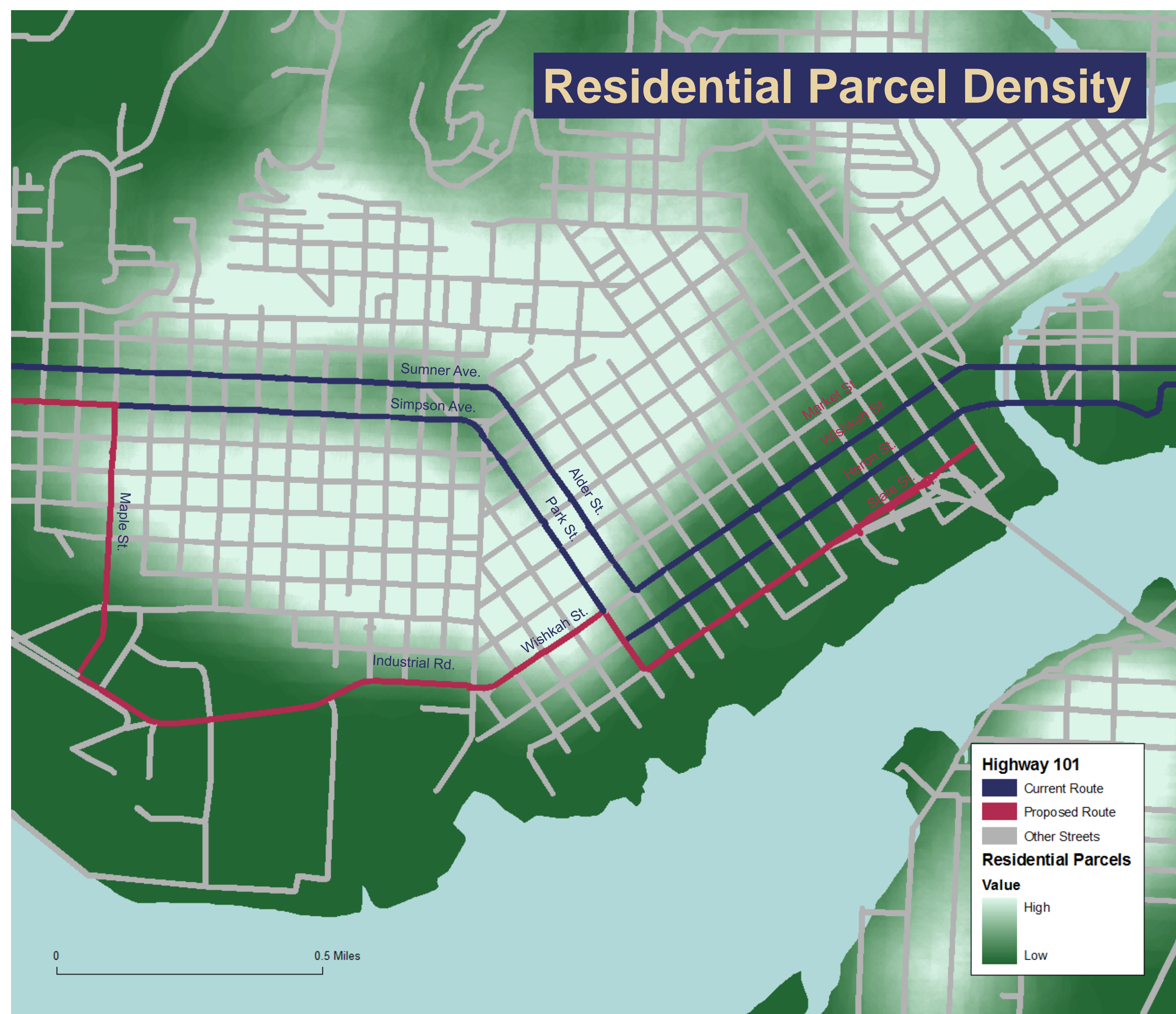


Rerouting Highway Traffic In Aberdeen, WA



The base layer of this map is an interpolation of population density. The in the foreground there is an overlay of the street grid with the current and the proposed route from my analysis highlighted.



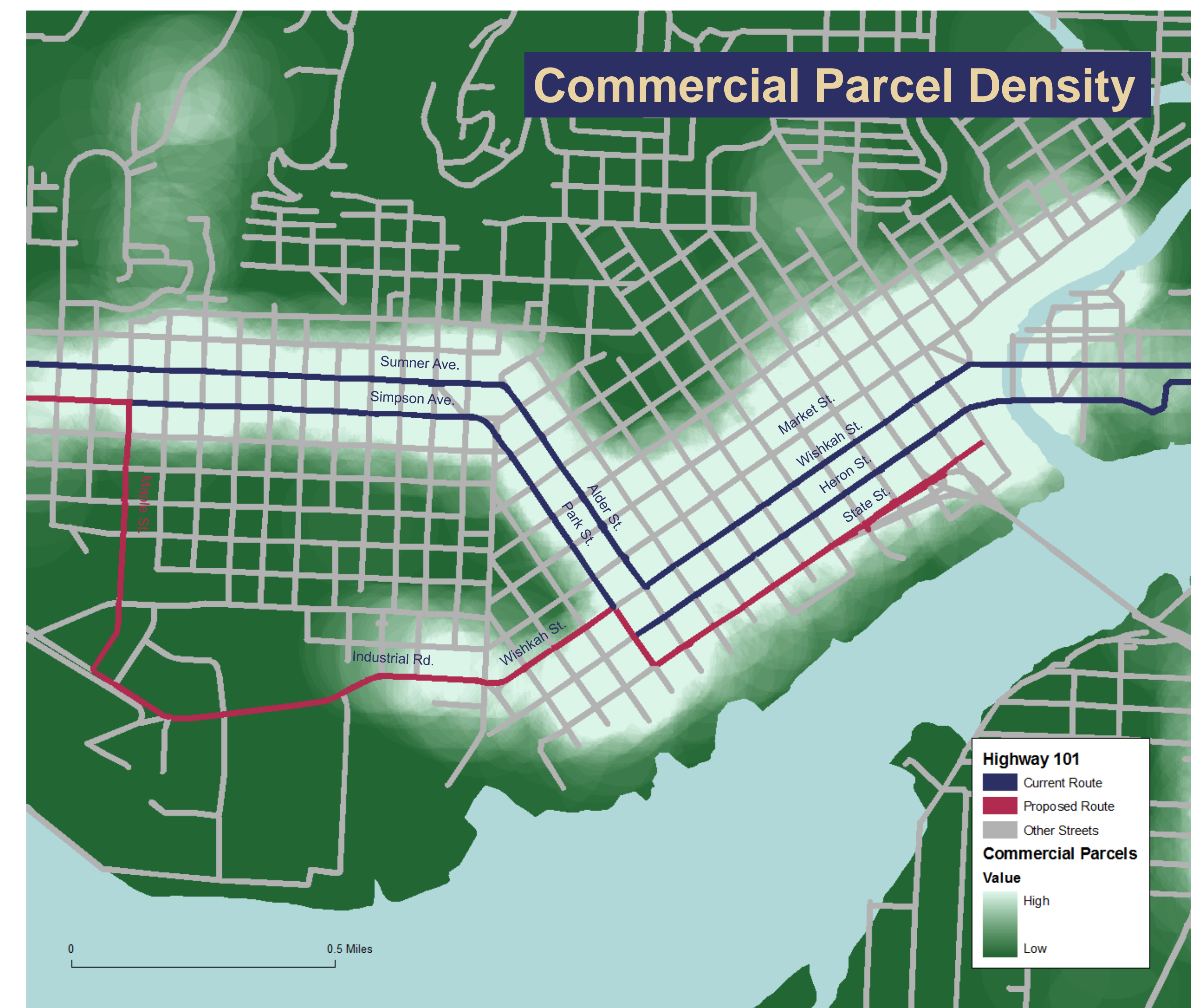
This map shows an interpolation of the density of residential parcels in Aberdeen along with an overlay of the street grid with current and the proposed route from the project analysis highlighted. Interestingly along the eastern portion of the current route there is a void of residential parcels that corresponds with an increase in commercial parcel density depicted in the top right graphic.

Purpose:
This project is a response to community interests in Aberdeen, WA to reroute traffic from Highway 101 away from the downtown business district. The plan calls for moving eastbound traffic from Wishkah Street one block north to Market Street. Recent improvements to the downtown area have created interest in making the area more commercial and pedestrian friendly. Currently much of the highway traffic running through the downtown consists of traffic heading to the ocean beaches and a significant number of large commercial vehicles the majority of which do not patronize businesses in the downtown area. The high traffic volume and types of vehicles moving through the area make the downtown a dangerous place to walk.

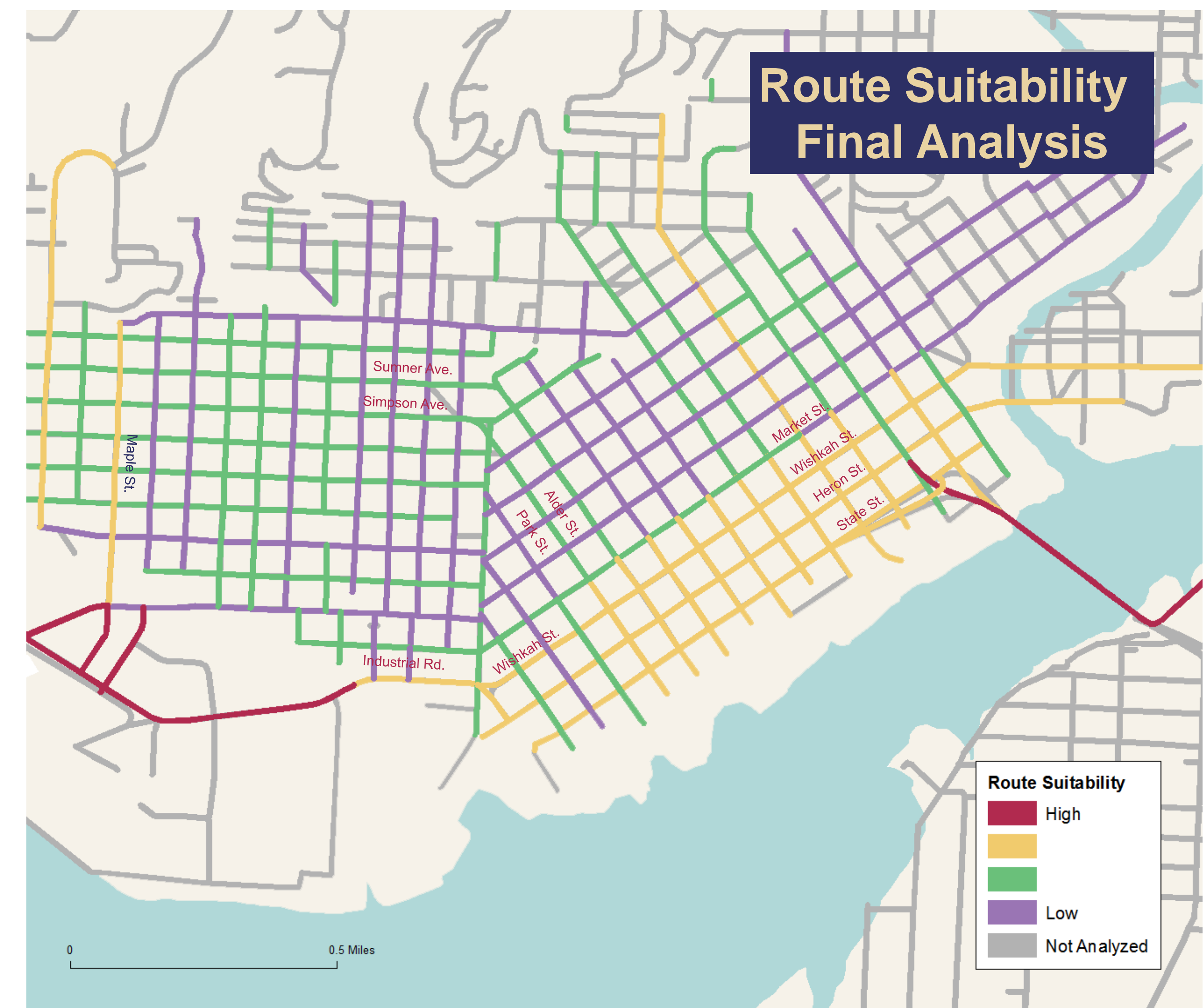
Methods:
My analysis began by assigning major streets a numerical value (1-4) based on its traffic capacity, with 1 representing high traffic and 4 representing low traffic. This was necessary as I was not able to obtain street information with pre-assigned road categories. The next step was locating residential areas, which was done in two ways. The first method was utilizing census data to interpolate population density within Aberdeen. Additionally, in my population density figure I gave extra weight to children up to fourteen years of age as well as populations sixty-five and over. This was accomplished by counting these populations twice. This was done because research has shown that children are more at risk from motor vehicle pollution, and I considered the sixty-five and older population to be vulnerable as well. The second method was using parcel data to interpolate residential parcel density. Next I located commercial parcels again using parcel data. I took commercial parcels into consideration as that was the focus of the original community effort. For all of the interpolation maps high density areas were given a value of four and low density a value of one. Finally I located schools and parks in Aberdeen and created service areas around these points based on walk time, with streets that passed within a one minute walk of these points being assigned a value of three and streets passing farther away from these points a lower value. These areas were then interpolated into the same raster format as all the other data. Raster layers are composed of cells much like a piece of grid paper each cell has an assigned value. For this project cells in high density areas or close to parks and schools received high values and decreased decreases in density and distance from parks and schools. ArcMAP then identified cells that each street intersected with and added the values of all the cells. Streets with low scores are considered good and high scores bad.

Objectives:
Research on urban highways indicates that they produce harmful side-effects in urban environments. Highways are often located in politically weak communities, in some cases displacing entire communities. The noise and pollution have negative environmental impacts. The pollution linked to highways is also thought to increase risk of asthma. When motor vehicles and pedestrians occupy the same spaces accidents occur, often resulting in injury. The goal of this project was to find the best alternative route for highway traffic through Aberdeen. The primary goal was to keep highway traffic away from densely populated areas.

Results:
The results show that the southern portion of the city is more suited for highway traffic. The proposed route shown in many of the map graphics should have the least impact on considered variables. This route is less direct than the current route, and would likely require some upgrading to existing infrastructure. In the eastern portion of the maps the route turns north and passes through a residential area to rejoin the current route, which is necessary as traffic must pass over a river and limited bridge locations are available.



This map shows the density of commercial parcels in Aberdeen. Additionally the street grid along with my proposed reroute from the project analysis and current routes are depicted. This map depicts a concentration of commercial parcels along the eastern edge this corresponds with the lack of residential parcels in the residential density map.



This is the final output for the project this map takes all of the raster layers into account and depicts visually the suitability of major streets for highway traffic taking into account population density, locations of schools and parks, along with commercial and residential parcel density.

Data Sources:
<http://www.census.gov/>
<http://www.gis.com/gis/index.html>
<http://wagda.lib.washington.edu/>

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