

Assessing Transit Desert Locations Throughout Denver, CO

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Introduction

Denver has a population of over 700,000 people, and various means of transportation. Throughout the city, a large amount of people use personal vehicle transportation to commute to and from work, but also for recreational purposes. However, there is a large need for other means of transportation as well, especially public transportation, such as buses, rails, and trolleys. The growing need for alternative means of transportation increases the possibility of producing transit deserts for such means. A transit desert is defined as an area with limited transportation supply, which is generally a characteristic dependent on the surrounding demographic area. Different demographic criteria can be used in order to determine which general areas could possibly be transit deserts. For this particular study, multiple variables were overlaid with each other, in order to determine the overall place vulnerability, based upon the different variables selected.

Methods

The following variables were downloaded from the American Fact Finder website, based on census block group: total population, housing units, population over eighteen, population over sixty-five, population that uses public transportation, population that commutes more than thirty minutes to work, and population that is below poverty. All of these variables are suitable in helping to determine transit deserts, but only some were used ultimately, in order to not overcrowd the data and results.

After retrieving this data, roads, public transportation data, and census block group shapefiles were downloaded from TigerLineShapefiles and imported into ArcMap, along with the American Fact Finder data. Different classifications were ran on each dataset to determine which would be useful and the amount of breaks to use for the variable classes.

After all data was narrowed down, maps were created for each variable, and then a final map created from overlays of the determining data and the Denver public transportation and roads layers. The final map intersects all areas with the same type of characteristic that constitutes a suspected transit desert area.

Results

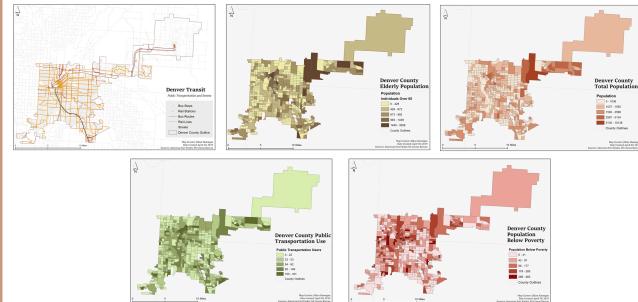


Figure 1A. Variable maps for finding transit deserts.

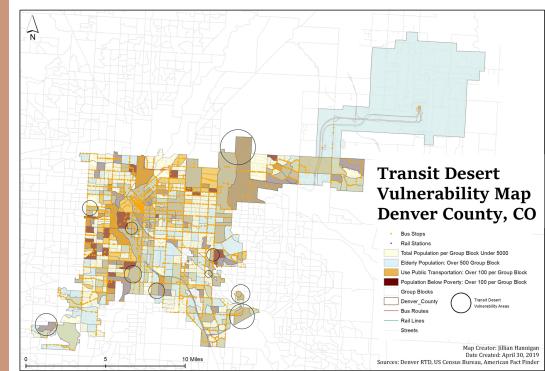


Figure 1B. Transit Desert Vulnerability Map

Discussion

While different variables were assessed, the final population variables by group block used, in conjunction with Denver transit, were as follows: more than 500 elderly (over 65), over 100 public transportation users (busses and rails), over 100 below poverty, and total population over 5000. After overlaying these characteristics, vulnerability zones for transit deserts were determined by the intersection of all five criteria. The maps show that at least ten areas are possibly or have the possibility to become transit deserts.

Conclusions

Since the results conclude that there are at least ten areas of vulnerability, this makes Denver, CO an area of interest for further transit desert studies. In order to further assess the vulnerability of this county, more variables will need to be added and compared to the current variables present in the results. There are a few different transit desert equations that could also be used to determine which areas need to be addressed.

References

- American Fact Finder - <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>, US Census Bureau - <https://www.census.gov>, Denver RTD GIS Data - <http://gis-rtd-denver.opendata.arcgis.com/search?content=spatial%20dataset>

