

# Public Transportation and Income across the Salt Lake Valley

## Abstract

The Salt Lake Valley is an ever-expanding region with a growing population and a public transportation system that is lagging. This divide is most apparent comparing the northern and southern half of the county. This is where we find less public transportation for places with higher income while lower income areas have more public transportation options.

## Introduction

The Salt Lake Valley is an area that has been experiencing an ever-expanding growth over the last thirty years. With this growth has led to the increase in vehicle traffic across the valley which has led to an increase in pollution both during the summer and winter. The increase in pollution has led for the state to reach a point of non-compliance with the Environmental Protection Agency (EPA) for air pollution being measured by air quality instruments. Along with being in violation of EPA standards for air quality, there is growing research that shows that air quality can play an impact on the health of those living in the area. This includes cases of asthma, heart attack, stroke, and even death.

In order to combat the rise in air pollution from all the vehicles, the state of Utah has made to push to encourage people not to drive when they must. Another way they encourage residents to avoid driving is to encourage them to take public transit to reduce the number of vehicles on the road during the day. While this is method is a good approach to reducing the number of vehicles, there are limitations as the public transportation network does show that it has not undergone major changes to meet the growing needs of a population.

## Methods

To get a view of the overall area, a map of the county with the median income based on the census block groups. The income data was provided by the United States Census Bureau. After that, the major roads and highways from the State Department of Transportation were plotted on top to show the layout of the major roads in the county. Finally, the public transportation routes and stops were added to show how far the public transportation reaches across the county along with what areas have more stops compared to other areas. To get a better understanding of the region, areas that have either a significant amount of public transit options or little amounts of public transit for the different parts of the county were selected so a different view could be obtained for areas with different incomes and public transportation. Zooming in on a specific area also allows for areas with higher concentrations of public transportation stops to be more clear as more of the individual stops are easier to pick out.

## Discussion and Findings

Looking at the county, there is quite a divide in the median incomes from one end of the county to the other. The gradient of median income across the county was an interesting surprise to find as the incomes range from the low forty thousand dollars up to over two hundred thousand depending on the region. Some of the more industrialized parts of the county do favor some of the block groups as they are on the low end of the scale along with the block group that contains the University of Utah. This divide is most evident comparing the northern and southern part of the county. This can best be seen on figure 1 that looks at the whole county. Doing a more in depth look at the southern end of the county, the median income values were increased overall but the availability of public transportation decreased in this region. The number of bus stops along many of the major roads are limited to only certain areas while some don't have a registered bus stop at all. Options for public transportation also decreased as there were only limited areas where rail was an accessible mode of transportation, and the rest were bus routes. Looking at figure 2, this shows us the southern extent of the county.

Moving to the north end of the county (Figure 3) where median incomes are lower, there is a significant increase in the amount of public transportation options with the number of bus stops significantly higher than the southern part of the county. We also see the availability of rail options increase in this area compared to the southern half of the county.

The difference between the two parts of the county is an interesting find as the layout for the northern half is much more extensive than to the south. The southern part of the county is the area that has expanded the most in the least amount of time. This rapid expansion has limited the amount of public transportation options that have been able to expand to this area. While some of the rail options have been able to be extended to their current end points, bus routes have yet to be developed and implemented in this area likely leaving a hole in transportation options for areas that have seen the most houses built. Meanwhile, the northern part of the county has been developed for some time and is instead going through a gentrification process in run down areas that are trying to revitalize the region but also take advantage of the public transit system that is already in place for people to use.

## References

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- Pope III, C. A., Hill, R. W., & Villegas, G. M. (1999, July). *Particulate air pollution and daily mortality on Utah's Wasatch Front*. Retrieved from U.S. National Library of Medicine: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1566678/?page=1>

## Appendix

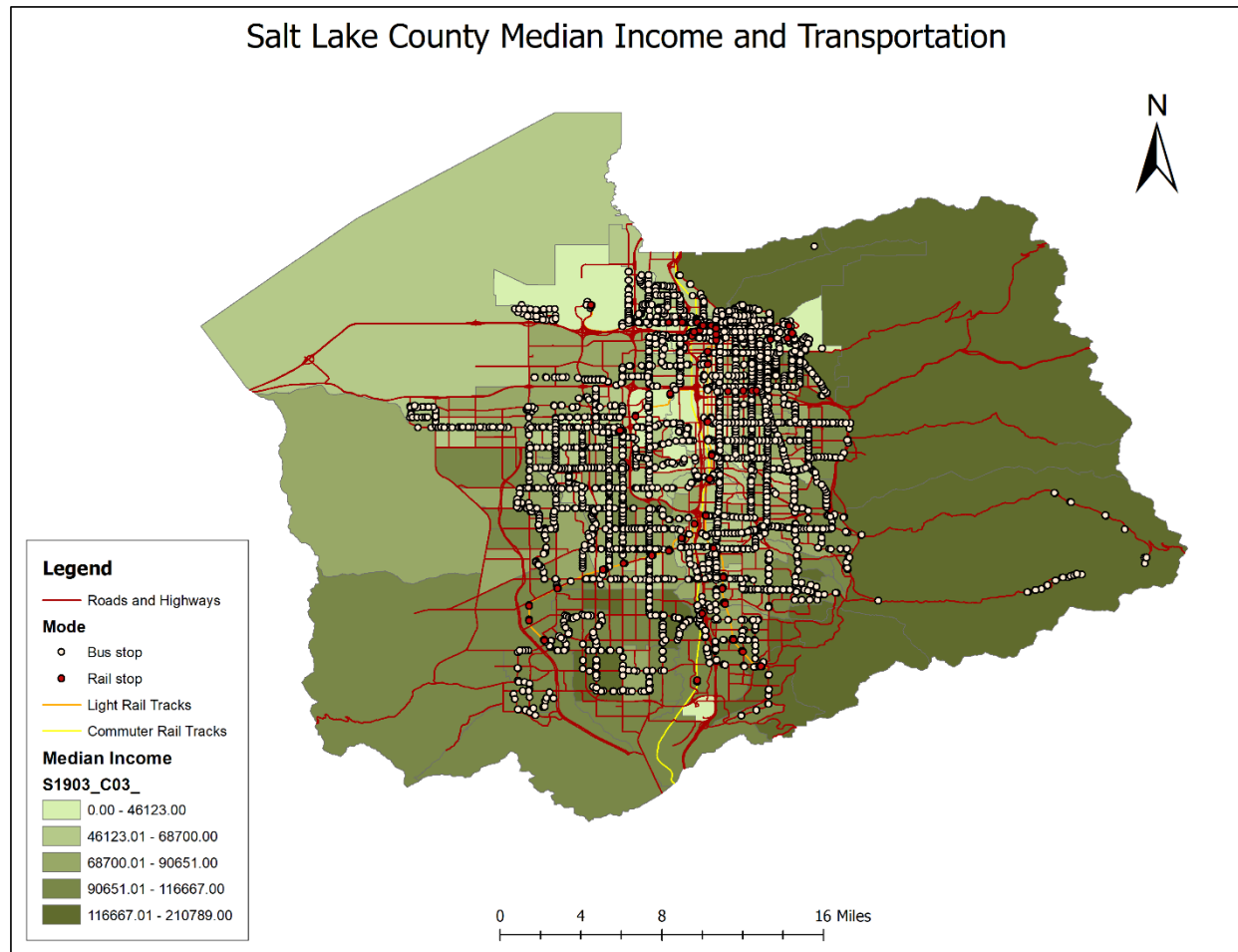


Figure 1

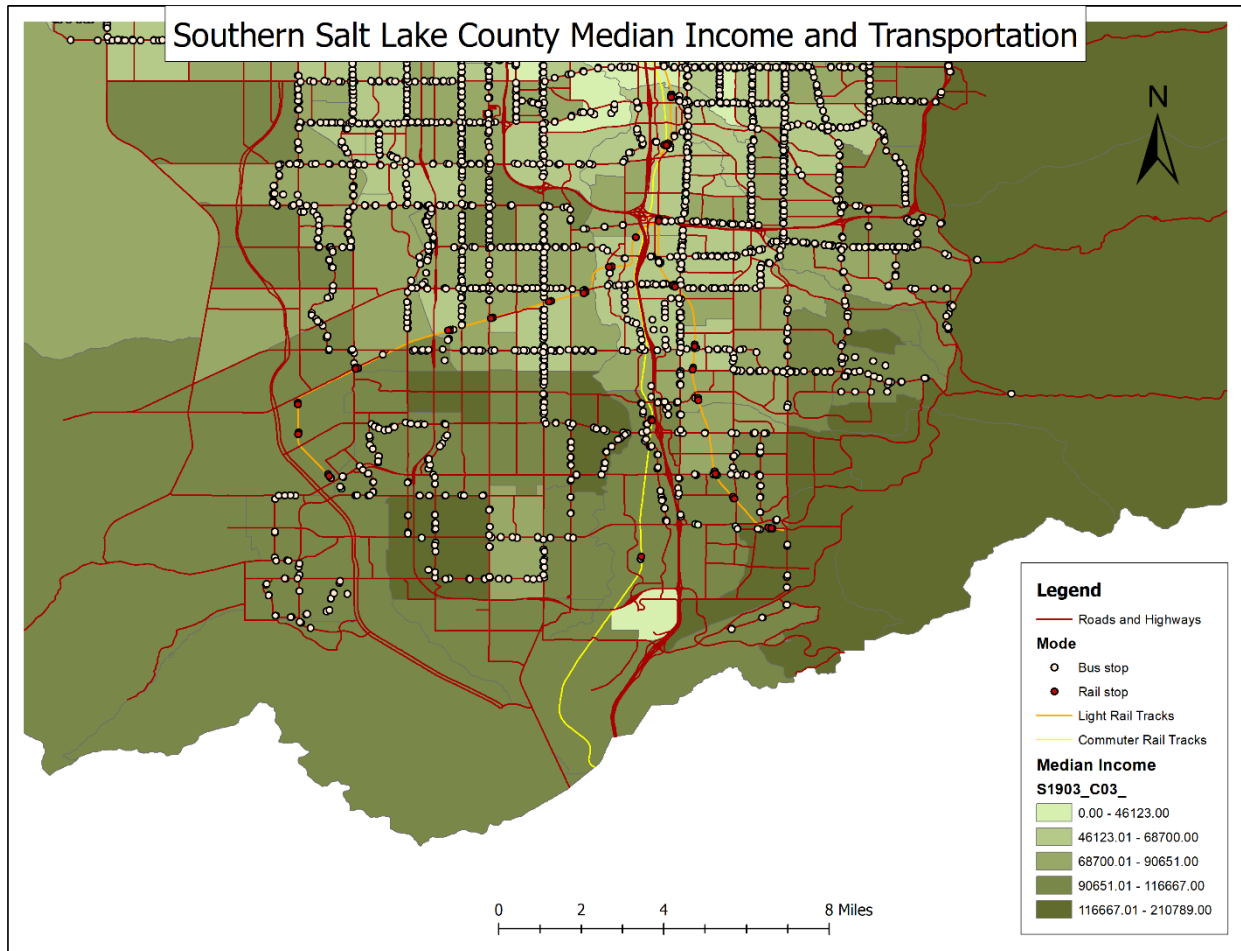


Figure 2

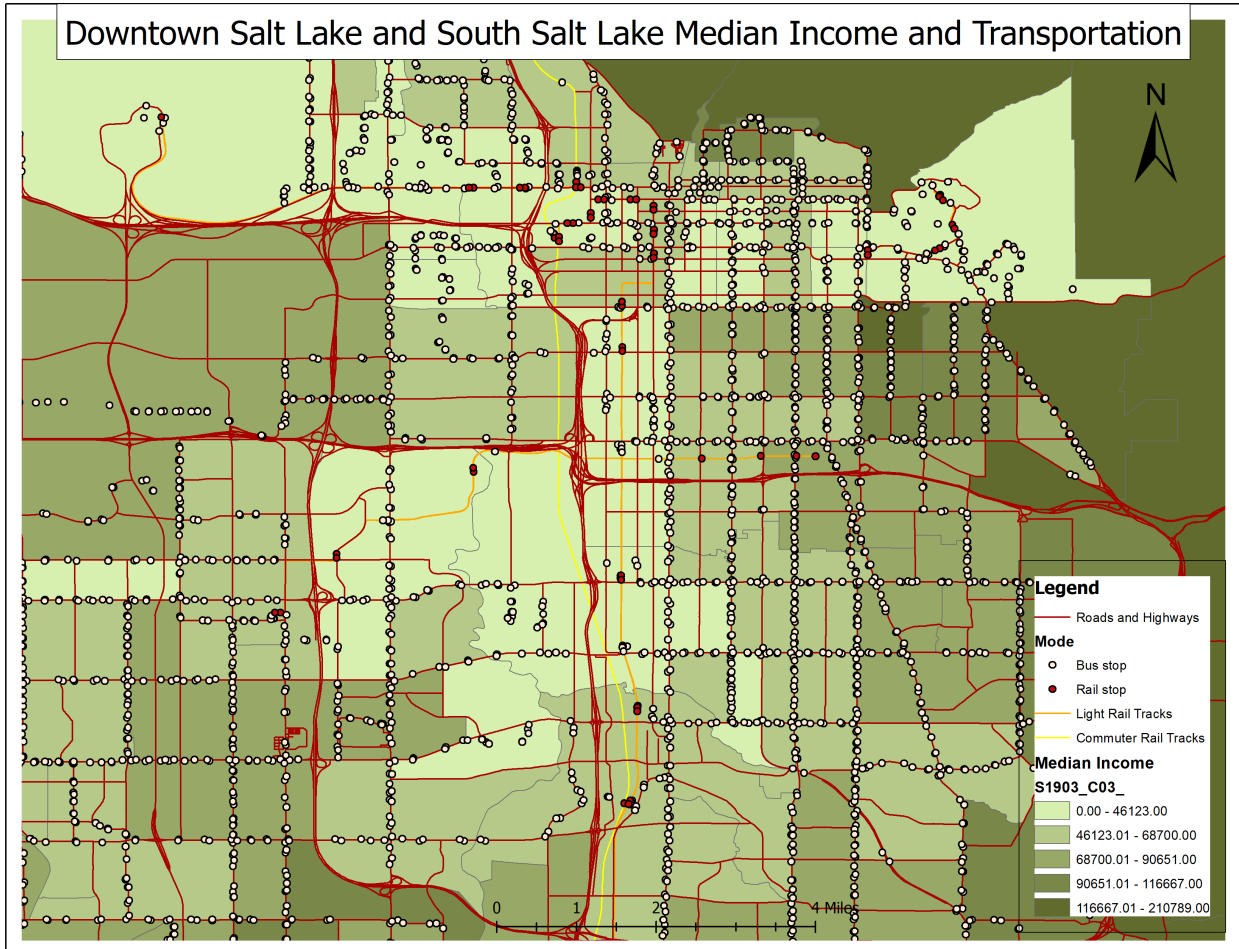


Figure 3