



**How well has the bus transit  
system served the Detroit  
disadvantaged neighborhood?**

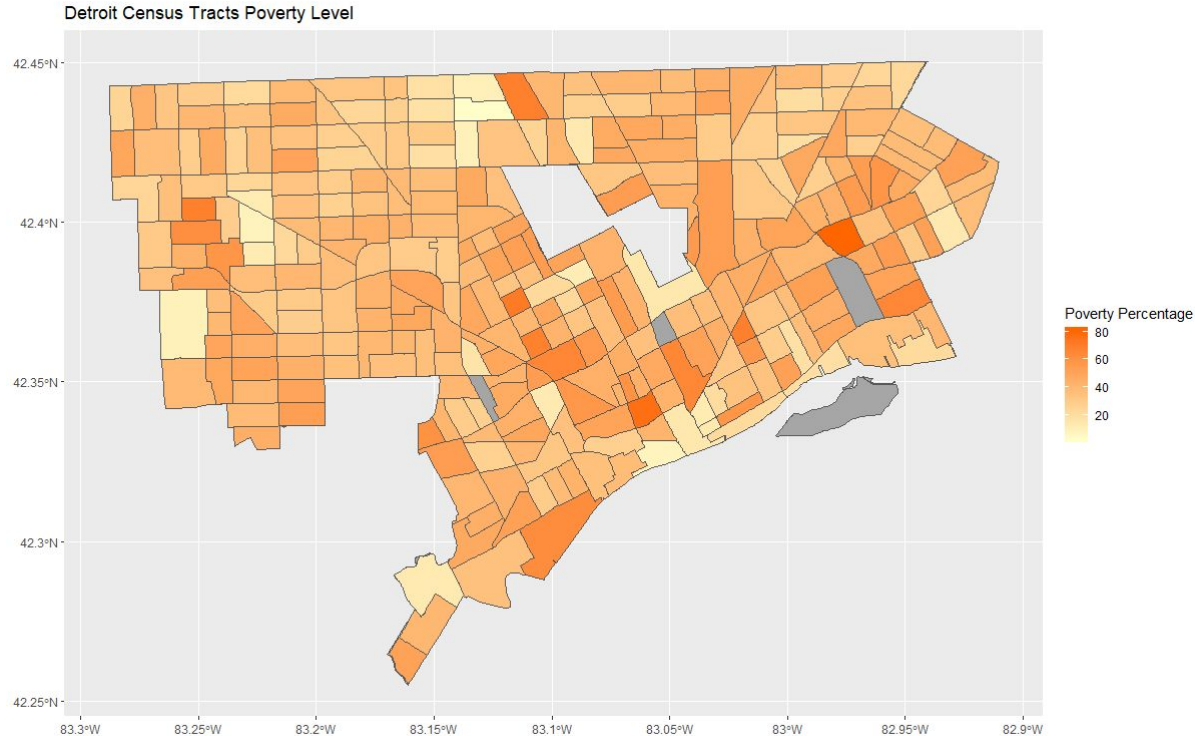


# Introduction

Transportation equity has long been a concern in the city of Detroit. How well it is that the bus system in Detroit is taking people of different income/social stratus into consideration? What can be done to improve the current situation? This study examines how well the bus transit system has served the Detroit disadvantaged neighborhood based on walkability criteria.

The examining standard is based on a 5-min walking distance(0.25mile/400m) buffer around both the neighborhoods, which are defined according to census tract unit, and bus stops of DDOT , which contains most bus routes in Detroit. The study identifies the spatial distribution of disadvantaged neighborhoods based on poverty level and educational attainment, and showcases their spatial relationship with bus stops.

# Spatial distribution of overall poverty level



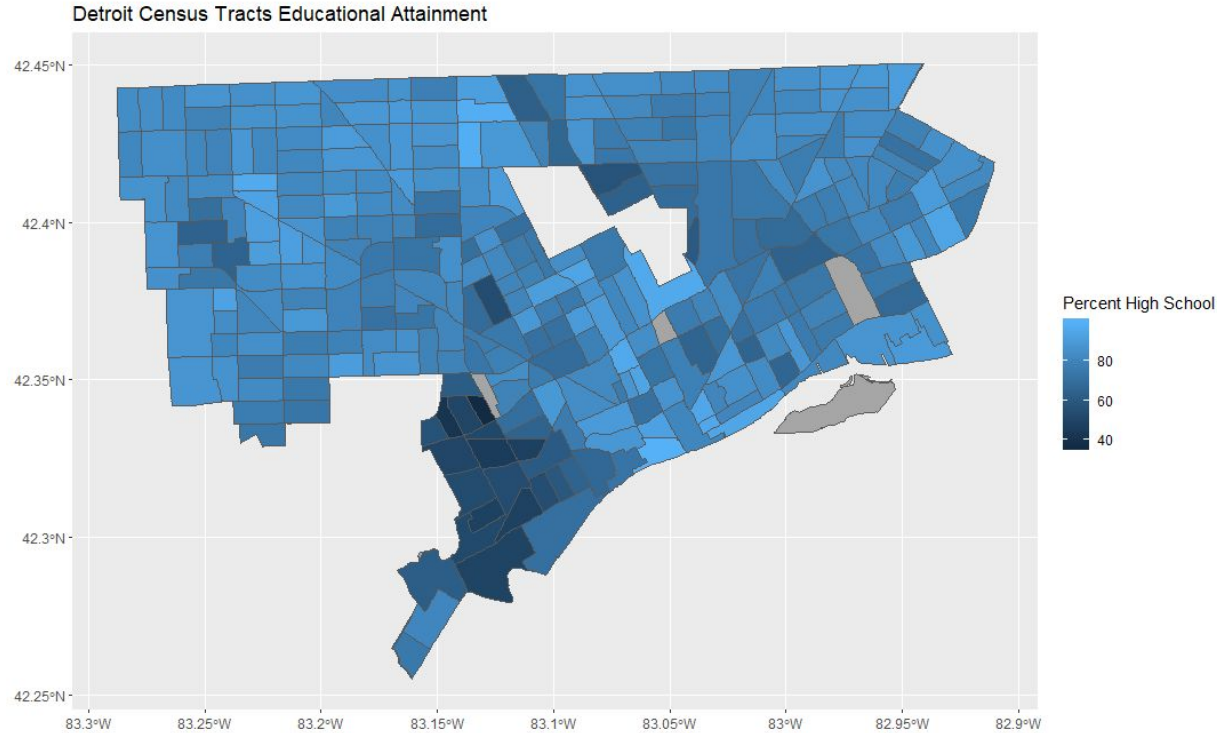
Variable:

Percentage of poverty  
level of each census tract

Source:

Census Bureau ACS 2017  
1-yr estimate. Table S1701

# Spatial distribution of overall educational attainment



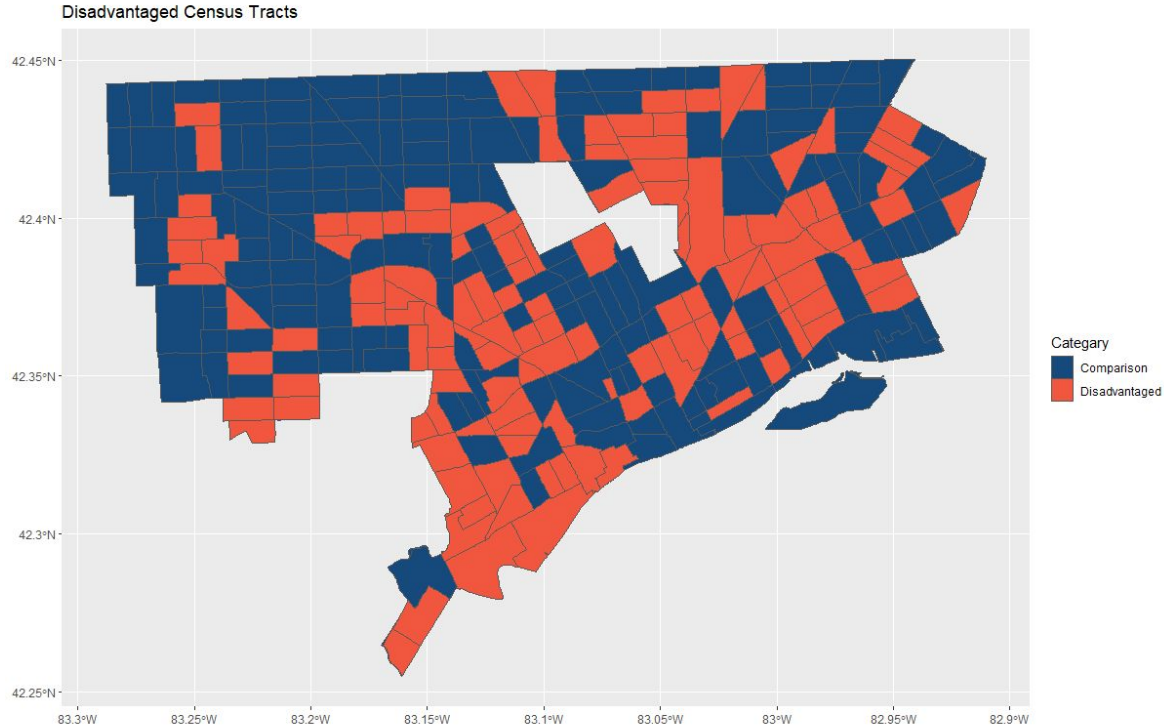
Variable:

Percentage of population  
that have finished high  
school (or higher) of each  
census tract

Source:

Census Bureau ACS 2017  
5-yr estimate. Table S1501

# Spatial distribution of disadvantaged neighborhoods

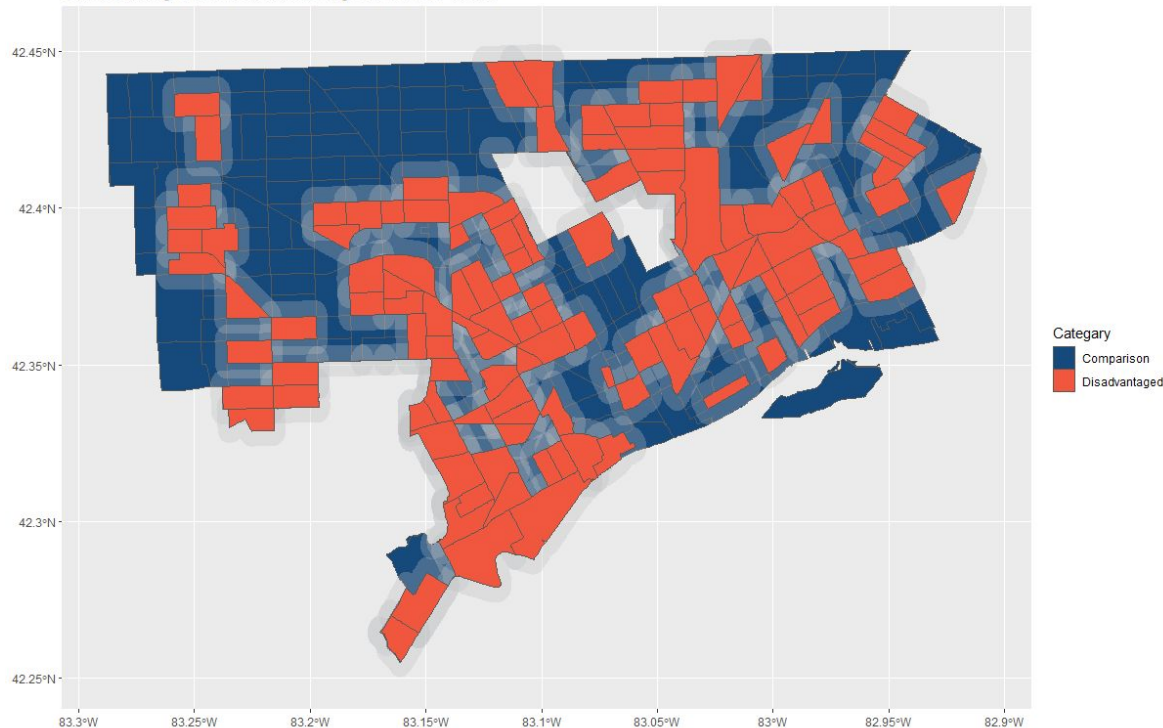


## Criteria:

Census tracts that have both a percentage of poverty level over 34.5%, and a percentage of high school graduate less than 81.2% - which are the average level of Detroit city - are defined as disadvantaged census tracts.

# 5-min walking buffer around neighborhoods

5-min Walking Distance from the Edge of Census Tracts

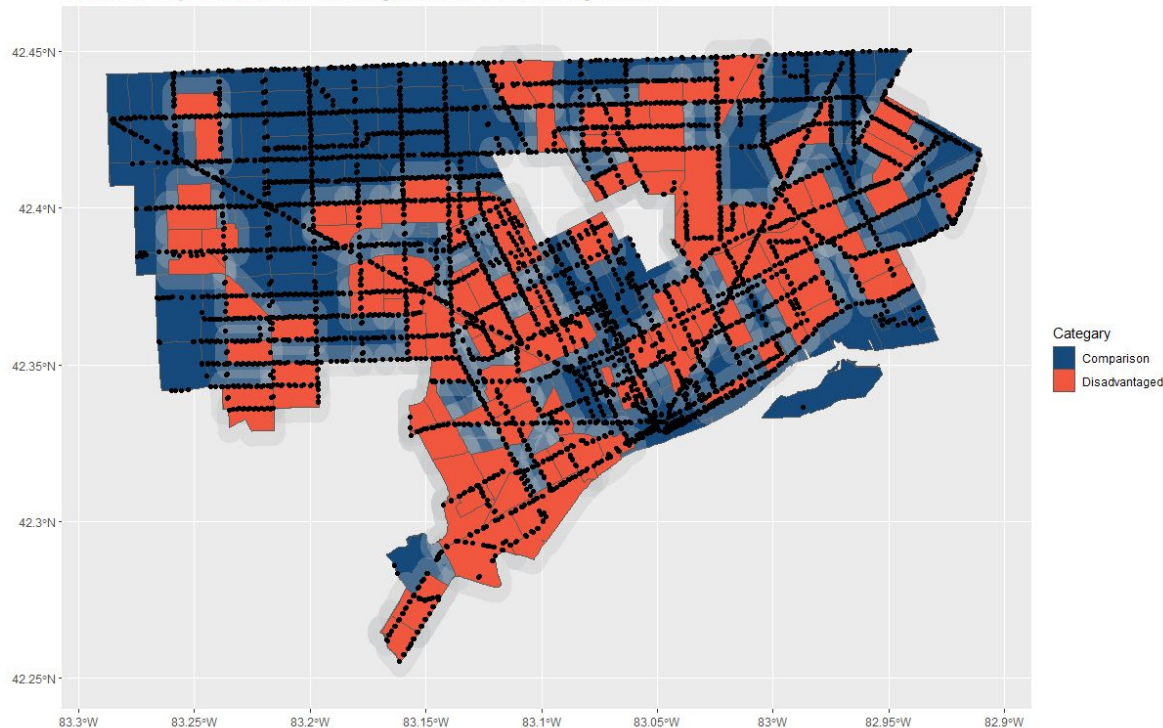


Methodology:

Create a 0.25mile/400m radius buffer around the edge of each disadvantaged census tracts.

# Spatial distribution of bus stops around neighborhoods

DDOT Bus Stops Distribution around Neighborhoods' 5-min Walking Distance

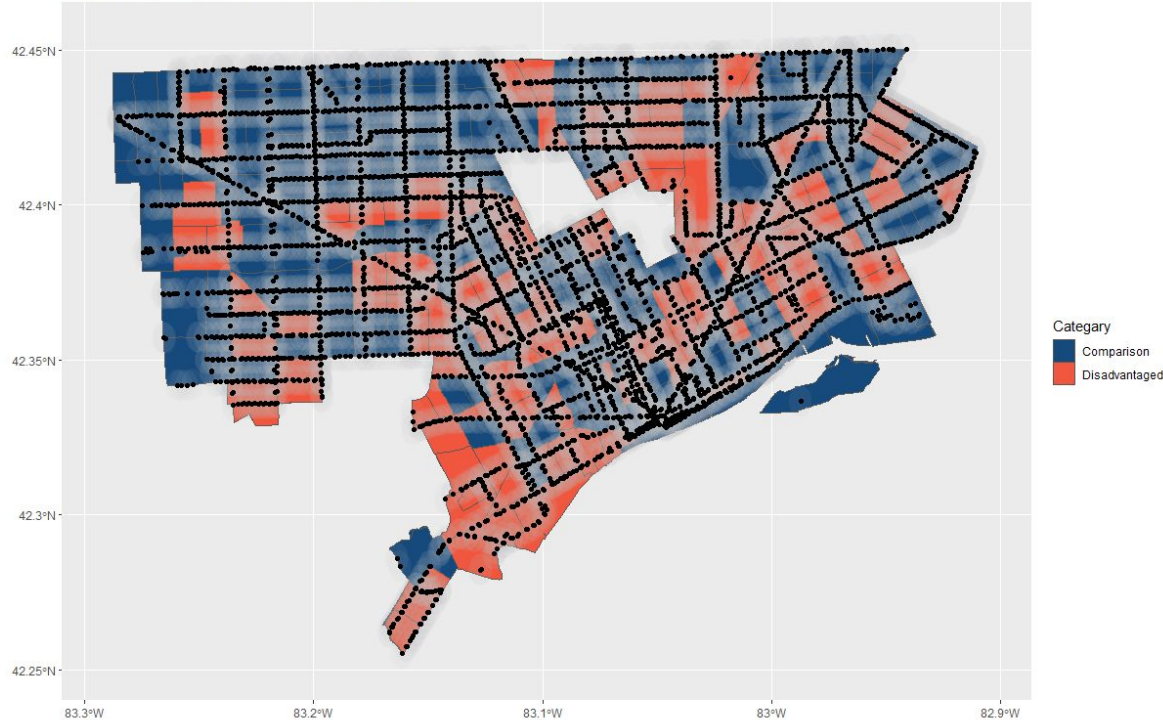


The graphic displays the spatial distribution and quantity of DDOT bus stops around each disadvantaged neighborhood.



# 5-min walking buffer around bus stops

5-min Walking Buffer around DDOT Bus Stops



The darker the color of disadvantaged census tracts is, the more time residents have to take walking to the bus stops, the less accessible the public transit is .





# Conclusion

To improve the accessibility for disadvantaged neighborhoods towards bus routes, more bus stops need to be located within the reasonable walking distance of the neighborhoods that are underserved.