

# Preschool And Kindergarten Accessibility In Somerville, MA

## INTRODUCTION

The city of Somerville is home to more than 75,000 people. According to the US census, 14.9% of Somerville residents were under the poverty line by the end of 2011 (compared to 10.7% of all people in Massachusetts). People who are raised in poverty, face increased likelihood of being below the poverty line as adults. This disparity between outcomes for children from low-income families and their peers from higher income families is commonly referred to as the achievement gap.

Studies have shown that high-quality preschool programs have the potential to close this achievement gap by improving economic and educational outcomes for children born into poverty. There are roughly 3,500 children in Somerville, who come from many different socioeconomic backgrounds, and as a result have many different levels of access to high-quality early childhood education.

This project aims to determine the accessibility of Somerville's existing preschool and Kindergarten programs for families living in poverty in the city of Somerville. Poverty is found more in some communities than others; for example non-English speaking immigrants, communities of color, women (specifically single mothers), and undocumented people are more likely to be living in poverty. Poverty is also correlated with restricted mobility, and increased dependence on public transportation. For these reasons, accessibility of a school was defined along terms of proximity to public housing for families, proximity to bus stops, and situation near or within communities that are more likely to experience poverty. If the accessibility problems that exist within the Somerville preschool and Kindergarten can be identified and solved, then children in Somerville will face less risk of continued poverty over several generations.

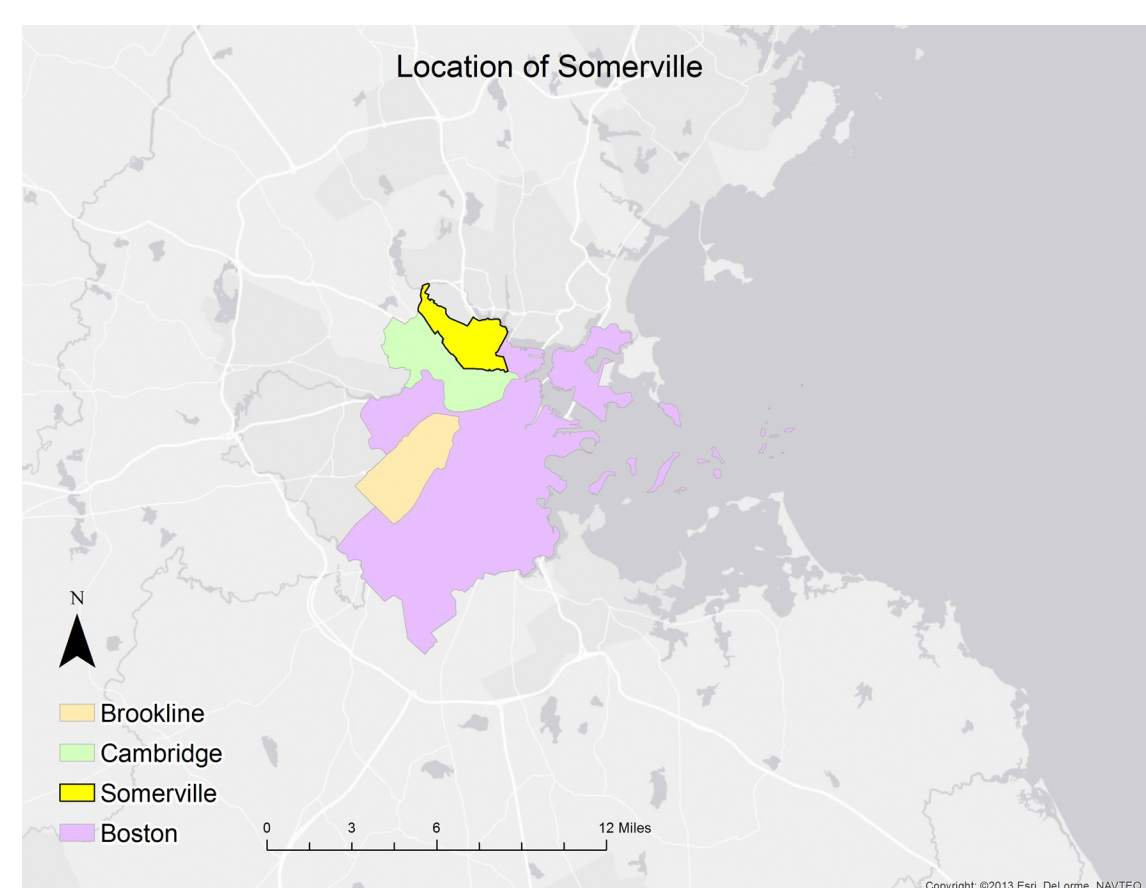


Fig. 1. Somerville's Location in the Boston Metro Area

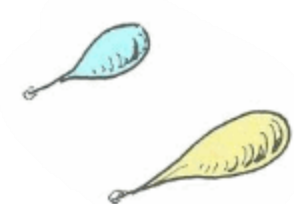


Fig. 2 Oh the places you'll go with high quality preschool

## METHODS

In order to determine the accessibility of preschool and Kindergarten programs in Somerville, seven social, economic, and spatial factors were taken into consideration. The factors examined included the existing schools in Somerville, the status of the school as public, private, or charter, the public bus routes and stops, the location of public housing developments, the percent of non-English speaking households by census block, the percent of low-income families by census block, and the percent of people under 18 years of age by census block. The public housing development layer was derived from address information given on the Somerville Housing Authority website, under the "Family & Individual Housing" section. All other layers were found on MassGIS.

The layers were projected on the Massachusetts State Plane grid. The buffer tool was used to determine proximity to bus stops and to public housing developments. Buffer distances were chosen based on a study that found that "the optimal distance between transit...and a place of employment is 500 to 1,000 feet" (Dittmar and Ohland 2004). The buffer for public housing developments was set to be 1,000 feet, while the buffer for bus stops was set to be 500 feet, because it was assumed that travelers would have to walk some distance before getting on the bus.



## Location of Somerville Public Housing and Preschool and Kindergarten Programs

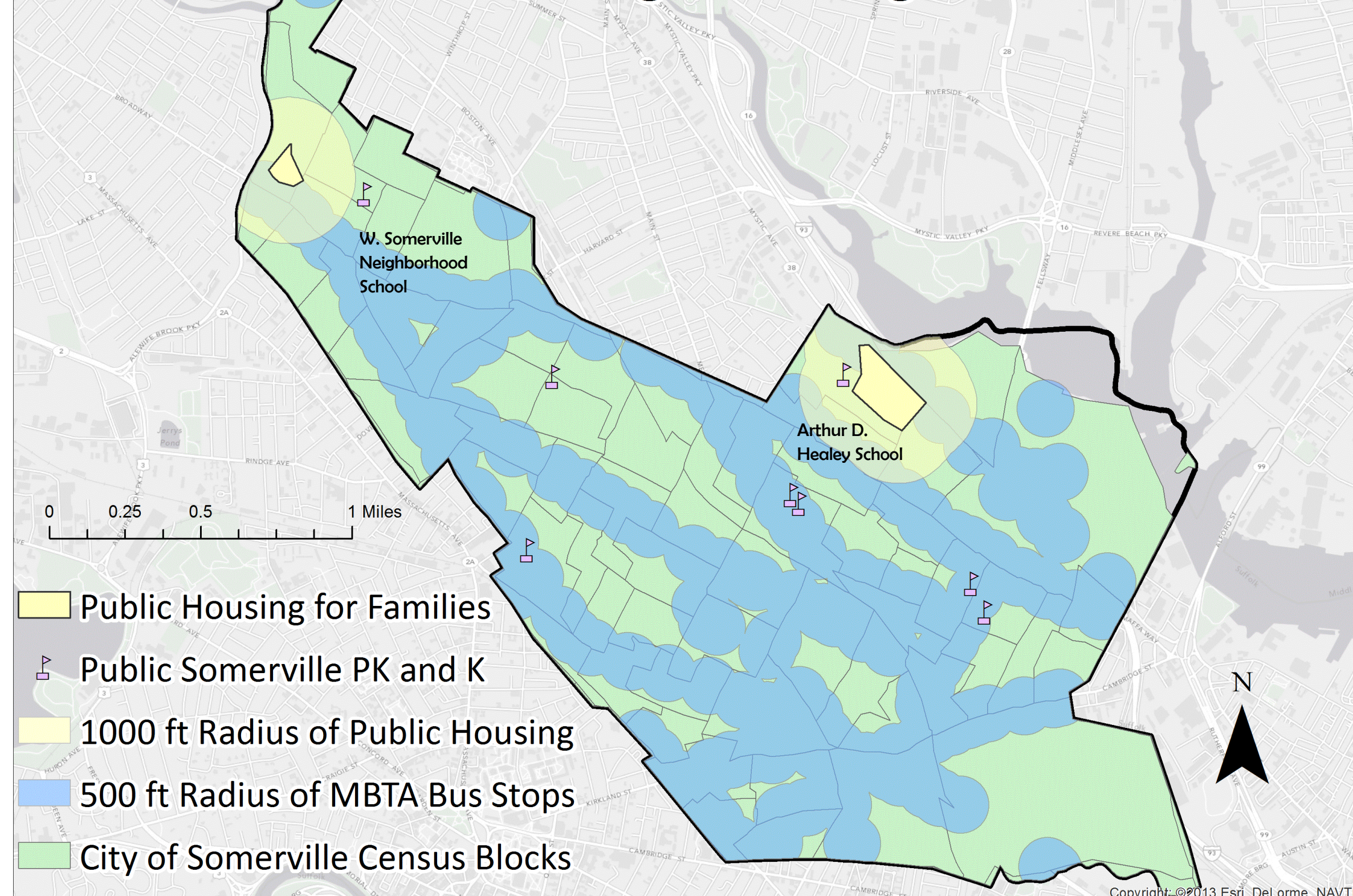


Fig. 3 Location of Somerville Public Housing, Public Pre-K and Kindergartens, and optimal proximity buffers. St. Catherine of Genoa School is not pictured because it is a private school

## PROJECT RESULTS

According to this model, the most accessible school that provides preschool and Kindergarten programming is the Arthur D. Healey School in the Ten Hills neighborhood of East Somerville. This was the only school within 1,000 feet of family public housing, and, although it is not within 500 feet of a bus stop, it is only 150 feet beyond the buffer. Fifty-eight percent of households in the census block are non-English speaking and 51% of households are low-income. Importantly, the Healy is located in the census block that has the most children in Somerville by nearly 300 children. The next most child-populous census block is adjacent, and is also served by the Healey School.

A school that is somewhat inaccessible to families in poverty in Somerville is the West Somerville Neighborhood School. Despite being a public school, which is important, the West Somerville Neighborhood School is located in a census block that only has 50 people under the age of 18. It is not within 500 feet of a bus stop and it is more than 1,000 feet from the nearest public housing development (Clarendon Hill).

The St. Catherine of Genoa School is even less accessible low-income families due to its status as a private school. The St. Catherine School is outside of both the bus and public housing buffers. Families in poverty rely on financial aid and private busing to access private education institutions like this one.

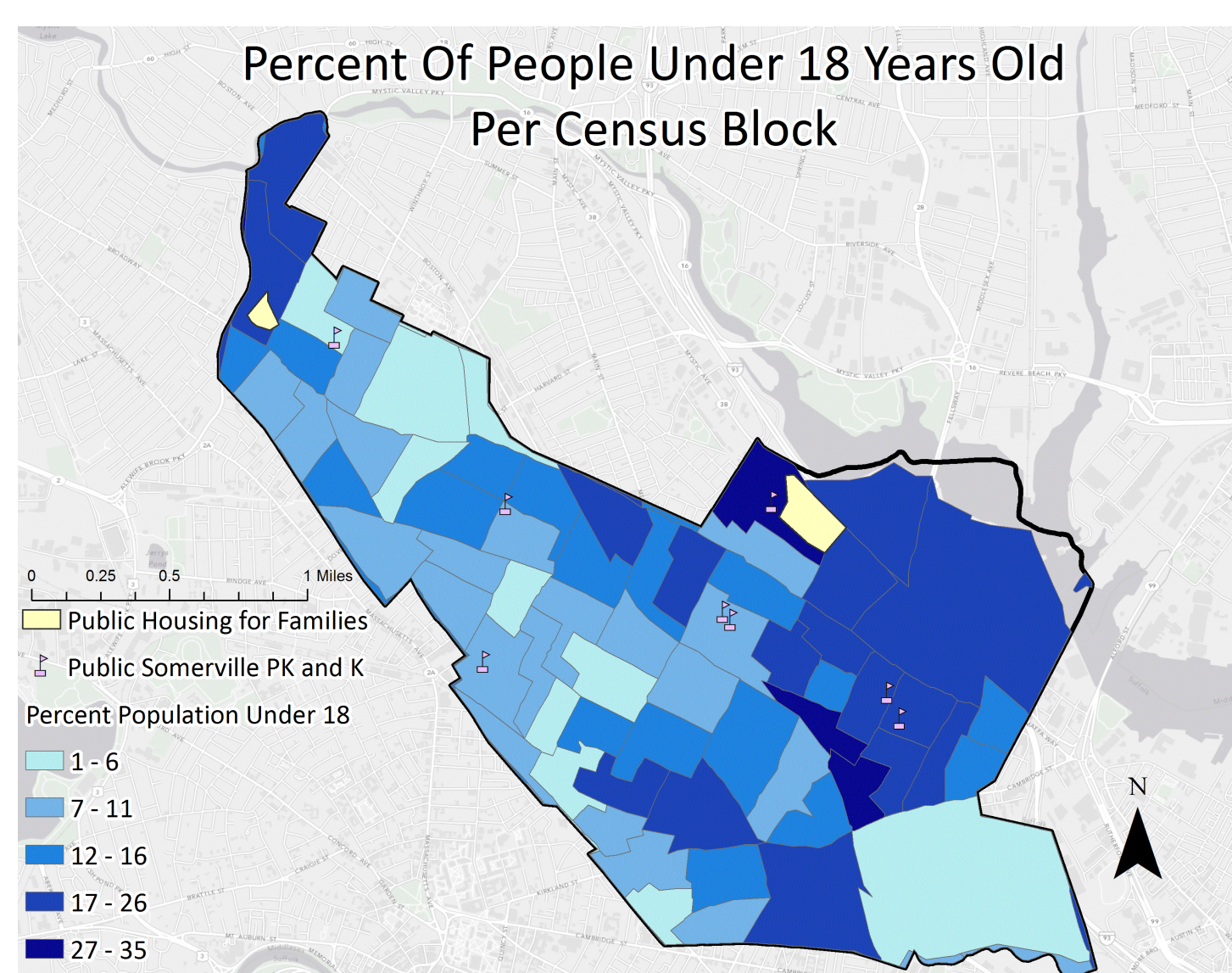


Fig. 4 Percent of people under 18 years of age

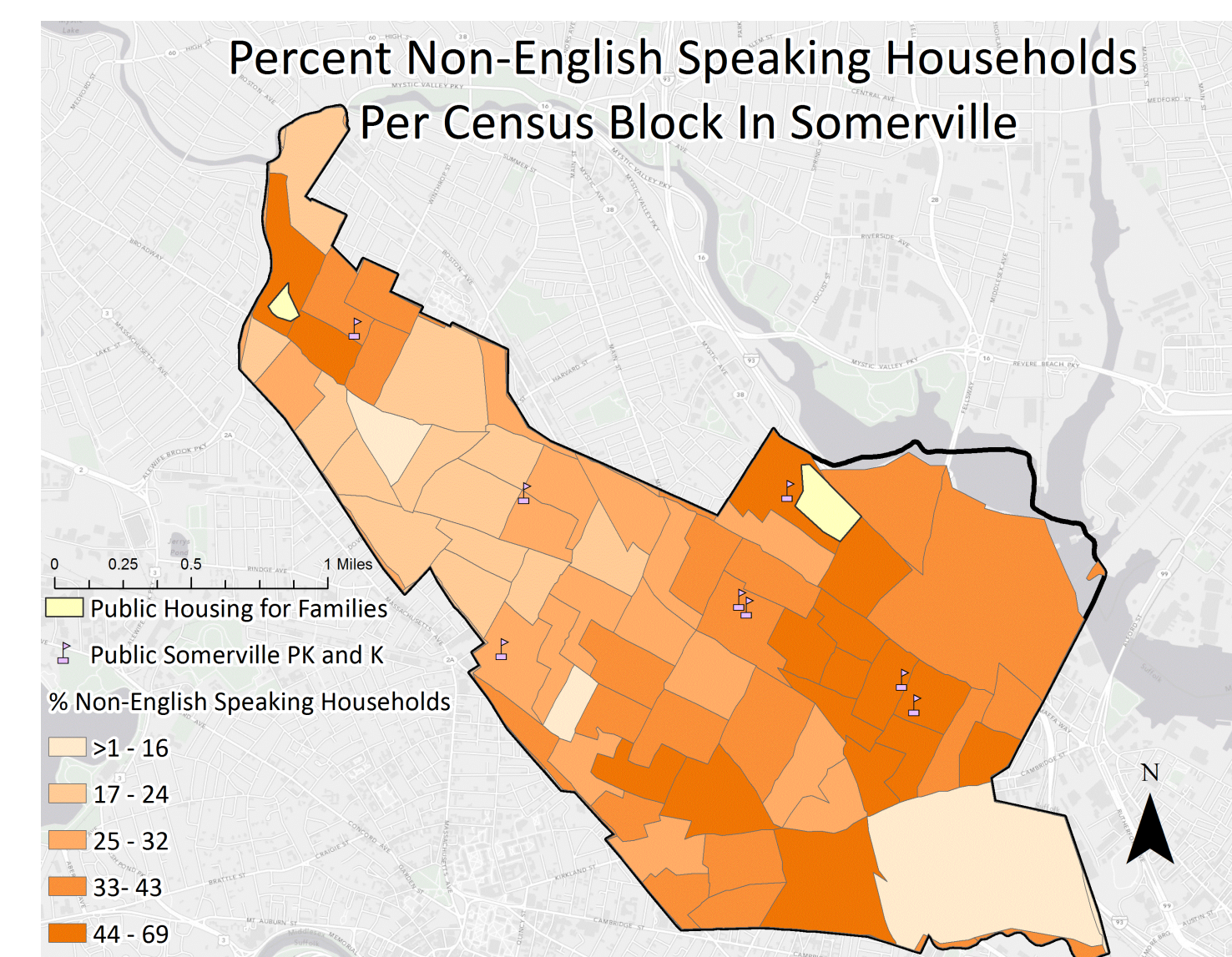


Fig. 5 Percent of households that speak a language other than English

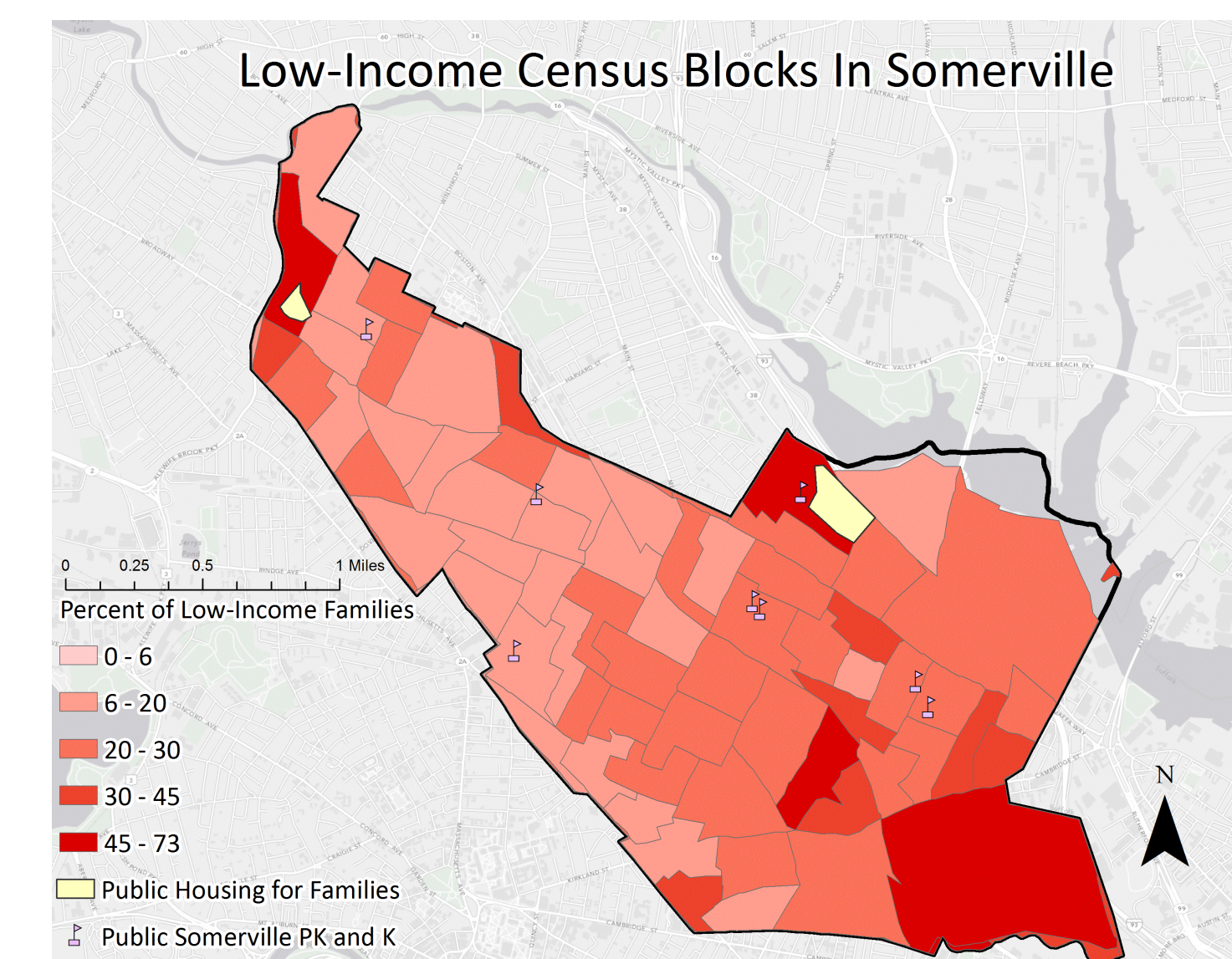
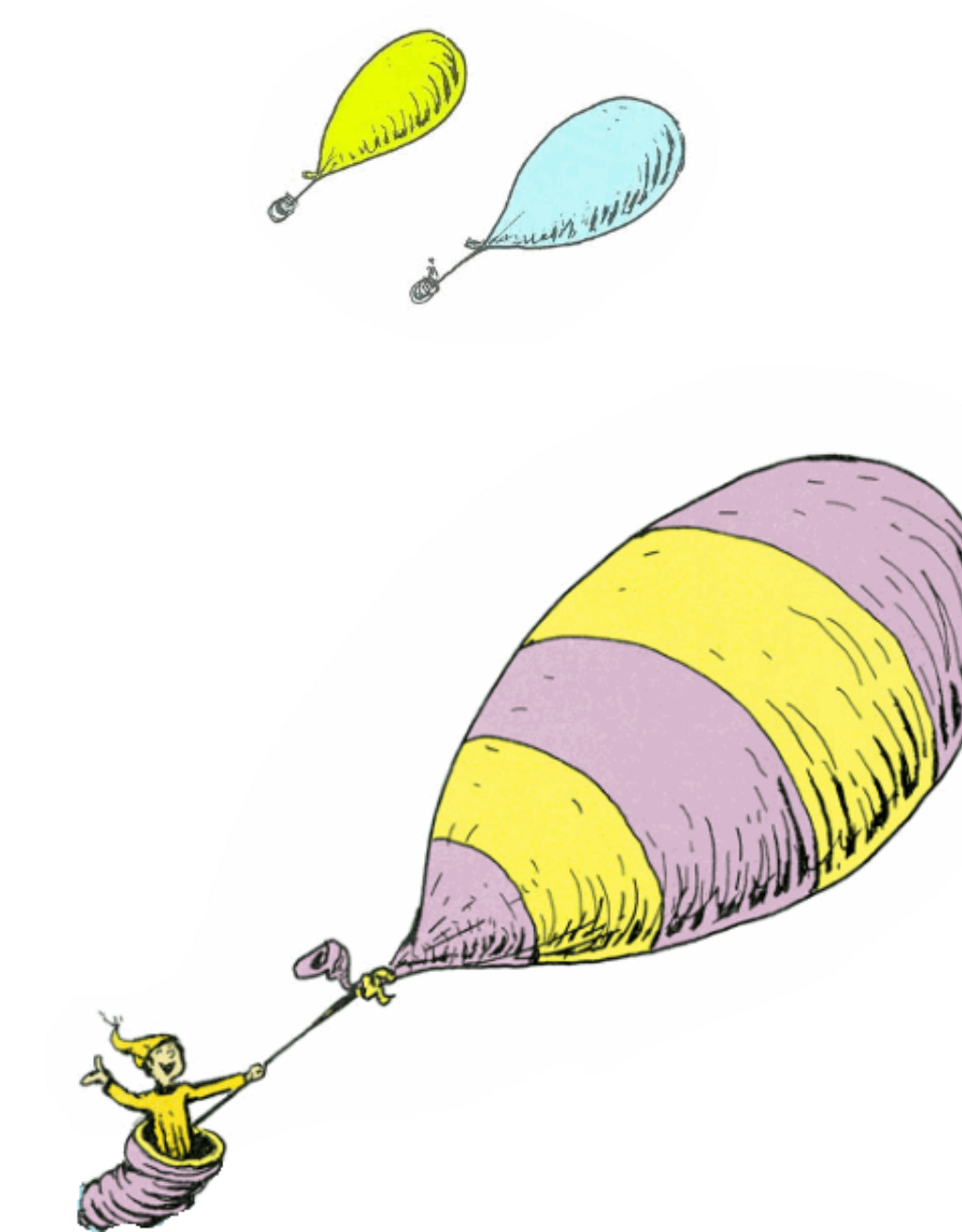


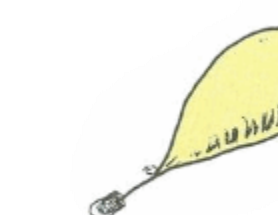
Fig. 6 Percent of households classified as low-income



## CONCLUSIONS & SUGGESTIONS



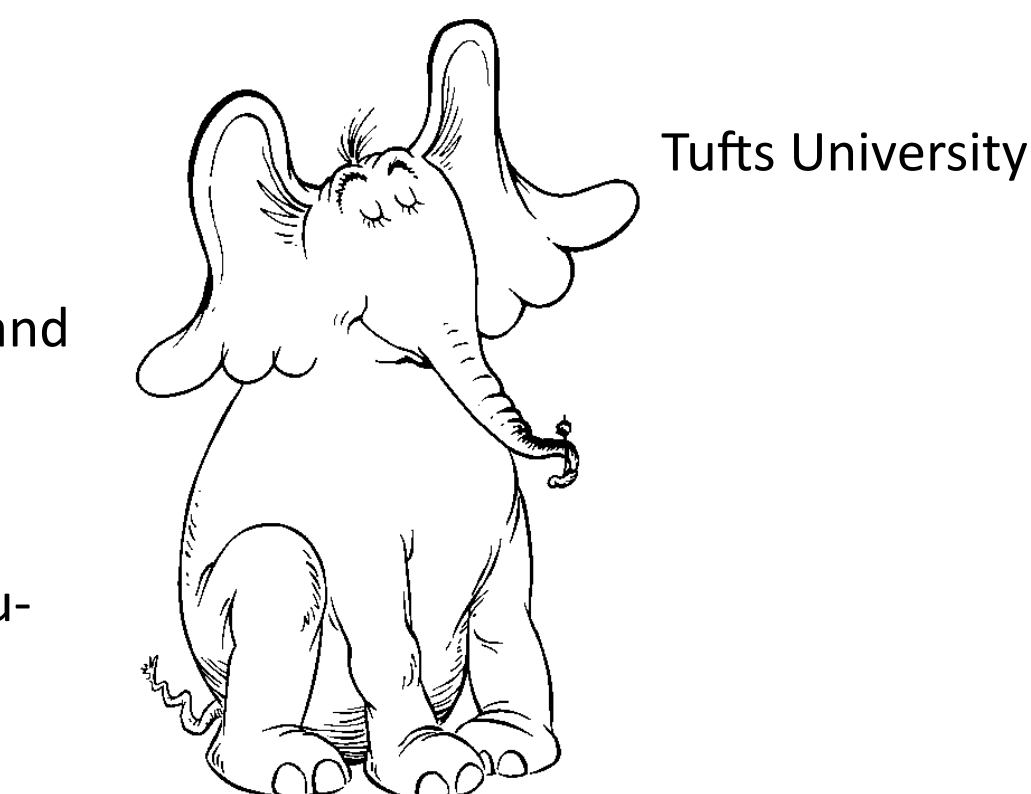
The results of this project indicate that there are some schools that are accessible to Somerville's low-income families. The Healey is a heartening example of a school offering preschool and Kindergarten services in the right place at the right time. However, it is apparent that some schools in Somerville offer preschool and Kindergarten programming that is inaccessible. More research could be done to see what the individual fixes are that less accessible schools probably employ. Schools like the West Somerville Neighborhood School could employ a small scale bus service for their smallest students to fix proximity issues. Schools like the St. Catherine of Genoa School, which fail to help low-income families for multiple reasons require more complicated solutions.



## REFERENCES

- Cartographer: Miles Grover
- Date: December 12<sup>th</sup>, 2013
- Class: GIS 101, Professor Carl Zimmerman, TA Carolyn Talmadge
- Projection: NAD\_1983\_StatePlane\_Massachusetts\_Mainland\_FIPS\_2001\_Feet
- Scale: 1:21,083
- Data Sources: Mass GIS, Somerville Housing Authority: <http://sha-web.org/>

Illustrations by Dr. Seuss from "Oh The Places You'll Go" and "Horton Hears A Who"



Tufts University