

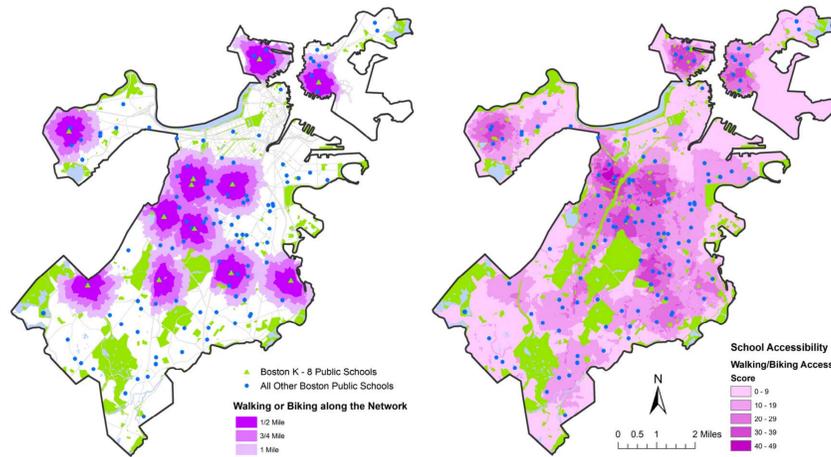


# Biking and Walking to School in Boston

## Neighborhood Schools

Neighborhood schools are a contentious issue in Boston. Due to segregation, intercity and inter-neighborhood busing, disinvestment, magnet schools and other factors, making all Boston Public Schools neighborhood schools would be impractical and not necessarily in the best interest of students or communities. However, several national studies in the U.S. and Canada have shown that active transportation to school leads to increased overall daily activity, and therefore, more positive health outcomes<sup>1,2</sup>. With this literature in mind, I looked at whether or not the location of the Boston Public schools, with respect to where students live, could support walking and biking to school.

## Determining School Accessibility



I created half-mile, three-quarter-mile, and one-mile buffers around all of the Boston Public Schools. The buffer distances were created along the street network with the exclusion of Class 1 and 2 roads—highways.

Those buffer areas became weighted raster areas. Half-mile buffers were given more weight than three-quarter-mile buffers, and three-quarter-mile buffers were given more weight than one-mile buffers. The buffers were also weighted based on school attributes. For example, all buffers around a K-12 school were weighted more than buffers around a K-8 school, and buffers around a K-8 school were weighted more than buffers around a K-5 school. The weighted raster areas were then summed to create an access score raster area.

<sup>1</sup> McDonald, Noreen. (2008) Critical Factors for Active Transportation to School Among Low-Income and Minority Students: Evidence from the 2001 National Household Travel Survey. *American Journal For Preventive Medicine* 34 (4).

<sup>2</sup> Morency, C.; Demers, M. Active transportation as a way to increase physical activity among children. (2010) *Child: Care, Health and Development* 36(3).

## Could Boston kids walk or bike to school?

| School Accessibility by block | Under 18 Population in ranked blocks | % Of total Under 18 Population |
|-------------------------------|--------------------------------------|--------------------------------|
| Low to No Access              | 16,916                               | 16.3                           |
| Low                           | 39,896                               | 38.5                           |
| Moderate                      | 27,544                               | 26.6                           |
| Accessible                    | 17,840                               | 17.2                           |
| Very Accessible               | 1,510                                | 1.4                            |

## Who Lives in school accessible areas?

|                             | % In No and Low Access Blocks | % In Moderate to High Access Blocks |
|-----------------------------|-------------------------------|-------------------------------------|
| Total Population (Under 18) | 54.8                          | 45.2                                |
| Blacks                      | 16.3                          | 16.9                                |
| Whites                      | 16.3                          | 6.6                                 |
| Hispanic                    | 13.4                          | 16.7                                |
| Asian                       | 4.8                           | 2.1                                 |
| Other                       | 1.3                           | 1.2                                 |
| Two or more races           | 2.4                           | 1.7                                 |

## Implications

A recent study in Massachusetts among children from ages two through 18 showed that children living within walking distance of schools and public transit had a lower body mass index than those who lived further away<sup>3</sup>. According to my spatial analysis, Boston Public Schools could serve a large walking and biking student population. The debate over neighborhood schools in Boston will continue, but policy makers, educators, and families should understand the location of Boston Public Schools is a potential asset in supporting healthy communities.

<sup>3</sup> Oreskovic, Nicolas M.; Winickoff, Jonathan P.; Kullthau, Karen A.; Romm, Diane; and Jame M. Perrin. (2009) Obesity and the Built Environment Among Massachusetts Children. *Clinical Pediatrics* 48.

