

Turning Safe Routes to School Programs Into Action

Estimating Potential Demand of Elementary and Middle School Students Living Within a 3/4 Mile Service Area For Future Infrastructure Improvements

Overview

Walking to school can be an important contributor to the daily physical activity and well being of children. However, little is known about the estimates of children who could reasonably be expected to walk to school.

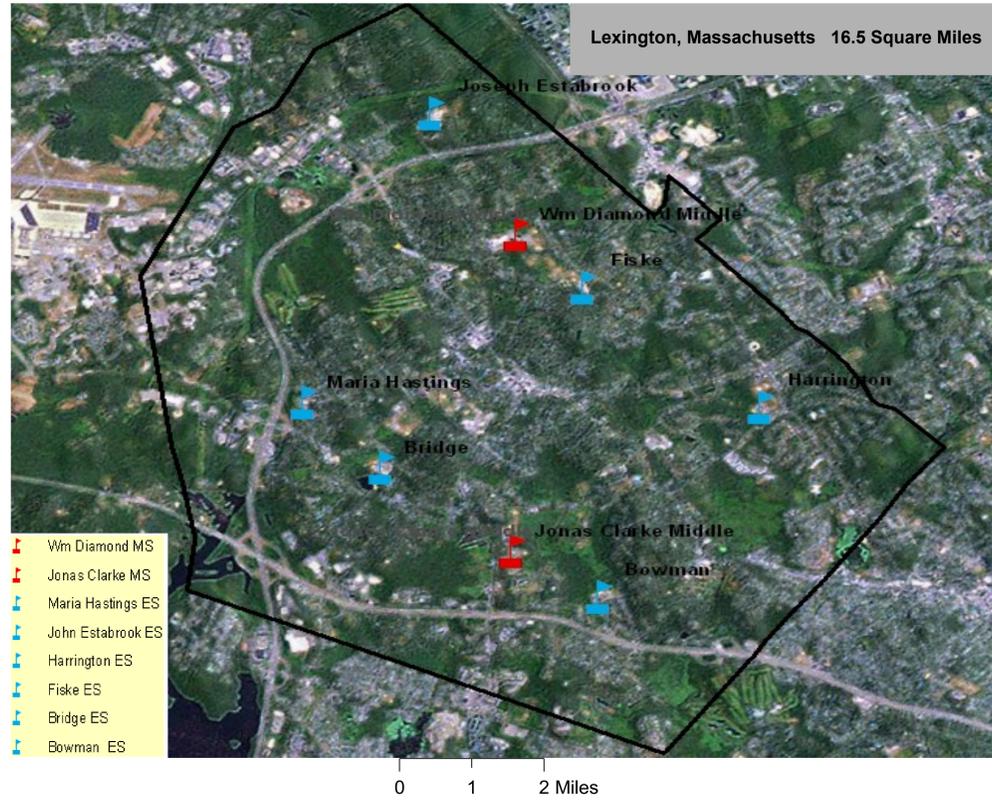
Calculating the estimate number of children who potentially could walk to school would assist a city or town in prioritizing areas of needed infrastructure improvements to increase walkability for school age children.

Many cities and towns have now begun to create Sidewalk Prioritization Plans to address the issue of prioritizing infrastructure improvements to increase walkability.

The Project

The following project estimated the number of elementary and middle school age children who live within a 3/4 mile service area for their age appropriate school in Lexington, Massachusetts. The town of Lexington is currently in the early stages of creating a sidewalk prioritization plan.

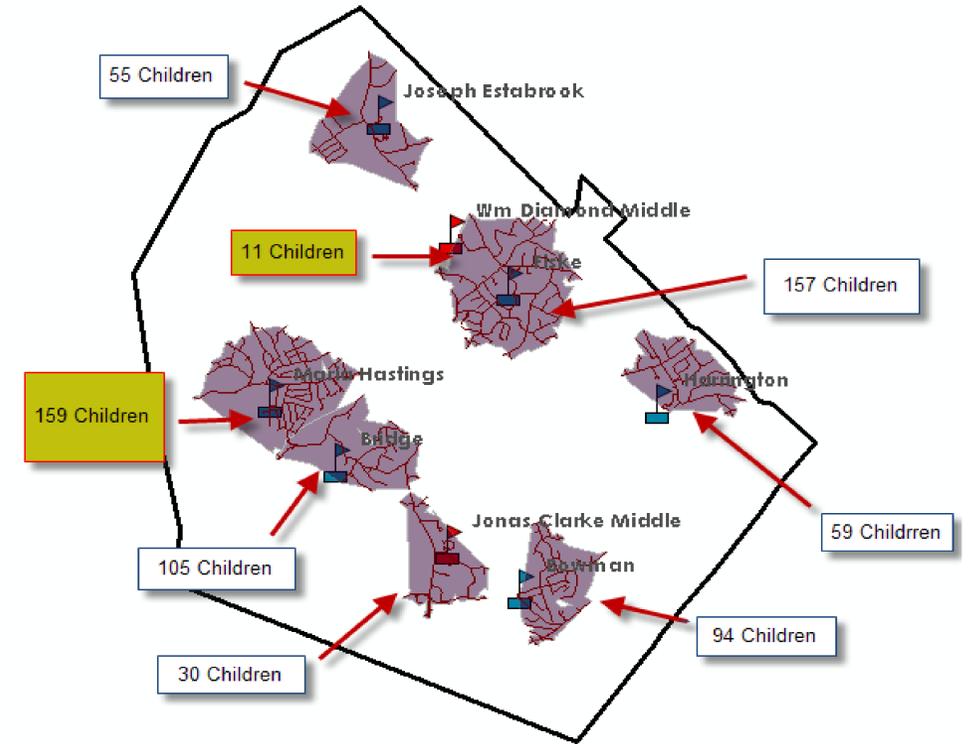
In 2005, Congress passed federal legislation that established a national Safe Routes to School (SRTS) program. That same year, the town of Lexington established its first SRTS program. By 2008, all six of its elementary schools had established programs. These programs subsequently began documenting the walkability of their schools via questionnaires sent out at the start of school. Data and requests for improved walkability from these questionnaires led to the creation of an official town committee, the Sidewalk Committee. The Department of Public Works in Lexington has been working with the Sidewalk Committee to create a prioritization plan. Just recently, a GIS consulting firm was hired to assist the town of Lexington with a sidewalk prioritization plan.



Methodology

To obtain an estimate of the number of children who live within 3/4 mile service area from their age appropriate school, an analysis of census and spatial data was performed utilizing a geographical information system (GIS) application. ESRI was utilized for this project. The distance of 3/4 of a mile was chosen from information received from the Safe Routes to School programs in Lexington. From their information, the majority of walkers were found to live 3/4 mile or less from school. There were some children who lived farther and walked to school. Walking farther than 3/4 mile is possible. A service area was created utilizing the 3/4 mile distance.

Results



The results from the analysis of the number of children who live within 3/4 mile service area to their age appropriate school indicate that the Maria Hastings Elementary School has the most number of elementary school children who live within a 3/4 mile service area for that school and the William Diamond Middle School has the least number of middle school children who live within a 3/4 mile service area for school.

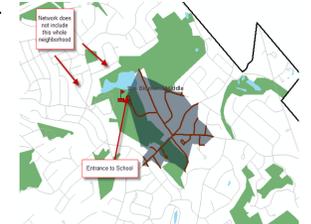
Implications

Implications from this data would prioritize the Maria Hastings Elementary School area for infrastructure improvements to maximize on the number of children who are able to walk to school based on its "potential demand".

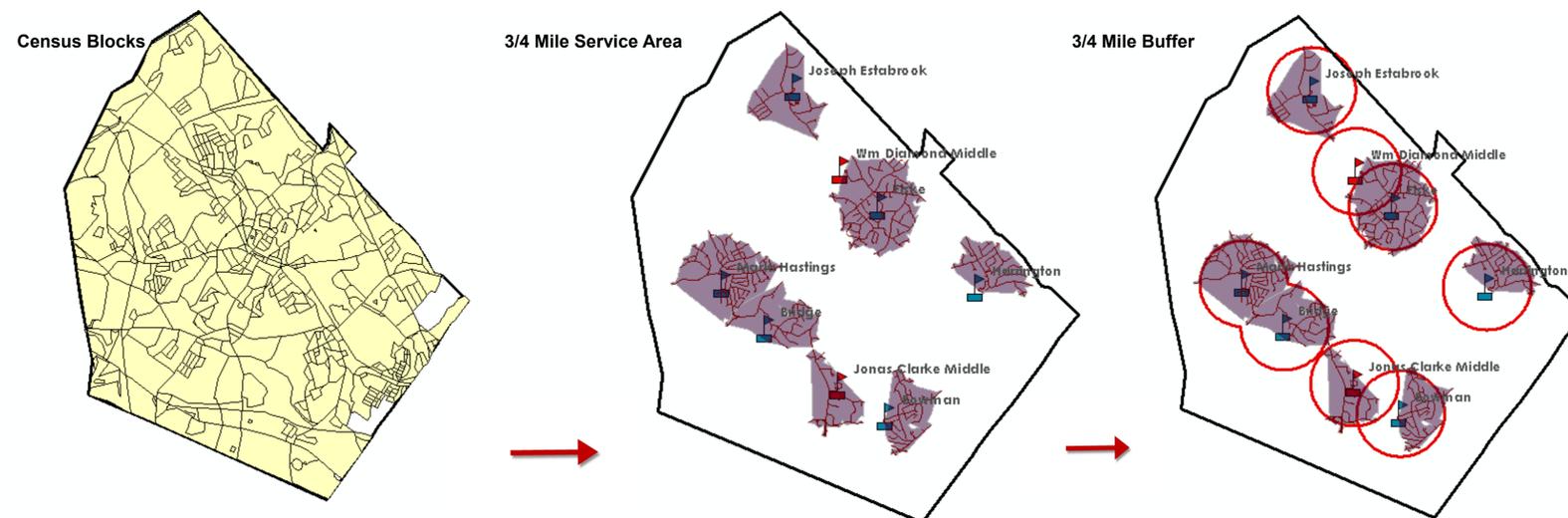
Although the use of the Network Analysis Extension is a useful tool for calculating spatial analysis questions, it is limited in its functions. For instance, the network analysis extension only recognizes one address location of a site (the entrance). It also does not include roads that are not continuous. For example, William Diamond Middle School was found to have only 11 children who live within the 3/4 mile service area. On taking a closer look, there are roads that are not included due to being disconnected or off a different entrance.

Discussion

GOAL : A Plan



Austin, Texas has one of the most complete sidewalk prioritization plans to date. The Public Works Department in Austin wanted to create a process to prioritize projects for sidewalk construction programs and funding allocations. In the past, prioritization came mostly from resident's requests. The Public Works Department recognized that the process could be better if it contained more objective data. The city subsequently hired an engineering firm with expertise in planning to assist them with a prioritization plan. The firm identified "potential demand" as one "criteria priority". The full Sidewalk Master Plan can be accessed at http://www.ci.austin.tx.us/bicycle/psd_sum.htm.



What is Safe Routes to School?

In 2005, the federal Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users established a national Safe Routes to School (SRTS) program. From 2005-2009, \$612 million dollars in federal transportation funds will be available to state, local, and regional agencies and to nonprofit organizations for programs that encourage primary and middle school children to walk or bike to school. Funds may be used for infrastructure improvements as well as non-infrastructure activities. Each state receives an annual budget of 1 million dollars. Schools must establish a program to receive funds. Requests for infrastructure funding must contain a needs assessment in the application.

Cartographer : Ellie Muter
Introduction to GIS, 2009
Data Sources: MassGIS
Projection: NAD 1983
State Plane Massachusetts Mainland, FPIS 2001
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