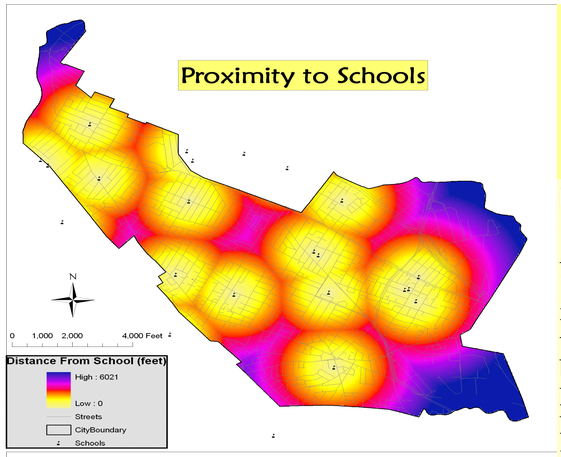
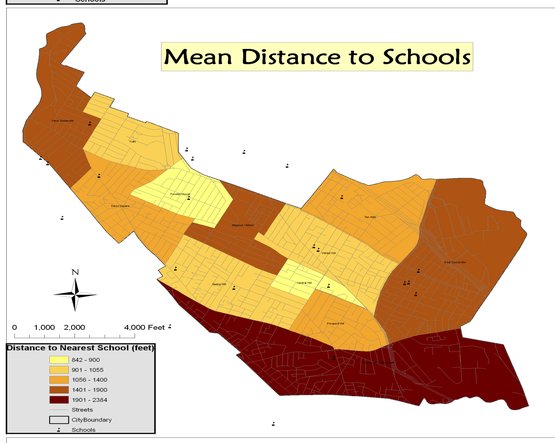
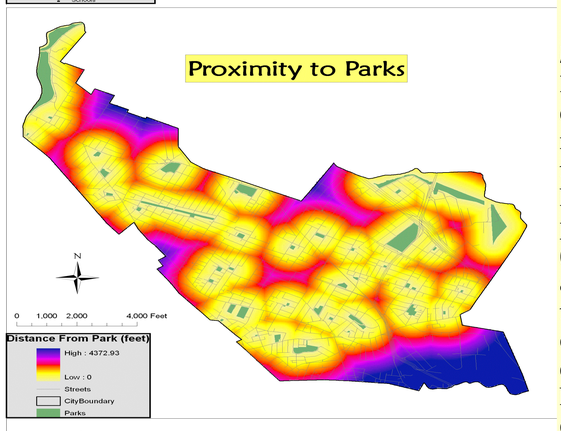
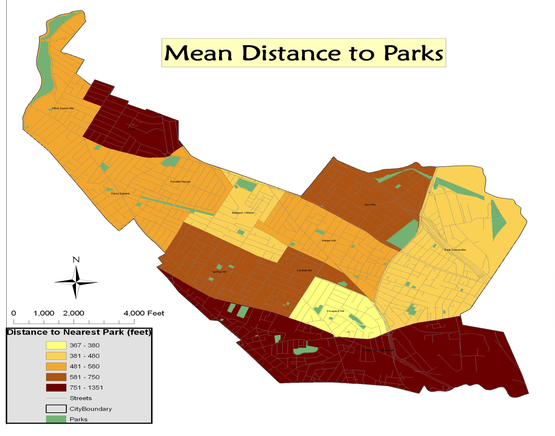
Neighborhood Index of Walkability in Somerville, MA









BACKGROUND

Although it has yet to make its way into the dictionary, the term 'walkability' has become a favorite amongst planners and policy-makers interested in creating healthy, sustainable communities where walking is an attractive and convenient activity for both exercise and transportation. The health benefits of walking have been well documented by physicians, but only recently have they become prominent on the policy and planning agenda in conjunction with decisions about where to build new homes or businesses and how to distribute services evenly throughout the city.

Efforts to make communities more 'walkable' are being increasingly included in climate action plans, traffic calming projects, physical fitness programs and more. While there is no cookie-cutter approach for how a truly walkable community can be achieved or calculated, there are countless methods and indicators available to measure 'walkabilty' (ie. block size, density, existence and condition of sidewalks, distribution of services, distance proximities between destinations, etc.). This project attempts to measure just a few chosen indicators of walkability as they pertain to each of the 12 neighborhoods in the city of Somerville.

OVERVIEW

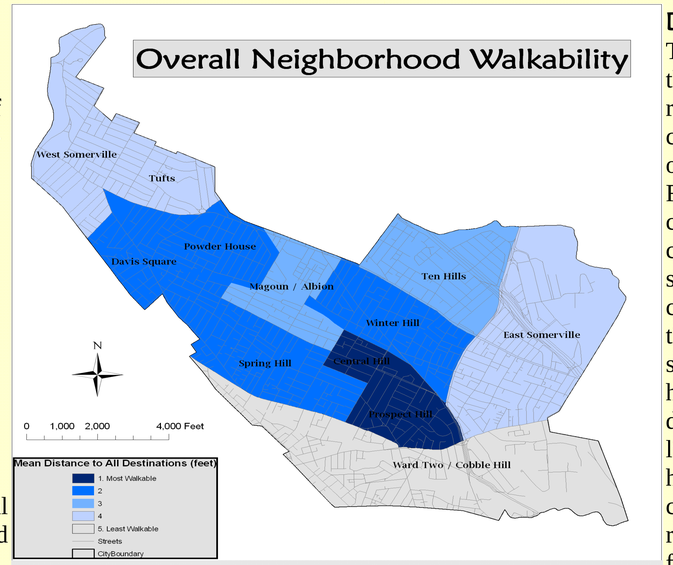
This project provides a neighborhood indexing of walkability conditions in Somerville, MA according to each of its 12 neighborhood's average proximity to four chosen public facilities which are integral to residents' regular routines:

- **Grocery Stores**: Defined as any commercial establishment selling dry and fresh food products.
- **Parks:** As defined by data from the City of Somerville, and including the Somerville Community Path.
- **Schools:** Including all elementary, middle, and high schools, public and private
- **Bus Stops:** Defined as any MBTA bus stop

By revealing which neighborhoods are closer or further away from these four key destinations, it becomes possible to determine which neighborhoods are more prone to walkable lifestyles and which are more prone to automobile dependency. These findings can be used by planners and policy-makers to decide where to locate more of the above destinations so that residents of all neighborhoods are able to choose walking as a mode of transportation and leisure/ exercise while serving to meet the city's health, equity, and sustainability goals.

METHODOLOGY

Displayed using raster data, distances were measured between each of the cells in each neighborhood and the closest public facility in question (ie. Bus stop). Spatial analysis and zonal statistics were then applied to calculate a mean value of distance (in feet) from a home (aka raster cell) in each neighborhood to the mapped facility. The mean distance values for each facility were then combined through a spatial join for each neighborhood and mapped onto an 'overall walkability' map of the city (*see right*).



FINDINGS

According to the criteria used in this study, Somerville neighborhoods can be ranked for walkability as follows:

1. **Prospect Hill, Central Hill**
2. **Davis Square, Powderhouse, Spring Hill, Winter Hill**
3. **West Somerville, Tufts, East Somerville**
4 **Ward Two/Cobble Hill**

DISCUSSION

The four facilities mapped in this project are by no means representative of all conditions contributing to the walkability of a particular neighborhood. For example, in addition to facilities like hospitals and day cares, design characteristics such as block size, sidewalk condition, and street connectivity are omitted. The analyses shown here are examples for how GIS can be used to map distances from where people live to where people travel, and how those distances can be calculated to provide a mean representation of walkability for each neighborhood.

Cartographer: *Julia Prange, UEP 232, Fall 2008*
Data Sources*: MassGIS, Reference USA*
Projection: *NAD 1983 Massachusetts State Plane Mainland*