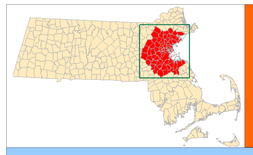


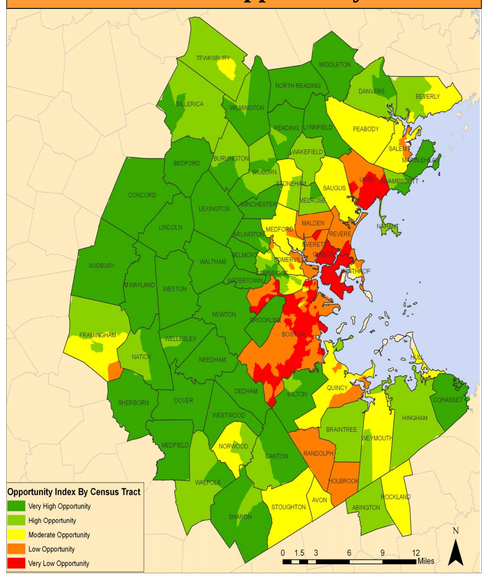
Using GIS to Explore Opportunity Mapping in Greater Boston:

Assessing Possibilities for Affordable Multi-Family Housing in High Opportunity Areas

Project Description: According to the Kirwan Institute for the Study of Race and Ethnicity, residents in metropolitan areas are situated within an interconnected web of opportunities that shape their quality of life. The neighborhood environment is a determining factor in producing conditions where people can or cannot succeed. To illustrate the distribution of opportunity, the Kirwan Institute has developed a series of Opportunity Maps. This project will demonstrate how Geographic Information Systems (GIS) can enhance the impact of this data. The steps below show how GIS can be used to apply disparate data sets in concert with the Opportunity Maps. Specifically, the steps illustrate how land use and zoning data can be applied to opportunity areas in order to assess appropriate sites for affordable multi-family housing in Greater Boston.

Opportunity Maps

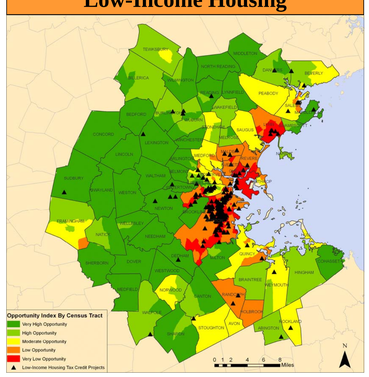
Areas of Opportunity



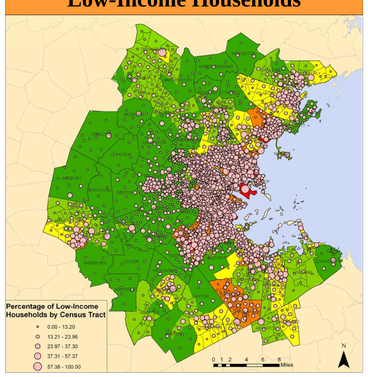
Step One:
Data from the Kirwan Institute was used to map opportunity in Greater Boston. This data is based on 19 community indicators, such as rates of poverty, school drop-outs, unemployment, neighborhood vacancy, etc. The indicators were assessed separately in three opportunity areas (educational opportunity, economic opportunity, and neighborhood/housing equality). The map to the left indicates opportunity areas that range from very high to very low in Greater Boston.

Step Two
Next, tabular data of Low-Income Housing Tax Credit (LIHTC) projects and data from the 2000 U.S. Census on low-income households was used to create maps indicating a clear pattern of geographic isolation. Of the 235 LIHTC projects, less than 14% (32) were in very high opportunity areas while over 80% (187) were in low or very low opportunity areas. To address this impediment, possibilities for developing affordable housing in areas of very high opportunity will be investigated. As low-income families with children are among those who face disproportionate barriers to adequate housing, a focus on affordable multi-family housing was selected.

Low-Income Housing

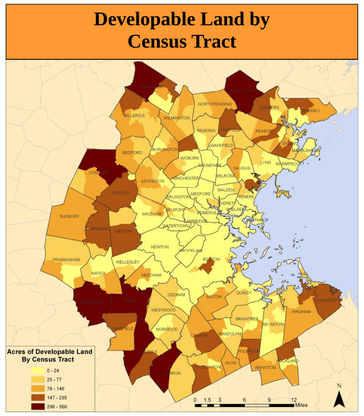


Low-Income Households

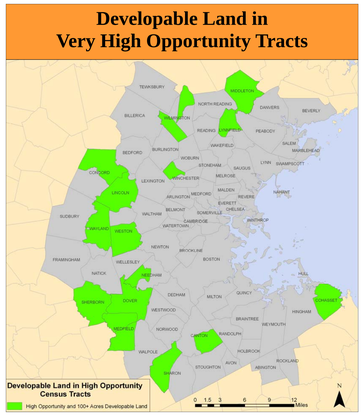


Connecting To Land Use Data

Developable Land by Census Tract



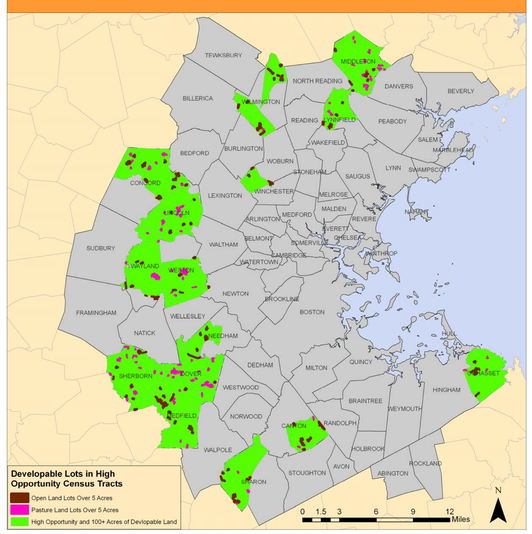
Developable Land in Very High Opportunity Tracts



Step Three
To assess multi-family housing development possibilities, current land use data was needed. Using the GIS "intersect" tool, the 1999 land use data set from MassGIS was merged together with the opportunity data. By combining this data, acreage of each land use type could be calculated by census tract, allowing for the creation of the above maps. The map on the left indicates that the majority of developable land exists in areas of high opportunity. The map on the right specifies the high opportunity census tracts with over 100 acres of developable land. These highlighted tracts will be the focus of this demonstration as the goal is to locate housing sites in high opportunity areas.

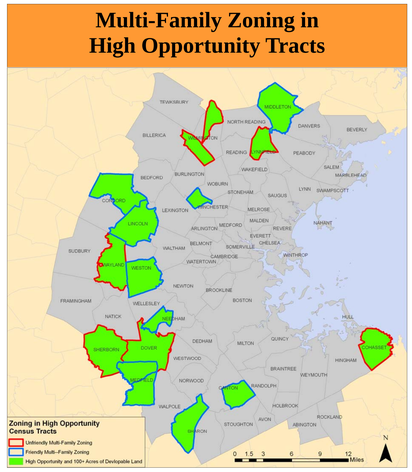
Step Four
For the purpose of this project, "developable land" was determined to have either the land use category of "open land" or "pasture." Using the GIS "select by attributes" feature, sites of pasture or open land that were five acres or greater were identified within the selected high opportunity tracts.

Developable Lots in Very High Opportunity Tracts



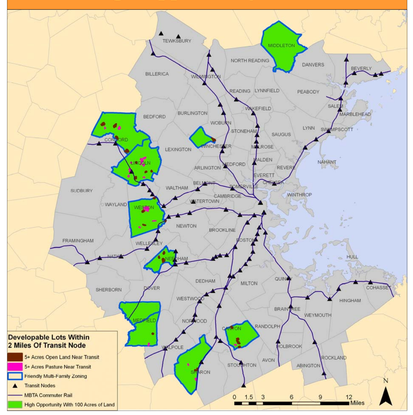
Evaluating Zoning Requirements

Multi-Family Zoning in High Opportunity Tracts



Step Five
Having indentified potential sites, regulatory barriers were then considered. Many municipalities have zoning laws that indirectly discourage or directly prohibit multi-family housing. Using a GIS "tabular join," zoning regulations from the Pioneer Institute database were applied to the data. The regulations were then rated based on a set of criteria as either "friendly" or "unfriendly" multi-family zoning.

Selected Lots in High Opportunity Tracts



Step Six
Developable lots, over five acres, located in high-opportunity census tracts, in towns with "friendly" zoning were identified as possible sites for affordable, multi-family housing. Further consideration was given to lots that were within two miles of the MBTA Commuter Rail transit nodes. The map to the left indentifies the lots that met all of the above criteria.

Findings and Limitations

The purpose of this project is to demonstrate how GIS can be used to explore opportunity areas. As such, the selection of the criteria used to determine potential sites was not based on specific research, and findings are not meant to advocate for the actual development of affordable multi-family housing at the sites identified above. The goal is simply to illustrate the possibilities that exist for collaboration between GIS and the opportunity data set.

Cartographer: Kara Hubbard– Fall 2008
Projection: NAD 1983 Massachusetts State Plane
Sources: Kirwan Institute for the Study of Race and Ethnicity (http://kirwaninstitute.org), Pioneer Institute for Public Policy Research (http://www.pioneerinstitute.org), U.S. Department of Housing and Urban development (http://www.huduser.org) and MassGIS (http://www.mass.gov/mgis)