WHERE IS THE GRASS GREENER?

A pilot to model regulations and equity related to retail cannabis in Massachusetts

INTRODUCTION

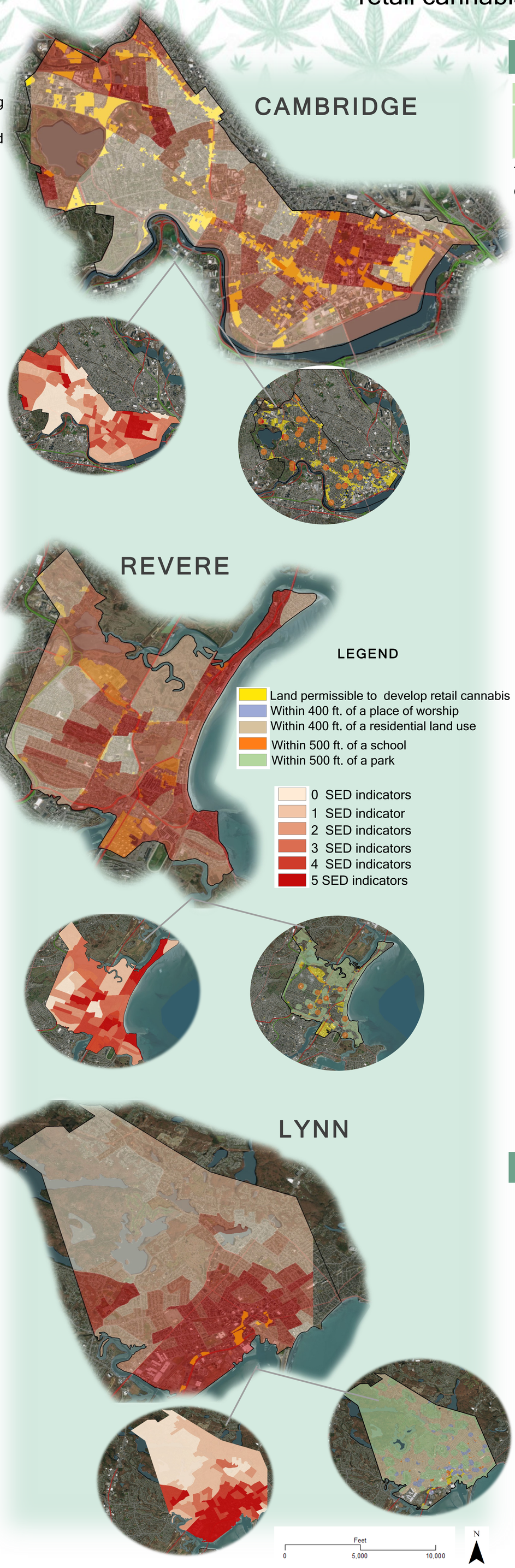
In 2017, Massachusetts voters passed a ballot measure legalizing recreational cannabis in the Commonwealth. The purpose of this project is to model how the creation of retail cannabis shops could affect neighborhoods. This pilot model attempts to provide methodology to demonstrate where retail cannabis shops can open based on local and state regulations in Cambridge, Revere and Lynn. These municipalities will all adhere to spatial mechanisms created by the Cannabis Control Commission which allows cannabis shops in commercially zoned areas at least 500 ft. from existing schools. In addition to these regulations, Revere and Lynn have proposed spatial mechanisms such as locating 500ft from parks or places of worship that will be modeled. This pilot also explores potential social justice implications of retail cannabis shops. It has been suggested that cannabis shops, similar to liquor stores, would exist disproportionally in marginalized communities and could negative affect access to minors, crime and addiction in these neighborhoods.

Cambridge	Lynn	Revere
500 ft. from existing K-12 schools	500 ft. from existing K-12 schools	500 ft. from existing K-12 schools
Land zoned commercially	Land zoned commercially	Land zoned commercially
-	500 ft. from parks	400 ft. from parks
-	-	400 ft. from places of worship
-	-	400 ft. from residential uses

METHODS

To estimate the land permissible to develop retail cannabis, each city has to be evaluated by two criteria (1) zoned commercially (2) not within distance of regulations set by the city and state. Land use serves as a proxy for zoning regulation, commercial being the only permissible land use . To estimate the distance of regulations, buffers were created around schools, parks, places of worship and residential land uses according to each city's set of regulations. Commercial land use and the buffers were rasterized and combined, land that was outside of the buffers and in commercial land was deemed permissible to develop retail cannabis.

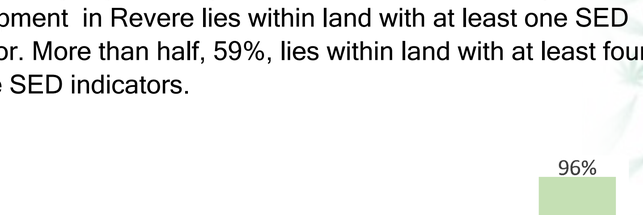
To estimate what portion of land permissible to develop retail cannabis is in marginalized communities, each city is evaluated by a socioeconomically disadvantaged (SED) index. This index was adapted from a similar project done by Nemeth et al. The index consists of 5 indicators– median income, poverty status, % owner occupied housing, % 25 year olds that have completed high school and % of 25 year olds that have completed college– from the 2013 American Community Survey. Each block group within the city received a binary score for each indicator based on whether it was above or below that city's average. For example, a block group in Cambridge with median income less than $83,122 would have been a flagged indicator whereas in Lynn block groups with median income less than $50,774 would have been a flagged indicator. The scores were then added together for the SED index. The SED index was then rasterized and combined with the previously created rasters. In all three cities, the percentage of land deemed permissible to develop retail cannabis was determined for each level of the SED index.



RESULTS

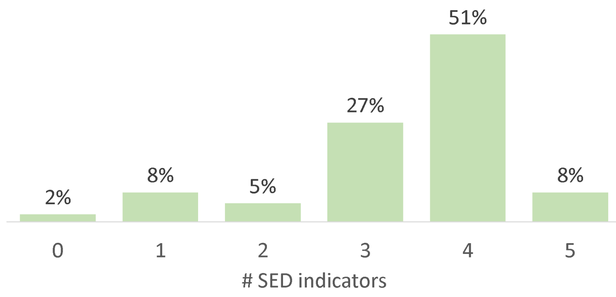
	Cambridge	Revere	Lynn
Land permissible for retail cannabis development	5025 acres	3117 acres	415 acres

The follow graphs display the percentage of land permissible to develop retail cannabis by each level of the SED index.



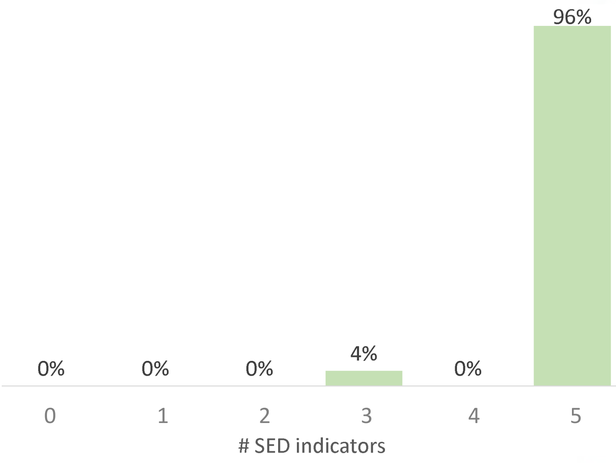
CAMBRIDGE -

Cambridge had the most normal distribution of the three cities and the highest percentage of permissible land with a SED index of zero. Note here that no block group in Cambridge had a SED index of five.



REVERE-

The vast majority of land permissible for cannabis shop development in Revere lies within land with at least one SED indicator. More than half, 59%, lies within land with at least four of the five SED indicators.



LYNN -

Lynn has the most unequal distribution of the three cities, with nearly all permissible land for retail cannabis lying in land with SED index of five. It is important to note that Lynn has the most restrictive regulations and the smallest amount of land permissible for retail cannabis development.

DISCUSSION

This model has the potential to serve as a decision making tool when municipalities begin to regulate retail cannabis shops in their jurisdictions. This model however is imperfect in predicting precisely where cannabis shops can open and predicting how this will affect social, environmental and economic justice in neighborhoods.

The primary limitation is the granularity of the SED index. It is at the block group level because that is what was available through the American Community Survey. However this arbitrarily cuts neighborhoods into the constructed block groups and does not account for how the density of households across block groups. Additionally the SED index only takes five indicators into account though in the real world there are many more factors that contribute to the marginalization of communities.

There are other limitations that influence the model to consider. The age of the some of the data is of concern, for example the land use is over 10 years old so there may be inaccuracies. It is also important to remember that data used here does not always reflect what currently exists in the world. For instance, in Revere when using photo imagery as a base map there is a recreational space that can be viewed but was not identified by the protected and recreational space data obtained from MassGIS.

Despite these limitations, I believe this model still has utility in deciding where to locate cannabis shops.

SOURCES

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