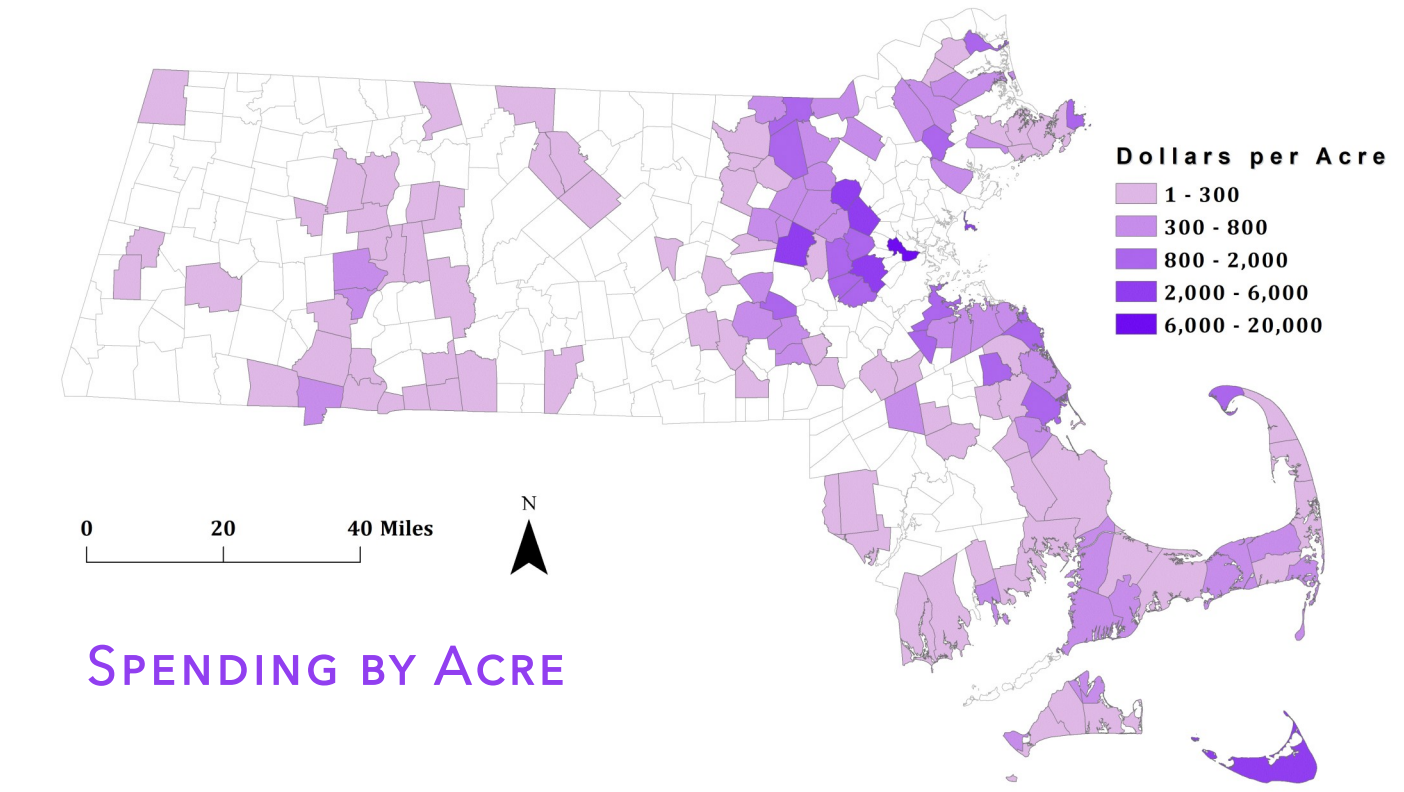
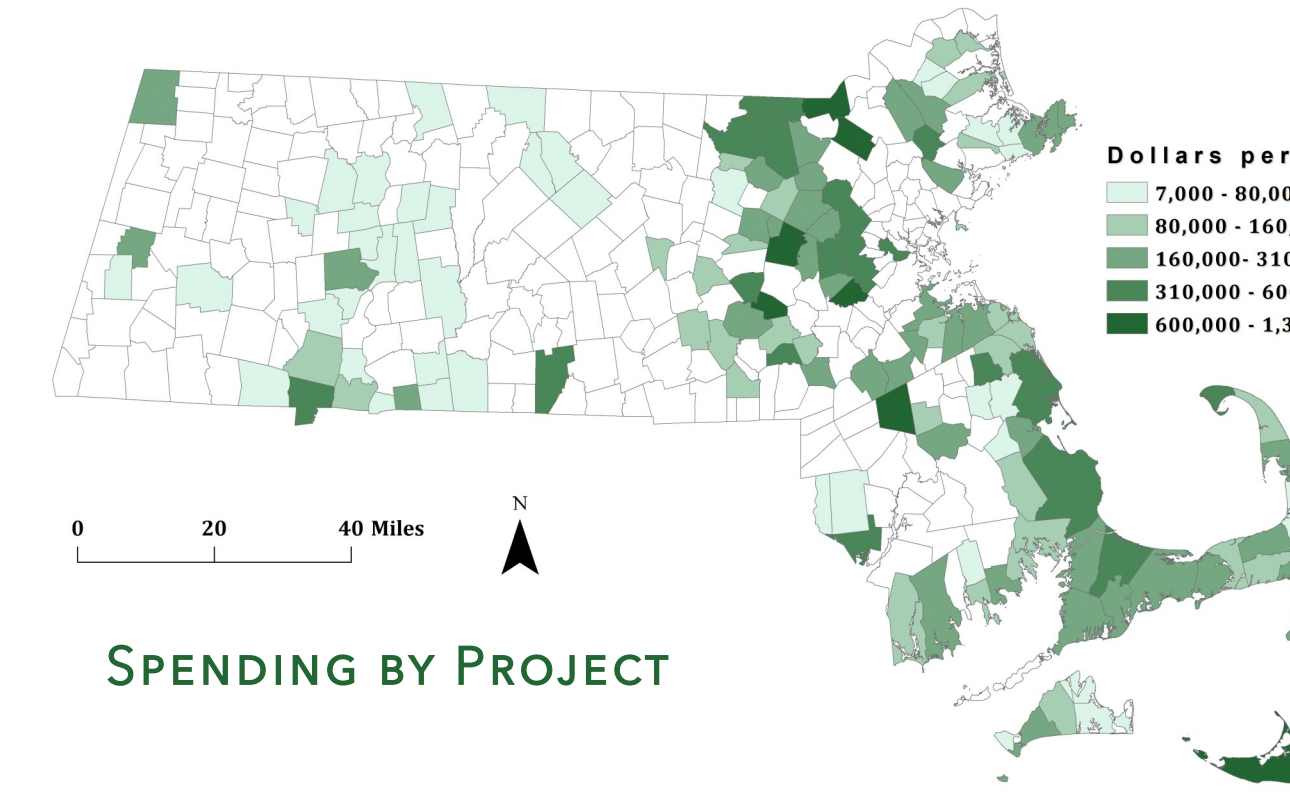
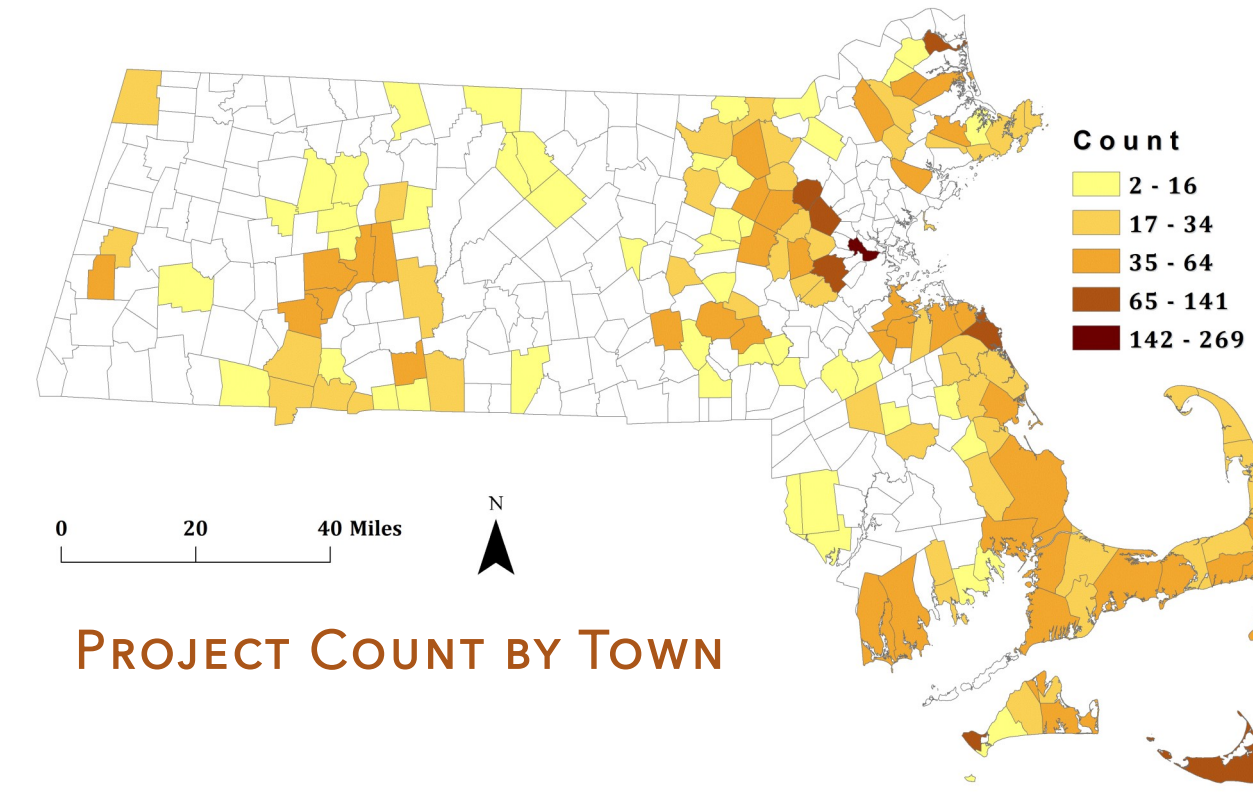
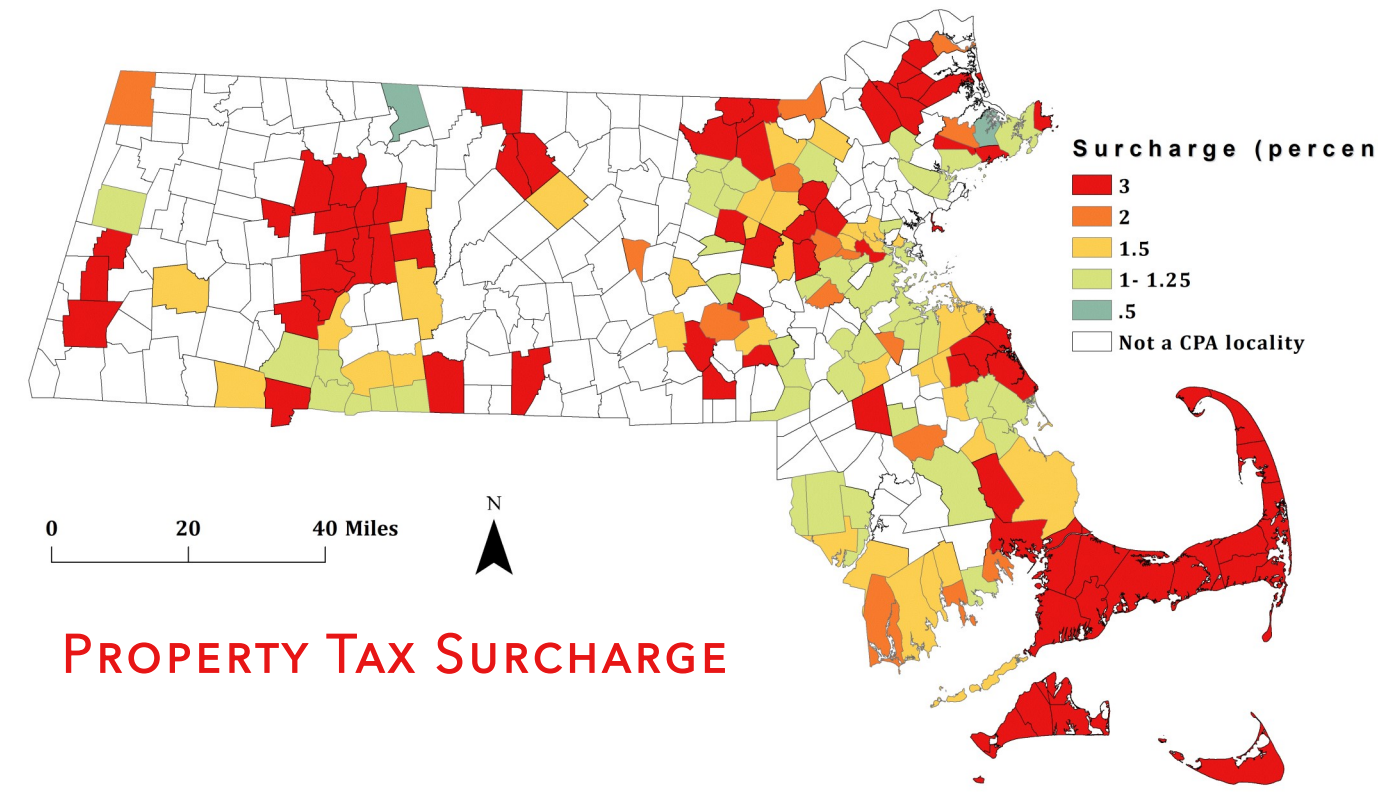
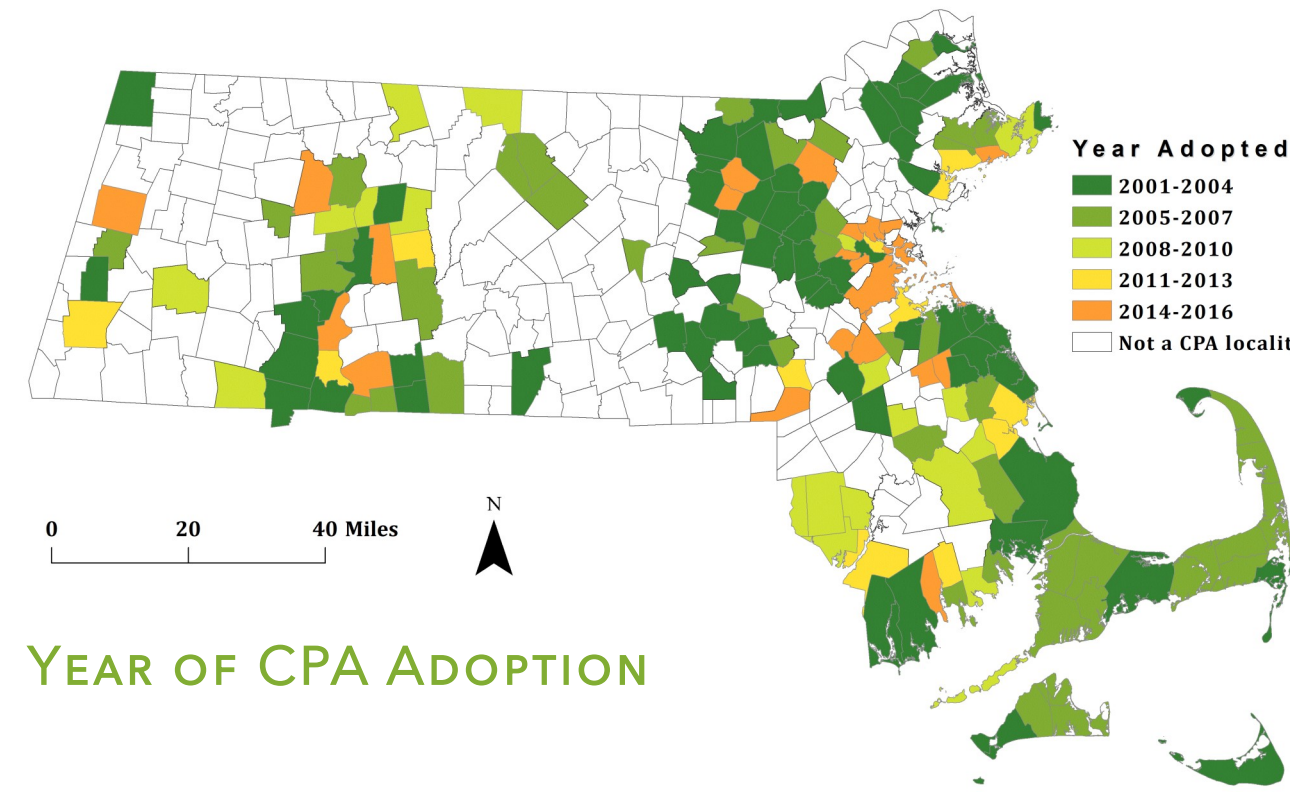


A GIS EXPLORATION OF MASSACHUSETTS' COMMUNITY PRESERVATION ACT



INTRODUCTION

The Community Preservation Act (CPA) was adopted in 2000 as a “smart growth tool” to create affordable housing and preserve open space, recreational space, and sites of historic importance. CPA allows towns in Massachusetts to pass, by referendum, a surcharge of up to 3% on top of property taxes to fund projects. The Act established the Community Preservation Trust Fund, which provides additional funding for towns that have adopted CPA as an additional mechanism for raising CPA funds and incentivizing passage in independent city and town votes. One important spending requirement is that a minimum of 10% of funds must be spent on open space, housing and historical preservation, separately, and the remaining 70% of funds can be used for recreation and/or split among the three former categories.

To date, 172 of the state’s 351 cities and towns have adopted CPA, and statewide funding equals \$1.93 billion; 9,900 projects have been approved. This project’s visualizations and analysis include only projects that are complete or in progress and excludes pending and cancelled projects, and projects and towns adopted after 2016.

QUESTIONS:

What cities and towns have adopted CPA, when, at what surcharge rates?

Are there visual patterns across the state in number of projects, dollars spent, or fund allocation by project type?

Do localities that have more access to open space spend more or less on open space projects than localities with less access?

METHODOLOGY

First, I developed nine thematic maps to visualize CPA data. The five maps above show general information about CPA, using field calculator and calculate geometry to calculate spending/acre and per project, and summarizing by town to count projects. I used the summary tool, then normalized spending by project type to create the four thematic maps on the right.

To determine if there is a spatial relationship between CPA jurisdictions’ spending on open space projects and access to open space, I measured distance to open space using Euclidian distance. I ran zonal statistics as table to generate the mean Euclidian distance by town to all open space in the state, including, but not limited to CPA open space projects. I summarized the output by town open space spending, then joined the table to the towns polygon layer. The final step was overlaying the mean Euclidian distance matrix with graduated symbols representing CPA open space spending by each CPA town. I also created a scatterplot to look for a trend.

Sources:

Merida-Fernandes, L. R. (2007). *Massachusetts Community Preservation Act: An exploration of the affordable housing component* (Master’s Thesis, Tufts University).
 CPA: An Overview. Community Preservation Coalition. Accessed April 14, 2018.

RESULTS

There does not appear to be a pattern in a town or city’s mean Euclidian distance to open space and CPA open space project funding. Still, the scatterplot indicates a potential positive trend.

According to my analysis, not all towns spend the required 10% of their funds on housing, open space, and historic projects, but this is likely due to the limitations of my data. Complete funding data would improve this analysis, as some projects did not have funding data attached. Also, I did not include pending or cancelled projects in this analysis.

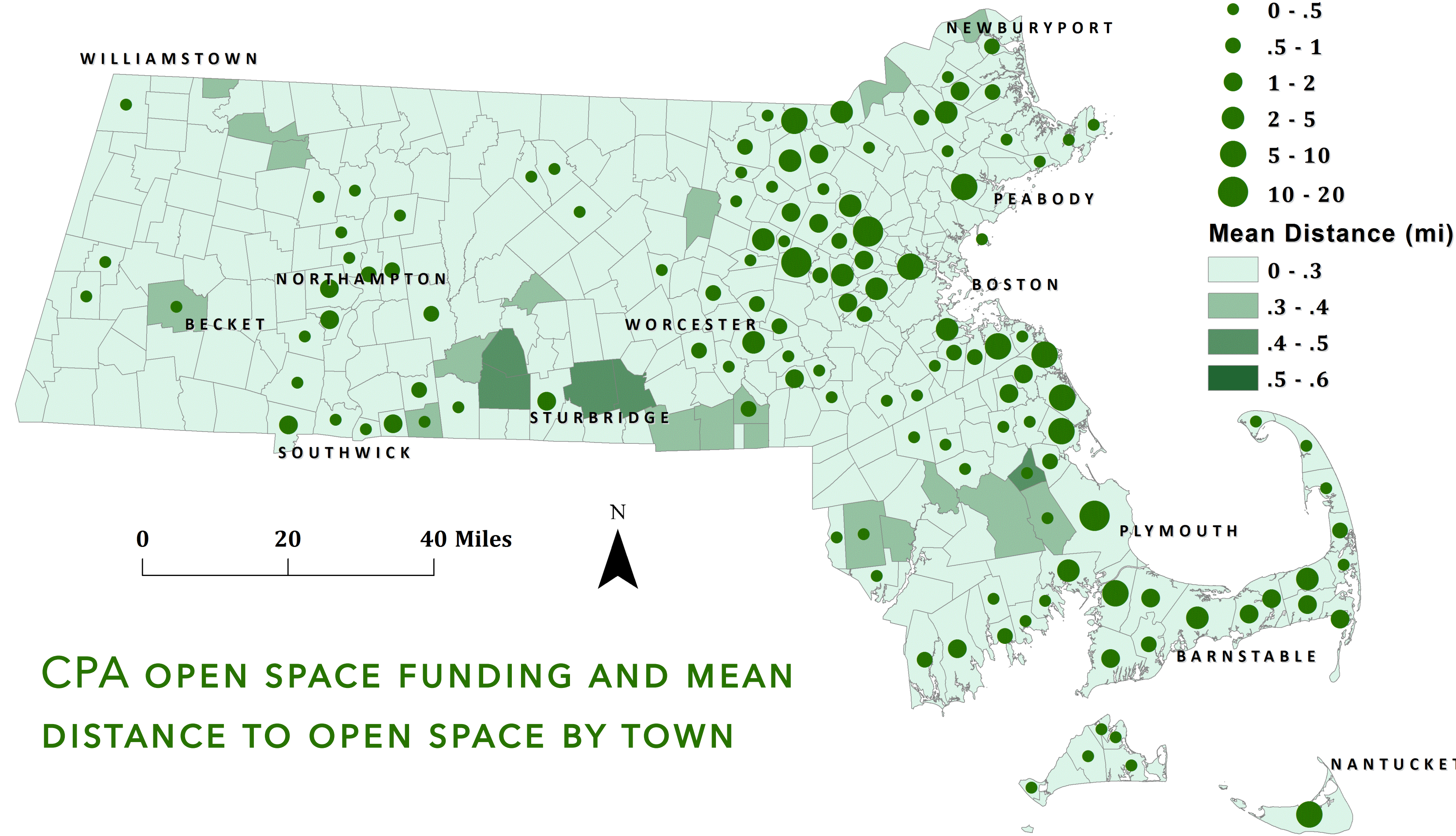
CARTOGRAPHER: Minnie McMahon

Class: UEP 232: Introduction to GIS for Urban and Environmental Analysis

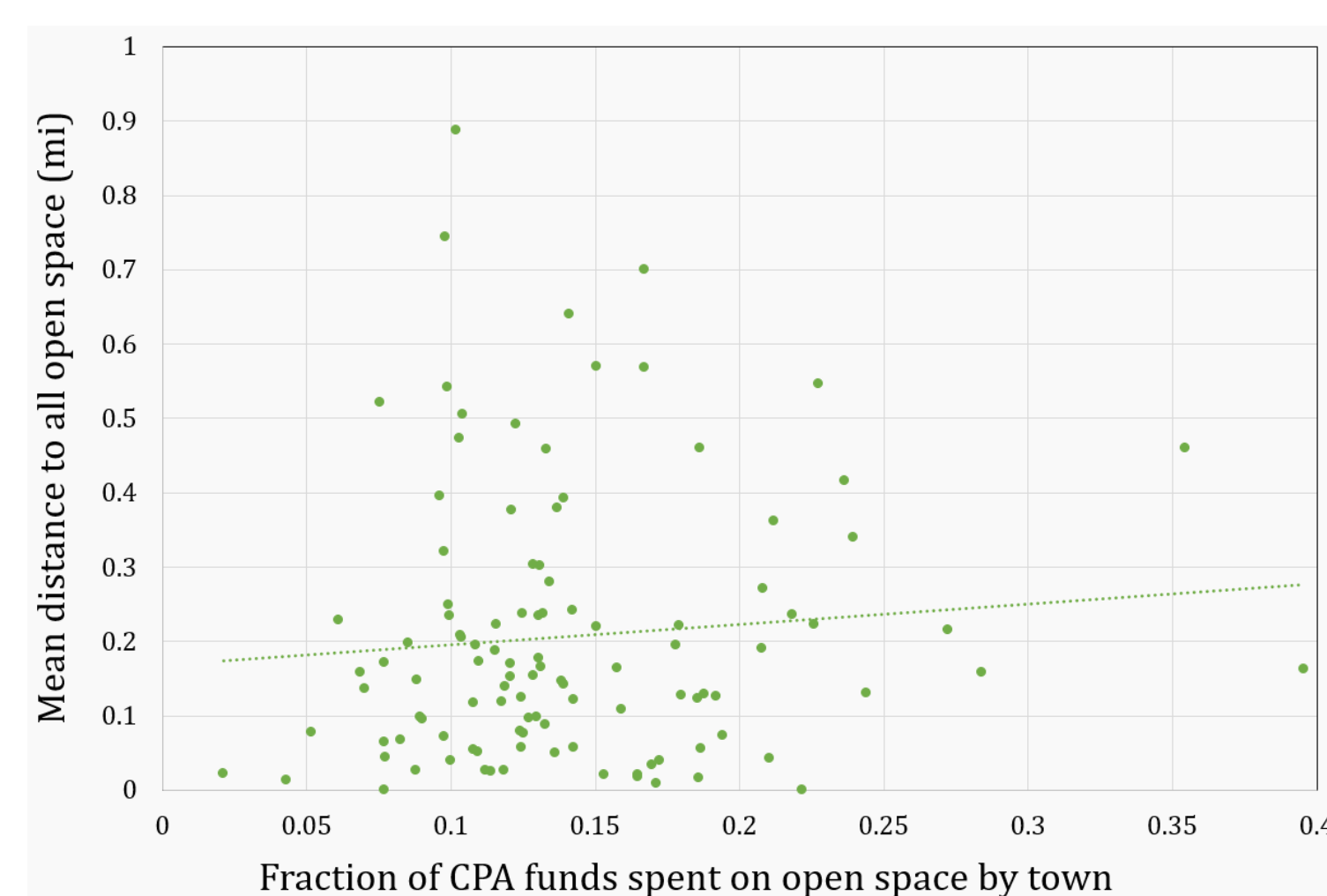
DATA SOURCE: MASSGIS

PROJECTION: NAD_1983_StatePlane_Massachusetts_Mainland_FIPS_2001

DATE: May 7, 2018



OPEN SPACE ACCESS AND CPA FUNDING



DISTANCE IN MILES TO NEAREST CPA OPEN SPACE

