

CRIME & BOSTON PUBLIC SCHOOLS

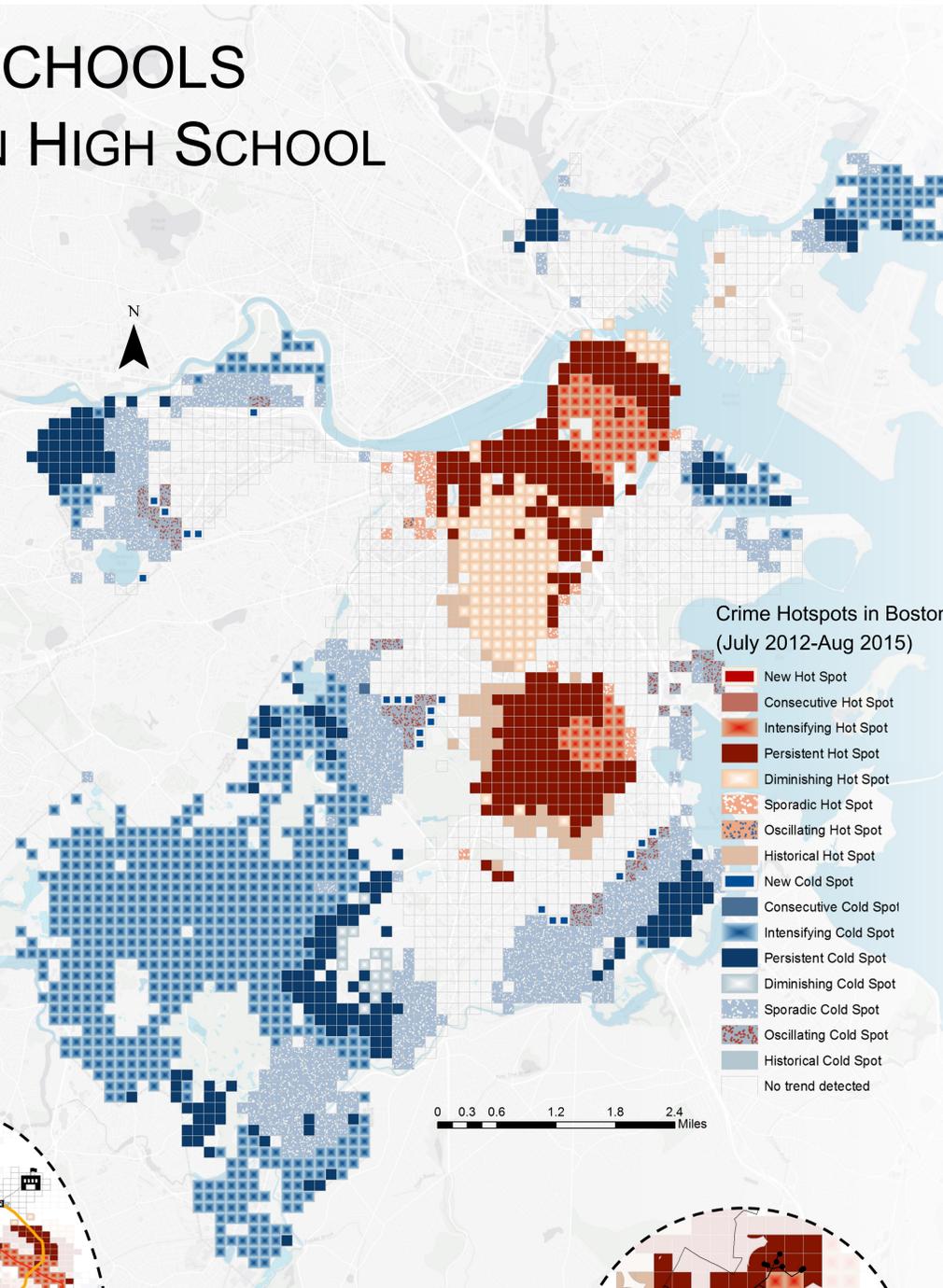
A CASE STUDY ON CHARLESTOWN HIGH SCHOOL

Introduction

The Boston Public School (BPS) system operates under a “school-choice” method, meaning that students are often commuting far distances across the city to attend high school each day. This is particularly true for the nine hundred students attending Charlestown High School (CHS) who do not live within the Charlestown neighborhood. Exposure to crime and perception of crime have both been studied to be related to lower school attendance rates and academic performance (even when accounting for other factors predicting these outcomes). This analysis compares crime that students experience on their paths to CHS (their current high school) to the nearest BPS high school.

Methodology

To calculate the emerging crime hotspots I ran a space time analysis on the Boston crime incident reports over a 3 year period. All maps demonstrate these hotspots utilizing weekly time step intervals. My case studies below compare the routes that current CHS students take to commute to CHS each day, to the routes that these same students would take if they attended the nearest BPS high school to their homes (does not take into account specialized schools). To find these routes I used a network analysis tool, closest facility, and identified each students’ nearest high schools and MBTA stops (for students traveling to CHS). The two full maps of Boston below highlight the emerging hotspots along each of these routes (with a 0.1 mile buffer). Two specific routes are magnified to show the specific hotspots.



Results and Limitations

These tables show the average number of crimes along student routes to BPS high schools and MBTA stops nearest to their homes. The stops and schools included on the table are those most demanded by CHS students. I calculated average number of crimes by summing the total number of crimes along all student walking paths (with a 0.1mi buffer) to a given MBTA stop or school. I then divided this by the number of students commuting to that location and the number of years included in the data.

One major restriction is in my analysis of student commutes to CHS. I only account for crimes along walking paths to the nearest T stops and do not include crimes on the T and walking to CHS. Given that the Charlestown neighborhood has relatively low crime, it’s likely the walk would only add a small number of crimes. It is more difficult to estimate how many crimes students are encountering once on the T. The magnified maps of routes to Charlestown (bottom left) show the crime along that path including the T.

Even with these limitations it still appears that in most cases, the walking paths to the top ten nearest high schools have less crime than the commute to CHS. For students living in a relatively low crime neighborhood (near Community Academy of Science and Health) it’s important to consider the added risk of commuting across the city through high crime neighborhoods. Other additional factors to consider include the impacts associated with attending school in a high or low crime neighborhood (CHS is in a low crime neighborhood compared to Jeremiah Burke HS).

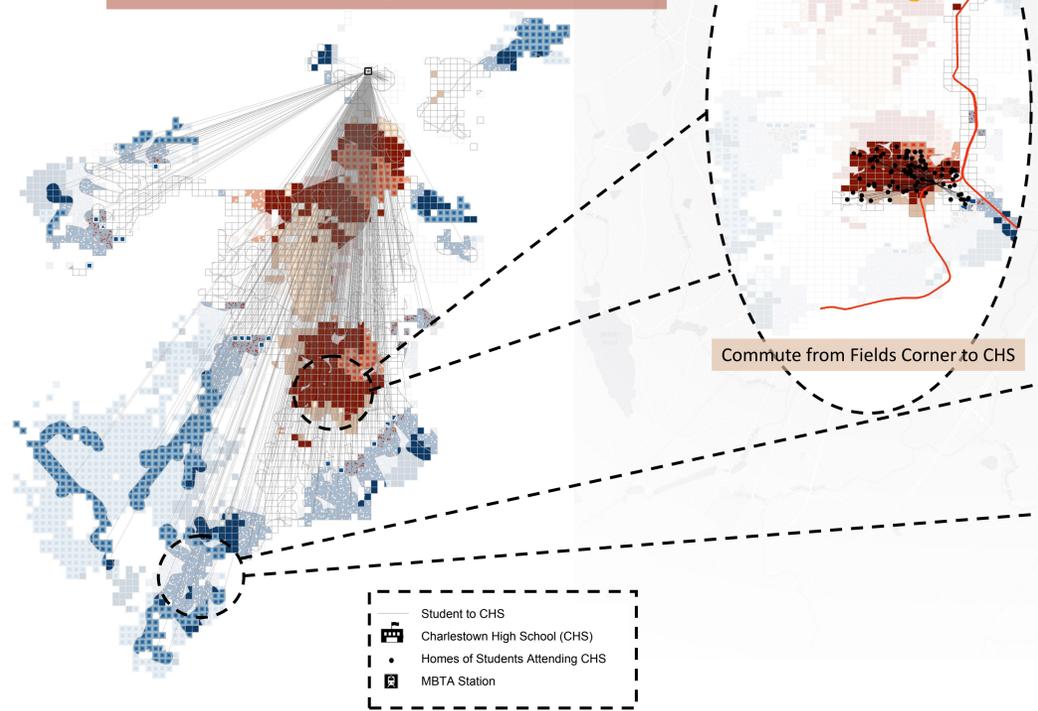
Average # of Crimes per Year Along Student Walking Path from Home to Charlestown HS

MBTA Stop	# of students	# of Crimes
Chinatown	26	89.39
Forest Hills	29	113.17
Wood Island	31	115.85
Savin Hill	40	129.85
Maverick	46	165.10
Shawmut	46	182.35
Jackson Square	51	200.61
Dudley Square	59	214.08
Mattapan	77	221.65
Fields Corner	88	224.27

Average # of Crimes per Year Along Student Walking Path from Home to Local School

Boston Public High Schools	# of CHS Students	# of Crimes
Charlestown HS	114	12.27
East Boston HS	102	26.36
Tech Boston Academy	120	54.75
Boston Latin Academy	47	60.32
Jeremiah E Burke High	121	62.39
Community Academy	56	67.48
The Carter School	37	80.86
Community Academy of Science and Health	37	82.97
Quincy Upper School	81	99.79
Excel HS	25	116.75

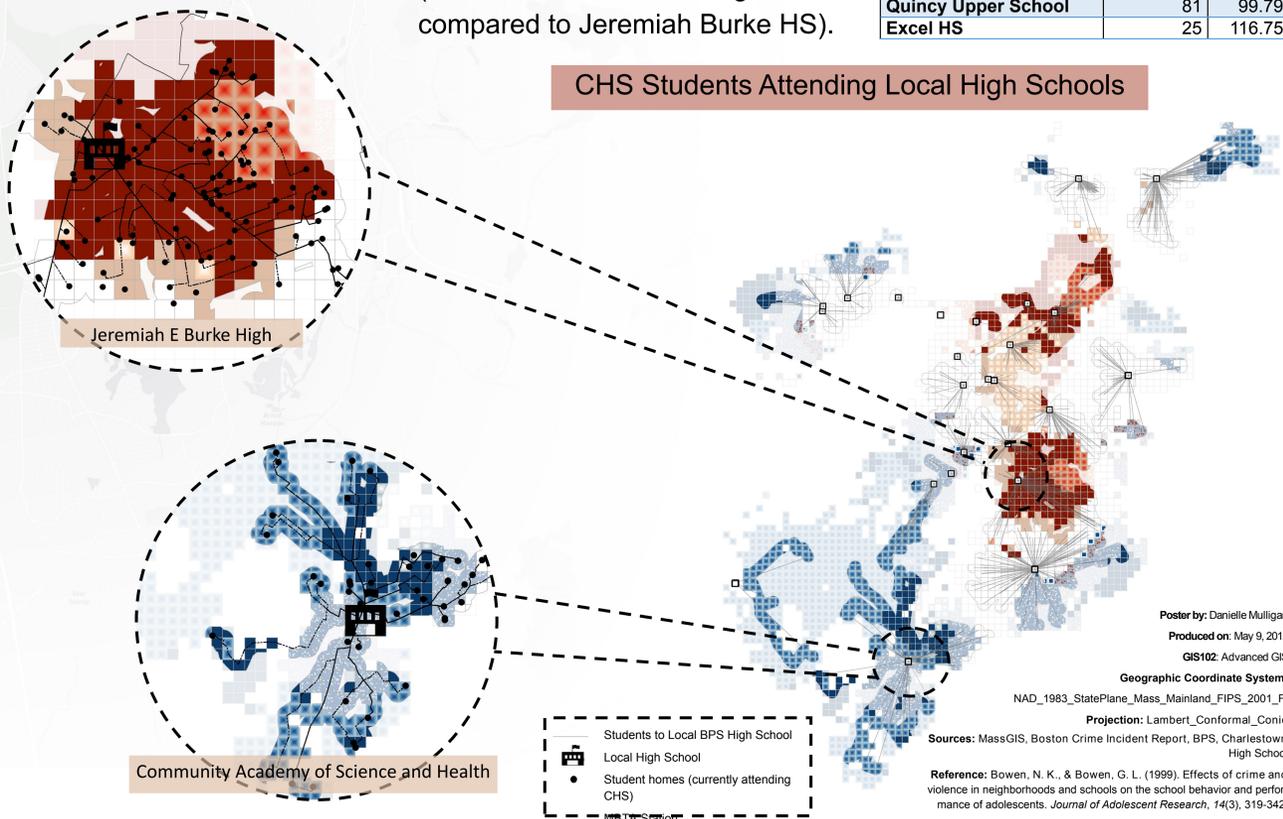
Students Commuting from Home to CHS



Commute from Fields Corner to CHS

Commute from Mattapan to CHS

CHS Students Attending Local High Schools



Poster by: Danielle Mulligan
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 GIS102: Advanced GIS
 Geographic Coordinate System:
 NAD_1983_StatePlane_Mass_Mainland_FIPS_2001_Ft
 Projection: Lambert_Conformal_Conic
 Sources: MassGIS, Boston Crime Incident Report, BPS, Charlestown High School
 Reference: Bowen, N. K., & Bowen, G. L. (1999). Effects of crime and violence in neighborhoods and schools on the school behavior and performance of adolescents. *Journal of Adolescent Research*, 14(3), 319-342.