

# The Local Effects of Medical Cannabis

Disproving the Myth that Medicinal Cannabis Dispensaries Attract and Cause Violent Crime

Storefront of Divinity Tree Wellness Cooperative, another San Francisco dispensary recently closed  
Photo by John Schulze



## OVERVIEW

On Nov. 6, 2012 Massachusetts approved Question 3, becoming the 18th state to legalize cannabis for medical use. Although the measure passed with a significant majority of 63%, multiple towns have already banned dispensaries from opening within their communities. Cities such as Wakefield and Reading instituted these bans, arguing that medical cannabis facilities are likely to draw crime. Fortunately, evidence from states with long-term medical cannabis industries can illustrate whether or not these claims are based in reality.

The first state with medical cannabis, California introduced the Compassionate Use Act Prop. 215 in 1996. Since then, hundreds of cannabis dispensaries have opened up across the state, mostly in the Los Angeles and San Jose areas.

The purpose of this project is to assess the relationship between medical cannabis cooperatives in San Francisco and their effect on violent crime nearby. Despite being a city of the state, San Francisco is home to relatively few cannabis dispensaries, with only around 25 currently operating. This makes it easier to illustrate and analyze trends relating to violent crime around the clubs.

Viewing this data can assist the Massachusetts population in how it decides to regulate and facilitate the introduction of medical cannabis collectives. Hopefully places like Wakefield and Reading will reevaluate their cannabis bans.

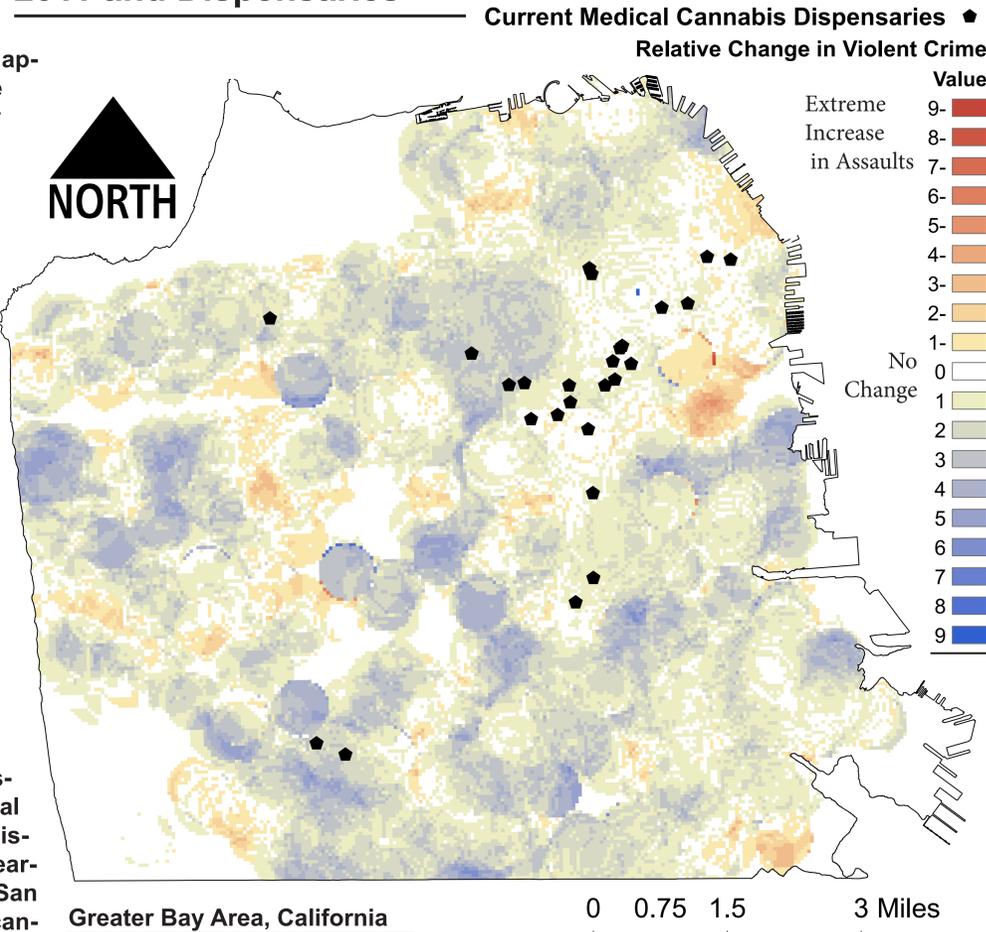
## METHODS

After adding data of all crime report locations from 2003 and 2011, I narrowed down the crime types to only represent

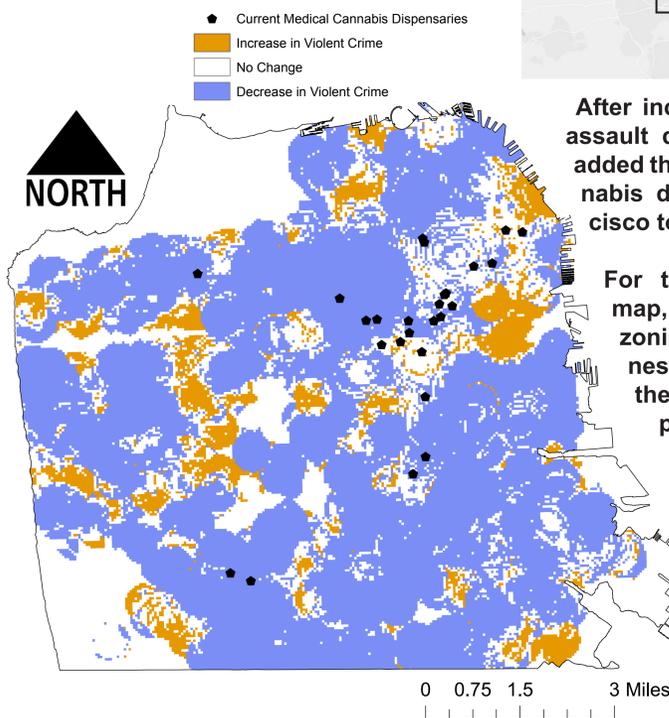


Outside a Medical Cannabis doctor's office in Venice Beach, California - Photo by Phillip Cowell

## San Francisco Violent Crime Shifts 2003-2011 and Dispensaries



## Simplified Boolean Raster Results



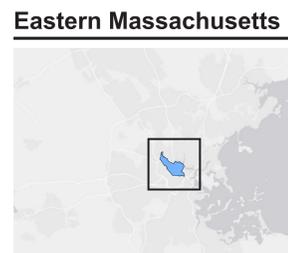
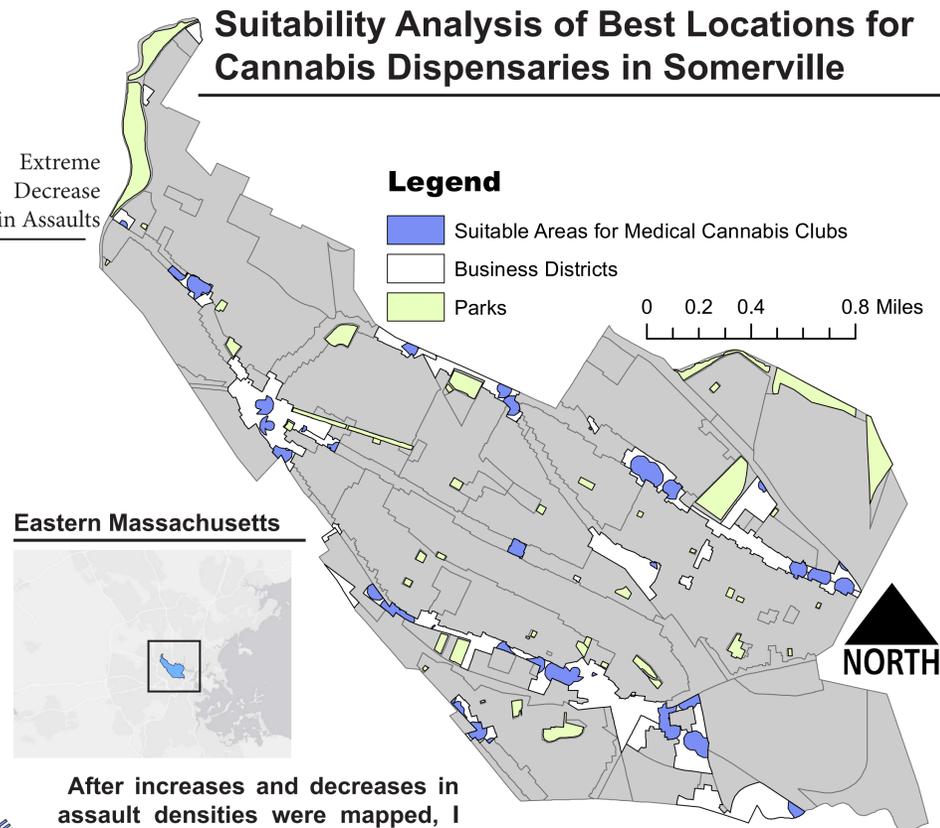
assaults. I then created point density raster layers of the assault locations, and I reclassified the distribution of densities so that I would be able to subtract the densities of 2011 from 2003 on the same scale. This way, a location with a low density of assaults in 2011 subtracted from a higher density in 2003 would result in a high value in the final raster, a decrease in violent crime, and vice-versa.

The Vapor Room was forced to switch to a delivery-only service after receiving a letter from U.S. Attorney Melinda Haag - Photo by Tony Fischer

To achieve the simplified map of increases and decreases in violent crime, I created two boolean rasters. The values/locations of increases in violent crime were converted into one boolean raster, represented in blue and the values/locations of decreases in violent crime were converted into a boolean raster represented in orange. Like the first map, the uncolored values represent no change in violent crime.

I combined the analysis of bus stops and parks so that locations near bus stops would get better scores so that the dispensaries are more convenient for bus-users and locations closer to parks would get lower scores so that cannabis use was further from children playing. Additionally, all locations within 1,000 ft. of a school were deemed unsuitable. This combination of factors produced ratings of the best locations for dispens-

## Suitability Analysis of Best Locations for Cannabis Dispensaries in Somerville



After increases and decreases in assault densities were mapped, I added the locations of current cannabis dispensaries in San Francisco to complete the analysis.

For the Somerville suitability map, I first narrowed down the zoning areas to only the business districts. Next, I mapped the locations of schools, parks, and bus stops in and around Somerville so that I could figure out where the community would be most likely to approve a dispensary. I then created layers of Euclidean distance for all of these features. To finish the analysis,

saries and the worst, and I created a boolean raster to only highlight the best locations with the highest scores. This generated the final, suitable locations.

## CONCLUSION

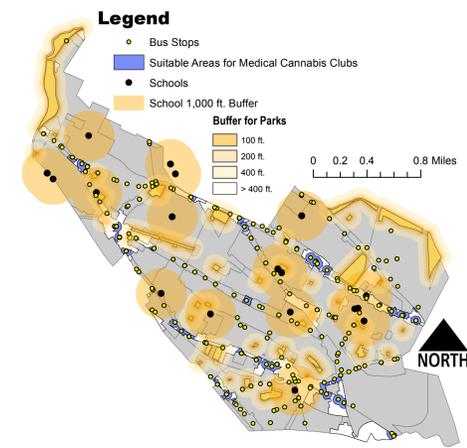
From the data and analysis on this project, it is safe to conclude that medical cannabis dispensaries do not cause or attract an increase in violent crime. Comparing the results of over twenty clubs in different parts of the city, ranging from some that opened up over ten years ago to others that have opened in the last couple years, it can also be inferred that violent crime does not significantly change despite how long the

dispensary has been there.

In fact, most collectives are located in places where violent crime decreased. However, it is difficult to assess whether this trend is statistically significant, because of the various counterexamples located in no-change and increased violent crime areas.

For the suitability analysis of Somerville, there are multiple areas that would be fit for a medical cannabis dispensary. In fact, there are prime locations across the city, some in the central business district and others farther out.

## How the Suitable Areas were Evaluated



Clearly, the evidence of the last fifteen years of medical cannabis in California should dismiss the concerns of Massachusetts' residents that dispensaries draw violent crime. That being said, this study did not evaluate the correlation between dispensaries and other types of crime. However, if Massachusetts' towns are worried about businesses in their neighborhoods causing crime, it would be most beneficial to start with the places that do cause violent crime like liquor stores.

Cartography and Analysis by Max Cohen  
Tufts GIS, Intro to GIS 12/19/12  
Projected Coordinate Systems  
San Francisco: NAD 1983 StatePlane California III  
Somerville: NAD 1983 StatePlane Massachusetts Mainland  
Data Sources:  
MASSGIS  
San Francisco Dept. of Public Health  
data.sfgov.org