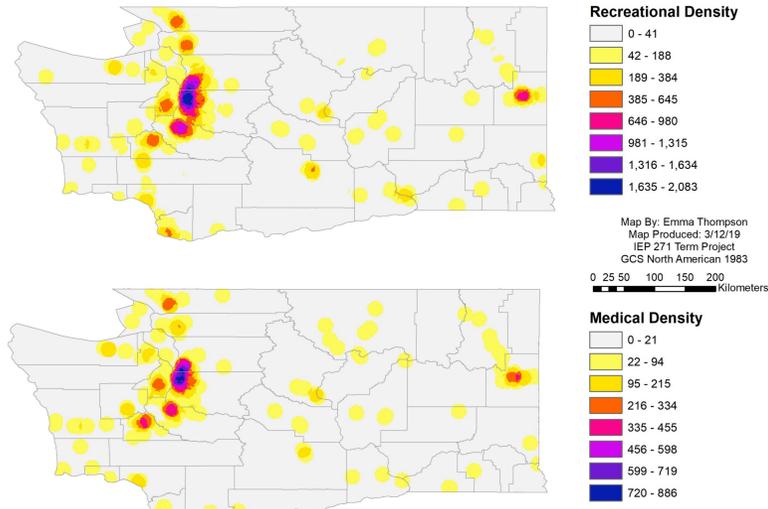


# Analyzing Colorado and Washington Cannabis Sector Over Space and Time

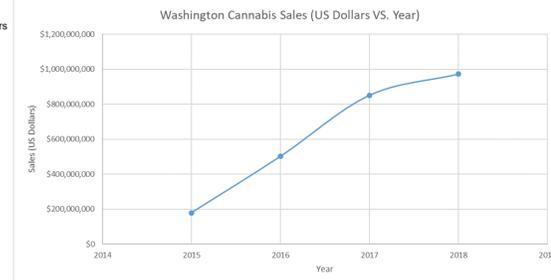
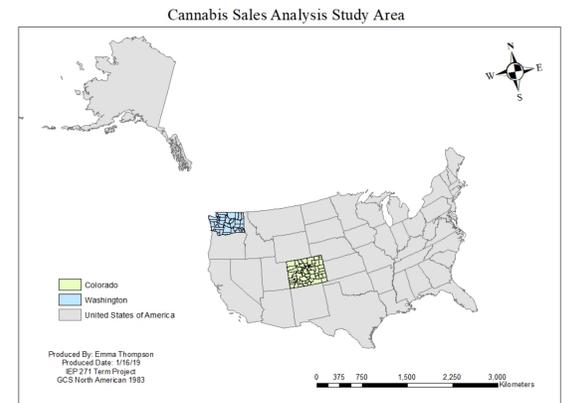
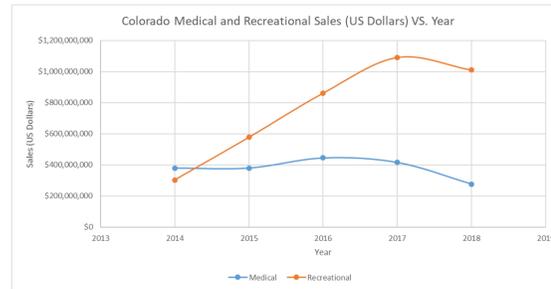
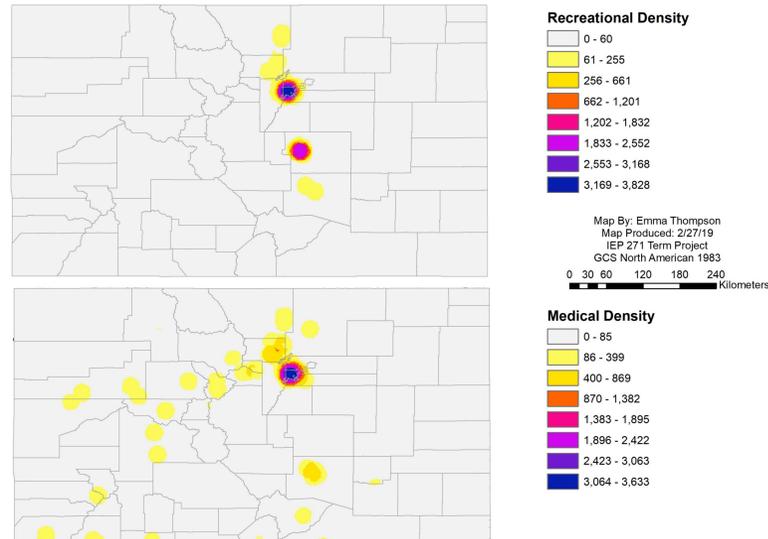
## Introduction

Cannabis is current not legal on a federal scale in the US, however some states have passed legislature allowing it to be legal; California was the first to make it legal in 1996 while in 1998, Washington State legalized medical marijuana followed by Colorado in 2000. In 2012, both Washington and Colorado legalized recreational marijuana. On October 17th, 2018, the Cannabis Act became a reality in Canada by Prime Minister Justin Trudeau. This made the cannabis industry a reality for Canada. How will we know what will happen after legalization? How will this Act potentially affect Canada's economy; or specifically British Columbia's economy? Well, we cannot know for sure what exactly will happen, but we can learn from other examples of legalized jurisdictions and use those results to anticipate what may happen in Canada. By conducting an analysis on Washington and Colorado, we can begin to take a guess as to what the future of cannabis sales could look like for BC.

Washington Recreational vs. Medical Cannabis Retailers



Colorado Recreational vs. Medical Cannabis Retailers



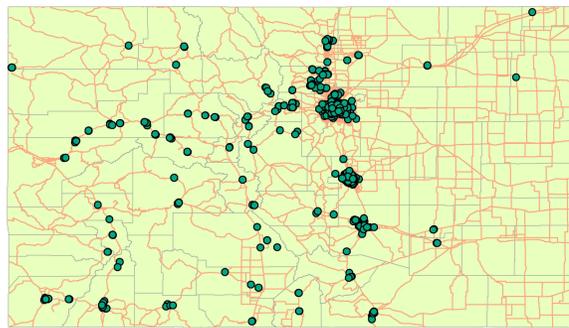
## Results and Discussion

The heat maps show densities of where the retailers are located. I couldn't add the roads to the retail density maps because it would cover all of the density results. The highest concentrated roads was also the highest concentration of retailers, presumably because those road clusters are cities. I compared not only Colorado vs. Washington, but medical vs. recreational store locations. By comparing the medical vs. recreational we can start to understand the demand for the product and where the demand is coming from. To further understand the demand, graphs were made to show the annual sales from Colorado and Washington. The producers map shows that there are far more producers in Washington than Colorado. This could be due to the growing conditions or if Colorado's distributors buy locally, from Washington, or from another source. The population density map show the locations of both medical and recreational retailers as well as population density of each county. I included the population because it can show us why there are clusters of retailers.

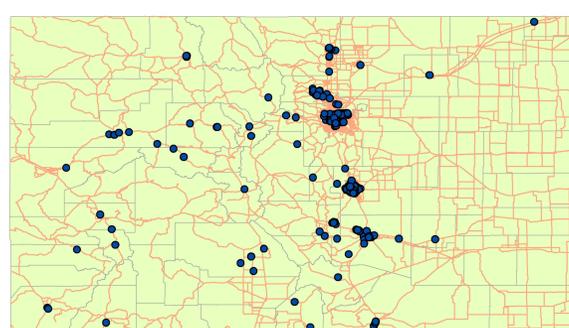
## Methodology

The process of making these maps involved learning how to geocode, learning how to create a heat map, and applying what I learned to the data. I collected from the ESRI website and from Washington and Colorado government websites. I also decided to include population data to show why the trends occur. I started the map making by creating points out of the data I was given to show the location of the retailers (who sells the product), producers (who grows the product), and the labs (who tests the product). This involved creating reference data, creating an address geocoder, then geocoding a table of addresses. To make the point maps relative, I added a roads layer; the same layer I created my reference data from. The heat maps used the points from geocoding and turned it into densities sorted by a colour scheme. The population map did that with the population of each county. I then put the points over top to show the densities around the points; this can give a reason why there is clusters (the demand for the product). The time maps, which are not included on this poster because they are in video format, used the location data and sales data for each county and showed the amount of money earned annually. I also represented the annual sales data as graphs, this was done using excel.

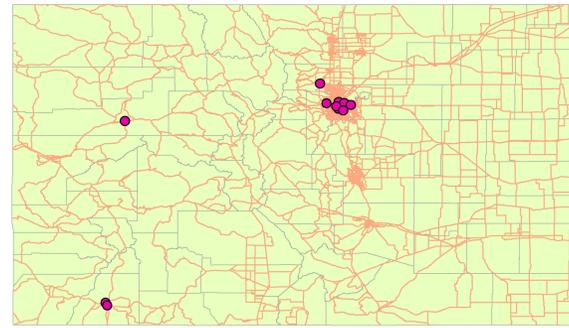
Colorado vs. Washington Cannabis Retailers



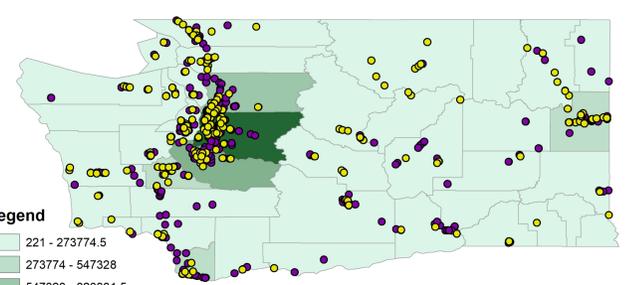
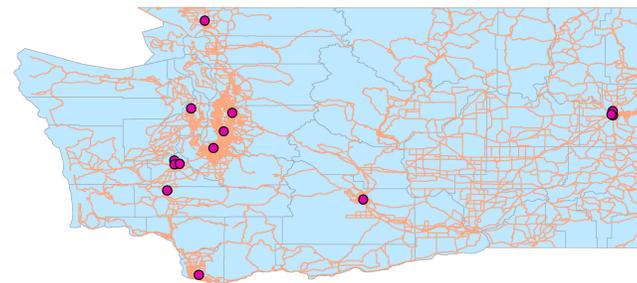
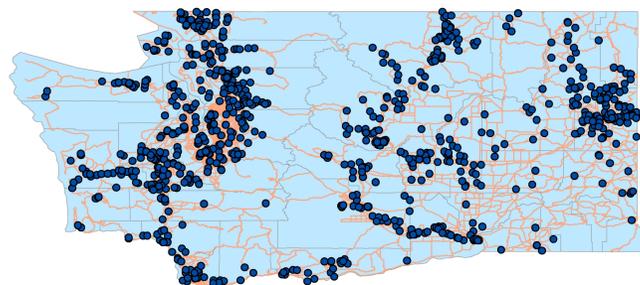
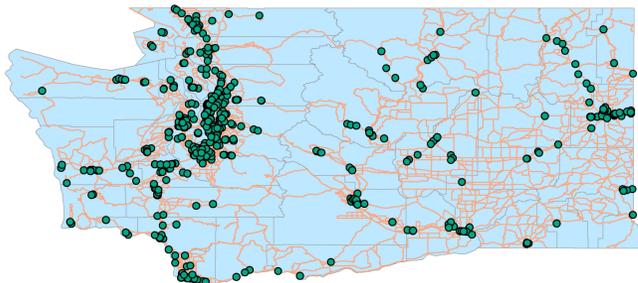
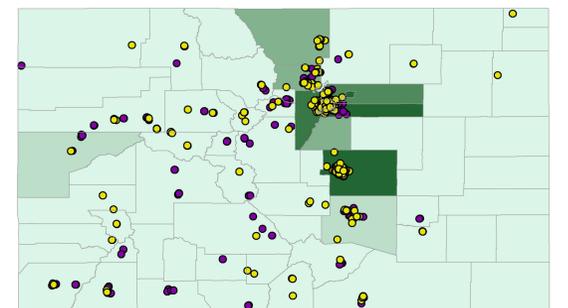
Colorado vs. Washington Cannabis Producers



Colorado vs. Washington Cannabis Testing Labs



Colorado vs. Washington Population Density Relative to Cannabis Retailers



## Limitations and Assumptions

The data I used was limited in various ways; for example, the sales data started in 2014 for Colorado and 2015 for Washington. This prevented the analysis from being as accurate as possible, excluding an entire year of sales data. Another limitation was finding, sorting, and organizing the data. There was a lot to go through and I took most of the time I had to work on it. Another limitation was Washington's sales data- it was not separated into medical and recreational, it was pooled into one category: total marijuana sales. There are no temporal maps on this poster because this project had so much data that many maps were produced. The maps for the sales analysis over space and time are in a video format and will be shown in the presentation.

## Citations

Colorado Official State Web Portal. ND. Colorado: Colorado Department of Revenue; [Updated 2018; Accessed 1/7/2019]. <https://www.colorado.gov/pacific/revenue/colorado-marijuana-sales-reports>.  
 Marijuana Education. 2016. Washington: Washington State Liquor and Cannabis Board; [Accessed January 30 2019]. <https://lcb.wa.gov/mj-education/marijuana-education>.



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