Locating a Law Office in Central New Jersey

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Introduction

This report will examine the optimal site for a law office in Union or Essex Counties, New Jersey. These counties were chosen as counties with a similar combination of urban and dense suburban municipalities. The working assumption is a law office will be most successful where the neighborhood is similar to other neighborhoods with a successful bar presence, but where there is less existing competition.

This study would be of interest to an existing law firm interested in relocating, or a newly created firm.

Data

To complete this analysis, location data was retrieved for all zip codes in the two counties, then FourSquare data in those zip codes was examined for venues in the shops and services category. Zip codes in those counties were clustered by the venue data from FourSquare to locate the cluster that has the highest frequency of Lawyer venues out of the venues returned. I then located the zip code in the cluster with the highest incidence of Lawyer venues that itself has the lowest incidence of Lawyer venues.

ZipExpress was used to retrieve zip codes for the two counties of interest. [www.getzips.com] Latitude and longitude information for those zip codes was retrieved from Geonames. [http://download.geonames.org/export/zip/US.zip] FourSquare was used to derive venue information based on latitude and longitude. [foursquare.com]

Methodology

Some zip codes within the two counties overlapped entirely with other zip codes, because zip codes are used for administrative purposes, and do not represent wholly geographic information. For these overlapping zip codes, duplicates were removed, leaving a single arbitrary zip code for the geographic area.
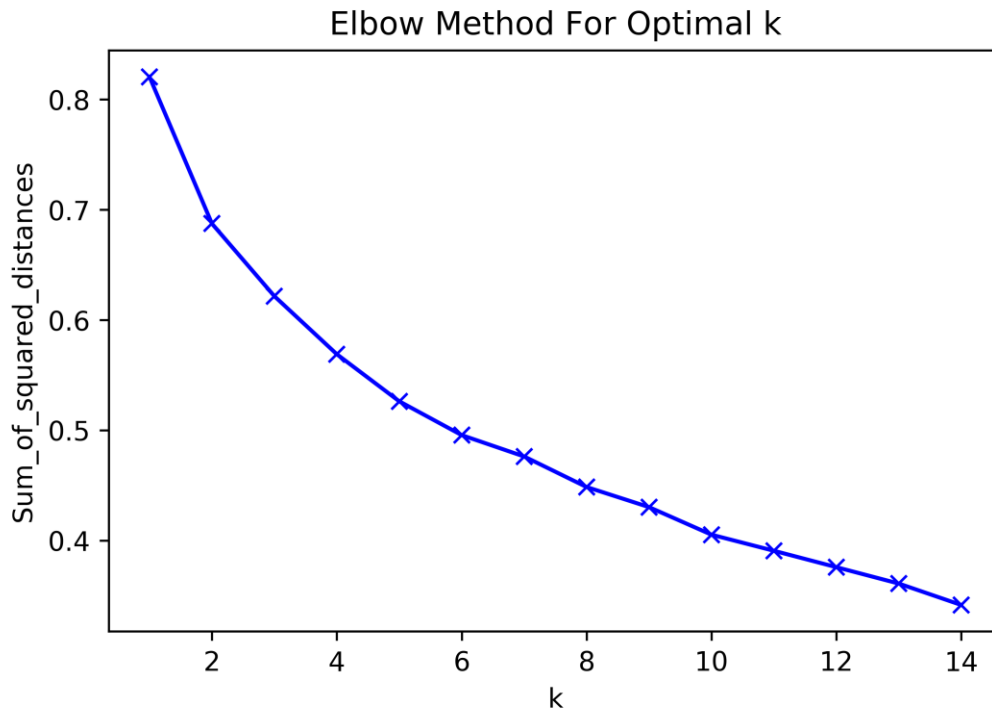
Latitude and longitude information was matched to the zip code information by county using the zip code.

The FourSquare API was then used to return venues in the Shop and Service category (ID 4d4b7105d754a06378d81259) within 200 meters of each latitude and longitude pair. Two hundred meters was chosen because that was sufficient to return the maximum 100 venues for each location.

One hot encoding was used to convert the venue categories into separate numeric columns.

The results were grouped by zip code, then the mean was taken each of the venue categories to determine the frequency of each category in each of the zip codes.

The elbow method was used to determine the optimal K for K-means clustering. Five was determined to the optimal K value.

The zip codes were then divided into five clusters using K means cluster. Each zip code was identified by its cluster, and the frequency of law venues appearing in each zip code was added to the dataframe.

Folium was used to generate a map of the clusters, and then to generate a choropleth map showing the frequency of lawyer venues in the zip codes. These maps were then overlaid to show zip codes in the most favorable cluster that have a relatively low frequency of law offices.
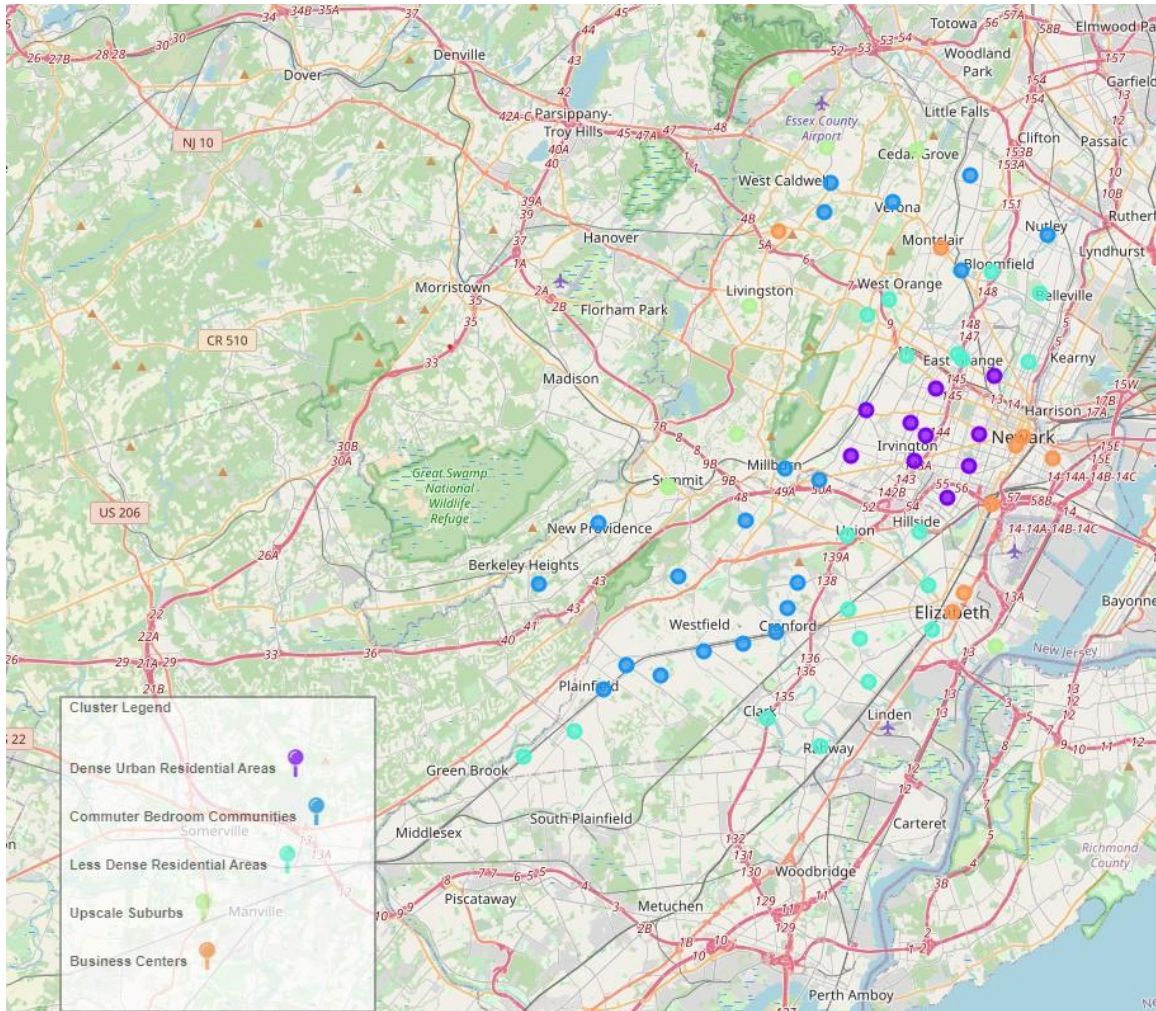
Results

There were five clusters derived on the basis of the types of business venues in each zip code. I have described those clusters as the following:

1. Dense Urban Residential Areas: these are neighborhoods in the older cities within these counties;
2. Commuter Bedroom Communities: these are neighborhoods along the commuter rail links to Newark and New York City.

3. Less Dense Residential Areas: these are neighborhoods in peripheral urban areas with less business development;
4. Upscale Suburbs; and
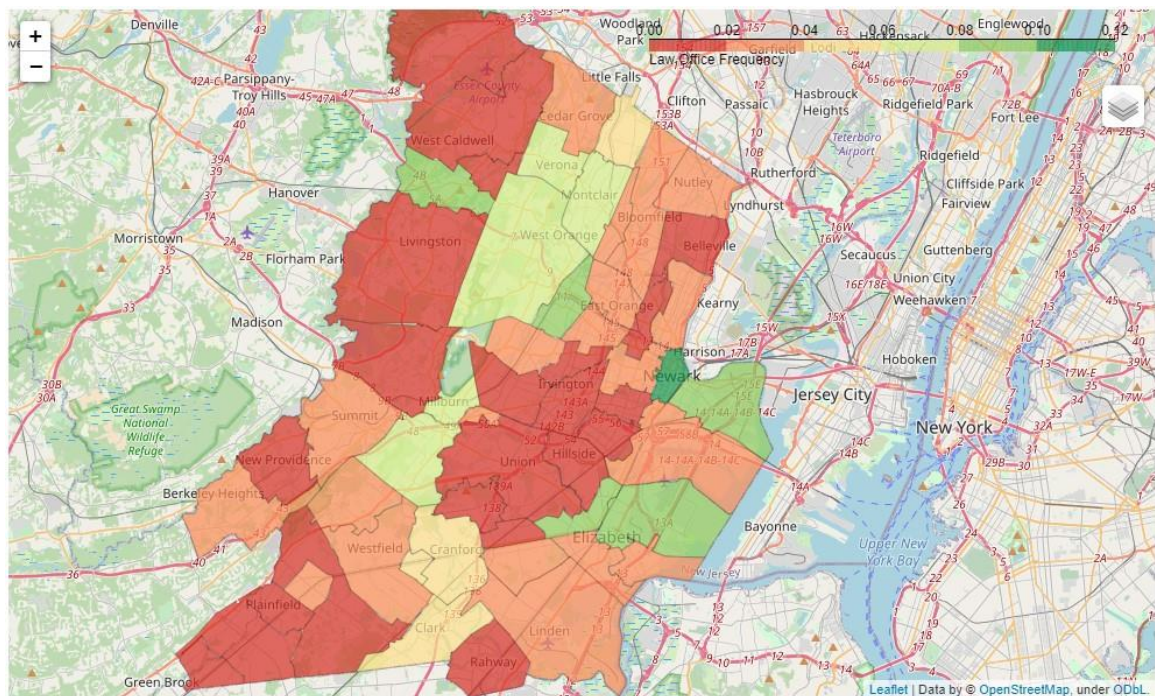5. Business Centers: these are the city centers in the largest cities in the counties.

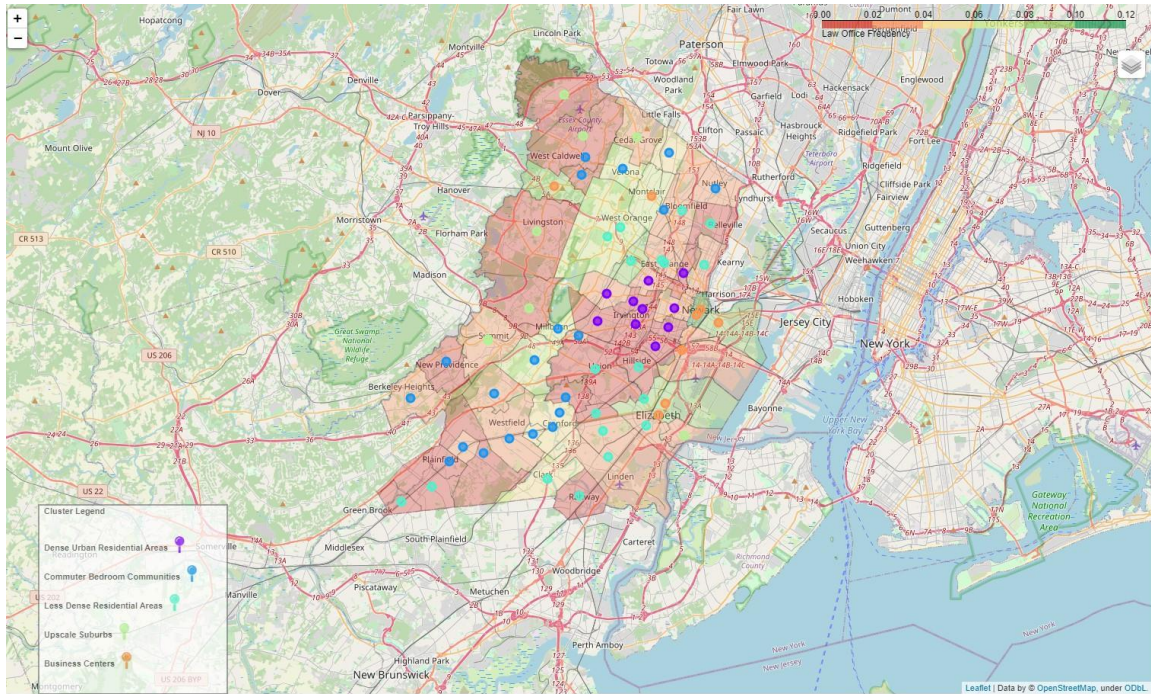This is a map of the resulting clusters.

Analysis of the mean frequency of lawyer venues for zipcodes in each cluster shows that the cluster with the highest lawyer frequency by far is the business centers. That is perhaps unsurprising, particularly because both Newark and Elizabeth are the setting for Superior Courts, and Newark is also the setting for a Federal District Court.

Cluster	Lawyer Frequency
Business Centers	8.38%
Commuter Bedroom Communities	3.00%
Less Dense Residential Areas	2.89%
Upscale Suburbs	1.63%
Dense Urban Residential Areas	1.10%

The map below shows frequency of law venues by zip code. It can be seen that the highest frequencies are found in Newark.

The following map shows the clusters by zip code, along with the frequency of lawyer venues in each zip code.

This table shows the zip codes in the Business Centers cluster, which has the highest frequency of law offices on average, sorted by the law office frequency.

Zip	City	Lawyer Frequency
07114	Newark, NJ	3%
07042	Montclair, NJ	6%
07201	Elizabeth, NJ	8%
07207	Elizabeth, NJ	9%
07105	Newark, NJ	9%
07068	Roseland, NJ	9%
07102	Newark, NJ	11%
07193	Newark, NJ	12%

This table shows zip codes In the Bedroom Communities cluster, the cluster with the second highest average law firm frequency, sorted by frequency.

Zip	City	Lawyer Frequency
07974	New Providence, NJ	0%
07033	Kenilworth, NJ	0%
07062	Plainfield, NJ	1%
07076	Scotch Plains, NJ	1%
07021	Essex Fells, NJ	1%
07110	Nutley, NJ	2%
07922	Berkeley Heights, NJ	2%
07007	Caldwell, NJ	2%
07028	Glen Ridge, NJ	3%
07088	Vauxhall, NJ	3%
07092	Mountainside, NJ	3%
07090	Westfield, NJ	3%
07023	Fanwood, NJ	3%
07061	Plainfield, NJ	3%
07027	Garwood, NJ	4%
07016	Cranford, NJ	5%
07043	Montclair, NJ	5%
07041	Millburn, NJ	6%
07044	Verona, NJ	6%
07081	Springfield, NJ	7%

Discussion

The results show that the zip code in the cluster with the highest lawyer frequency (Business Centers) that itself has the lowest lawyer frequency in that cluster is the zip code 07114 in Newark, with a frequency of 3%, significantly less than the 8% average. This zip code coincides almost entirely with Newark Liberty Airport and Port Newark. It is not surprising that many business services would be available in this area, to account for its placement in the cluster, but it is probably unsuitable for a law office, because of the noise, because most potential clients are transient and not likely to be seeking an attorney in the area, and because that are relatively few possible sites to rent or buy.

Having eliminated Newark Airport, the zip code with the next lowest frequency in the top cluster is Montclair, 07042. This zip code is likely to be of particular interest for further research in siting a law office.

It is also likely that business centers would be particularly costly locations, so it would also be wise to look at the cluster with the second highest average frequency of lawyer venues. That would be Commuter Bedroom Communities, at 3%. The zip codes within this cluster tied with the lowest lawyer frequency are New Providence, 07974, and Kenilworth, 07033. These would also be good locations to research.

Conclusion

After analyzing Essex and Union Counties in New Jersey to find localities that seem similar to locations with a high number of law offices where law offices are underrepresented, the most likely sites for further research are Montclair, 07042, New Providence, 07974, and Kenilworth, 07033.