

# Choosing the Best Locations for Opening a New Gym/Fitness Center

## 1. Introduction and Background

As a business investor, owning a gym can be very rewarding. A gym that offers the right products and services, properly targeting its members can be very profitable. And, for the fitness enthusiast they know they are providing something positive for a community and its people. There are various classes of gyms. They may be more geared toward younger athletes, body builders, power lifters, or simply someone just trying to stay in shape. There are many aspects that need to be considered when opening a new gym to ensure its success as a business. Certainly, as is true for most any business, there should be something that sets itself apart from other gyms. This can be the size of the space, equipment caliber and volume, or perhaps carrying very specialized nutritional supplements making it convenient for its member base. However, this study will focus on only one of these aspects that needs to be considered—location. How do we choose the best location?

## 2. Business Problem

When considering opening a new gym, there are various problems that must be considered. Some of these include size of target membership, how many square feet of space will be needed? What type of neighbors will be adjacent to the facility? Are there any local ordinances that will prohibit or limit any aspect of the business? But, by far one of the most important aspects to consider is competition. Owning a gym is very competitive, and unlike a restaurant where patrons can come and go regularly rotating through or trying new establishments, gym memberships are much longer term requiring a bigger commitment from its members. **As such it is important to choose a location with minimal local competition to ensure that its membership base can be quickly ramped up to a healthy, business sustaining level.** For many potential members, convenience is of utmost priority. Having a gym within close proximity, especially during these current times of COVID-19 where so many people are working from home meets this requirement. **The focus of this study will be on choosing the best locations in the southwest suburbs of Chicago based on minimal competition, for example, no or few gyms within proximity, as well having robust economy and good consumer base.**

## 3. Data

There are three sources of data that will be used for this study. The first is a list of the southwest suburbs of Chicago containing zip code, suburb name, and county. The source is Capital Impact at: [http://www.ciclt.net/sn/clt/capitolimpact/gw\\_ziplist.aspx?zip=604](http://www.ciclt.net/sn/clt/capitolimpact/gw_ziplist.aspx?zip=604). The data will be scraped from the three tables on this webpage.

The second set of data comes from Open Data Soft containing the latitude and longitude information for all zip codes in the United States. The master list is available at: <https://public.opendatasoft.com/explore/dataset/us-zip-code-latitude-and-longitude/table/?refine.state=IL>. However, the data is conveniently located on github where it will be read directly from <https://gist.github.com/erichurst/7882666>. Of course, only the SW suburb data will be needed, and the rest filtered out. These two data sets will be used to create a new,

combined dataset that will have for each Chicago southwest suburb a zip code, suburb name, county, longitude, and latitude.

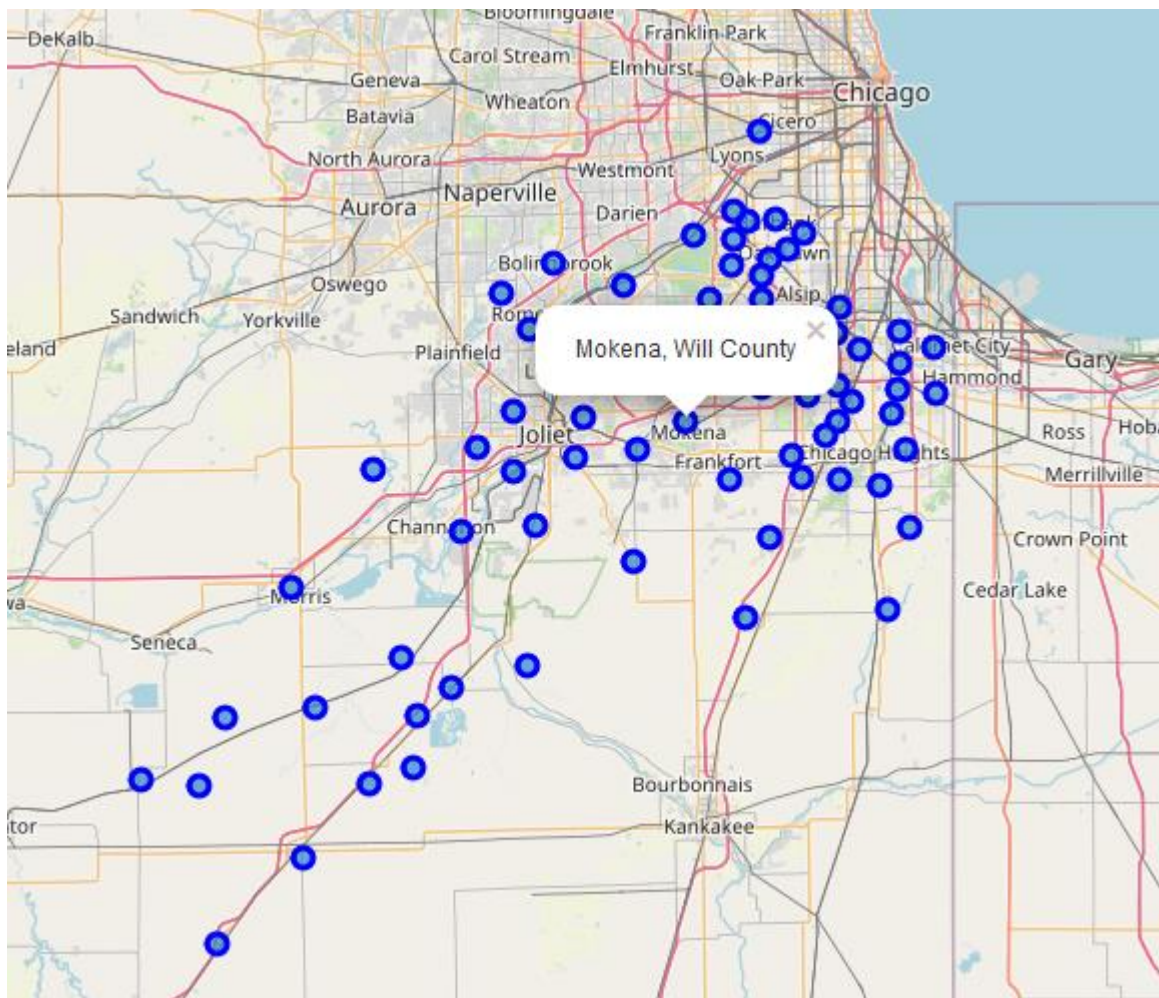
The third set of data that will be used is Foursquare data to explore each suburb in order to cluster using k-means clustering and querying to find any existing gyms/fitness centers in each suburb.

Source is at: <https://foursquare.com/> but will use its API for various calls.

#### 4. Methodology

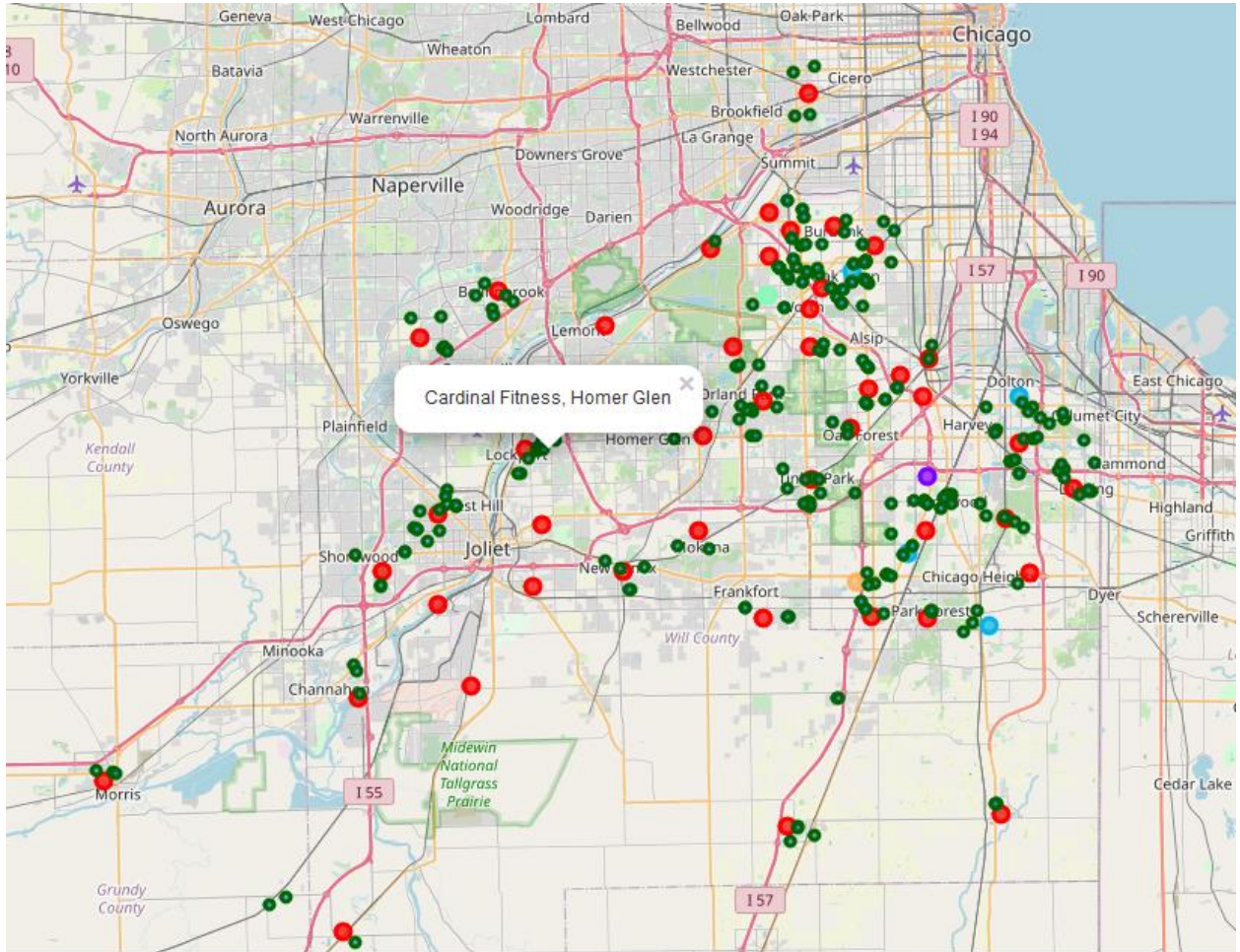
The study begins by scraping Chicago suburb and zip code data from Capital Impact. This data is contained in 3 webpage tables so needed to be merged into one data frame. Duplicate zip codes were dropped if spanning more than one community as location data would be the same and redundant. This data is then merged with Illinois zip data containing longitude and latitude coordinates.

Next, we plot the data on a folium map to get a visual of how spread out these suburbs are and their proximity to downtown Chicago.



Foursquare data is then retrieved for each one of these zip codes. First, for top venues in each community. This data will be used for k-means clustering to help show the more economically robust communities. Second, data will be retrieved for each zip code showing each gym/fitness center already in the area.

K-means clustering is performed on each community. As can be seen from the plot below, most all communities fall into the first cluster which have red labels. The larger labels are the communities and the smaller, green labels are the gyms and fitness centers overlaid onto the map.



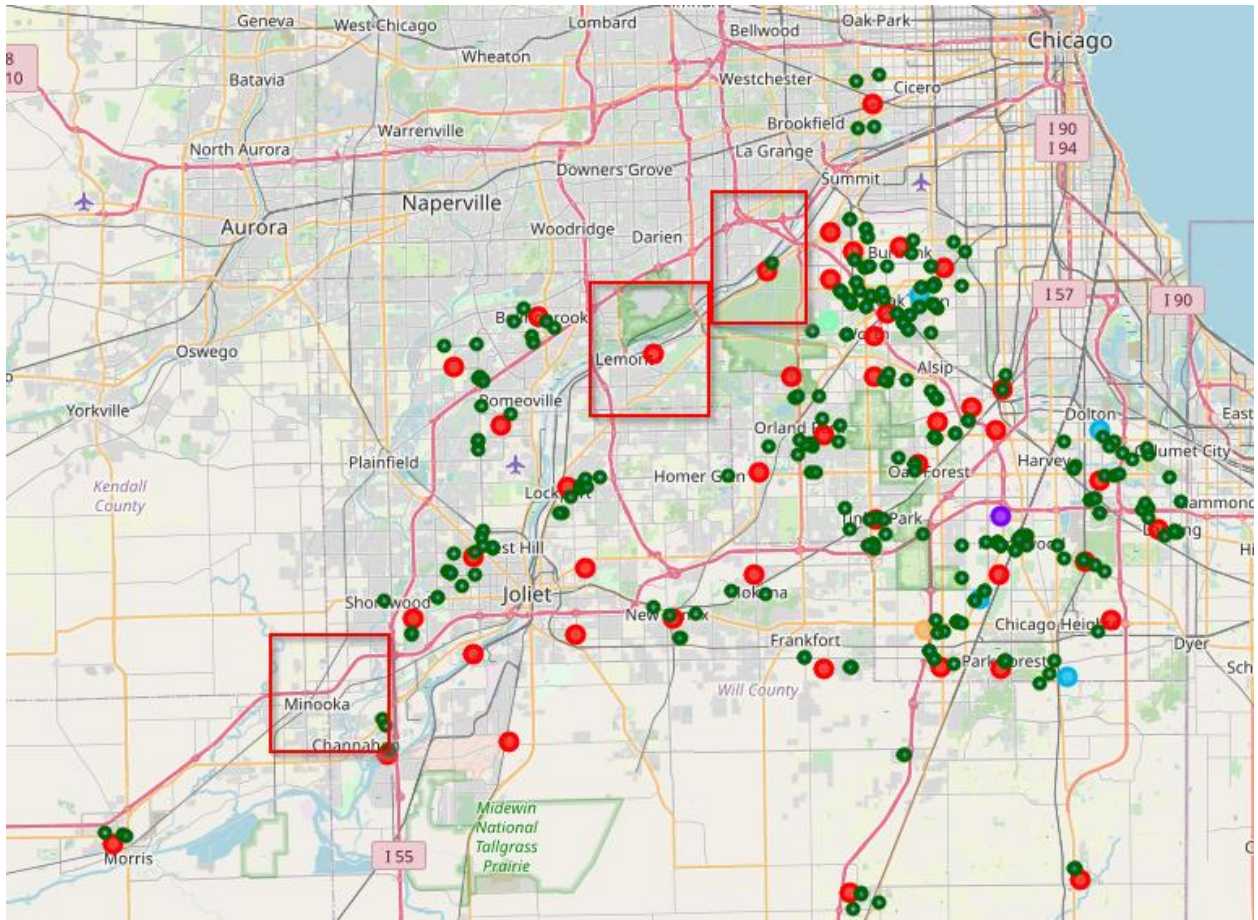
## 5. Results

From above plot it can be seen that the density of gyms/fitness centers increase the closer the suburb is to downtown Chicago. Below is the list of top 20 suburbs that have the least number of gyms.



	index	Zip Code	City	County	Latitude	Longitude	gymcount	
	0	31	60442	Wilton Center	Will County	41.392698	-87.963468	0
	1	33	60444	Mazon	Grundy County	41.243115	-88.402732	0
	2	3	60407	Braceville	Grundy County	41.234907	-88.261302	0
	3	62	60474	South Wilmington	Grundy County	41.179801	-88.266441	0
	4	48	60460	Odell	Livingston County	40.998479	-88.536714	0
	5	26	60437	Kinsman	Grundy County	41.162929	-88.560435	0
	6	69	60481	Custer Park	Will County	41.285524	-88.110548	0
	7	16	60424	Gardner	Grundy County	41.164148	-88.327716	0
	8	10	60417	Crete	Will County	41.427585	-87.586149	0
	9	36	60447	Minooka	Grundy County	41.487239	-88.322166	0
	10	58	60470	Ransom	La Salle County	41.168970	-88.641026	0
	11	13	60421	Elwood	Will County	41.431182	-88.099710	0
	12	28	60439	Argonne	Du Page County	41.676906	-87.977229	0
	13	67	60479	Verona	Grundy County	41.232384	-88.526396	0
	14	7	60411	Chicago Heights	Cook County	41.508774	-87.590314	1
	15	57	60469	Posen	Cook County	41.628359	-87.687037	1
	16	4	60408	Braidwood	Will County	41.263739	-88.215536	1
	17	68	60480	Willow Springs	Cook County	41.729231	-87.881134	1
	18	18	60426	Dixmoor	Cook County	41.610343	-87.653395	1
	19	66	60478	Country Club Hills	Cook County	41.563453	-87.725409	2

Using the visualization plot as a guide entries 9, 12, and 17 standout.



## 6. Discussion

Based on the above results, we would like to identify the best locations to open a new gym. The goal is to find locations where competition will be minimal, and the consumer base is strong. For instance, a growing community with lots of other venues. The top choices and recommendations are:

- 1) Lemont (shown as Argonne in data as have same zip code)
- 2) Willow Springs
- 3) Minooka

## 7. Conclusion

In conclusion, we set out to identify the best suburbs for the opening of a new gym to help ensure a successful business with quick ramp up of membership base. As previously discussed, there are many facets in ensuring a successful gym membership that need to be considered. This focus of this study was on choosing the best location to minimize competition. The study was able to identify the top 20 locations and give a recommendation of the top 3 best partly on clustering results as well as proximity to downtown implying stronger consumer base. These 3 are Lemont, Willow Springs, and Minooka.

