Analyzing Relocation Options for the Sugarland Skeeters

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1. Introduction

1.1. Background

The Atlantic League is an independent professional baseball league based in Lancaster, PA. The league currently consists of 8 teams, mostly located in the Northeastern United States, with one team located in Sugarland, Texas. A table of the divisional breakdown of the leagues is below:

Freedom Division	Location
Lancaster Barnstormers	Lancaster, PA
Southern Maryland Blue Crabs	Waldorf, MD
Sugarland Skeeters	Sugarland, TX
York Revolution	York, PA
Liberty Division	
High Point Rockers	High Point, NC
Long Island Ducks	Central Islip, NY
New Britain Bees	New Britain, CT
Somerset Patriots	Bridgewater, NJ

1.2. Problem

This project will investigate the fictitious decision by the Sugarland team to relocate to a city closer to the other teams to reduce travel expenses.

1.3. Interest

This would be of interest to the owner(s) of the Sugarland team, as well as to the other owners in the league. Potential players may also be interested as well, as they will need to secure living accommodations during the playing season.

2. Data acquisition and cleaning

2.1. City Requirements

For the purposes of this exercise, I will limit the scope to cities in Virginia. According to the Atlantic League's Wikipedia page, cities must be in the market for a 4,000 to 7,500-seat ballpark. Also, while not explicitly a requirement, I will follow the pattern of other teams, and not select cities that are currently served by Major or Minor League baseball teams.

2.2. FourSquare API

The FourSquare Data will be used on potential cities to check to see if a current ballpark already exists, and if not, where a good location for a new ball park might be. This will consider such things as distance to nearby restaurants and other venues.

2.3. City/Team Data

2.3.1. Major League Teams

There are currently no Major League Baseball teams operating in Virginia.

2.3.2. Minor League Teams

I retrieved a list of the existing baseball teams from here: https://en.wikipedia.org/wiki/List_of_Minor_League_Baseball_leagues_and_teams#Alphabetical_team_listing

For convenience, I downloaded the table into a csv file

2.3.3. Cities in Virginia

I will use this Wikipedia page to scrape a list of cities in Virginia: https://www.virginia-demographics.com/cities_by_population

2.4. Data Cleaning

For the city data, I decided the only data needed was the city name and the population, so I dropped all unnecessary attributes (columns). After initially examining the data, I dropped the last row, which was unnecessary. Also, based on the conditions for potential cities, I removed any city listed where the population was less than 4000.

After importing the team data, I compared the two dataframes and created a new data set that contained only the cities that did not have an already existing team. After viewing the population of the cities, I decided to examine the top 3 cities, Virginia Beach, Chesapeake, and Arlington.

3. Data Methodology

For each city, I created an initial map with the Folium package. On this map, I looked to determine if there was a noticeable place where either a ballpark existed or an empty area where a ballpark could potentially be built. If one was found, the map was re-drawn with the coordinates in the center.

After centering the initial map, I used the Four Square API to return any nearby venues. Due to network and speed issues, I limited the results to the top 15 venues returned within a 500 kilometer radius. I also believe that having restaurants among the nearby venues is ideal, so I limited my search to restaurants.

After retrieving the nearby restaurants for each city, I created another map will the potential location spot marked in red, and any nearby restaurants marked in blue.

4. Results

4.1. Results for Virginia Beach

The initial map of Virginia Beach immediately yielded a potential ballpark location in the form of Beach Garden Park.

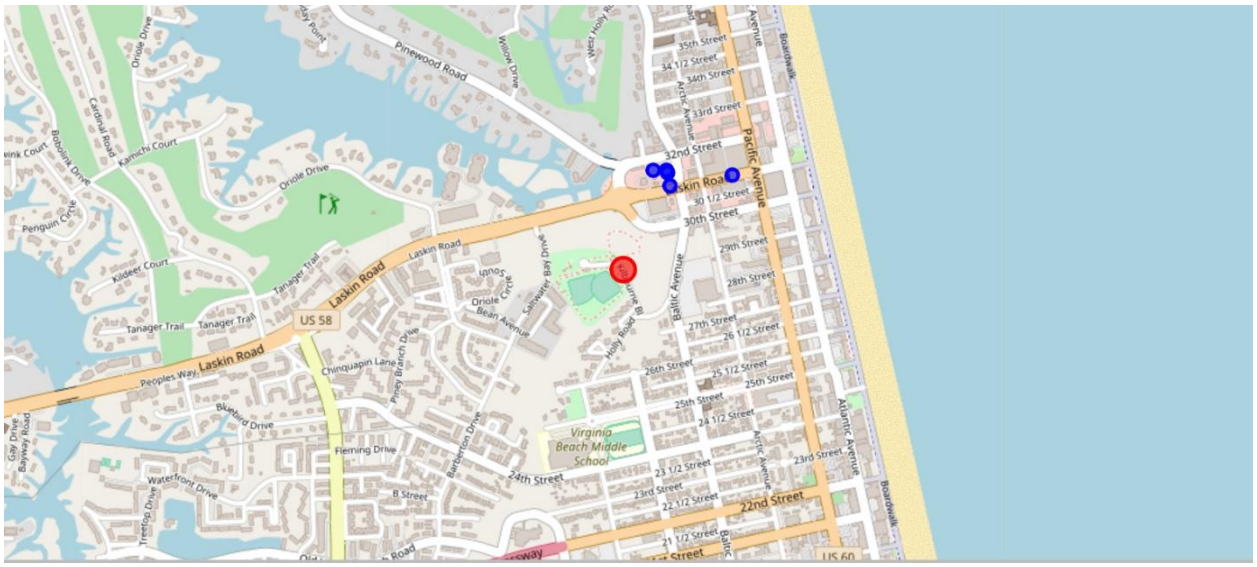

Figure 1 - Ballpark location and nearby restaurants in Virginia Beach

As seen above, there are several restaurants within the defined radius of the potential ballpark location.

4.2. Results for Chesapeake

The initial map of Chesapeake did not display any pre-existing park or ball park. However, there appeared to be a large area where a ball park could be developed. Using this as the center point, I re-ran the same analysis performed for Virginia Beach. However, no results were yielded using the search query ‘Restaurant’ in the FourSquare API. Because of this, I ran a second call to the FourSquare API returning all venue categories.

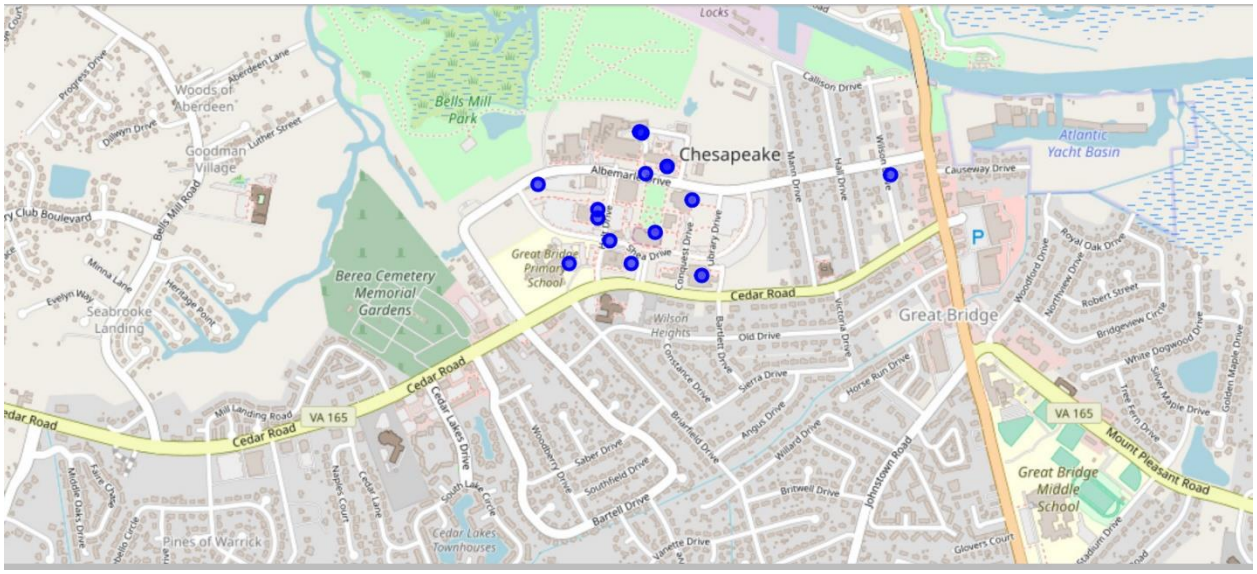

Figure 2 - Map of Chesapeake with nearby venues highlighted

As seen above, many different venues are located next to the spot where a ballpark could be built. However, none of these venues are restaurants or other places that would be conducive to generating business for ballpark attendees.

4.3. Results for Arlington

The initial map of Arlington did not yield any noticeable ballpark or area where a ball park could be built. Because of this, I used the coordinates returned by Nominatum geolocator for the FourSquare API, rather than redraw the map as I had for the previous two cities.

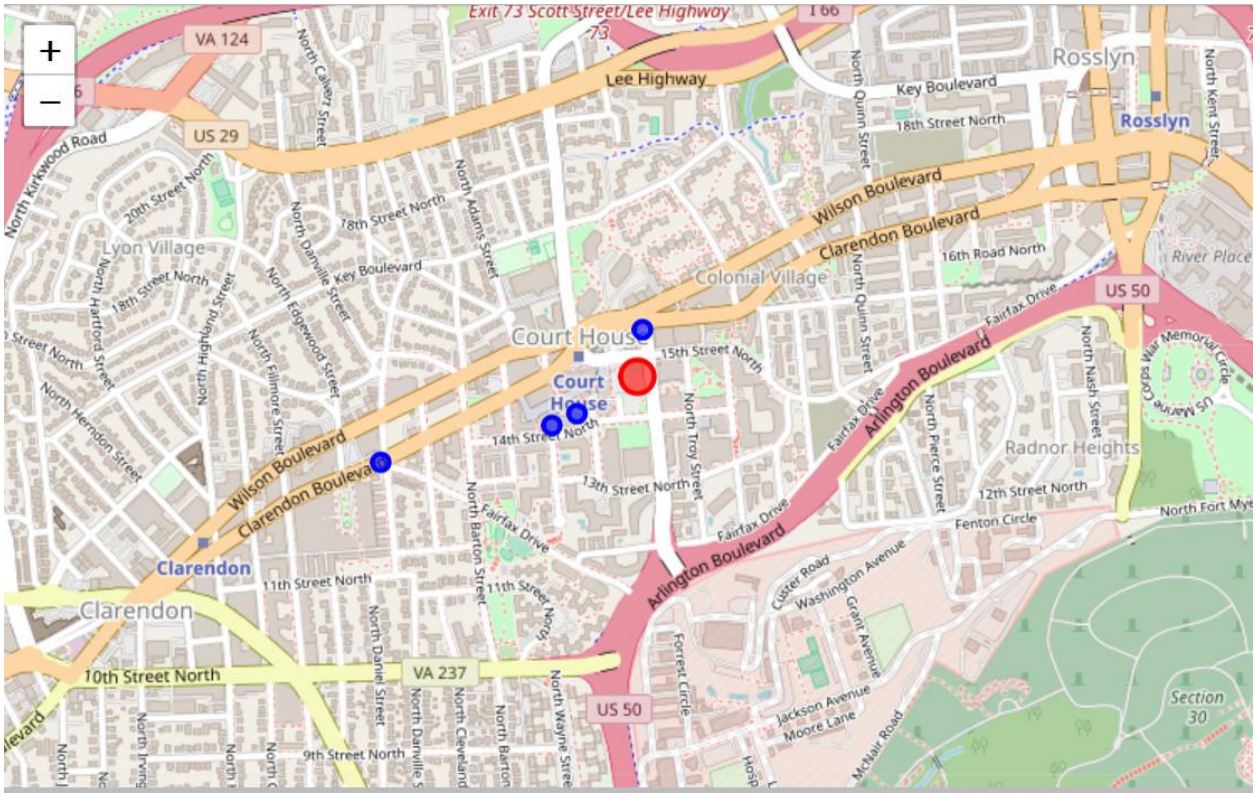

Figure 3 - Map of Arlington with nearby venues highlighted

Although there does seem to be good potential with restaurant nearby, lack of potential site for a ballpark is a big deterrent for Arlington. Another problem is Arlington's proximity to Washington, DC, which is home to a major league team. While Arlington technically would fit with other teams in the Atlantic League, it could be cause for concern with a top-level team close by.

5. Discussion

Based on the results, Virginia Beach is the best option for relocation. Not only is it the largest city that was examined, but the analysis of the venues suggests that having a ballpark around Beach Garden Park would allow for several restaurants to be within walking distance.

This is just an initial analysis, as further research will need to be done. This includes, but is not limited to, getting the required funding, an analysis of parking availability, public transportation. Reception by residents and businesses must also be considered.

6. Conclusion

In this study, I looked a fictitious scenario where the Sugarland Skeeters, a professional baseball team in the Atlantic League, were relocating to a city in Virginia. Using population data as well as cities with existing teams, I identified potential sites for relocation. For each of the top 3 cities, I viewed maps to determine if a ballpark already exists, and if not, if there is a potential site where a ballpark can be built.

Another portion of the study had to do with venues near to the site location, with a focus of nearby restaurants. Using the FourSquare API, I retrieved information on nearby venues and mapped them on to visualize their proximity to a potential site. While not an exhaustive study including things such as resident and business acceptance, parking availability and access to public transportation, this analysis serves as a first step in determining a home for the Skeeters in years to come.