



DETERMINING THE BEST PLACE FOR A VIETNAMESE RESTAURANT IN SEATTLE

Introduction

Seattle is one of the United States's most diverse cities. With a population of over 750,000 people living within the city's borders, according to U.S. Census 2019 estimates. The population is about 65% white, 15% Asian, 7% African American, 6 % Hispanic, and 7% mixed race. This racial diversity means a variety of food.

One genre of food, Vietnamese food, is considerably popular. According to the British statistics company YouGov, it is the 13th most popular genre of food internationally. There are no food popularity statistics in the United States. However, the non-profit group Visit Seattle has reported that in 2019, an estimated 41 million tourists visited the city. This number combines both domestic and international tourism.

With the large tourism numbers, a restaurateur is seeking guidance on the best possible location to open a new Vietnamese restaurant. The restaurateur believes that with Asian Americans as the second largest race residing in Seattle, combined with Seattle's tourism, would lead to a profitable restaurant.

Research Question

The research question asked: What would be the best district, defined by zip code, to place a Vietnamese restaurant in Seattle? The restaurateur notes this is a preliminary analysis looking only at physical location. The costs of running such a business would be determined at a later point.

Requirements

The restaurateur has outlined the following requirements:

1. The data be organized by zip code due to lack of easily obtainable neighborhood data for Seattle.
2. The Vietnamese restaurant is not located in the same district as another Vietnamese restaurant.
3. There is at least 1 major tourist attraction in the same district. This will be defined by Visit Seattle's Top 25 Tourist Attractions. (See: <https://visitseattle.org/things-to-do/sightseeing/top-25-attractions/>)
4. The restaurant is located within the city boundaries.
5. If there are multiple districts that meet criteria 1-4, the district with the least number of restaurants and bars, including coffee shops, as well as no nightclubs in the top 10 most common venues shall be selected.

Methodology

The study shall use the FourSquare API to determine the locations that best meet the project requirements. K-Means clustering was originally intended to be used to help analyze the data, but when running the analyses, the clustering did not reveal anything useful, given the criteria of the project. Therefore, k-means clustering analysis information has been omitted from the report.

Data

The data to be used include:

- Json data for Seattle's zip codes, as well as each zip code's median income and population displayed on a map and table (Appendix A)
- Dataframe and map listing Visit Seattle's Top 25 Attractions, including zip codes (Appendix B)
- Table displaying zip codes with Vietnamese restaurants already within them (Appendix C)
- Map displaying the Seattle Zip Codes and the Vietnamese restaurants labelled in red (Appendix C)
- Map displaying 5 eligible locations (Appendix D)
- Table of top 10 venues inside each eligible location (Appendix E)
- Map displaying the chosen location in a yellow circle (Figure 1)

Data frames were created manually rather than with BeautifulSoup webscraping techniques due to a lack of easily scrapable data from the sources.

Results

When analyzing the data, some of the districts had to be omitted due to the zip code not falling within city boundaries. A table and map of this is shown in Appendix A. Additionally, some attractions from Visit Seattle's list had to be omitted due to a lack of central location or they were not in Seattle itself. A table and map of the attractions is shown in Appendix B. There were 24 zip codes and 19 attractions that were considered in Seattle.

When looking at purely Vietnamese restaurants FourSquare was able to locate 6 Vietnamese restaurants across 4 districts within Seattle. A table and map displaying this can be found in Appendix C. All 18 attractions were concentrated in 6 districts of Seattle. Among the 6 districts with attractions, only 1 district had at least 1 Vietnamese restaurant within the district and therefore is not eligible for the report's final recommendations. Therefore, five districts remained eligible. The districts are: 98101, 98108, 98109, 98119, and 98134. A map displaying the eligible districts is shown in Appendix E.

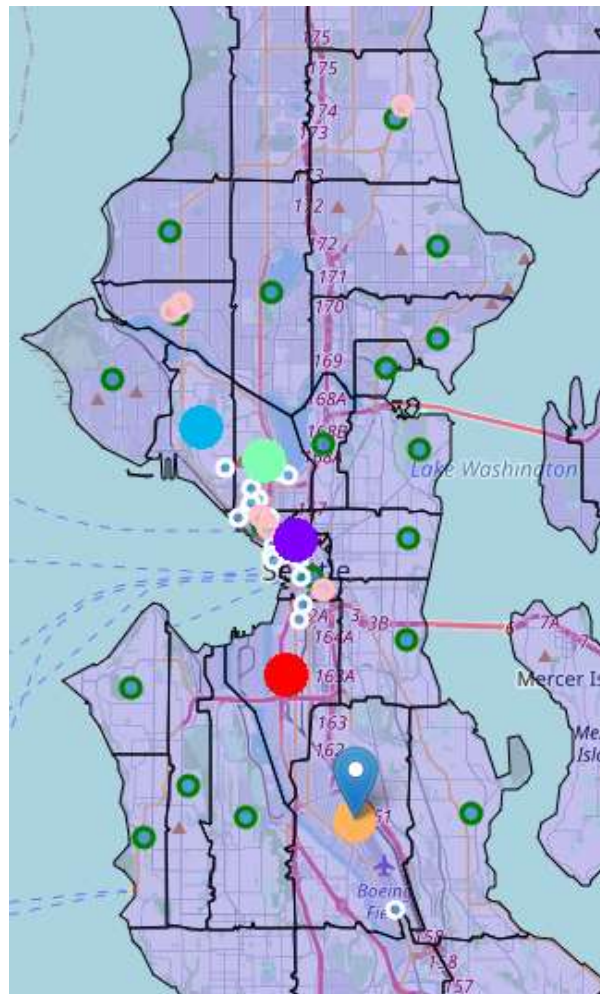
The final criterion of the analysis is that the selected district has the least number of restaurants and bars in the top 10 most common venues, including coffee shops and food trucks, among the remaining eligible districts. A table displaying this information is found in Appendix E. The data indicates that

district 98101 has 5 types of restaurants and bars in its top 10 most common type of venue found. District 98108 has 4 types of restaurants and bars within its top 10. District 98109 has 6 types of restaurants and bars. District 98119 has 6 types of restaurants and bars. And District 98134 has 4 types of restaurants and bars and a night club in its borders

Final Recommendation and Discussion of the Study

Based on the results, the study recommends that District 98108 as the best district to construct a new Vietnamese restaurant (Figure 1). The location selected meets all 5 criteria set by the client. There are currently no known Vietnamese restaurants located within the district, according to the FourSquare API. There is one attraction from Visit Seattle's Top Tourist Attractions list located within the district. And among all the eligible districts, District 98108 has comparatively less competition the other eligible districts, with only 4 types of restaurants and bars occupying the top 10 most common venues. While District 98134 is tied with 98108 for this distinction, the district also has a nightclub in its area, which makes it ineligible on the final criterion.

Figure 1. Recommended district for a new Vietnamese Restaurant



There are several strengths and weaknesses to this study. The main strength of this study is that it draws data from several reputable sources. Visit Seattle is a non-profit organization that is sponsored by the Seattle government as the official tourism organization for the city. This study is also done on behalf of an underrepresented restaurant category for the city of Seattle. The selected location also has comparatively less competition within the district, which may assist in ensuring a stable revenue flow without excess effort.

The major weakness of the study is the scope of the study. The study does not analyze the affect other restaurants within the same zip code may have on the profitability of a Vietnamese restaurant. This limitation, however, is mitigated by the fact that the restaurant in question will be the first restaurant of its genre within that zip code and is not in complete, direct competition with the immediately surrounding restaurants. The next limitation is that the study does not consider the effects of property tax, business tax, or other financial factors into consideration. The study is to strictly analyze physical location.

The recommendations of the report are still valid based on the criteria of the project and the belief that the strengths of the report outweighing the limitations.

References

<https://e.vnexpress.net/news/travel/food/vietnamese-cuisine-among-world-s-most-favorite-3899137.html#:~:text=A%20YouGov%20survey%20finds%20Vietnamese,popular%20cuisines%20in%20the%20world.>

<https://www.census.gov/quickfacts/fact/table/seattlecitywashington,US/PST045219>

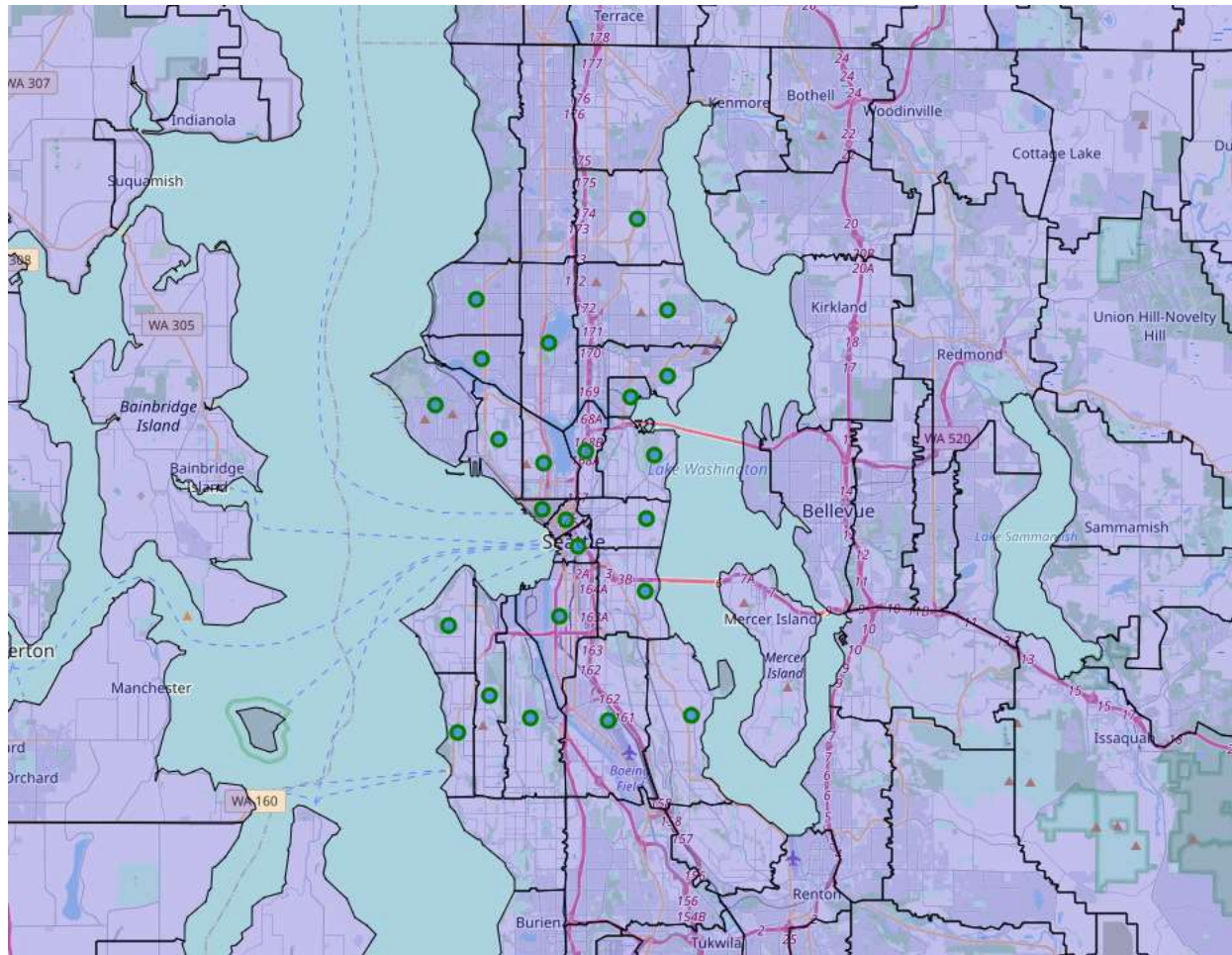
<https://visitseattle.org/press/press-releases/seattle-tourism-statistics-announced/>

https://opendata.arcgis.com/datasets/83fc2e72903343aabff6de8cb445b81c_2.geojson

<https://www.zipdatamaps.com/zipcodes-seattle-wa>

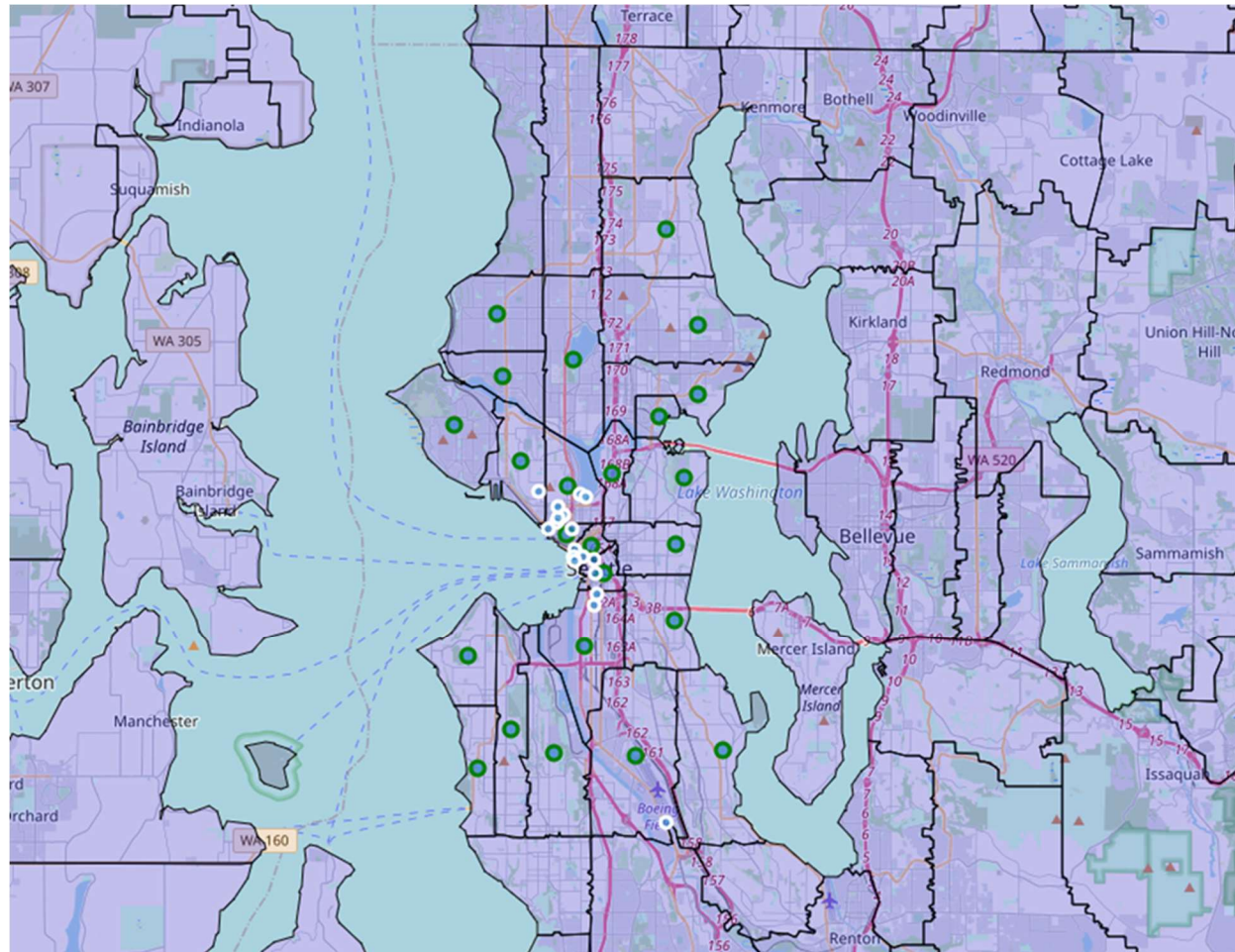
<https://visitseattle.org/things-to-do/sightseeing/top-25-attractions/>

Appendix A: Table and Map of Seattle Districts



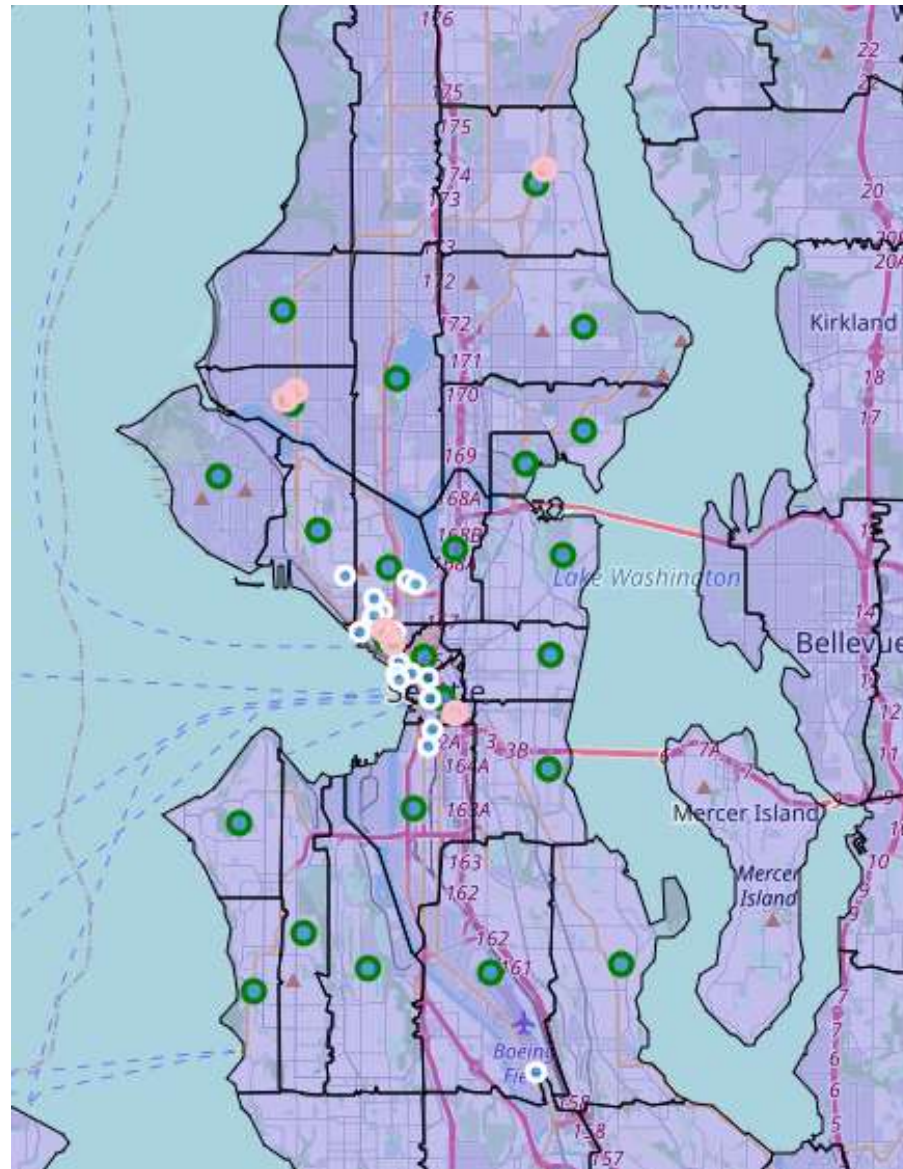
	Zip Code	Latitude	Longitude	Median Income	Population
0	98101	47.6114	-122.334	\$40,466	10,238
1	98102	47.6354	-122.324	\$61,467	20,756
2	98103	47.673	-122.343	\$68,534	45,911
3	98104	47.6019	-122.328	\$20,374	13,095
4	98105	47.6615	-122.281	\$53,688	43,924
5	98106	47.5418	-122.353	\$53,174	22,873
6	98107	47.6679	-122.378	\$59,633	21,147
7	98108	47.541	-122.312	\$68,210	22,374
8	98109	47.6312	-122.346	\$71,268	20,175
9	98112	47.634	-122.288	\$89,205	21,077
10	98115	47.6848	-122.281	\$80,781	46,206
11	98116	47.5741	-122.395	\$79,020	22,241
12	98117	47.6884	-122.381	\$77,411	31,365
13	98118	47.5425	-122.269	\$58,733	42,731
14	98119	47.6395	-122.369	\$72,039	21,039
15	98121	47.6151	-122.347	\$44,991	12,628
16	98122	47.6116	-122.292	\$46,681	31,454
17	98125	47.7167	-122.297	\$55,618	37,081
18	98126	47.5498	-122.374	\$63,189	20,698
19	98134	47.5773	-122.337	\$54,646	644
20	98136	47.5367	-122.39	\$79,346	14,770
21	98144	47.5861	-122.293	\$54,642	26,881
22	98195	47.6542	-122.3	N/A	0
23	98199	47.6517	-122.402	\$81,257	19,686

Appendix B: Table and Map of Seattle Attractions



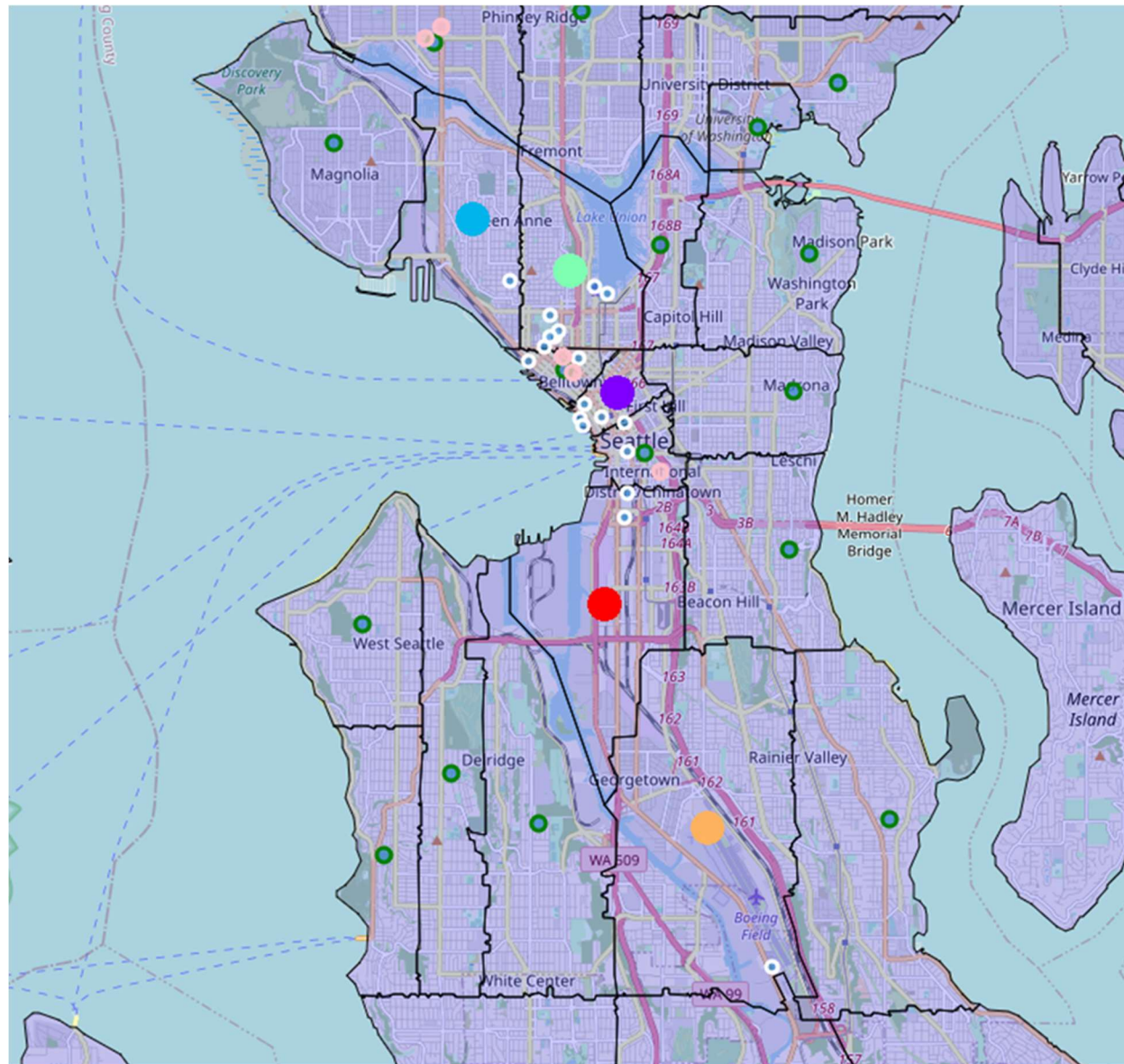
	Attraction	Zip Code	Latitude	Longitude
0	Space Needle	98109	47.620500	-122.349300
1	Seattle Center Monorail	98109	47.617004	-122.343506
2	Museum of Pop Culture	98109	47.621500	-122.348100
3	Pacific Science Center	98109	47.619000	-122.351600
4	Chihuly Garden and Glass	98109	47.620600	-122.350400
5	Pacific Northwest Ballet at McCaw Hall	98109	47.624000	-122.350300
6	Pike Place Market	98101	47.609700	-122.342200
7	Seattle Art Museum	98101	47.607500	-122.338000
8	Olympic Sculpture Park	98101	47.616600	-122.355300
9	Seattle Central Library	98104	47.606700	-122.332500
10	Smith Tower	98104	47.601900	-122.331900
11	Seattle Aquarium	98101	47.607400	-122.343000
12	Seattle Great Wheel	98101	47.606100	-122.342500
13	The Museum of Flight	98108	47.518500	-122.296900
14	T Mobile Park	98134	47.591400	-122.332500
15	Lumen Field	98134	47.595200	-122.331600
16	Kerry Park	98119	47.629500	-122.359900
17	Kenmore Air	98109	47.628600	-122.339800
18	Museum of History and Industry	98109	47.627500	-122.336600

Appendix C: Map and Table of Vietnamese Restaurants in Seattle



	Zip Code	Zip Code Latitude	Zip Code Longitude		Venue	Venue Latitude	Venue Longitude	Venue Category
168	98104	47.601853	-122.327707		Pho Ba	47.598787	-122.323789	Vietnamese Restaurant
200	98107	47.667924	-122.378125	The Monkey Bridge		47.668518	-122.380065	Vietnamese Restaurant
290	98107	47.667924	-122.378125	Vietnam Cafe & Sandwich		47.670359	-122.376489	Vietnamese Restaurant
393	98121	47.615130	-122.346750		Local Pho	47.614623	-122.344625	Vietnamese Restaurant
411	98121	47.615130	-122.346750		Meekong Bar	47.617159	-122.347169	Vietnamese Restaurant
498	98125	47.716703	-122.297267	Pho An Restaurant		47.720061	-122.294529	Vietnamese Restaurant

Appendix D: Map of Eligible Districts



Appendix E: Table of Top 10 Most Common Venues in the Eligible Districts

	Zip Code	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	98101	Hotel	Coffee Shop	Pizza Place	Clothing Store	Sandwich Place	American Restaurant	Spa	Women's Store	Gym	Dumpling Restaurant
1	98108	Museum	Heliport	Business Service	Yoga Studio	Dessert Shop	Cosmetics Shop	Creperie	Cuban Restaurant	Cupcake Shop	Deli / Bodega
2	98109	Coffee Shop	Bus Stop	ATM	Playground	Donut Shop	Harbor / Marina	Herbs & Spices Store	Deli / Bodega	IT Services	Italian Restaurant
3	98119	Bakery	Grocery Store	Dive Bar	Playground	Café	Mexican Restaurant	Sandwich Place	Ice Cream Shop	Coffee Shop	Donut Shop
4	98134	Coffee Shop	Food Truck	Furniture / Home Store	Marijuana Dispensary	Nightclub	Brewery	Bus Station	Grocery Store	Hardware Store	Deli / Bodega