

Introduction

I and my coworkers like Thai food. There don't seem to be many Thai restaurants around here. Foursquare will be used for locating current Thai restaurants. This will be joined with population data to determine where it would be a good idea to open a Thai restaurant.

Data

Initially, I wanted to do this for the whole county. However, the county is a mix of suburbs, a very large rural area, and one very small urban area. The varying sizes of the neighborhoods made comparison difficult (and not very useful). The rural zip code/neighborhood is about 150 square miles, whereas typical suburban neighborhoods are 5 square miles.

Fortunately, the City of Port Saint Lucie (within Saint Lucie county) recently started dividing the city into neighborhoods (<https://www.cityofpsl.com/government/departments/neighborhood-services/nice-program/neighborhoods#:~:text=Neighborhoods%20%20%20%20Neighborhood%20%20%20,community%20wit%20...%20%2026%20more%20rows%20>). So I decided to focus on the city of Port Saint Lucie.

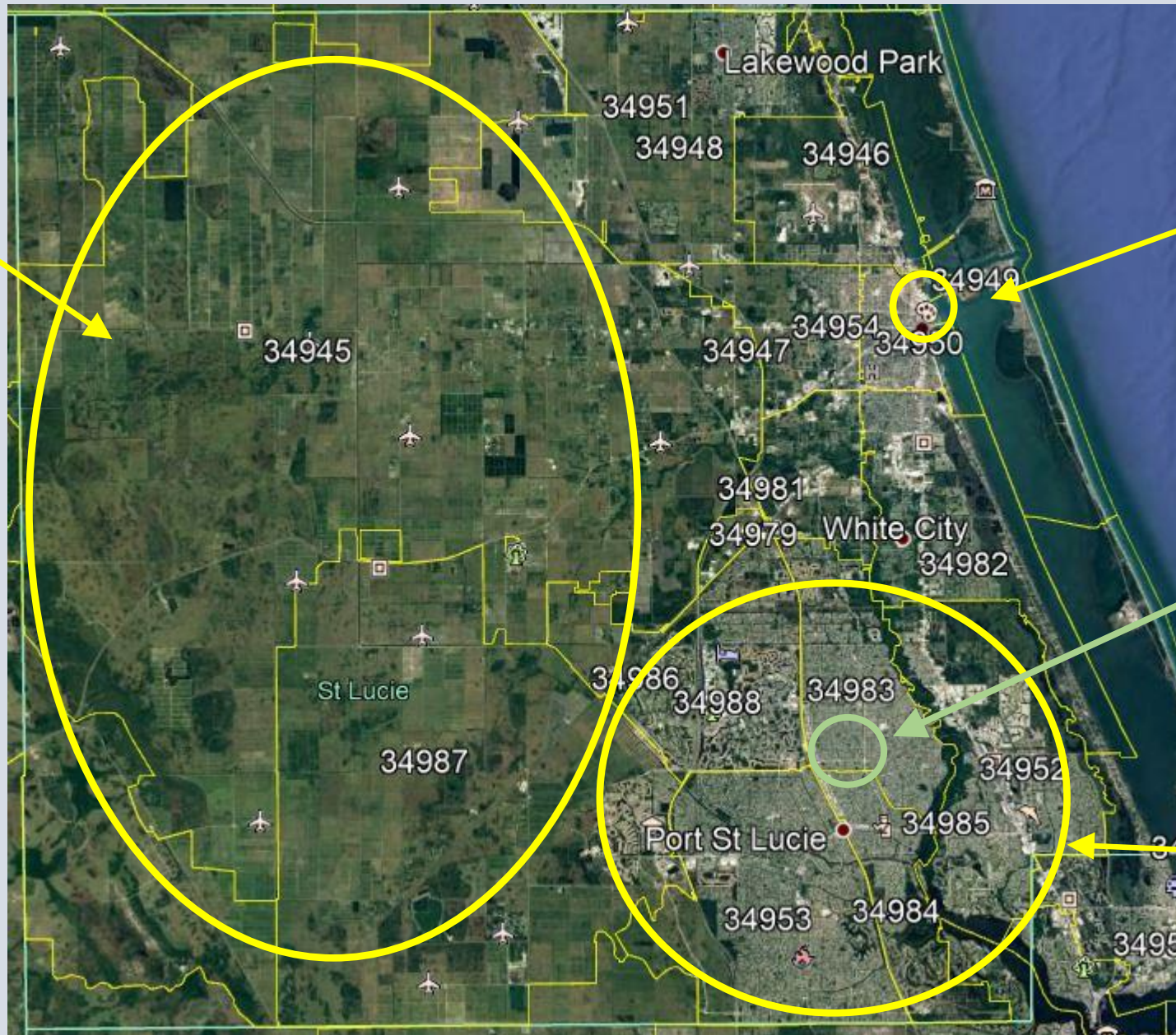
Saint Lucie County, Florida, USA

Very large
rural/farm area
(there are no
neighborhoods
here)

Very small
urban/downtown area

Typical
neighborhood size
in city of Port Saint
Lucie

City of Port Saint Lucie



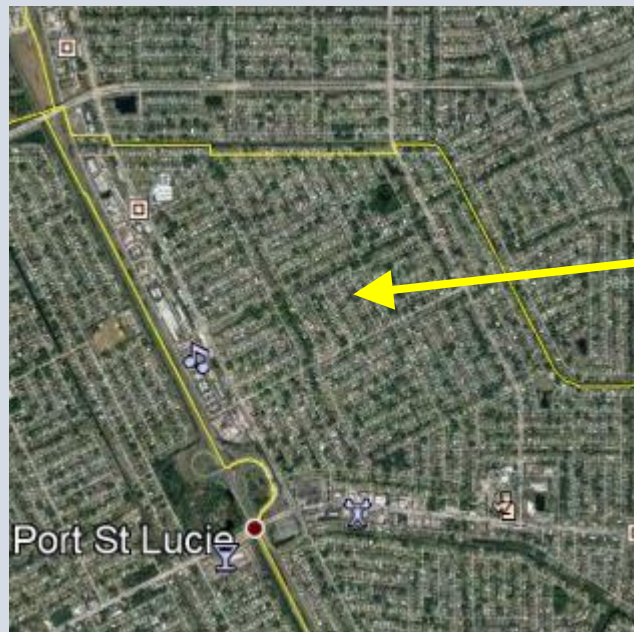
Methodology

The locations of the neighborhoods are shown on the city's webpage and I used Google Earth Pro to find the approximate centers of them (for coordinates). The coordinates were recorded to an Excel spreadsheet. The population of the neighborhoods is also given and I copied that as well. The spreadsheet was exported as a csv. Foursquare was used to get a list of restaurants (and their type) by neighborhood. This data was used to figure out which neighborhoods did not have Thai restaurants. The population data was added to it and it was put into descending order to see the most populous neighborhoods.

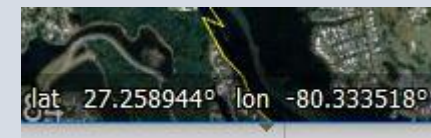
Neighborhoods as displayed on the city's website...

NEIGHBORHOOD	DESCRIPTION
<p data-bbox="468 268 687 299">Bayshore Heights</p> 	<p data-bbox="901 374 1579 479">Dominantly a residential area, Bayshore Heights neighborhood is conveniently located near shops and restaurants.</p>

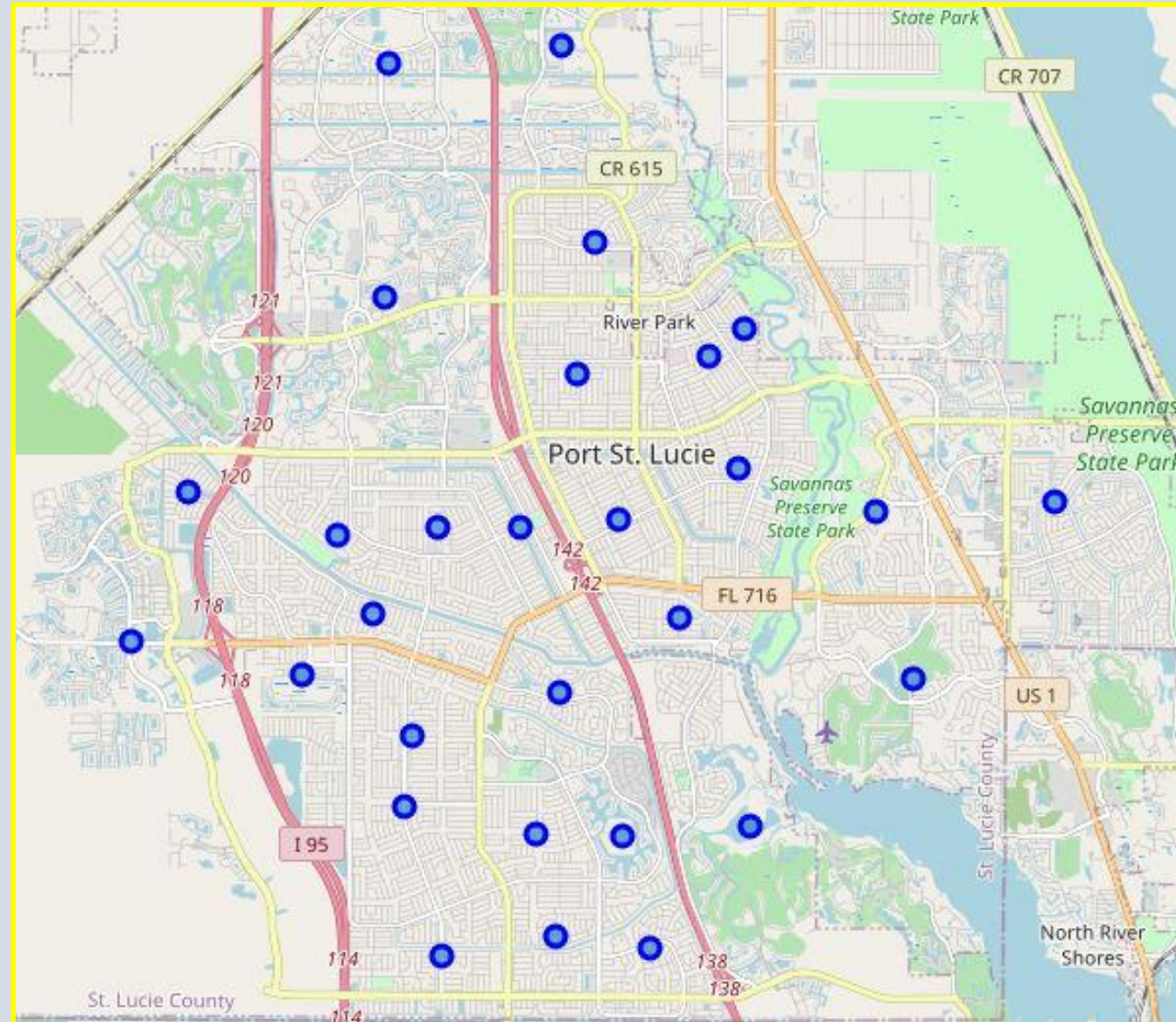
Bayshore Heights on Google Earth Pro...



Holding the cursor here on Google Earth Pro displays the coordinates in the lower right corner. I recorded this data for each neighborhood.



Folium map of all neighborhoods in Port Saint Lucie



The category ID for Foursquare API was changed to the one for restaurants only.

```
### Function to get nearby venues
# category ID limits results to restaurants
def getNearbyVenues(names, latitudes, longitudes, radius=2500, categoryId='4d4b7105d754a06374d81259'):
    venues_list=[]
```

Example of venues
returned:

psl_venues - DataFrame							
Index	Neighborhood	Neighborhood Lat	Neighborhood Lon	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Bayshore Heights	27.2836	-80.3527	Anthony's Pizza	27.275	-80.3543	Pizza Place
1	Bayshore Heights	27.2836	-80.3527	La Granja	27.2731	-80.3426	Peruvian Restaurant
2	Bayshore Heights	27.2836	-80.3527	Jersey Mike's Subs	27.2739	-80.3537	Sandwich Place
3	Bayshore Heights	27.2836	-80.3527	Goma	27.2738	-80.3511	Sushi Restaurant
4	Bayshore Heights	27.2836	-80.3527	Shindig	27.2714	-80.36	Irish Pub
5	Bayshore Heights	27.2836	-80.3527	Pueblo Viejo	27.2752	-80.3559	Mexican Restaurant
6	Bayshore Heights	27.2836	-80.3527	Tail-Gators Brews & Grill	27.2718	-80.3592	American Restaurant
7	Bayshore Heights	27.2836	-80.3527	Susie Q's	27.2734	-80.3421	Café
8	Bayshore Heights	27.2836	-80.3527	Dixie Cream Donuts	27.2989	-80.3685	Donut Shop
9	Bayshore Heights	27.2836	-80.3527	Tin Fish Restaurant	27.2732	-80.3412	American Restaurant
10	Bayshore Heights	27.2836	-80.3527	SUBWAY	27.275	-80.3557	Sandwich Place
11	Bayshore Heights	27.2836	-80.3527	Papa John's Pizza	27.2748	-80.353	Pizza Place
12	Bayshore Heights	27.2836	-80.3527	Tropical Smoothie Cafe	27.273	-80.3437	Café
13	Bayshore Heights	27.2836	-80.3527	Taco Bell	27.2741	-80.3484	Taco Place
14	Bayshore Heights	27.2836	-80.3527	Popeyes Louisiana Kitchen	27.2733	-80.3482	Fried Chicken Joint
15	Bayshore Heights	27.2836	-80.3527	Vista Grille	27.2716	-80.3595	Greek Restaurant
16	Bayshore Heights	27.2836	-80.3527	Dunkin'	27.273	-80.3443	Donut Shop
17	Bayshore Heights	27.2836	-80.3527	Domino's Pizza	27.273	-80.344	Pizza Place

“Onehot” converts venues to their types instead of their names. It replaces the names with a 1 in the category column.

[illegible]

Neighborhood	Thai Restaurant
Bayshore Heights	0
Becker Ridge	0
Canal Pointe	0
Cashmere Cove	0
Crane Landing	0
Fairgreen Crossings	0
Floresta Gardens	0
Floresta Pointe	0
Gatlin Pines	0
Hidden Oaks	0
Lyngate/Morningside	0
Newport Isles	0
Northport Village	0
Oak Hammock	0
Paar Estates/Sawgrass Lakes	0
Palm Trails	0
Riverview	1
Rosser Reserve	0
Saint Lucie North	0
Saint Lucie West	1

A DataFrame was made of only the Thai restaurant results (all results not shown).



A DataFrame omitting the neighborhoods with Thai restaurants was made (to show the ones without them).



Neighborhood	Thai Restaurant
Bayshore Heights	0
Becker Ridge	0
Canal Pointe	0
Cashmere Cove	0
Crane Landing	0
Fairgreen Crossings	0
Floresta Gardens	0
Floresta Pointe	0
Gatlin Pines	0
Hidden Oaks	0
Lyngate/Morningside	0
Newport Isles	0
Northport Village	0
Oak Hammock	0
Paar Estates/Sawgrass Lakes	0
Palm Trails	0
Rosser Reserve	0
Saint Lucie North	0
Sandhill Crossing	0
Sandpiper Bay	0
Southbend Lakes	0
Swan Park	0
Torino	0
Tradition	0
Tulip Park	0
Whispering Pines	0
Woodland Trails	0

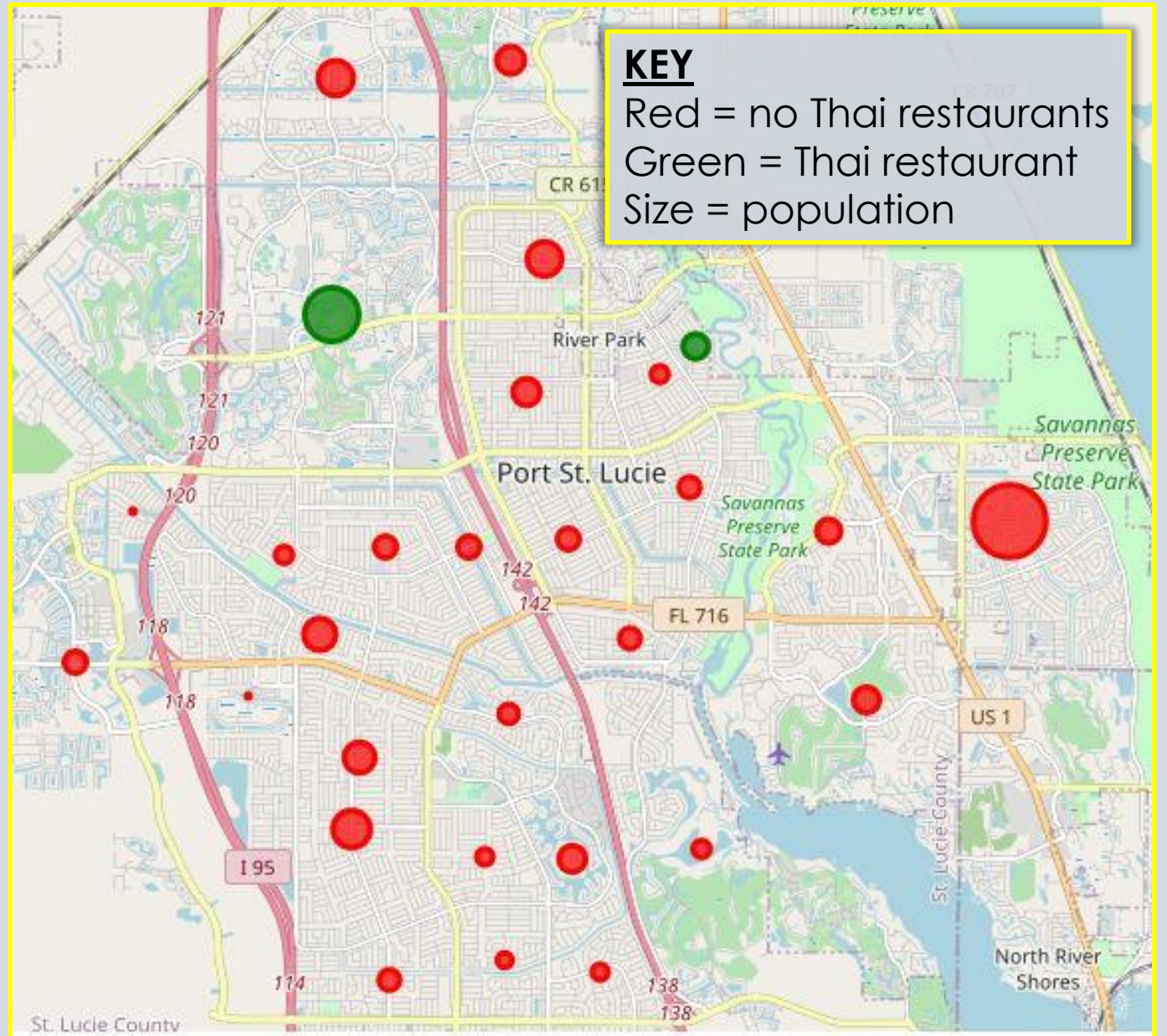
The DataFrame of neighborhoods without Thai restaurants had population added to it. Then it was arranged by population size (descending).



Index	Thai Restaurant	neighborhood	population
18	0	Sandhill Crossing	18277
16	0	Rosser Reserve	9352
22	0	Torino	8891
12	0	Northport Village	8762
9	0	Hidden Oaks	8089
8	0	Gatlin Pines	7760
17	0	Saint Lucie North	6970
21	0	Swan Park	6832
14	0	Paar Estates/Sawgrass Lakes	6694
19	0	Sandpiper Bay	6519
10	0	Lyngate/Morningside	6074
3	0	Cashmere Cove	5560
23	0	Tradition	5558
0	0	Bayshore Heights	5511
15	0	Palm Trails	5511
6	0	Floresta Gardens	5290
2	0	Canal Pointe	5238
26	0	Woodland Trails	5238
25	0	Whispering Pines	4880
20	0	Southbend Lakes	4326
13	0	Oak Hammock	4307
7	0	Floresta Pointe	4265
24	0	Tulip Park	4128
1	0	Becker Ridge	4006
4	0	Crane Landing	3705
5	0	Fairgreen Crossings	1093
11	0	Newport Isles	961

Folium map of neighborhoods and whether they have Thai restaurants.

Hovering over the markers shows the neighborhood name and the population.



Results

There are 29 neighborhoods in Port Saint Lucie. There are only two that have Thai restaurants (Riverview and Saint Lucie West). All of the other ones did not have Thai restaurants.

Discussion

The five most populous neighborhoods without Thai restaurants are Sandhill Crossing (18277), Rosser Reserve (9352), Torino (8891), Northport Village (8762), and Hidden Oaks (8089). These would be ones to consider opening one in. It would also be helpful to have income level and data on how often people eat out in each neighborhood. However, I couldn't find income data that was not based on zip codes (and zip codes overlap neighborhoods).

Conclusion

Based on lack of Thai restaurants and the highest population Sandhill Crossing is the best place to open a new one (or at least seriously consider doing more research into it).