THE BATTLE OF THE NEIGHBORHOODS: HENNEPIN COUNTY, MINNESOTA

THE SEARCH TO FIND THE PERFECT CITY TO OPEN NEW RESTAURANT

Danielle Dumonceaux — April 2020

Meet the investor

* World renown multi-culinary chef

* Supports underrepresented cuisines in prominent restaurant communities

    * Adds their own personal touches of modernization and innovation to each underrepresented cuisine's dish

* Chosen to move to Hennepin County in Minnesota to open a new restaurant

    * Top rankings ranging from Fortune 500 companies to startup businesses

    * Strong culinary following

Interest to the Investor

* Urban Area

* Household salary equates to middle class

    * Monthly income equal or greater than $3,334

* Population of area between 21,000-90,000

    * Support the business

* Rich culinary scene

Data Understanding

1.**Metropolitan Council**

(https://metrocouncil.org/Data-and-Maps.aspx)

    1.Identify the neighborhoods 2017

    2.Collective population 2017

    3.Average Salary 2017

2.**Foursquare**

    1.Comprehensive venue listing

3.**Geospatial Data**

    1.Integrate venues to
neighborhoods by
longitude and latitude

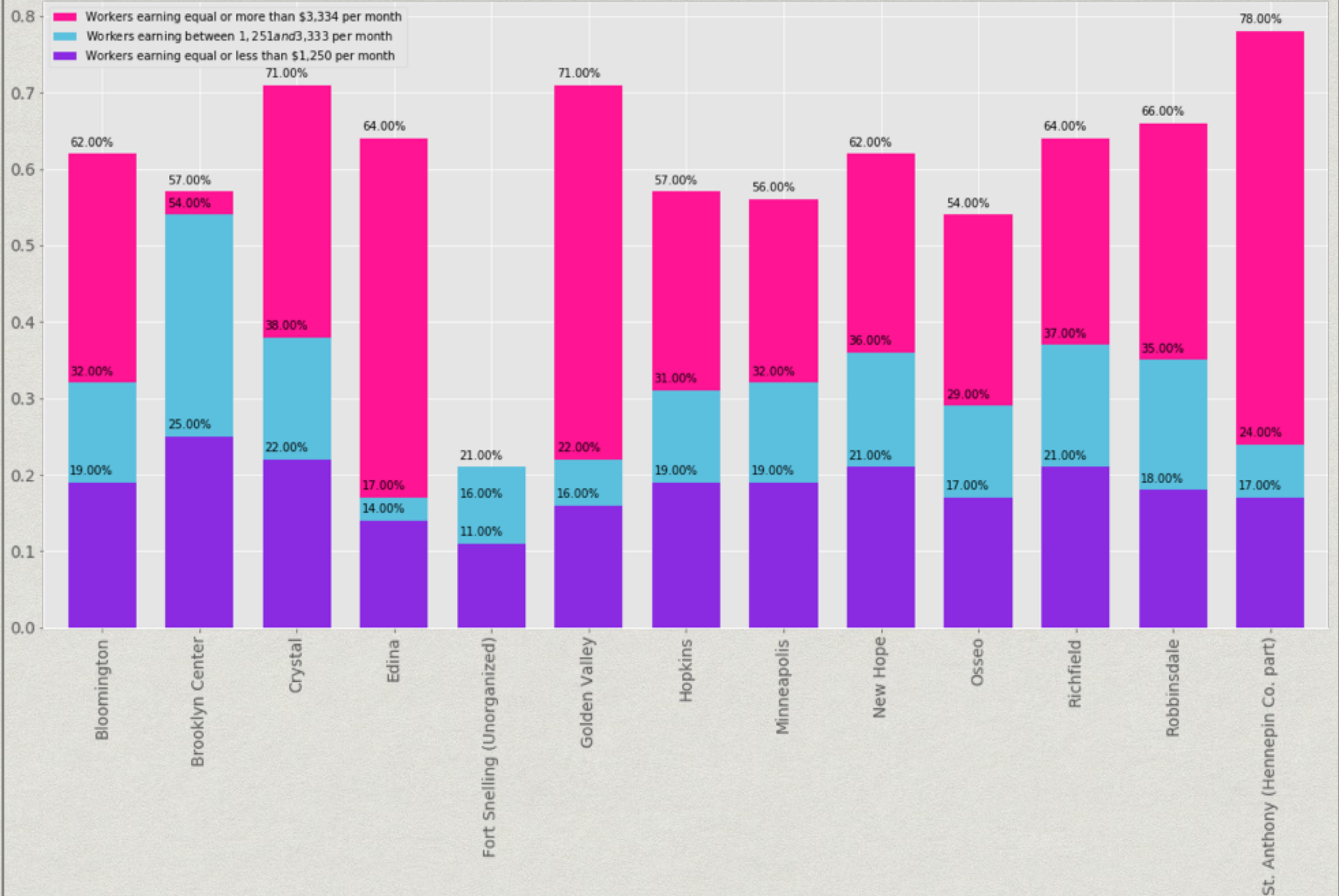**Initial data**: 46 cities, 22 identifiers

- Removed duplicates and highly correlated features
- Filtered to meet needs of interest
  - Type of community
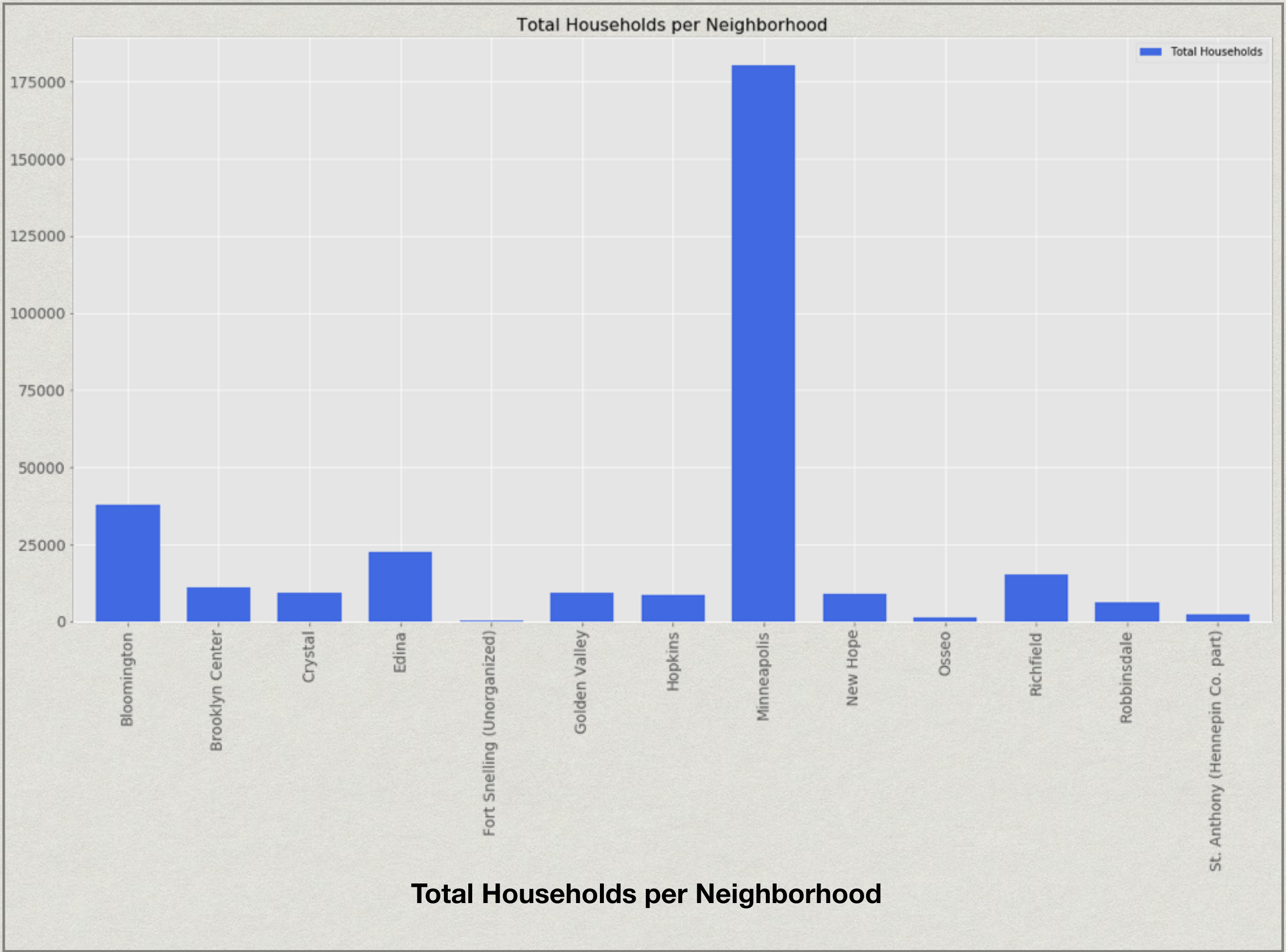 - Wage Level

Cleaned data: 12 cities, 8 identifiers

	CTU_CODE	CTU_NAME	POPULATION	HOUSEHOLDS	COMMUNITY_DESIGNATION	Workers earning equal or more than $3,334 per month	Workers earning between $1,251 and $3,333 per month	Workers earning equal or less than $1,250 per month
0	6616	Bloomington	88885	38022	Urban	23384	12127	7148
1	7948	Brooklyn Center	31145	11063	Urban	6312	5966	2779
2	14158	Crystal	22929	9488	Urban	6702	3646	2048
3	18188	Edina	52497	22657	Urban	14579	3939	3236
4	21965	Fort Snelling (Unorganized)	271	190	Urban	31	40	21
5	24308	Golden Valley	21646	9449	Urban	6687	2126	1467
6	30140	Hopkins	19079	8765	Urban	4979	2710	1631
7	43000	Minneapolis	423990	180340	Urban	100309	56845	33553
8	45628	New Hope	21545	8851	Urban	5458	3227	1838
9	49012	Osseo	2792	1285	Urban	693	376	219
10	54214	Richfield	36544	15179	Urban	9684	5673	3122
11	54808	Robbinsdale	14860	6281	Urban	4143	2192	1102
12	56680	St. Anthony (Hennepin Co. part)	5444	2266	Urban	1775	554	375

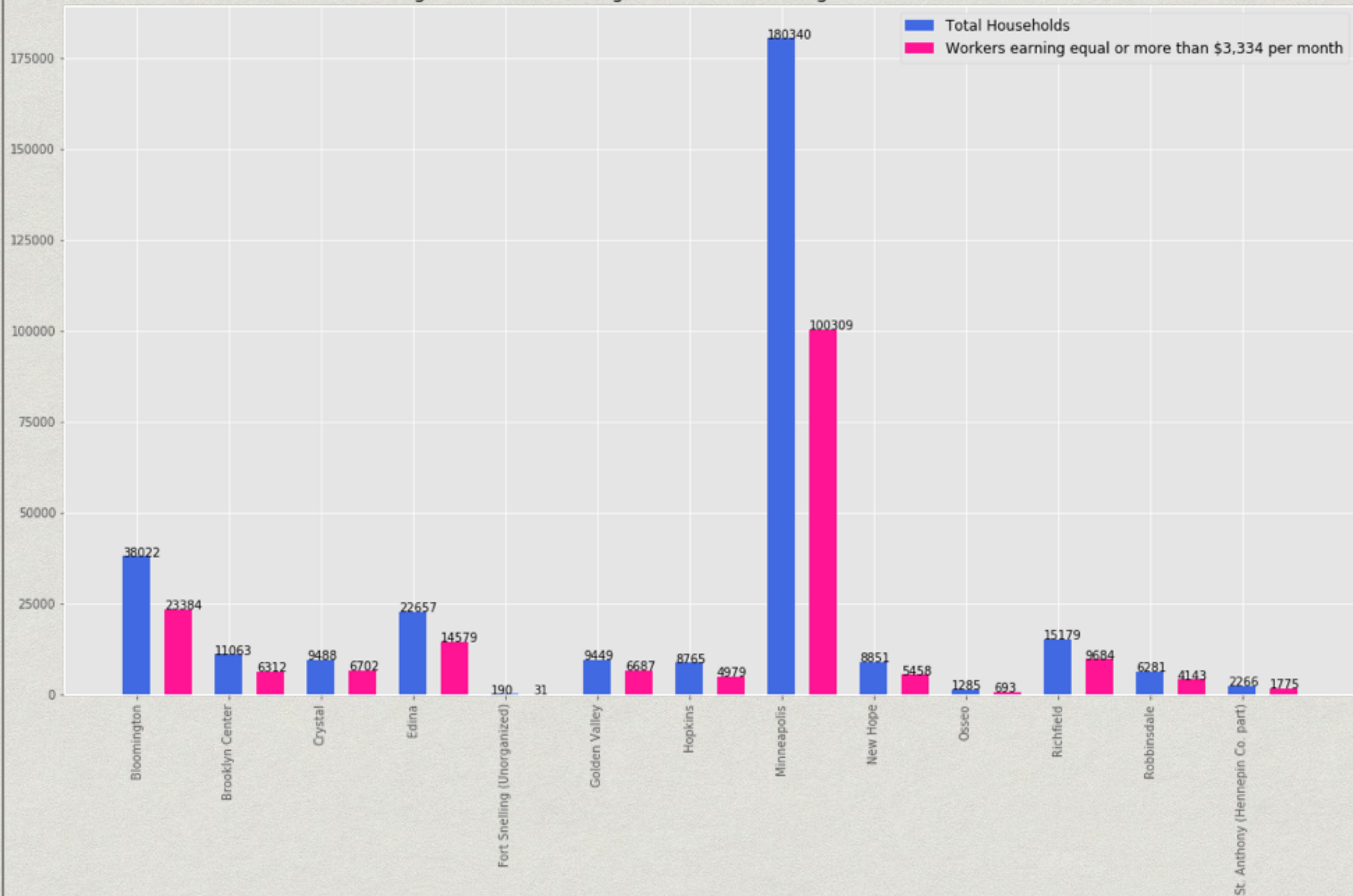Percentage of workers' earnings based off their neighborhood household totals

Total Households per Neighborhood

Percentage of workers'earnings based off their neighborhood household totals

Legend:
- Total Households (blue)
- Workers earning equal or more than $3,334 per month (pink)

Data values by neighborhood:

Neighborhood	Total Households	Workers earning ≥ $3,334/month
Bloomington	38022	23384
Brooklyn Center	11063	6312
Crystal	9488	6702
Edina	22657	14579
Fort Snelling (Unorganized)	190	31
Golden Valley	9449	6687
Hopkins	8765	4979
Minneapolis	180340	100309
New Hope	8851	5458
Osseo	1285	693
Richfield	15179	9684
Robbinsdale	6281	4143
St. Anthony (Hennepin Co. part)	2266	1775

Workers' earnings compared to their neighborhood household totals

Percentage of Middle Class Worker Households per Neighborhood

	CTU_NAME	POPULATION	Percentage of Middle Class Workers
0	Bloomington	88885	62.0
1	Brooklyn Center	31145	57.0
2	Crystal	22929	71.0
3	Edina	52497	64.0
4	Fort Snelling (Unorganized)	271	16.0
5	Golden Valley	21646	71.0
6	Hopkins	19079	57.0
7	Minneapolis	423990	56.0
8	New Hope	21545	62.0
9	Osseo	2792	54.0
10	Richfield	36544	64.0
11	Robbinsdale	14860	66.0
12	St. Anthony (Hennepin Co. part)	5444	78.0

	CTU_NAME	POPULATION	Percentage of Middle Class Workers
2	Crystal	22929	71.0
3	Edina	52497	64.0
5	Golden Valley	21646	71.0
10	Richfield	36544	64.0

Narrowed neighborhood list that meets investor's criteria

Identified the location of the four possible cities
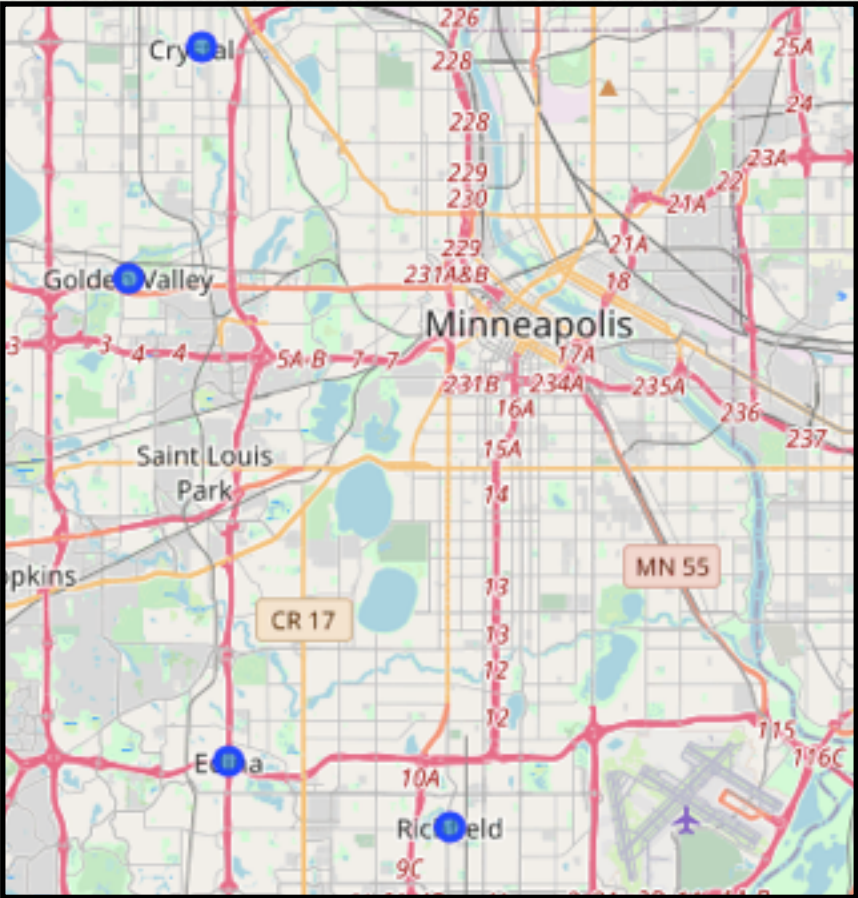
Note: Slim amount of venues returned for majority of the possible cities

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Crystal	7	7	7	7	7	7
Edina	4	4	4	4	4	4
Golden Valley	33	33	33	33	33	33
Richfield	5	5	5	5	5	5

Identified the amount of venues present in each city

Frequency of venues in cities with venues grouped together

```
----Crystal----
                     venue  freq
0            Liquor Store   0.14
1     Arts & Crafts Store   0.14
2      Chinese Restaurant   0.14
3                 Library   0.14
4      Italian Restaurant   0.14


----Edina----
                     venue  freq
0           Movie Theater   0.25
1            Home Service   0.25
2   Gym / Fitness Center   0.25
3                    Pool   0.25
4                     ATM   0.00


----Golden Valley----
                     venue  freq
0      Mexican Restaurant   0.06
1      Chinese Restaurant   0.06
2             Coffee Shop   0.06
3          Sandwich Place   0.06
4     American Restaurant   0.06


----Richfield----
                     venue  freq
0            Soccer Field   0.4
1                Dive Bar   0.2
2                  Museum   0.2
3   Fast Food Restaurant   0.2
4                     ATM   0.0
```
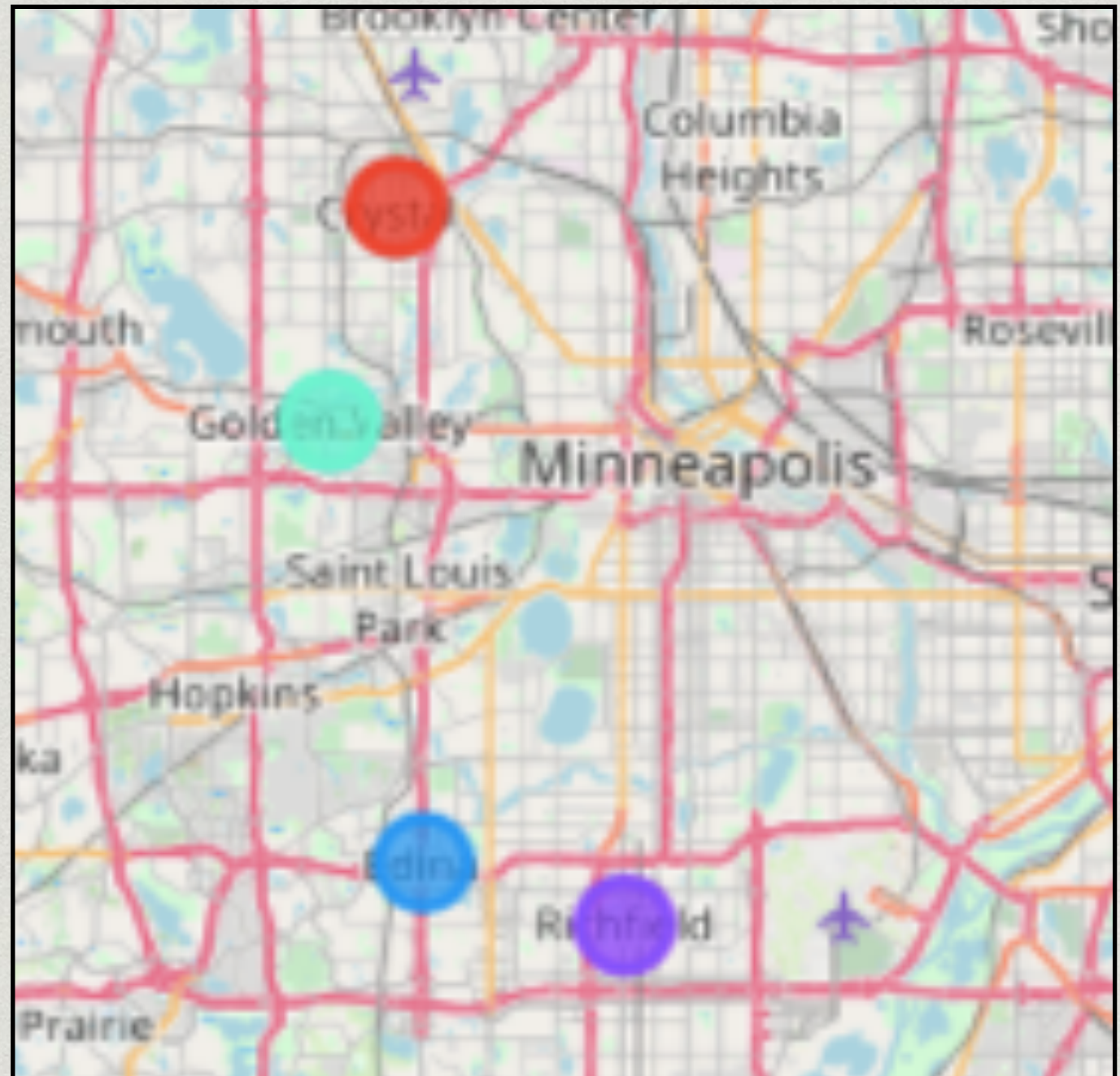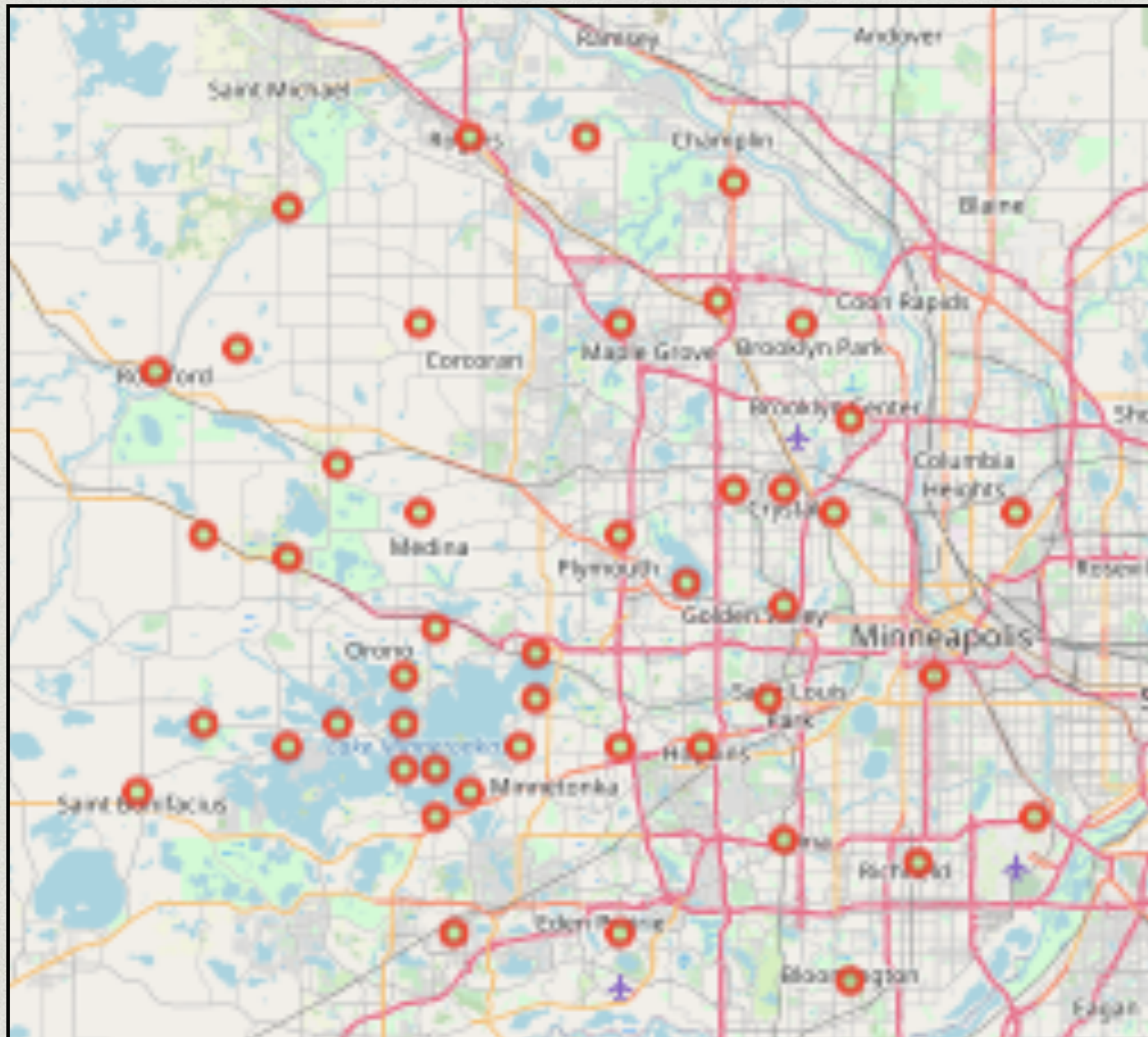
- **Not much data present for four possible cities**
- **Explored number of venues available for all cities in Hennepin County**
- **Not beneficial.**
- **All four possible cities assigned to same group as data was sporadic across the county.**

Compared of all components of the investor's criteria to determine the most optimal city

	index	Neighborhood	POPULATION	Percentage of Middle Class Workers	Total Restaurant Venues
0	2	Crystal	22929	71.0	0.285714
1	3	Edina	52497	64.0	0.000000
2	5	Golden Valley	21646	71.0	0.515152
3	10	Richfield	36544	64.0	0.200000

OPTIMAL CITY: GOLDEN VALLEY

	Neighborhood	American Restaurant	Burger Joint	Chinese Restaurant	\
2	Golden Valley	0.060606	0.030303	0.060606	

	Coffee Shop	Fast Food Restaurant	Gastropub	Ice Cream Shop	\
2	0.060606	0.0	0.030303	0.030303	

	Italian Restaurant	Mexican Restaurant	Noodle House	Pizza Place	\
2	0.030303	0.060606	0.030303	0.060606	

	Sandwich Place	Total Restaurant Venues
2	0.060606	0.515152

Identify the types of restaurant venues and their frequency in Golden Valley, MN

Conclusion

* Identified Golden Valley as the city in Hennepin County that meets the Investor's guidelines and a five-way tie between its least represented restaurants

  * Community Designation, Population, Household Income

  * Utilized basic exploratory analysis, one hot encoding, mean of frequency, and K-Means to narrow results

* Next Steps: Narrow Cuisine Type

  * Additional venues from other databases such as Google Maps, and Yelp for in and around Golden Valley, MN