

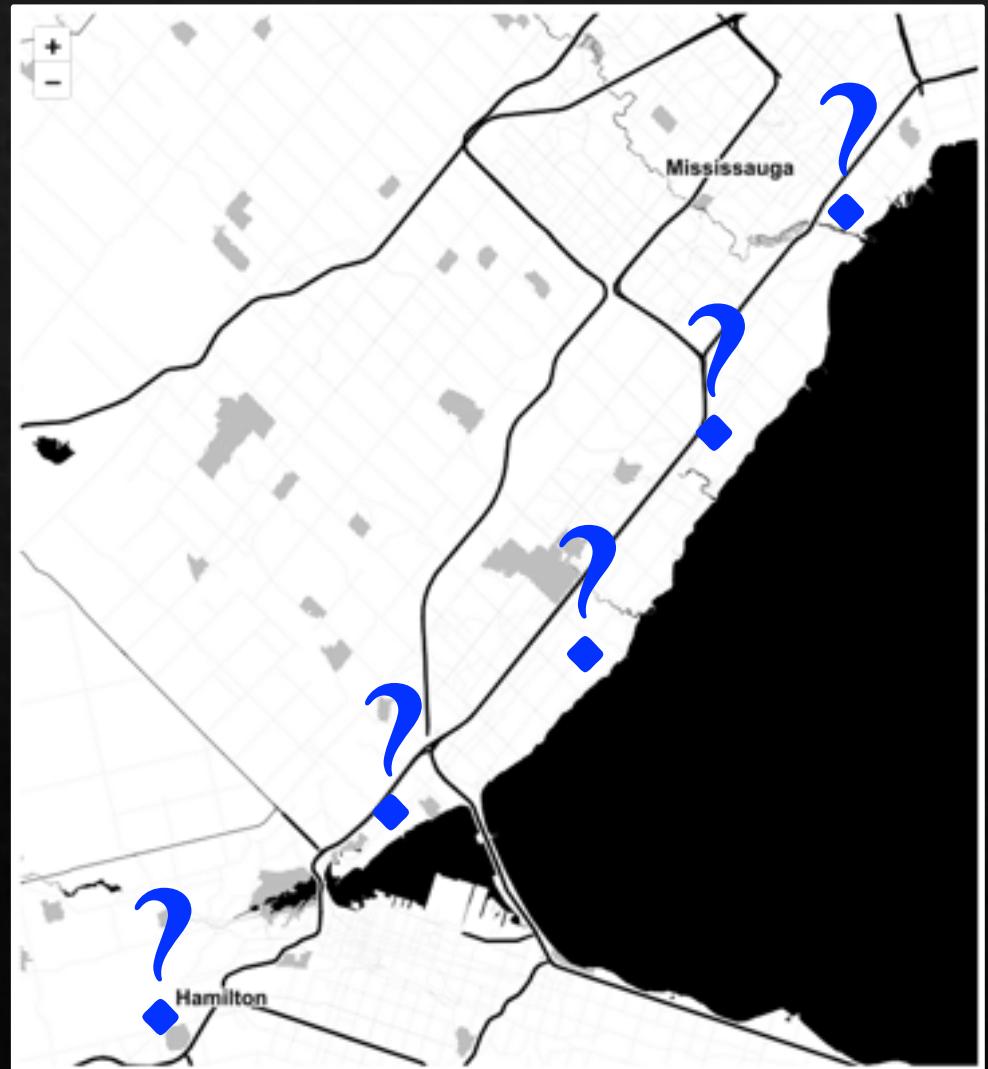


Finding a Neighbourhood to Call Home

Reid, J.C. 2020

Finding the right neighbourhood is a lot of work

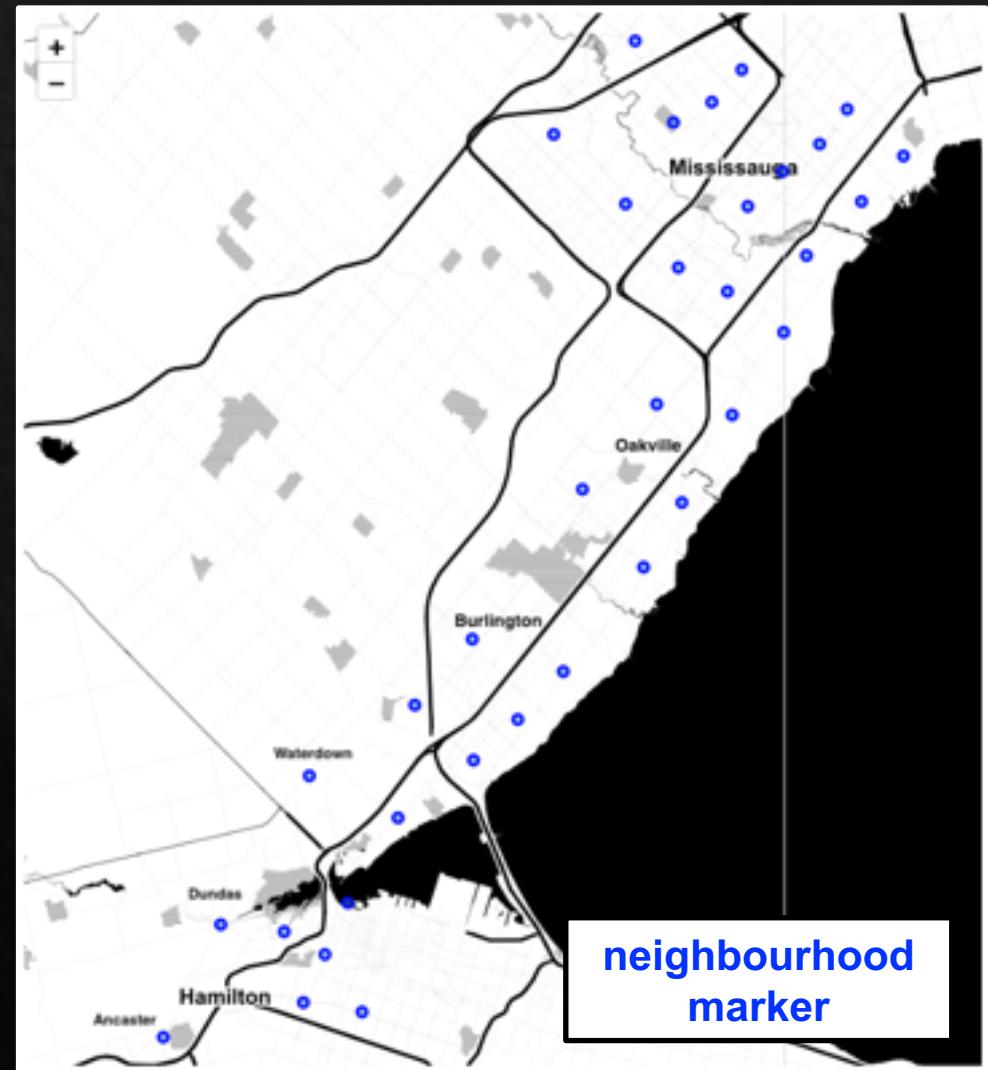
- ❖ A young couple want to buy a house along the southwest edge of Lake Ontario
- ❖ They have a list of criteria for the neighbourhood:
 - ❖ local daycare
 - ❖ local elementary school
 - ❖ high quantity of recreational facilities
 - ❖ local martial arts dojo



Data acquisition and cleaning: Part 1

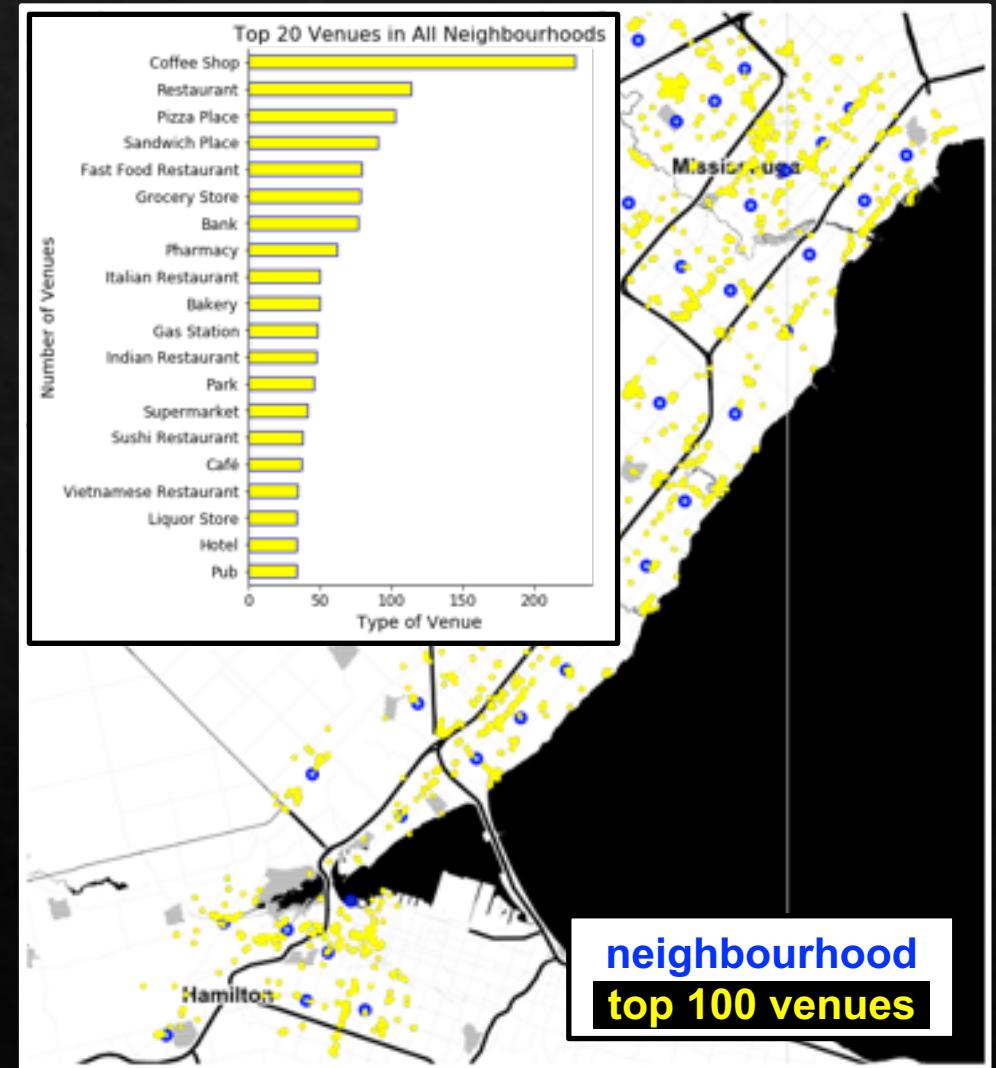
- ❖ Neighbourhood postal codes and geolocations were curated from a database ([URL](#))
 - ❖ 35 neighbourhood regions were developed

City	Neighbourhood	Postal_code	Latitude	Longitude
0	Mississauga	Applewood, Dixie	L4Y	-79.592900
1	Mississauga	East Hurontario, West Rathwood	L4Z	-79.619200
2	Mississauga	Mississauga Valley, East Cooksville	L5A	-79.588300
3	Mississauga	City Centre, Cooksville, Fairview, East Credit...	L5B	-79.577100
4	Mississauga	West Creditview, Mavis, Erindale	L5C	-79.562400
30	West Hamilton	East Mountain	L8A	-79.871000
31	West Hamilton	West Mountain	L9C	-79.904900
32	West Hamilton	Dundas	L9H	-79.952400
33	West Hamilton	Ancaster	L9K	-79.985600
34	West Hamilton	Waterdown	L9R	-79.901658



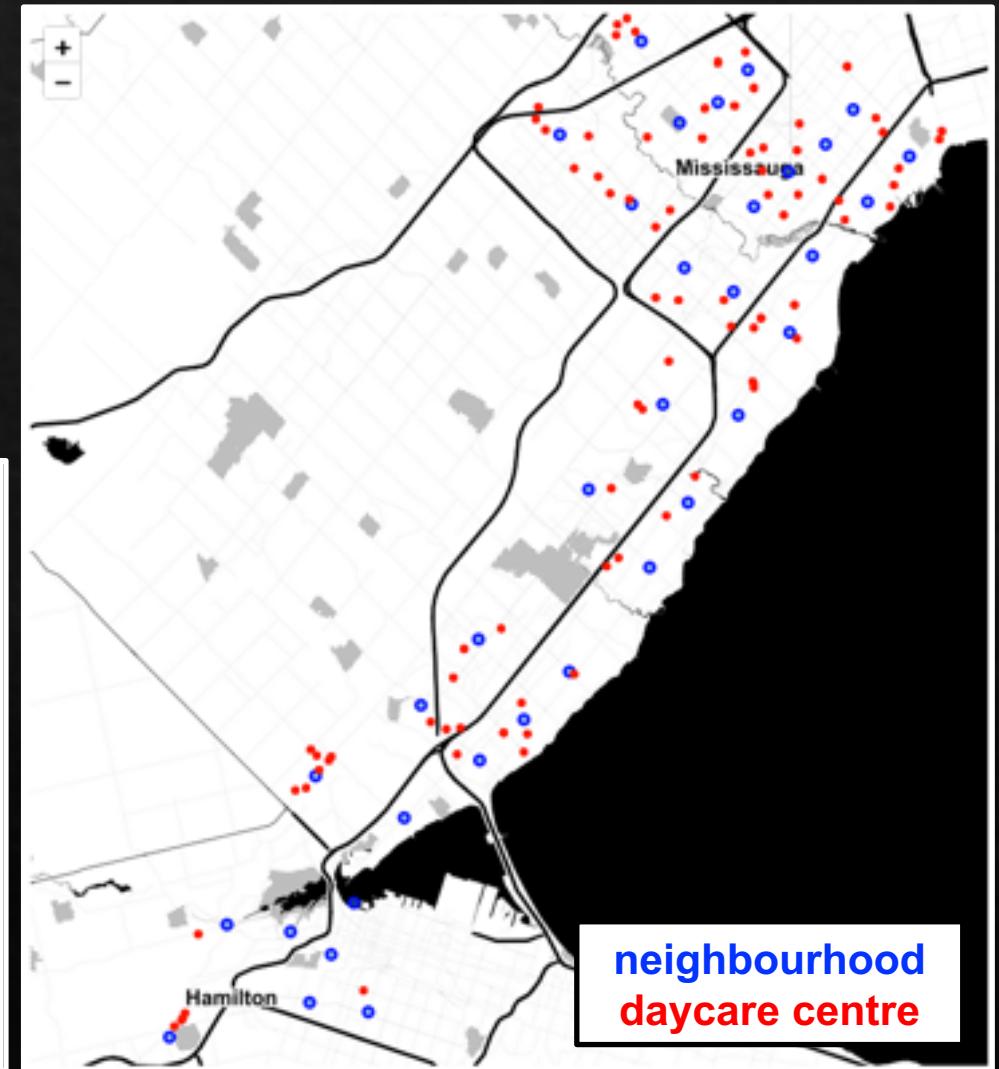
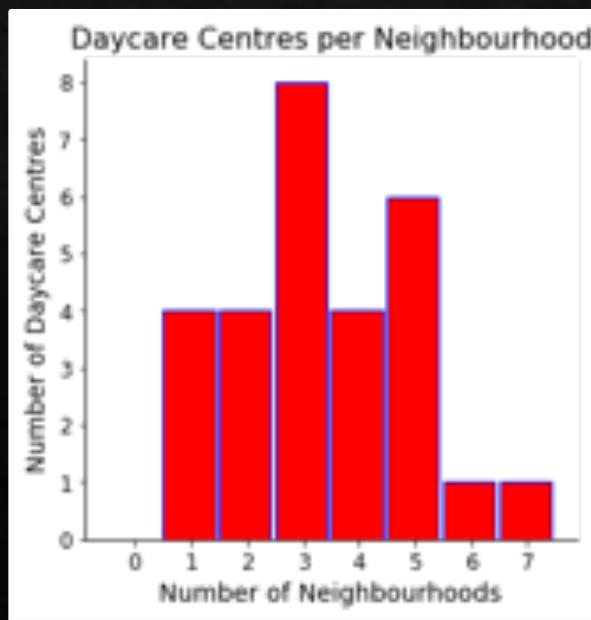
Data acquisition and cleaning: Part 2

- ❖ Neighbourhood venues were identified using python commands to the Foursquare API using venue categories ([URL](#)) for:
 - ❖ daycare and child care centres
 - ❖ elementary schools
 - ❖ recreation and outdoors
 - ❖ martial arts dojo
- ❖ Due to the over-representation of food-related venues, the above criteria were individually evaluated



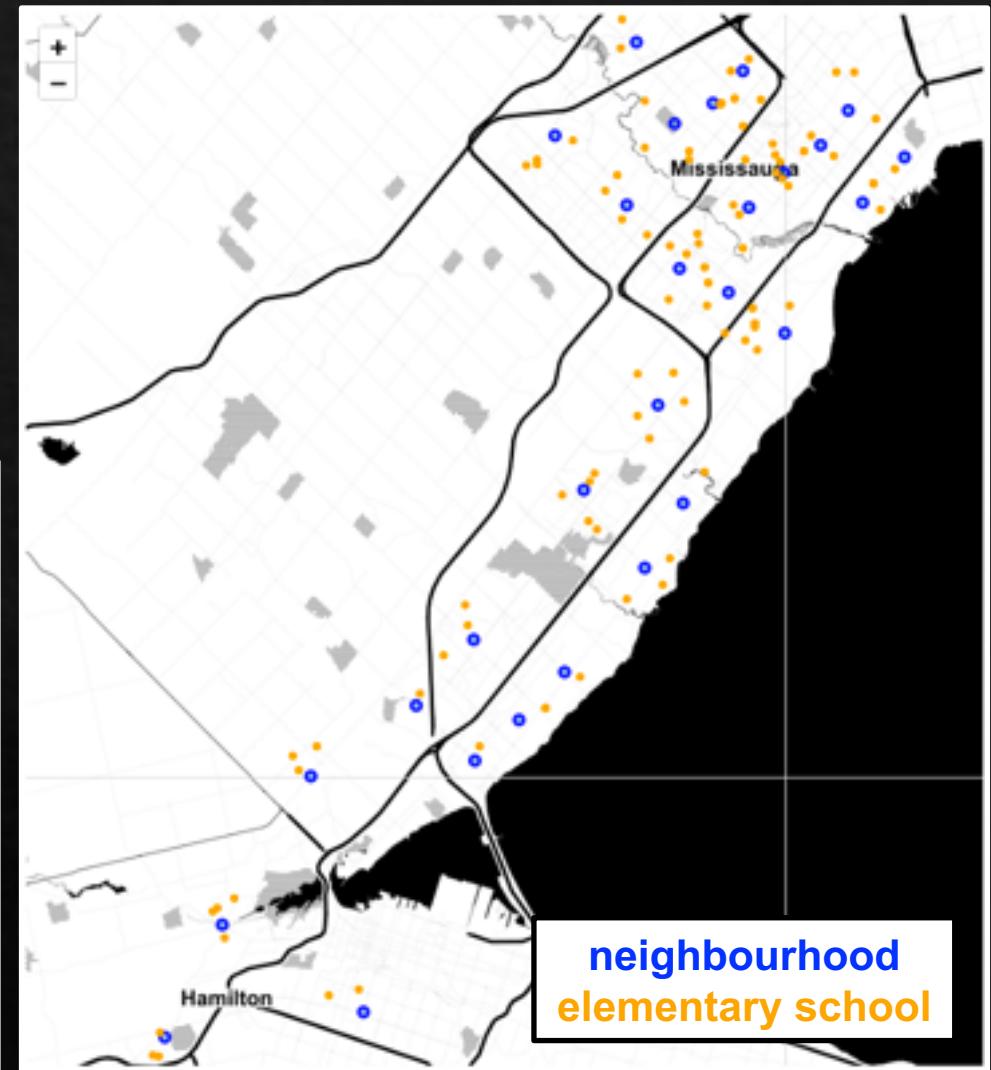
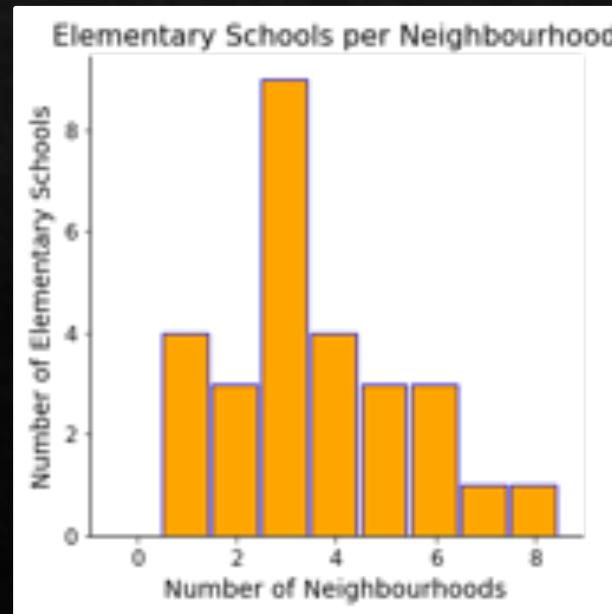
28 Neighbourhoods with local daycare centres

- ❖ 28 of 35 neighbourhoods have at least one daycare centre
- ❖ 6 neighbourhoods were removed from further analysis



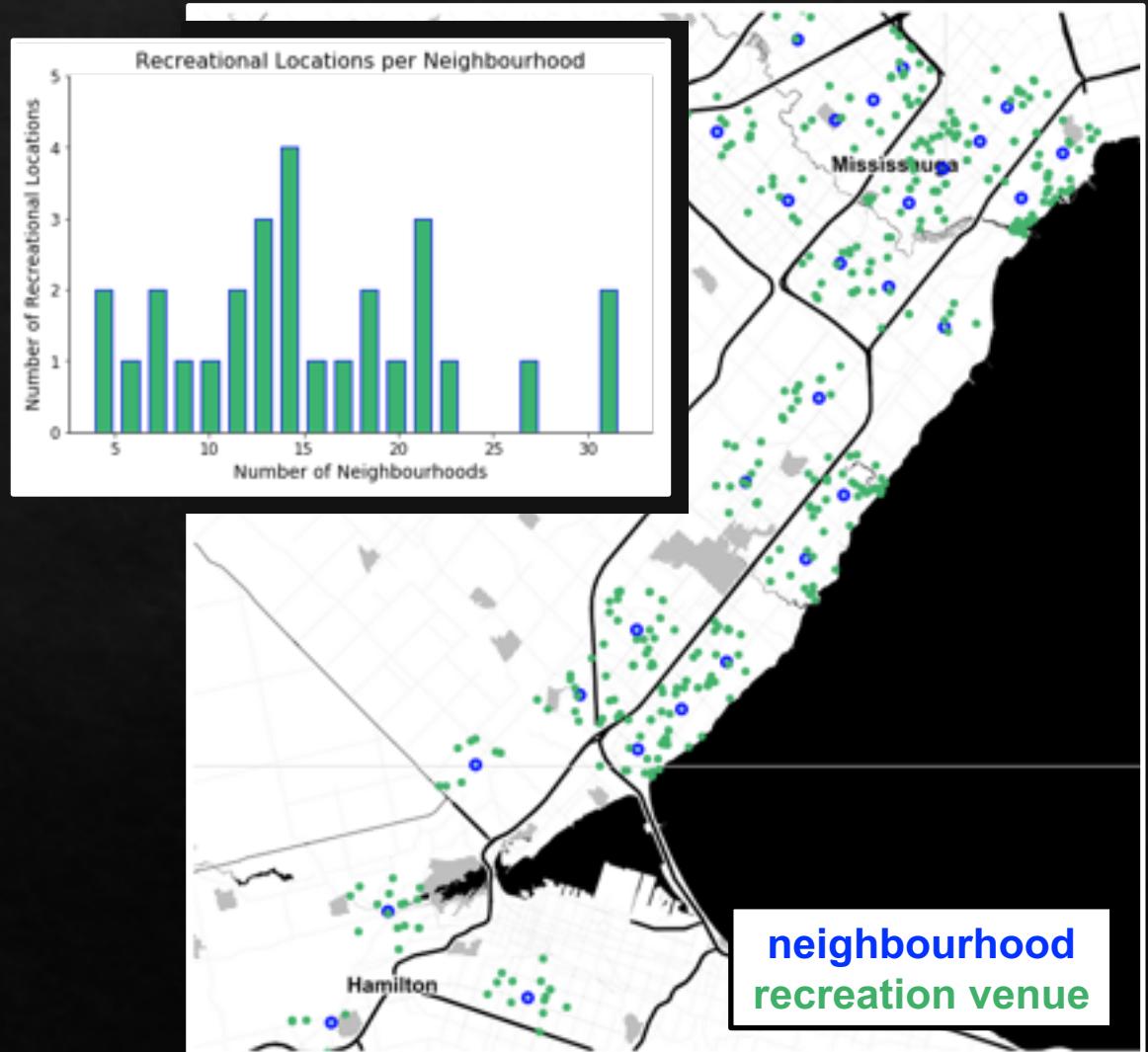
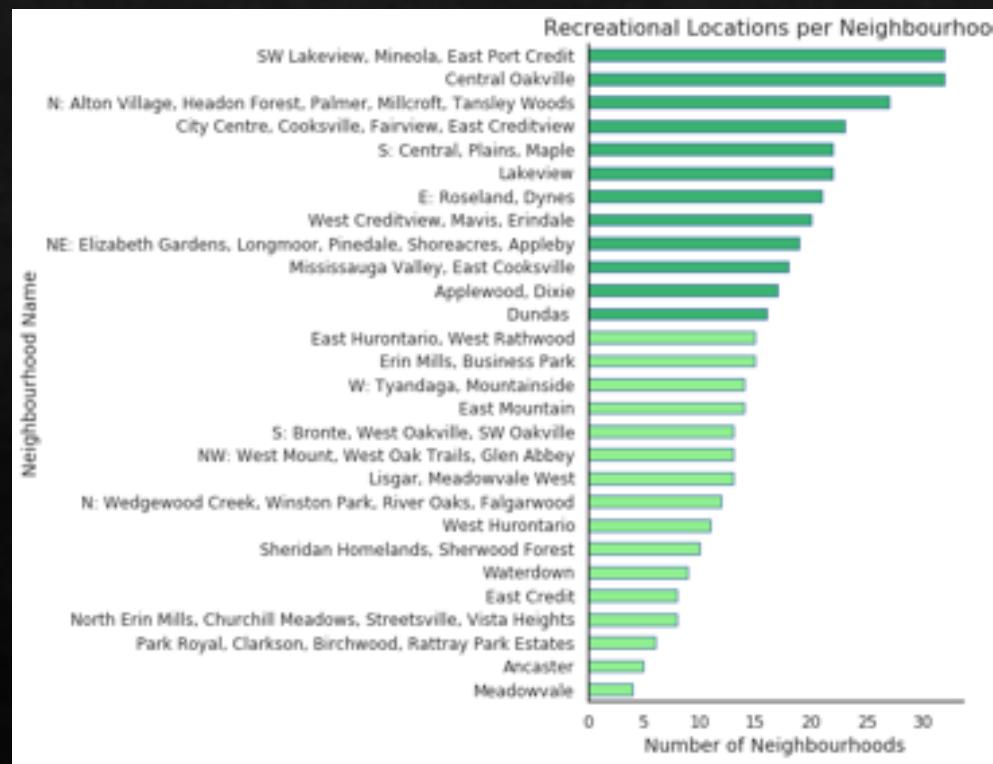
27 Neighbourhoods with local elementary schools

- ❖ Of the 28 neighbourhoods with ≥ 1 daycare centre, 27 also have ≥ 1 local elementary school
 - ❖ one more neighbourhood was removed



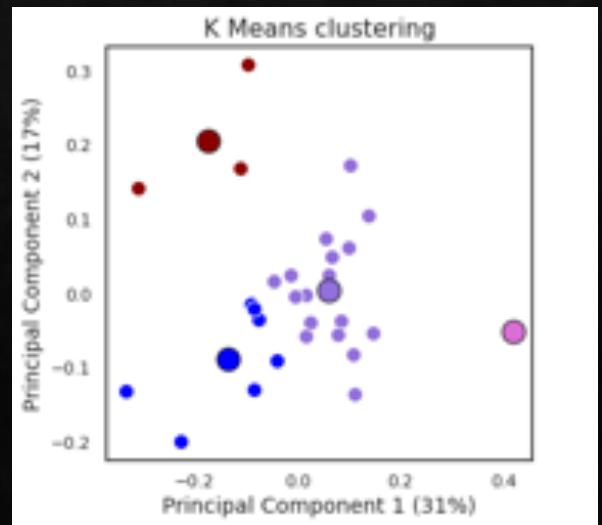
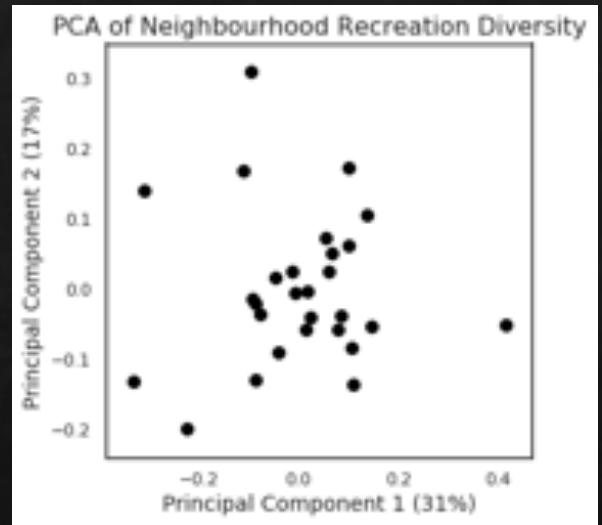
Neighbourhood recreational venue quantity varies widely

- ◆ Recreational venues range from 4 to 32 per neighbourhood



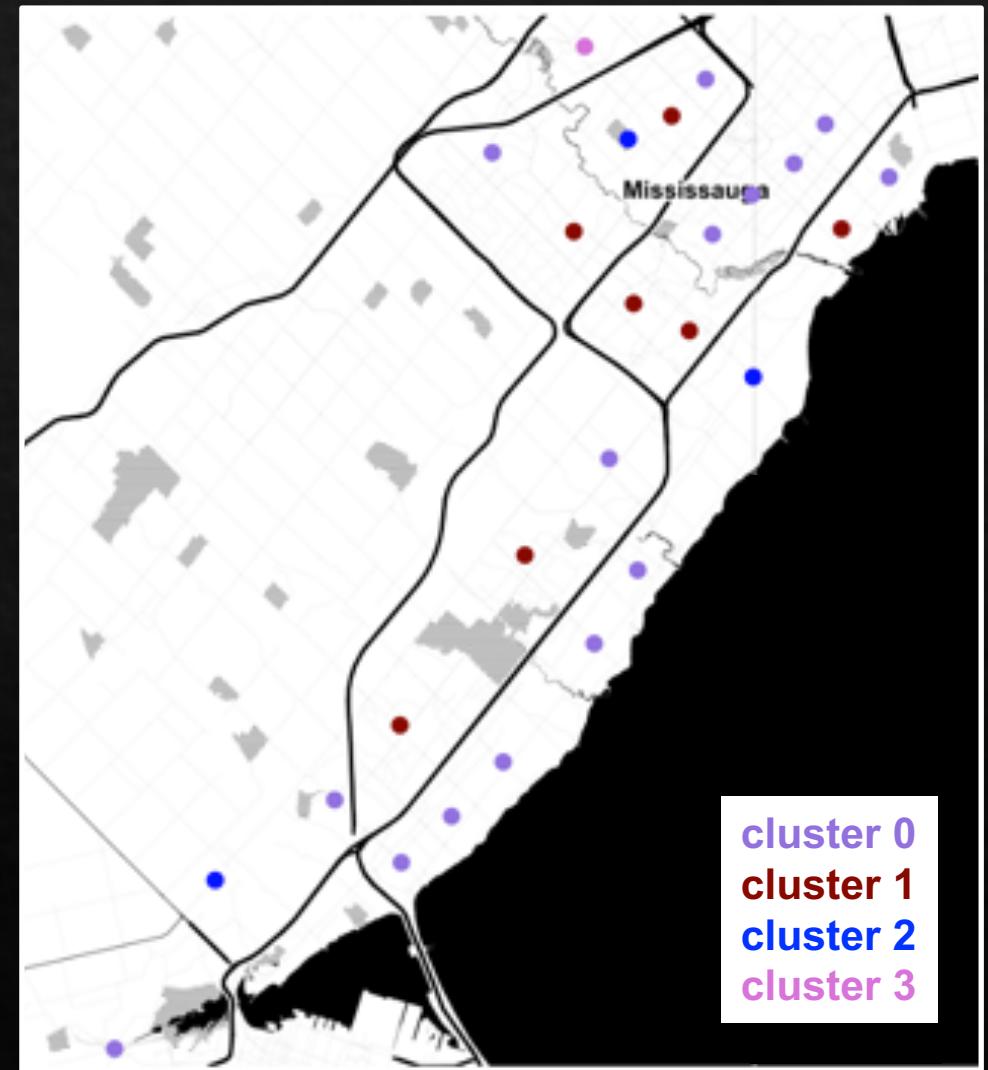
Clustering identifies shared traits of top 24 neighbourhoods

- ❖ Principal component analysis (PCA) reduced data dimensionality to enable visualizing each neighbourhood relative to each other, in 2-dimensional space
- ❖ K Means Clustering partitions the neighbourhoods into 4 groups



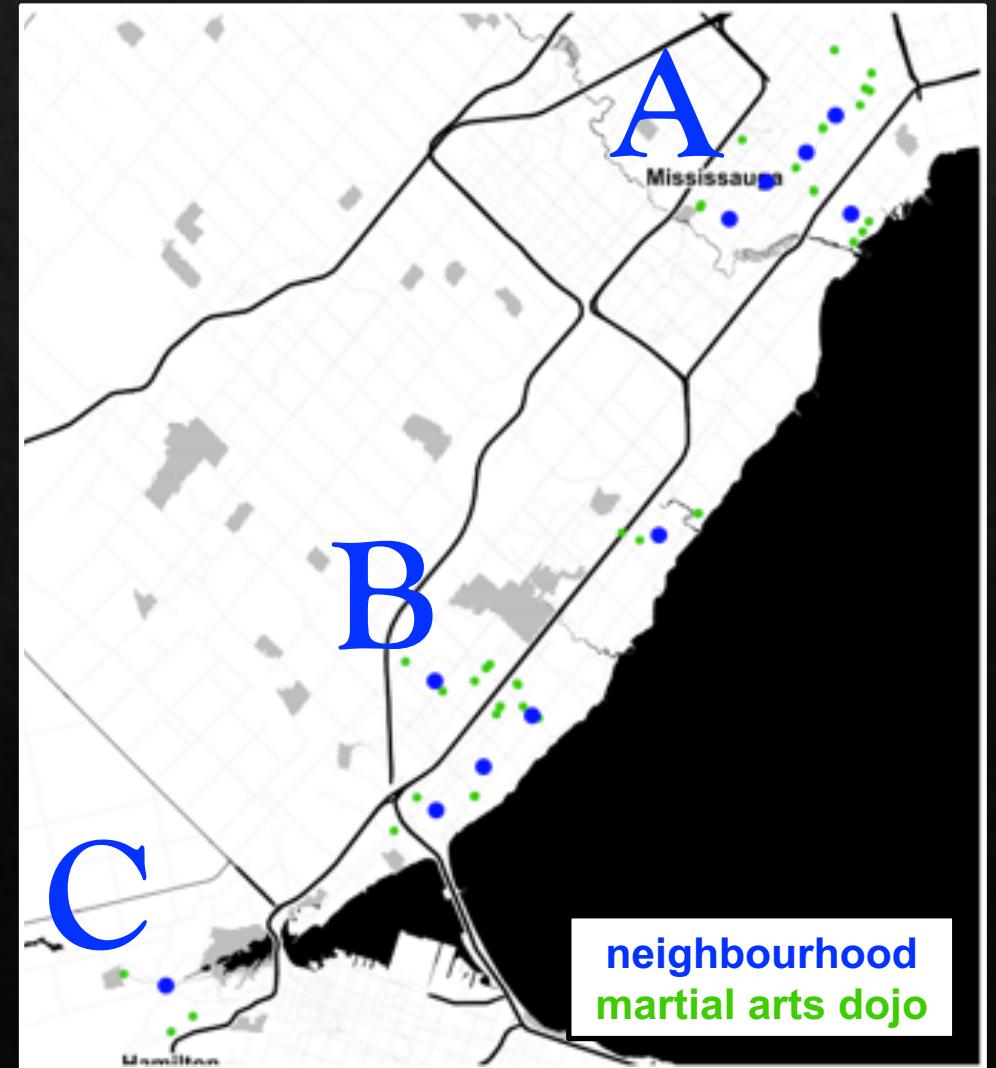
Clustering identifies shared traits of top 24 neighbourhoods

- ❖ Clusters are not defined by their geolocation
- ❖ Cluster 0 and 2 rank outdoor venues such as parks prominently, and also average 17 recreational venues per neighbourhood
 - ❖ Cluster 1 and 3 have only 8 and 4 recreational venues, respectively
- ❖ 12 neighbourhoods from cluster 0 and 2 have ≥ 16 recreational venues



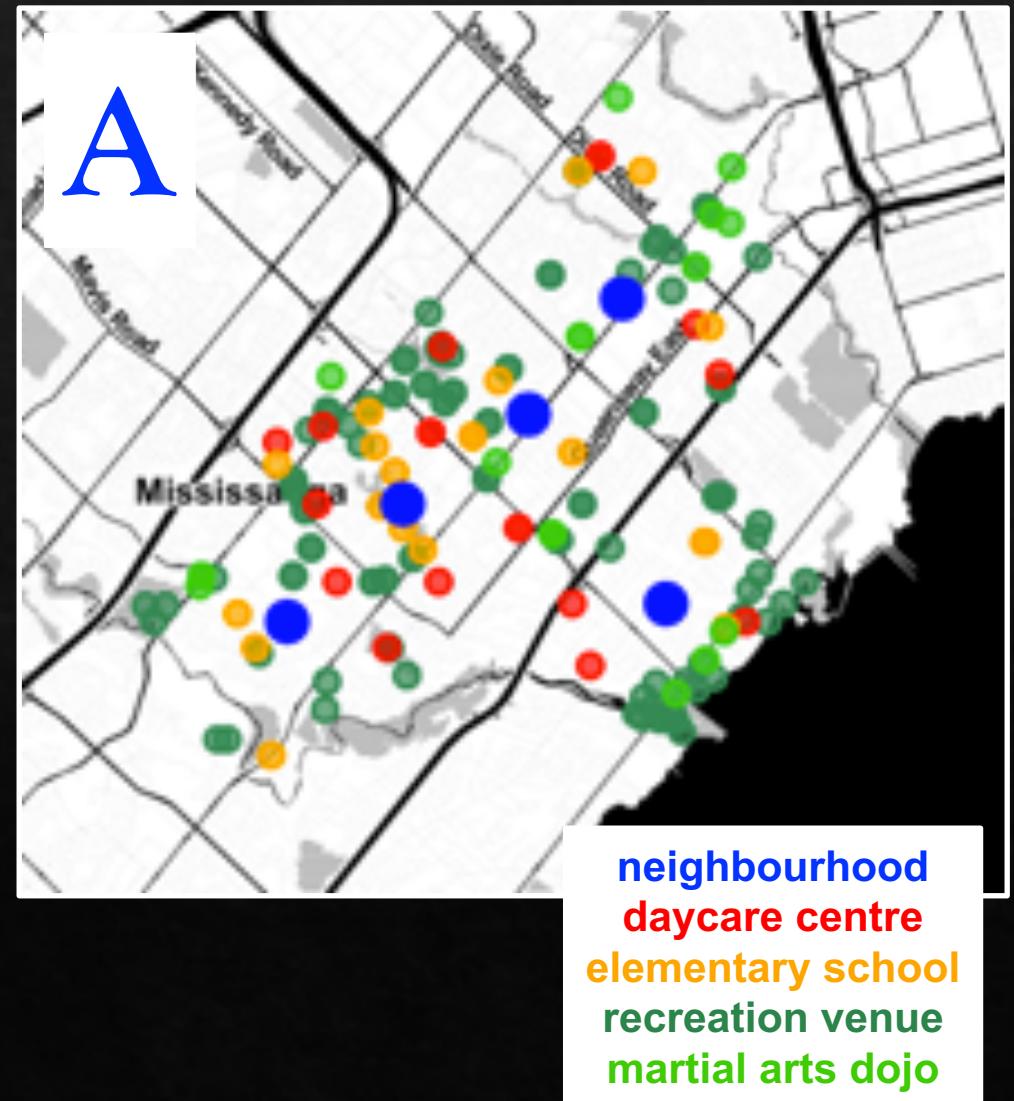
11 Neighbourhoods meet all criteria and form 3 Groups

- ◆ 11 of the top 12 neighbourhoods also have ≥ 1 local martial arts dojo
- ◆ These 11 remaining neighbourhoods form 3 regional groups: A, B, and C



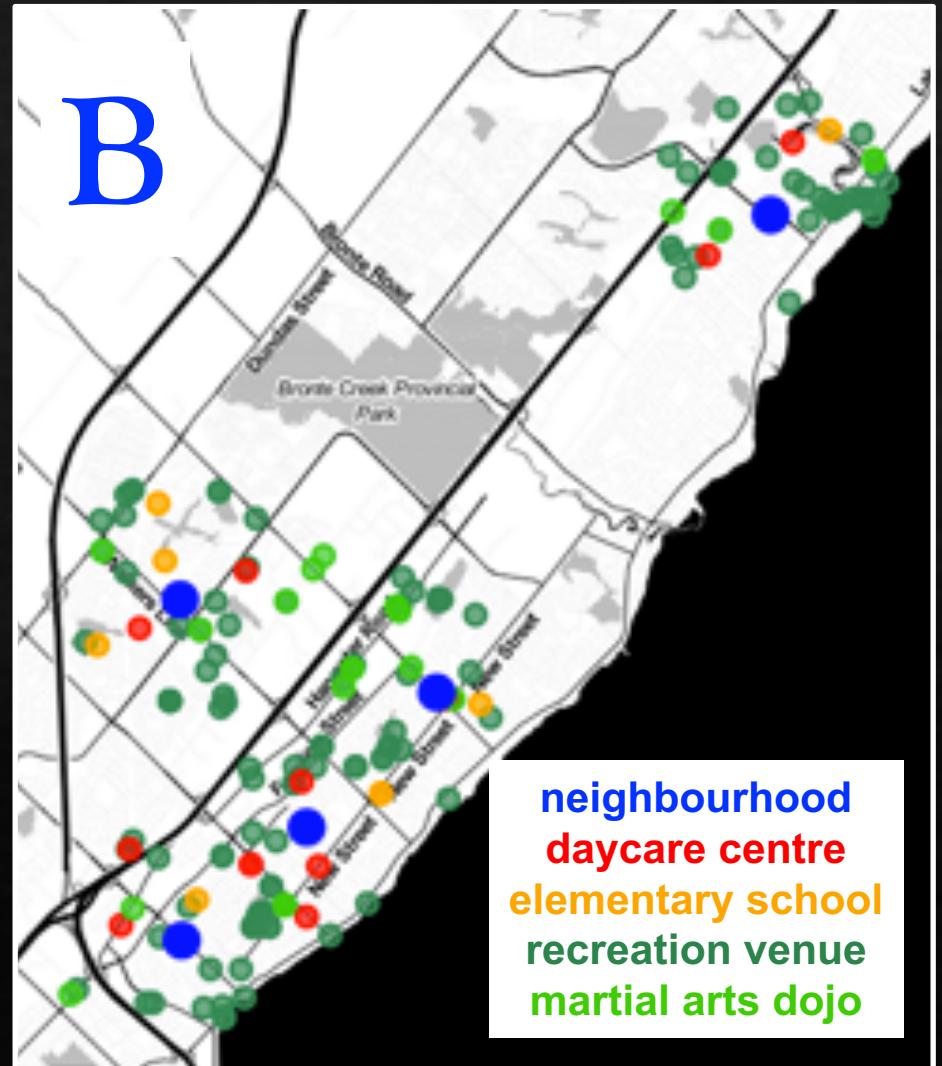
Summary of Group A Neighbourhoods

- ❖ Postal codes: L4Y, L5A, L5B, L5C, L5G
- ❖ Neighbourhoods: Applewood, Dixie, Creditview, Mississauga Valley, East Cooksville, Fairview, City Centre, Mavis, Erindale, Southwest Lakeview, Mineola, East Port Credit
- ❖ Highest average number of daycare centres
- ❖ Highest average number of elementary schools
- ❖ Second highest average number of recreational activities



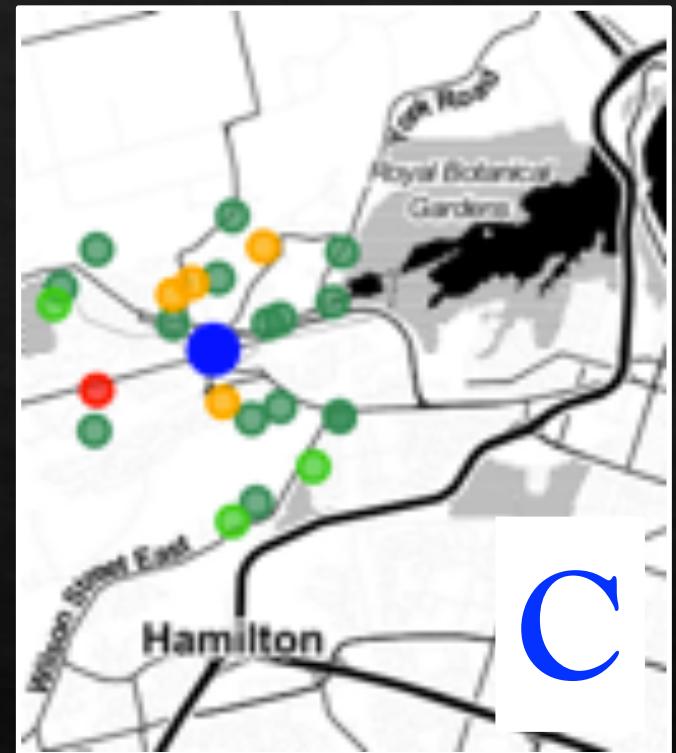
Summary of Group B Neighbourhoods

- ❖ Postal codes: L6K, L7L, L7M, L7N, L7R, L7S
- ❖ Neighbourhoods: Central Oakville, Elizabeth Gardens, Longmoor, Pinedale, Shoreacres, Alton Village, Headon Forest, Palmer, Tansley Woods, Roseland, Dynes, Central, Plains, and Maple
- ❖ 2nd highest average number of daycare centres
- ❖ Lowest average number of elementary schools
- ❖ Highest average number of recreational activities



Summary of Group C Neighbourhood

- ❖ Postal code: L9H
- ❖ Neighbourhood is called Dundas
- ❖ Dundas has the lowest number of daycare centres
- ❖ Dundas has the highest number of elementary schools
- ❖ However, it has a quarter less recreational activities compared to the other two groups



neighbourhood
daycare centre
elementary school
recreation venue
martial arts dojo

Conclusion and Future Directions

- ❖ Identified 11 best neighbourhoods for the young couple to consider
 - ❖ All criteria was met: daycare, elementary school, high recreational activity quantity and quality, and martial arts dojo
 - ❖ Form 3 geographical clusters along Lake Ontario
- ❖ Limitations:
 - ❖ Foursquare data is influenced by user activity, therefore, daycares may be missing due to global pandemic forcing closures
 - ❖ Other factors important for choosing a neighbourhood: housing prices, and locations of busy roads & waste management sites
- ❖ Future analysis should evaluate additional factors, those currently listed as limitations, in order to improve neighbourhood selection