4600 Presentation
Suitability Map for Student Housing

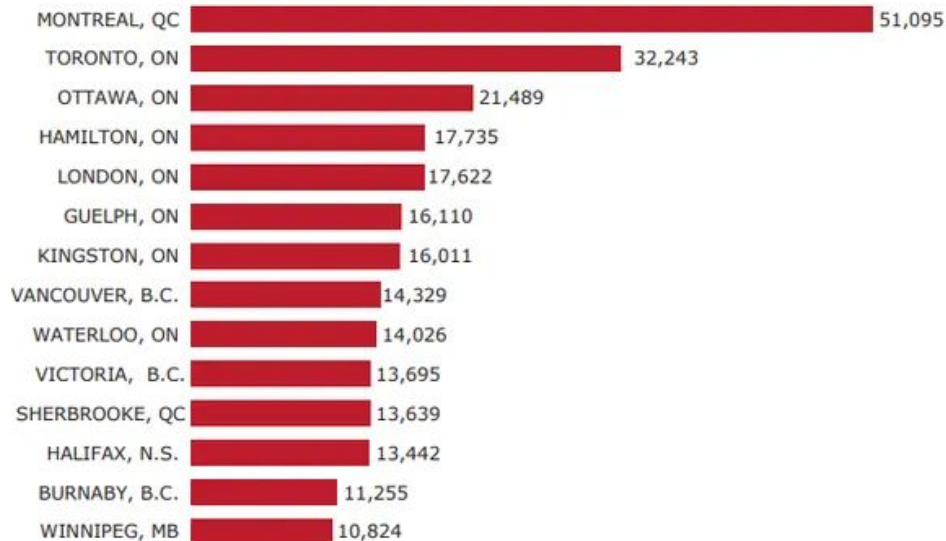Ryan Nguyen, Nadine Norman, Lithira Angammana

Why we chose this topic

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-Our mission statement is "Improving the quality of life for students"

City	Value
MONTREAL, QC	51,095
TORONTO, ON	32,243
OTTAWA, ON	21,489
HAMILTON, ON	17,735
LONDON, ON	17,622
GUELPH, ON	16,110
KINGSTON, ON	16,011
VANCOUVER, B.C.	14,329
WATERLOO, ON	14,026
VICTORIA, B.C.	13,695
SHERBROOKE, QC	13,639
HALIFAX, N.S.	13,442
BURNABY, B.C.	11,255
WINNIPEG, MB	10,824

- Cities with Largest Shortages of Student Housing
https://www.huffpost.com/archive/ca/entry/ student-housing-shortage-canada_ca_5d98fe 89e4b03b475f9a3431

Data Used For Project
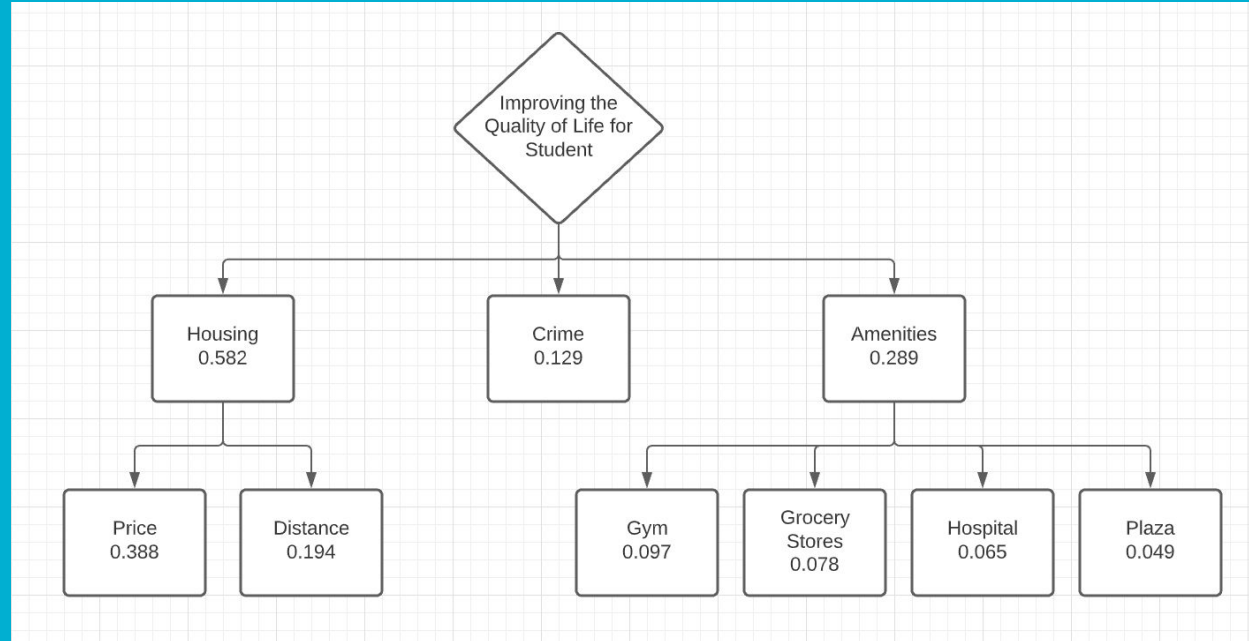
Price of Rent

Distance from University

Crime Density

Distance from Gym

Distance from Grocery Store

Distance from Hospital

Distance from Shopping Mall

Weighting

Comparison	Price	Distance	Crime	Gym	Shopping Mall	Hospital	Grocery Store
Price	1	2	3	4	8	6	5
Distance	1/2	1	1 1/2	2	4	3	2 1/2
Crime	1/3	2/3	1	1 1/3	2 2/3	2	1 2/3
Gym	1/4	1/2	3/4	1	2	1 1/2	1 1/4
Shopping Mall	1/8	1/4	3/8	1/2	1	3/4	5/8
Hospital	1/6	1/3	1/2	2/3	1 1/3	1	5/6
Grocery Store	1/5	2/5	3/5	4/5	1 3/5	1 1/5	1

Convert to LCM		x120	Weighting (divide by sum)	Sensitivity Analysis	Notes	
Price	1	120	38.83%	29%	Price and Distance	
Distance	1/2	60	19.42%	29%	Share same weight	
Crime	1/3	40	12.94%	13%		
Gym	1/4	30	9.71%	8%	Gym and Grocery Store	
Shopping Mall	1/8	15	4.85%	5%	Switch Weights	
Hospital	1/6	20	6.47%	6%		
Grocery Store	1/5	24	7.77%	10%		
	Sum	309				

Data Acquisition

List of hospitals in Toronto

From Wikipedia, the free encyclopedia

There are over thirty hospitals located in Toronto, Ontario, Canada. Many of them are also medical research facilities and teaching schools affiliated with the University of Toronto. Most hospitals are grouped under administrative networks that serve particular neighbourhoods and communities and share a number of medical services. The largest of the networks is University Health Network, which governs four of Canada's largest research hospitals located across Downtown Toronto. Some hospitals in Toronto operate independently, attracting large funding and public donation due to historic brand value and overall clinical standards.

Contents [hide]
1 Existing hospitals
2 Closed hospitals
3 See also
4 References

Existing hospitals [edit]

Name	Founded	District	Network	University affiliate	Former name(s)	Image
Baycrest Health Sciences	1918	North York		University of Toronto (fully-affiliated)	Toronto Jewish Old Folks Home	

	Name	Address
1	Name	Address
2	Loblaws	10 Lower Jarvis St, Toronto, ON M5E 1Z2
3	Metro	89 Gould St, Toronto, ON M5B 2R2
4	Rabba Fine Foods	256 Jarvis St, Toronto, ON M5B 2J4
5	Loblaws	60 Carlton St, Toronto, ON M5B 1J2
6	Metro	444 Yonge St, Toronto, ON M5G 2B3
7	H Mart	338 Yonge St, Toronto, ON M5B 1R8
8	Marché Leo's Bay St.	595 Bay St., Toronto, ON M5G 2R3
9	Rabba Fine Foods	24 Wellesley St W, Toronto, ON M4Y 2X6
10	Fine Food Market	711 Bay St. unit d, Toronto, ON M5G 2J8
11	Rabba Fine Foods	9 Isabella St, Toronto, ON M4Y 1M7
12	Metro	80 Front St E, Toronto, ON M5E 1C4
13	Rabba Fine Foods	126 Simcoe St, Toronto, ON M5H 4E6
14	Rabba Fine Foods	148 Wellesley St E, Toronto, ON M4Y 1J2
15	Dundas Market	125 Dundas St E, Toronto, ON M5B 2N6
16	Fresh City	695 Bay St., Toronto, ON M5G 1Z4
17	Rabba Fine Foods	171 Front St E, Toronto, ON M5A 4Z4
18	Pusateri Fruit Market	497 Church St, Toronto, ON M4Y 2C6
19	No Frills	3685 Keele St, North York, ON M3J 3H6
20	Coppa's Fresh Market	4750 Dufferin St, North York, ON M3H 5S7
21	Pacific Fresh Food Market	4734 Jane St, North York, ON M3N 2L2
22	FreshCo	3925 Jane St, North York, ON M3N 2K1
23	Ross Convenience & Grocers	3932 Keele St, North York, ON M3J 1N8
24	No Frills	1 York Gate Blvd, North York, ON M3N 3A1
25	Real Canadian Superstore	51 Gerry Fitzgerald Dr, North York, ON M3J 3N4
26	International Delicatessen Foods	2777 Steeles Ave W, North York, ON M3J 3K5
27	Food Galore Groceries	3472 Keele St, North York, ON M3J 3M1
28	Metro	600 Sheppard Ave W, North York, ON M3H 2S1

Legend

Neighbourhood Boundaries

Average Rent Price per Neighbourhood

Tenant Average Rent
- $2,000 – $2,500
- $1,500 – $2,000
- $1,200 – $1,500
- $1,000 – $1,200
- $900 – $1,000
- $800 – $900
- $700 – $800
- $500 – $700
- $300 – $500
- $0 – $300

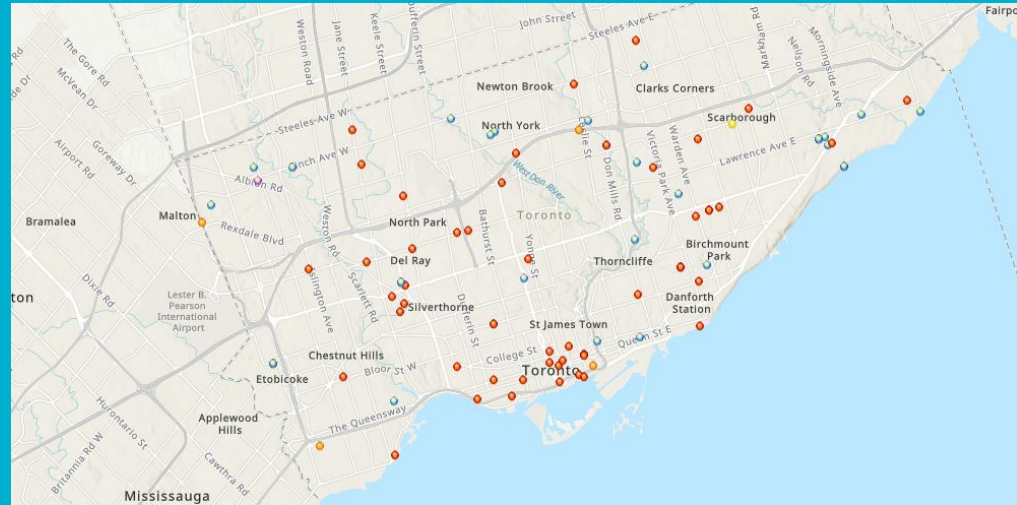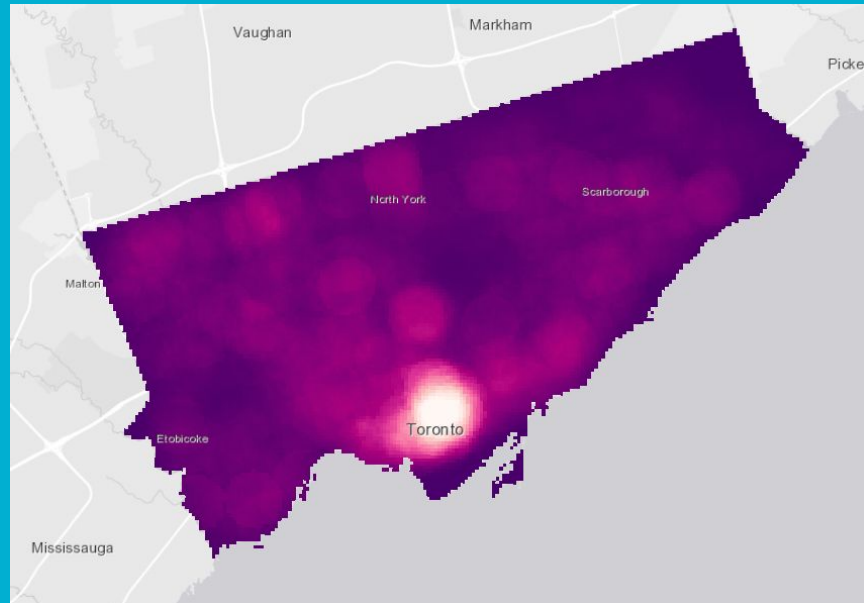Housing Market Information Portal

Weighted Rents

Data Conversion: Price

1 - Highest Rent

10 - Cheapest Rent
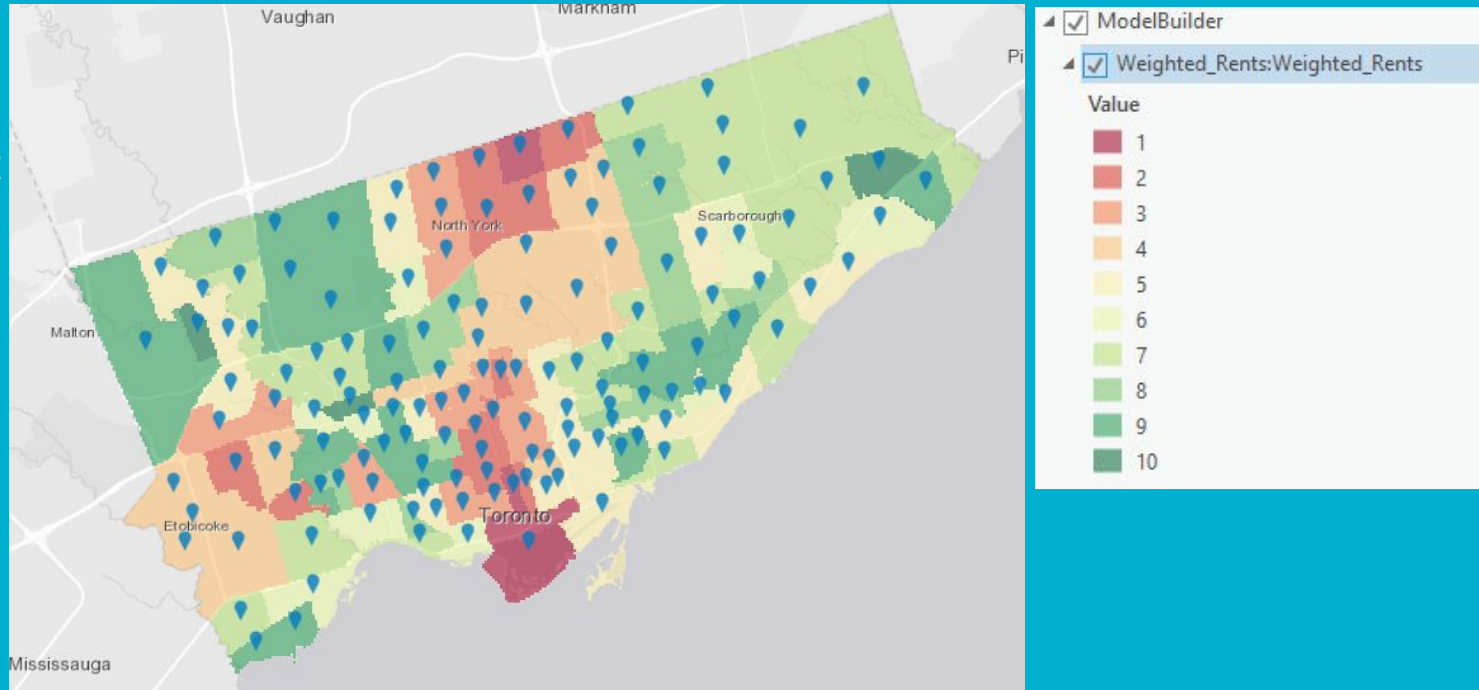
Data Conversion: Crime

Extracted Crime Density

Value

119.91
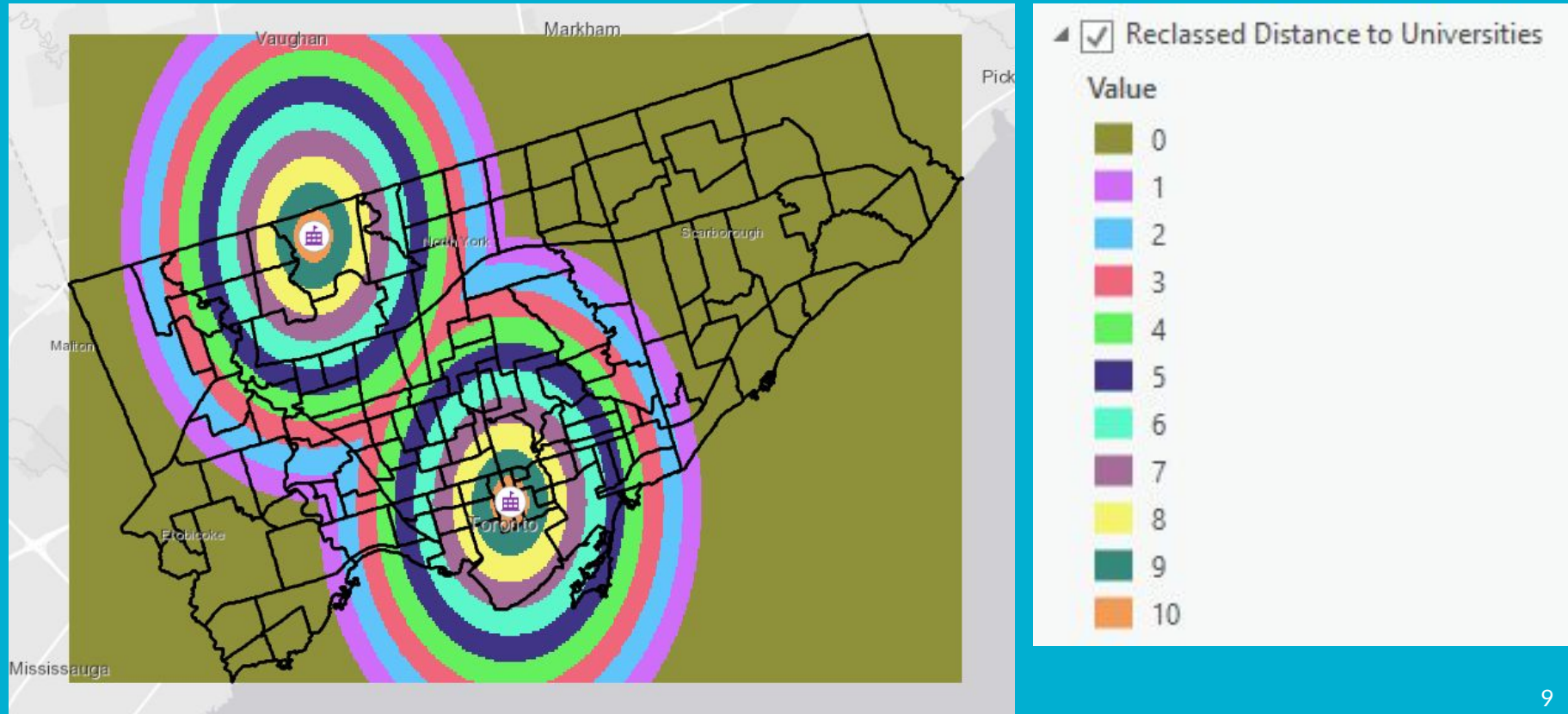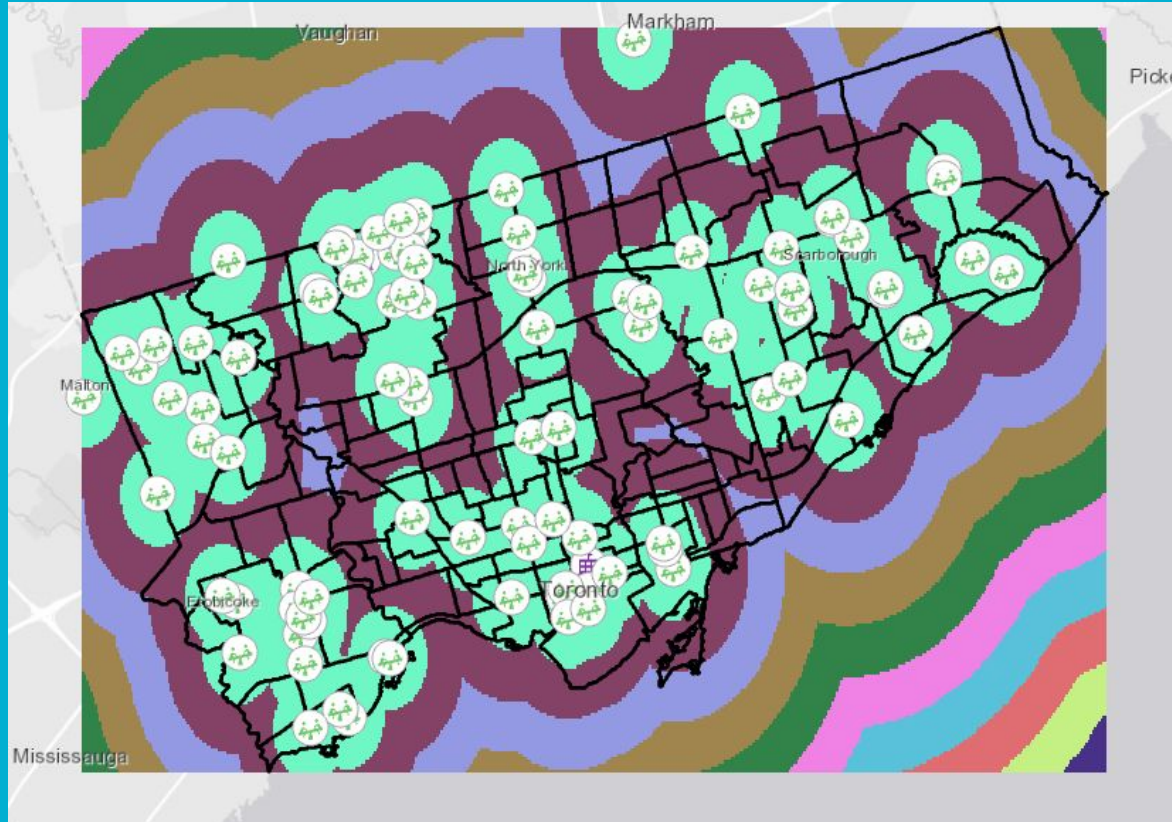
0

Crime density was reclassified so the areas with lesser density were more preferable.

Reclassification: Distance from University

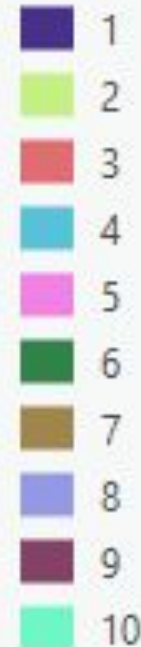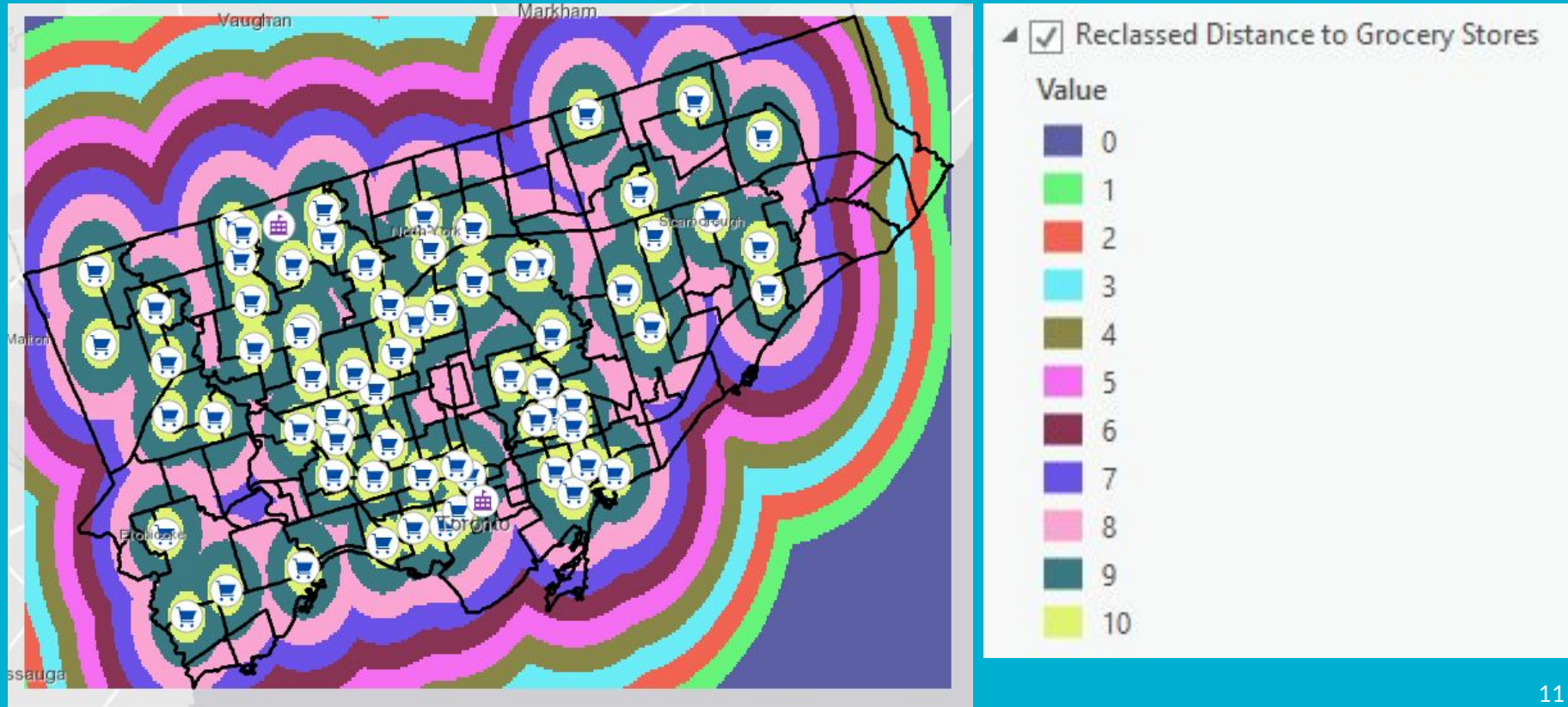# Reclassification: Distance from Gym

Reclassification: Distance from Grocery Stores
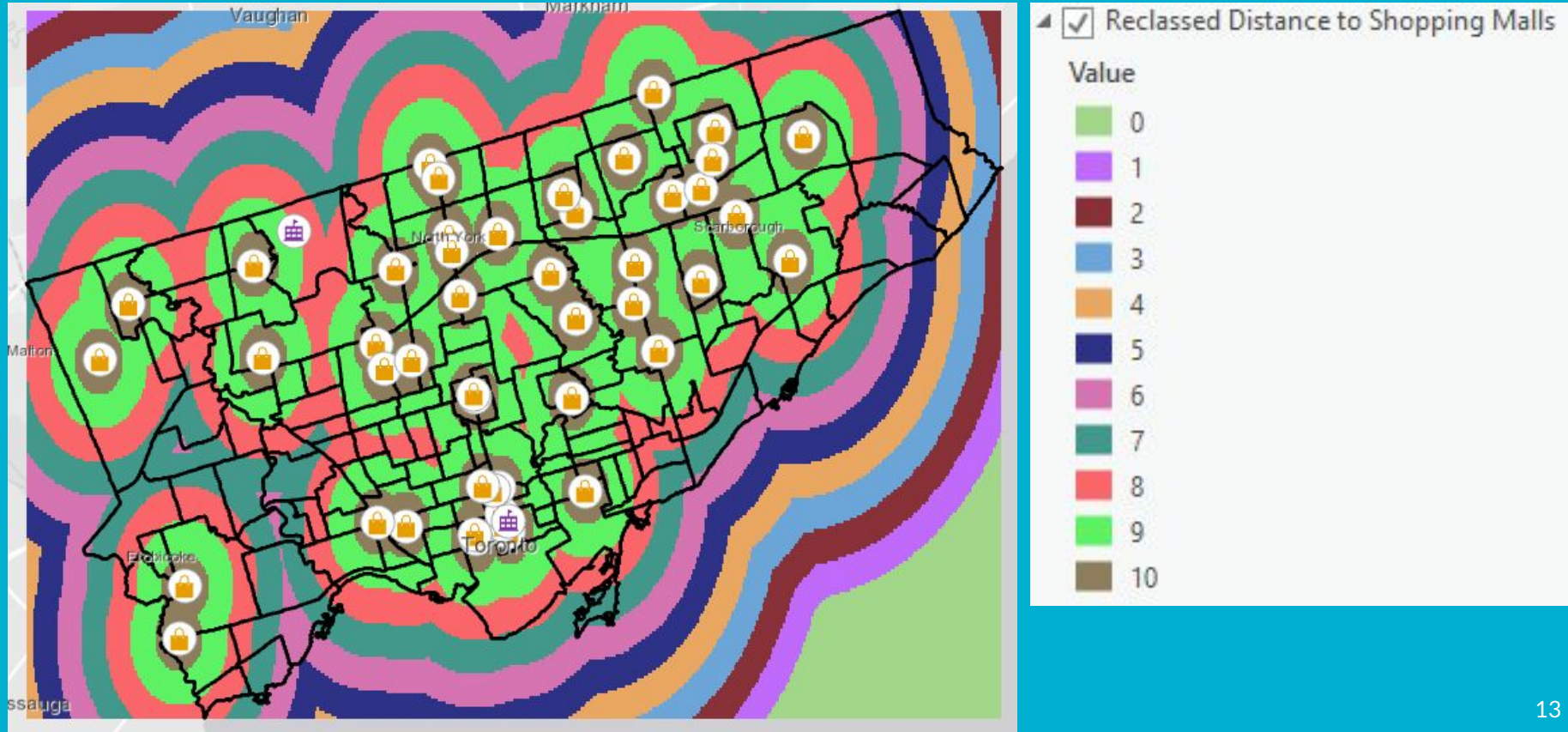
Reclassification: Distance from Hospital
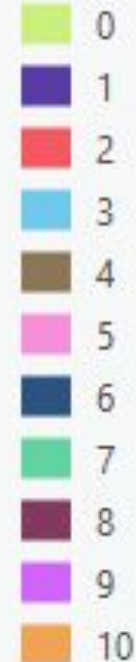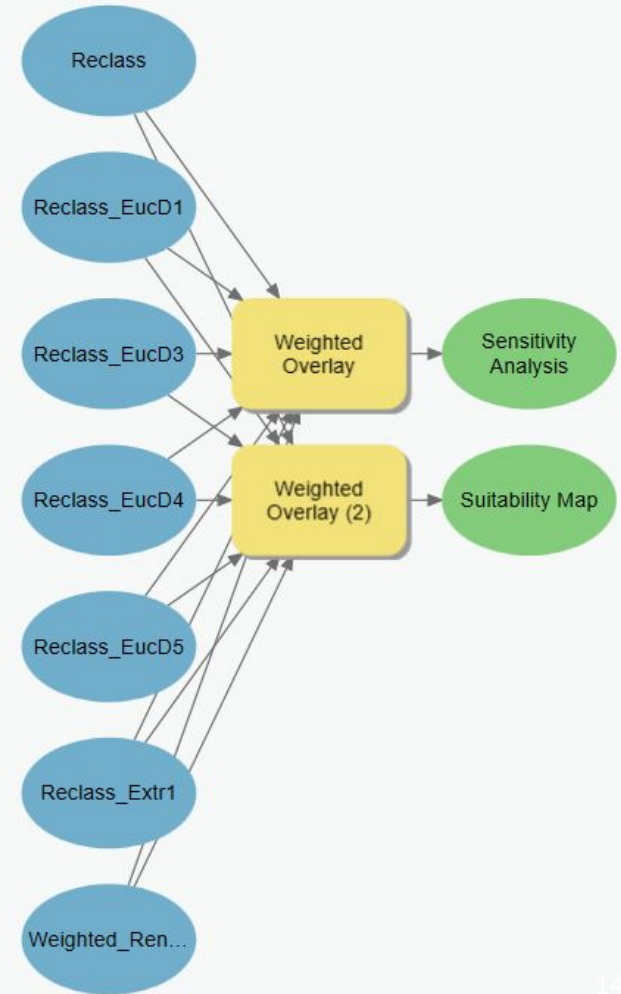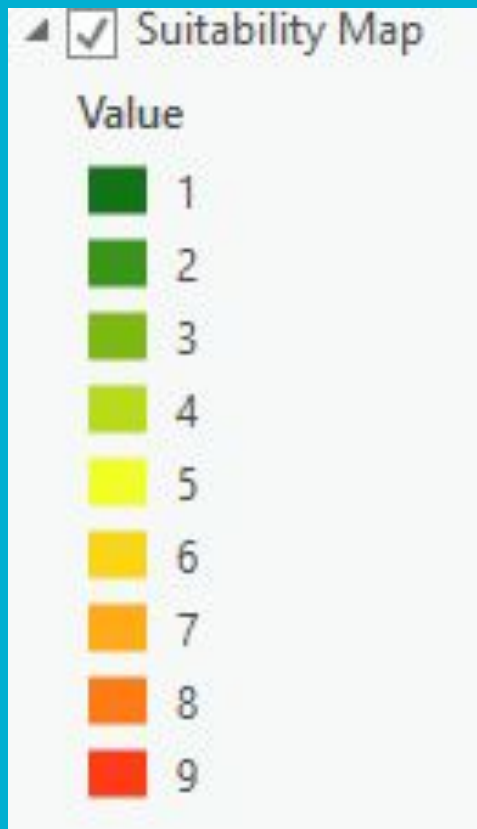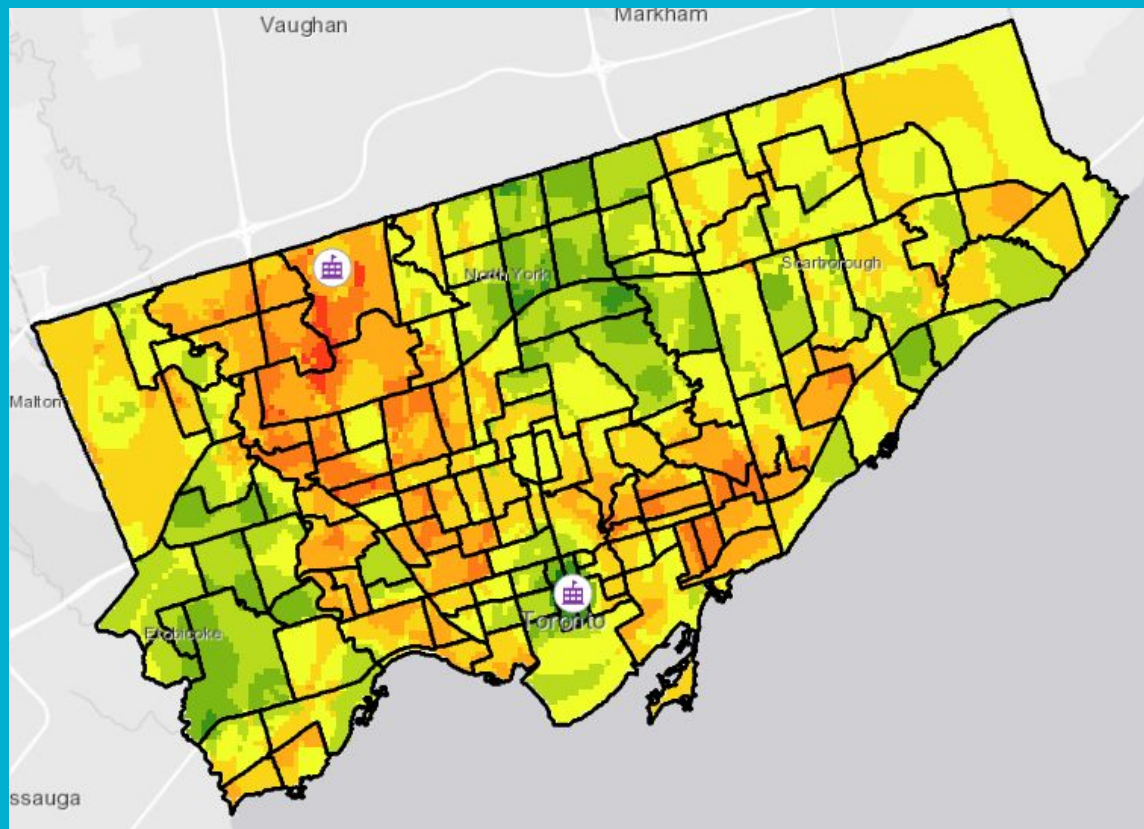
Reclassification: Distance from Shopping Mall

Model Builder
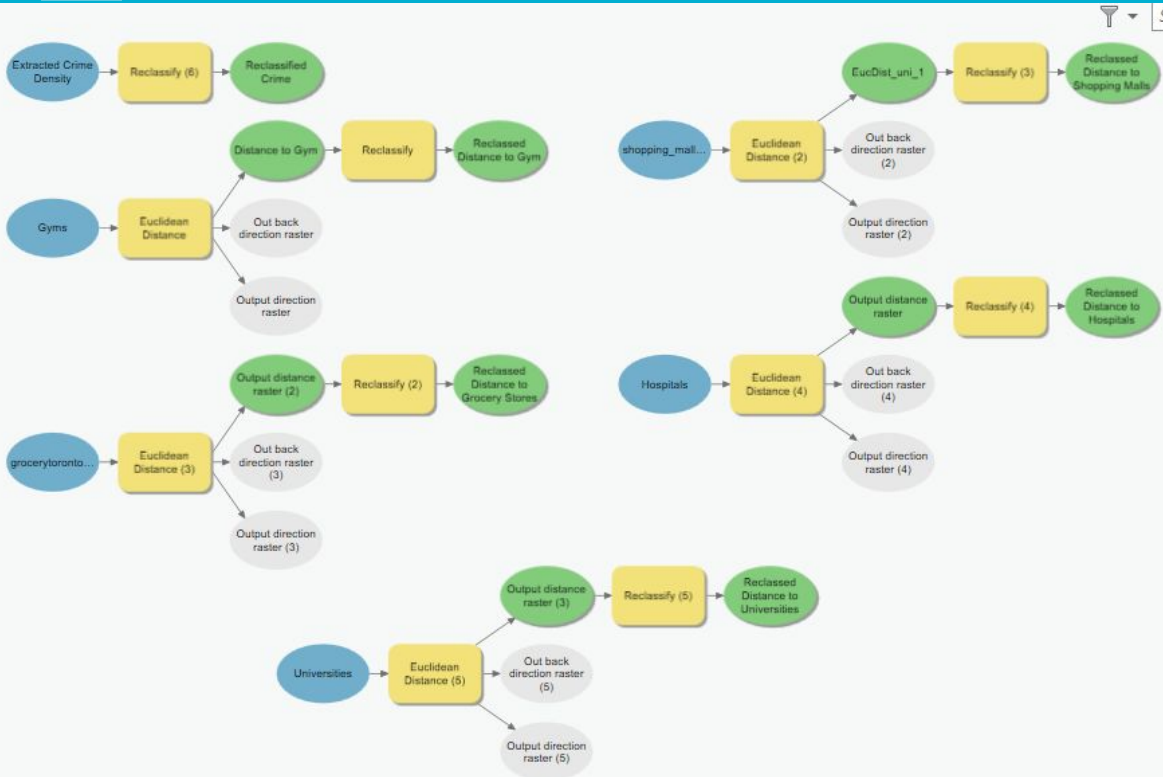
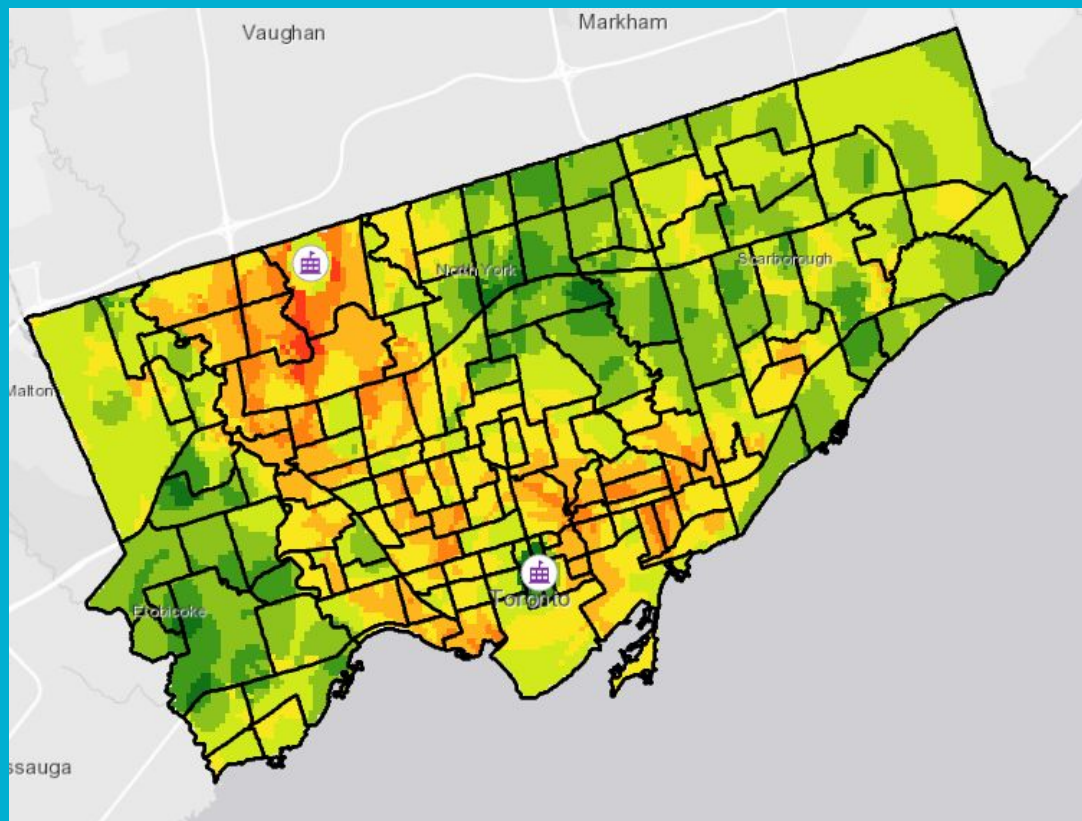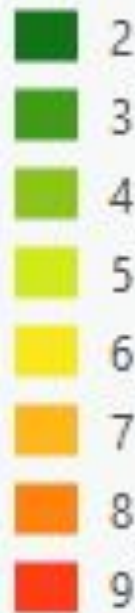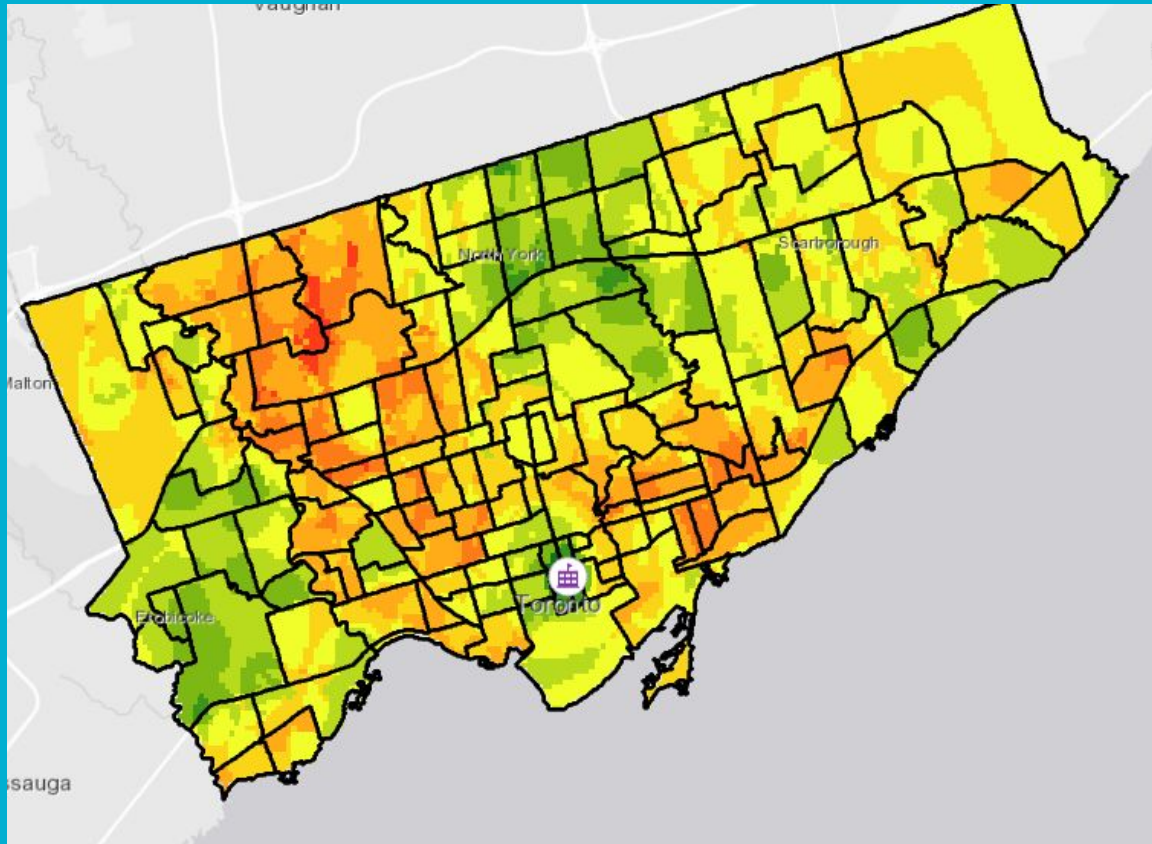# Suitability Map Layer
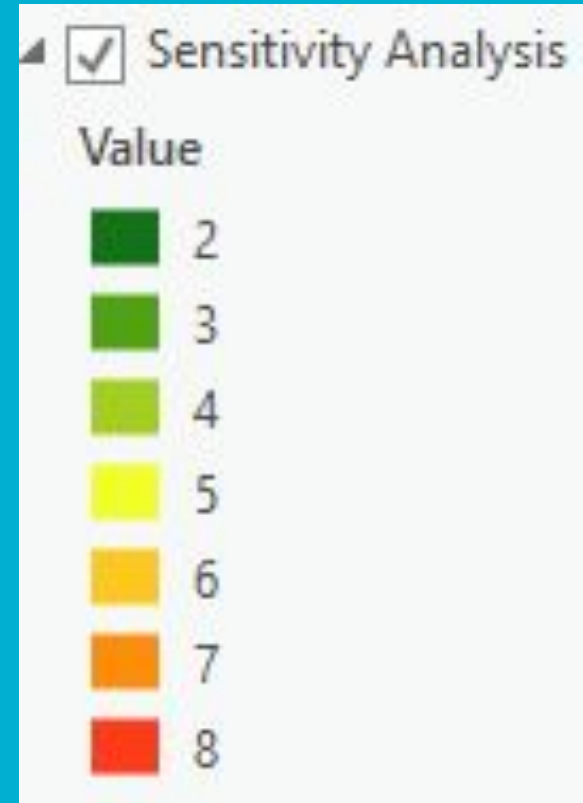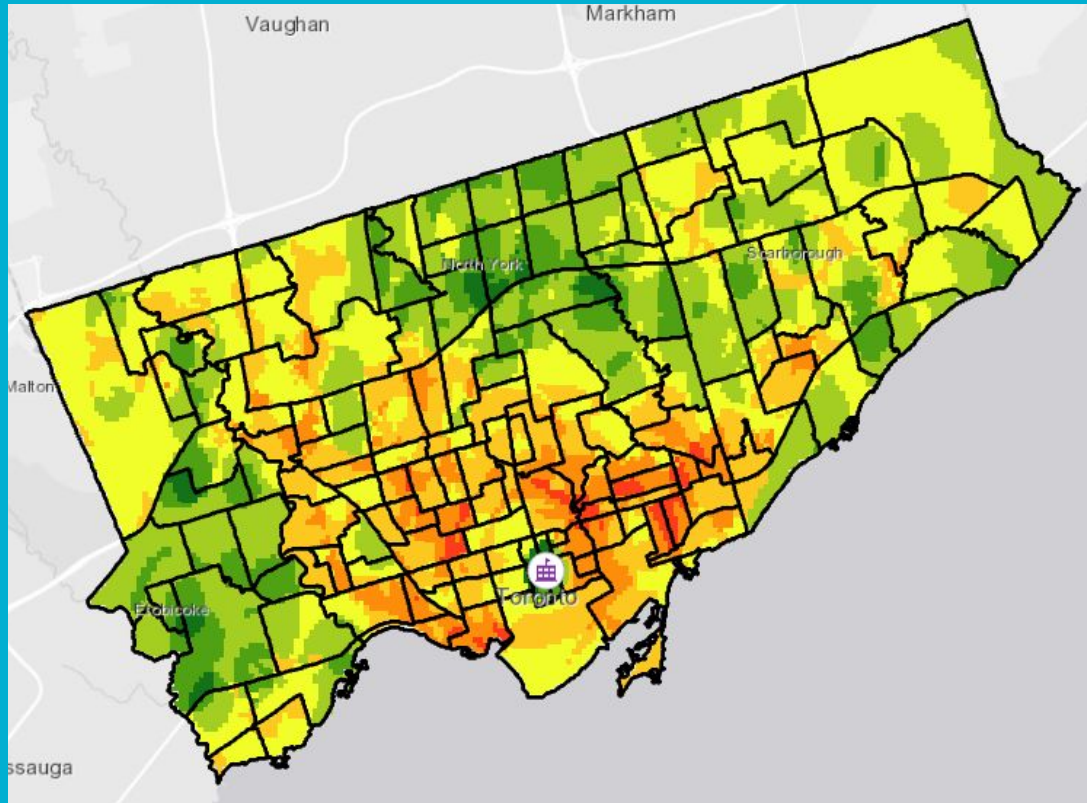
Sensitivity Analysis Layer
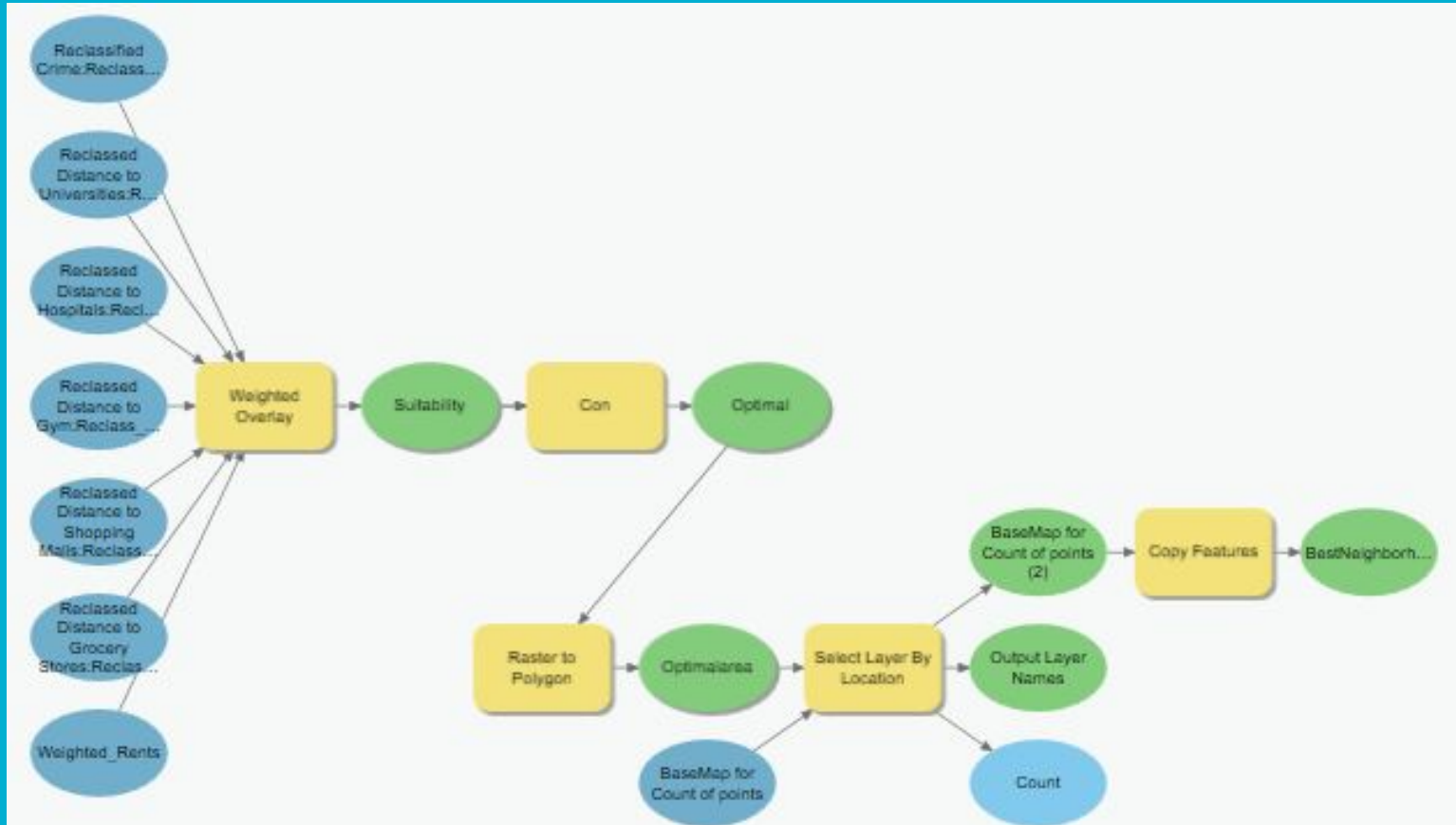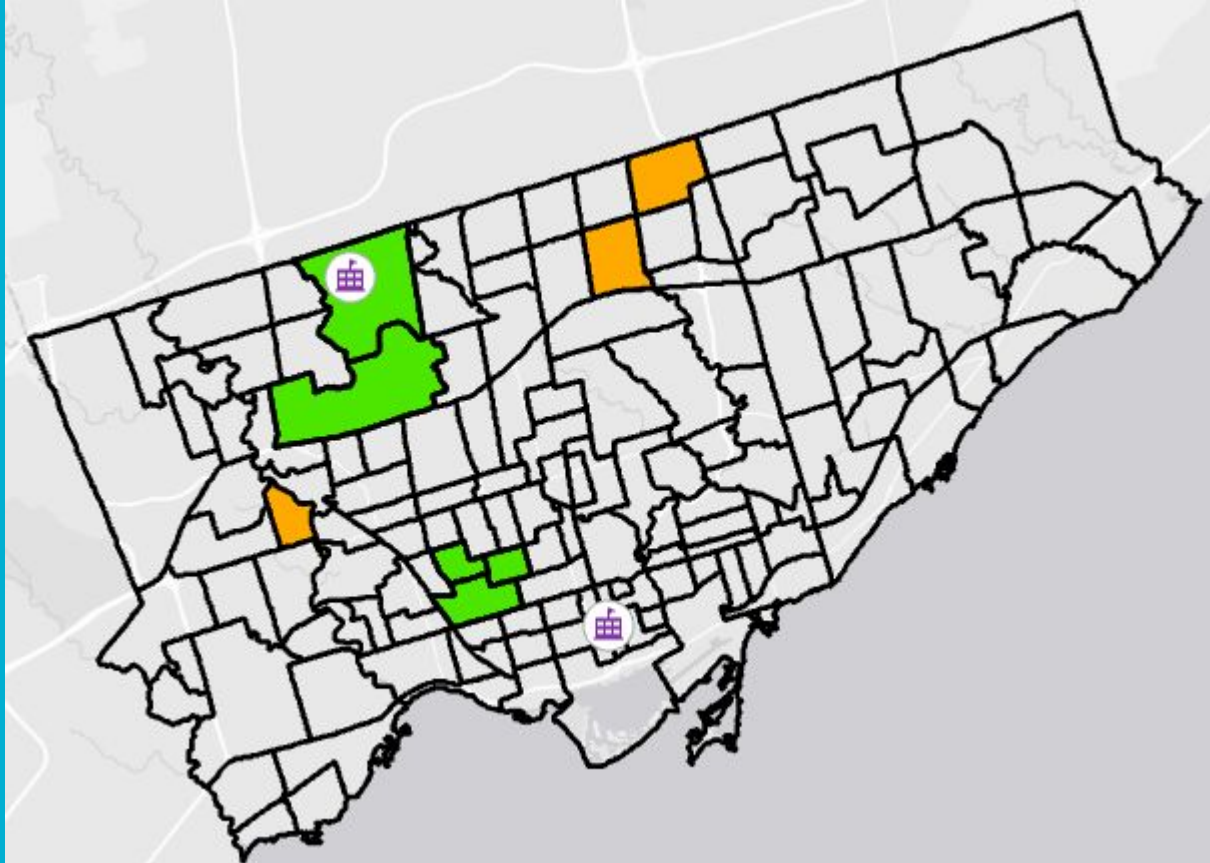
Suitability Map for Only Ryerson
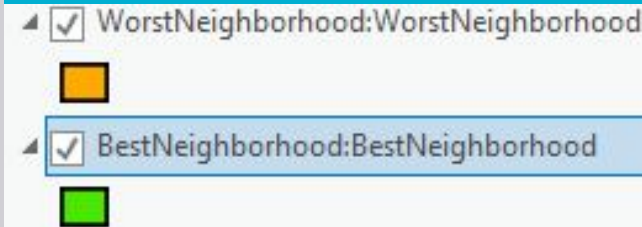
Sensitivity Analysis Layer for Ryerson

Selecting the best and worst neighborhoods

Best and Worst Neighborhoods

The best Neighborhood is a combination of areas classified as 9 and above. The worst neighborhoods are areas classified as 4 and below.

WorstNeighborhood:WorstNeighborhood

BestNeighborhood:BestNeighborhood

Density Clusters of Bus Stops

Stops_DensityBasedClustering

Color ID

- 6 clusters displayed in this color
- 5 clusters displayed in this color
- 5 clusters displayed in this color
- 6 clusters displayed in this color
- 6 clusters displayed in this color
- 5 clusters displayed in this color
- 5 clusters displayed in this color
- 4 clusters displayed in this color
- Noise
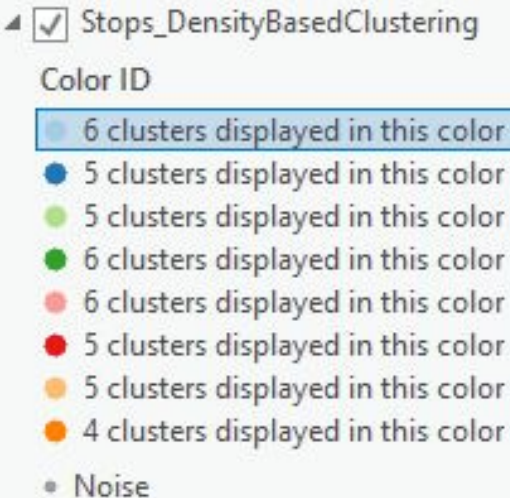
The Minimum stops in a cluster was set to 35.

21

Walkability

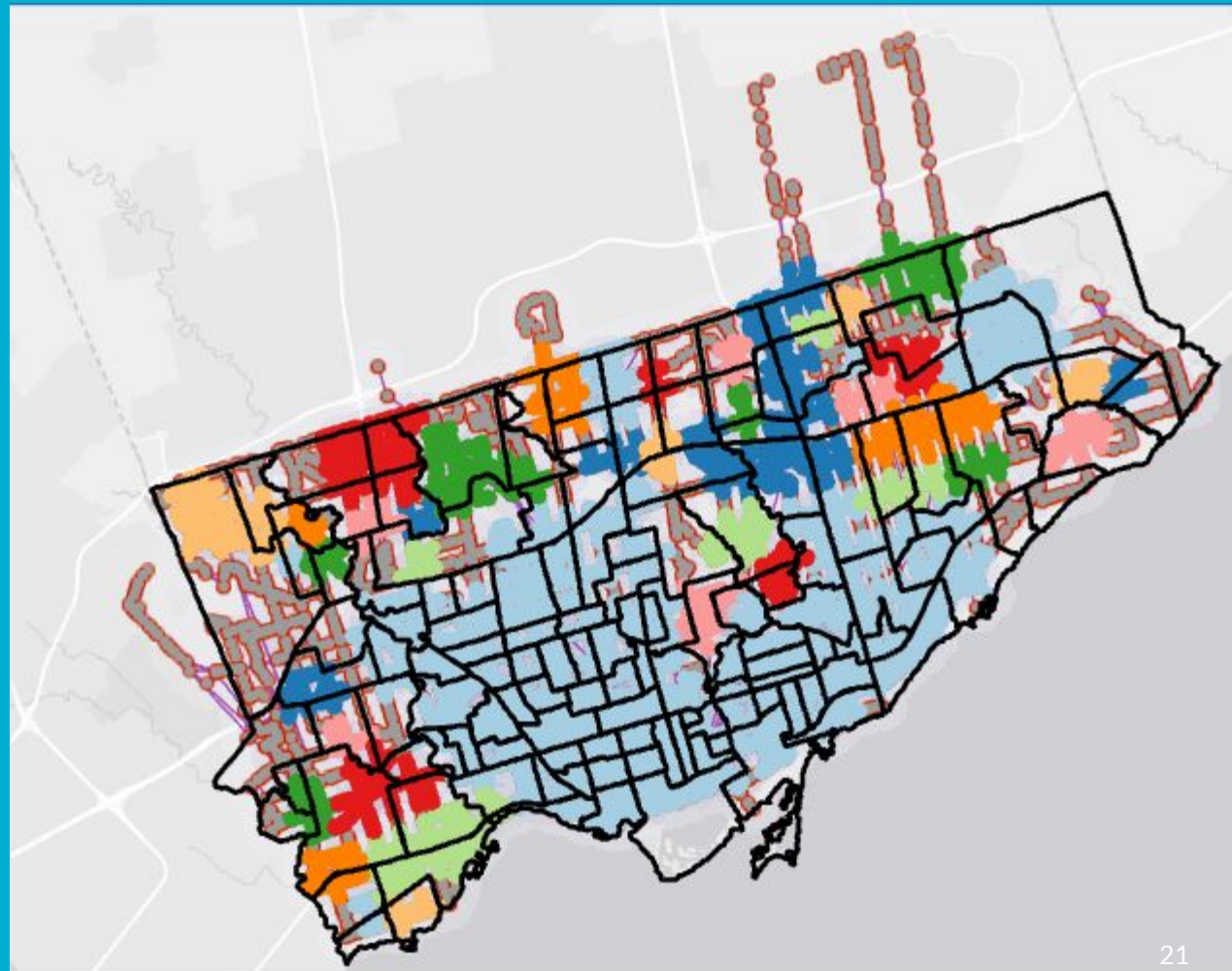Walkability is a measure of how friendly an environment is for walking. It has a lot of benefits which include health, economic and environmental.

A study of residential preferences conducted in the GTA revealed that:
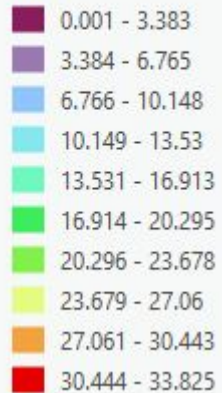
" people living in walkable neighbourhoods across the GTA, and in Toronto, do more utilitarian walking, take transit more often, drive less often and less far, and have lower body weights, than those who live in less walkable neighbourhoods. These results suggest that people living in more walkable neighbourhoods in the GTA are more physically active with less chance of developing a chronic disease, than those who live in less walkable neighbourhoods."

"Walkability mapping conducted for Toronto illustrates that, while the urban core of Toronto is highly walkable, many areas of the city are not. It also indicates that a number of the neighbourhoods in Toronto that are least walkable are home to low income residents who can experience increased rates of illness and injury. "
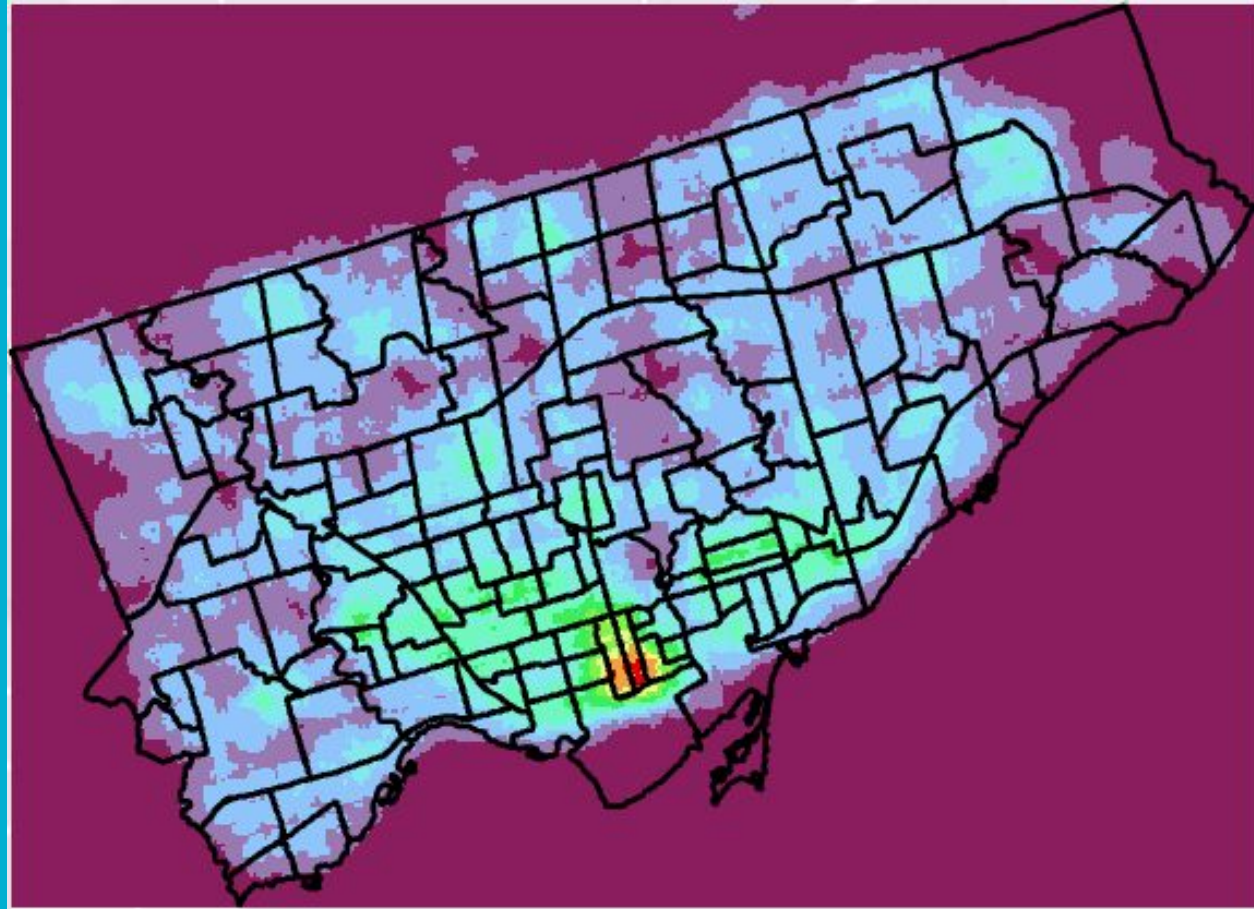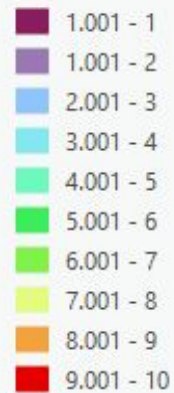
Walkability : Walk Score

Bus Stop Density
VALUE
- 0.001 - 3.383
- 3.384 - 6.765
- 6.766 - 10.148
- 10.149 - 13.53
- 13.531 - 16.913
- 16.914 - 20.295
- 20.296 - 23.678
- 23.679 - 27.06
- 27.061 - 30.443
- 30.444 - 33.825

Walkability
Value
- 1.001 - 1
- 1.001 - 2
- 2.001 - 3
- 3.001 - 4
- 4.001 - 5
- 5.001 - 6
- 6.001 - 7
- 7.001 - 8
- 8.001 - 9
- 9.001 - 10
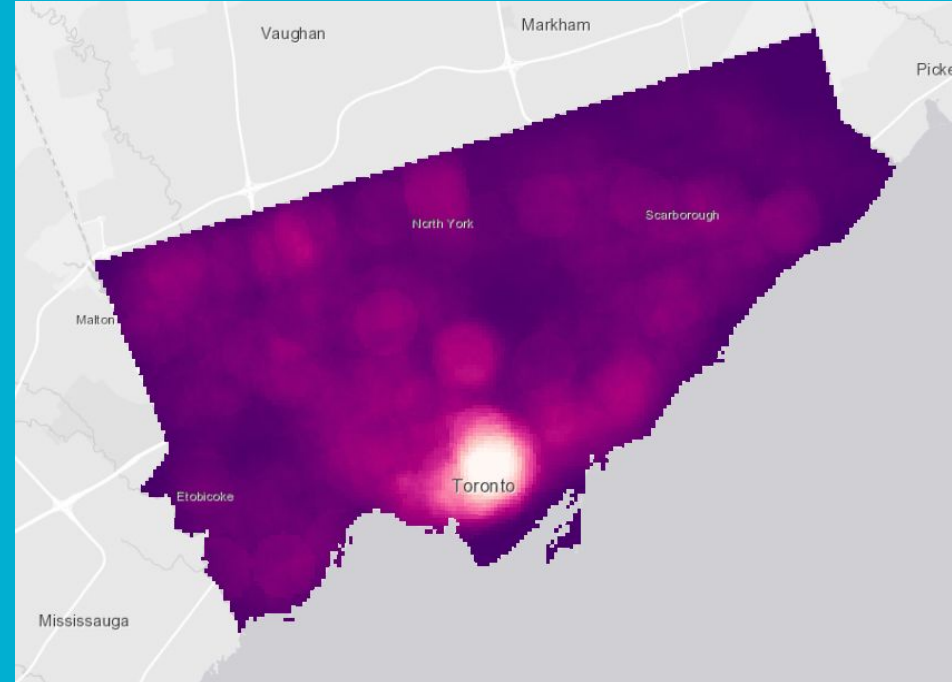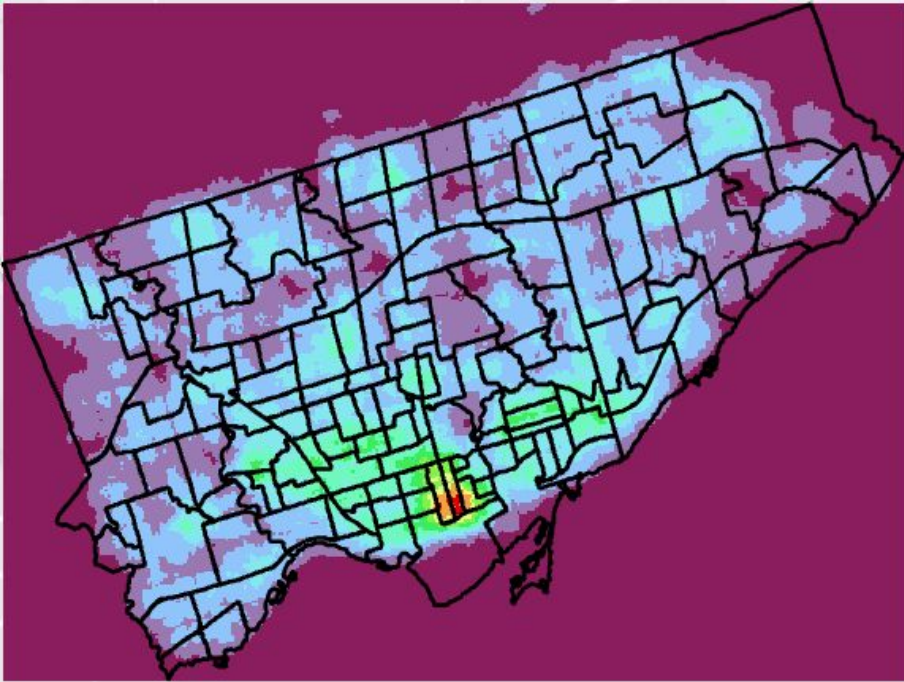
Comparing Bus Stop density and Crime density

It appears that the areas with high Crime density also had the highest bus stop density. This might be an interesting point of research. Are areas with the highest transportation frequency susceptible to Crime? Since these areas are easily accessible. Other factors would have to be considered like population density.

Conclusions

- Rent data is as accurate to end of 2020 at the latest
- It is least suitable to live close to Ryerson University due to higher rent prices and more instances of crime in local area.
- Prioritizing distance over rent results in fewer optimal housing locations
- York University's local area produces the most optimal housing locations despite fewer local amenities
- If walkability had been added to the weighted layers, Ryerson may have had better areas closer to it.
- It is cheaper to rent and attend York University
- Suitability and Sensitivity barely changes if Ryerson is the only university (only in location where York was removed from and less optimal areas)

Resources

[Best Housing Areas in Toronto for York and Ryerson Students (arcgis.com)](arcgis.com)