

Demographics of City of Toronto Census Tracts

Problem Statement

- Planning for different services throughout the city, a planner should be familiar with the demographics of the city.
- In this visualization:
 - Population of each census tract is depicted for 7 demographic groups
 - Colour is used for quick comparison of different demographic groups within the same census tracts, i.e. the composition of each census tract
 - Choropleth map

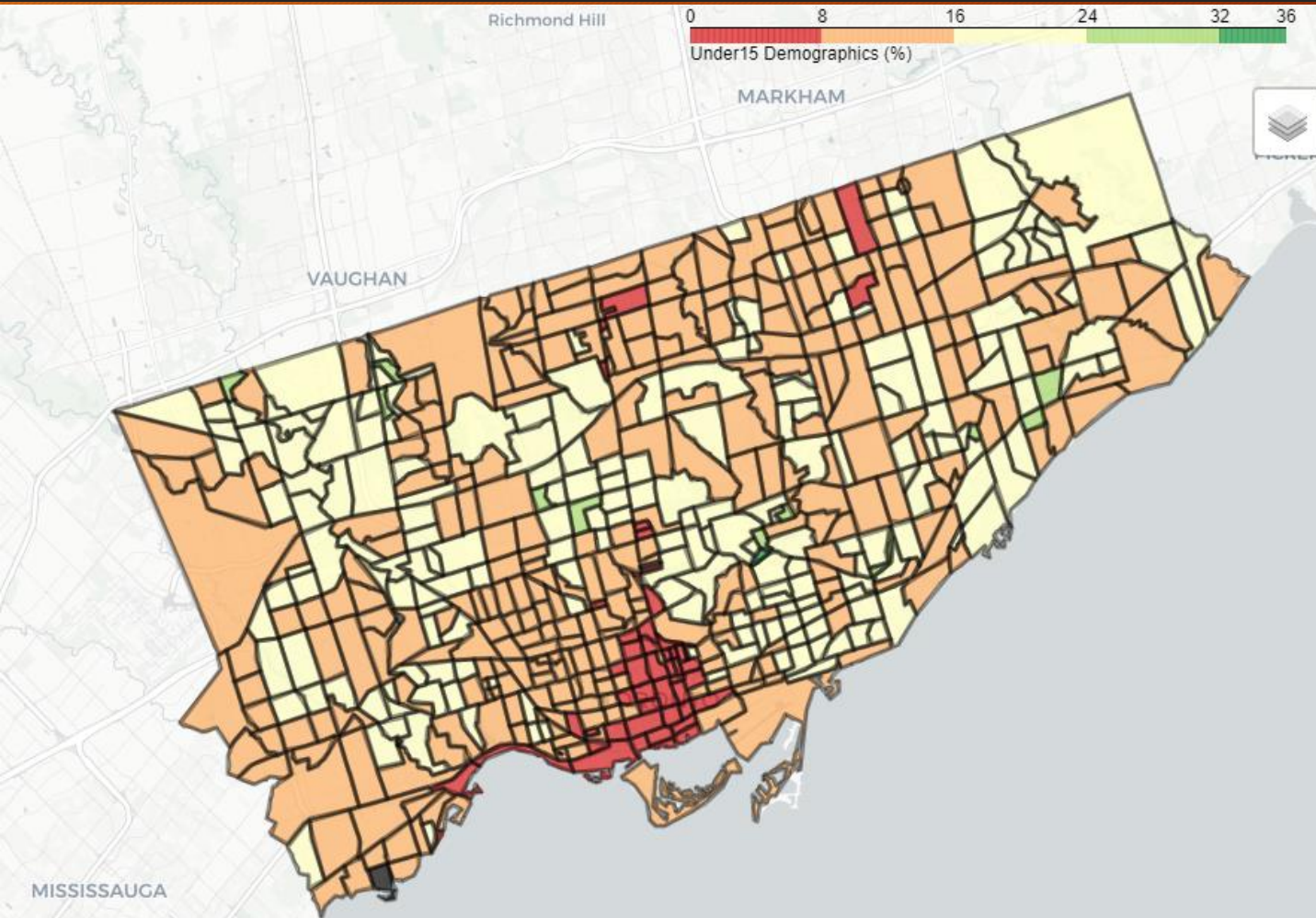
Data Source

- Statistics Canada
 - Shapefile of the 2016 census tracts
 - Converted to geojson
- CHASS
 - Population demographics of City of Toronto

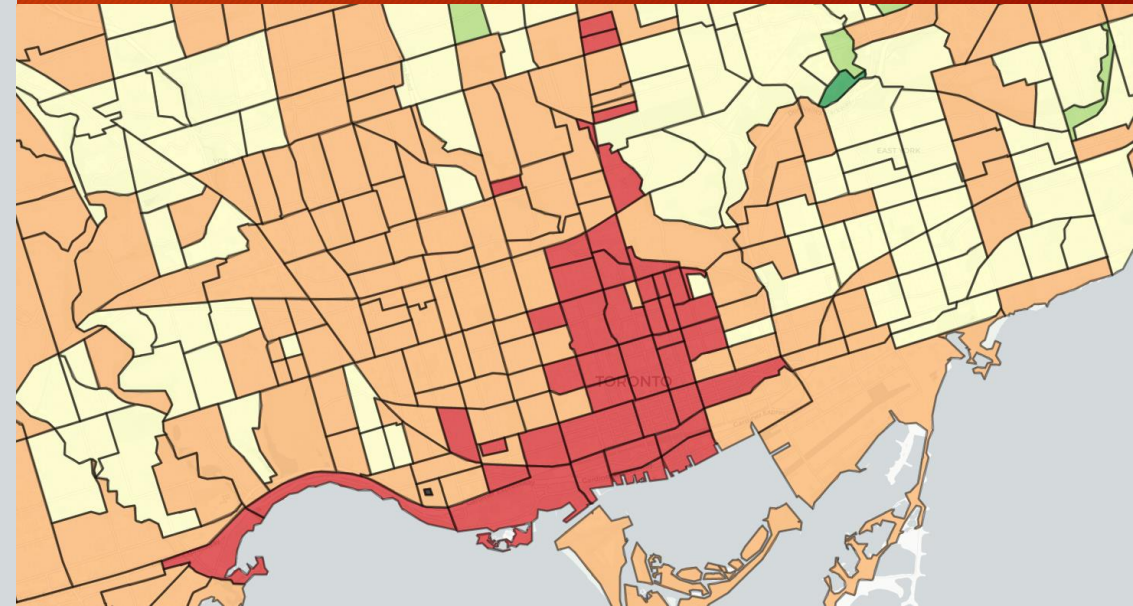
Tools

- Jupyter notebook
- Python Libraries
 - pandas
 - folium
 - json
 - numpy
 - matplotlib

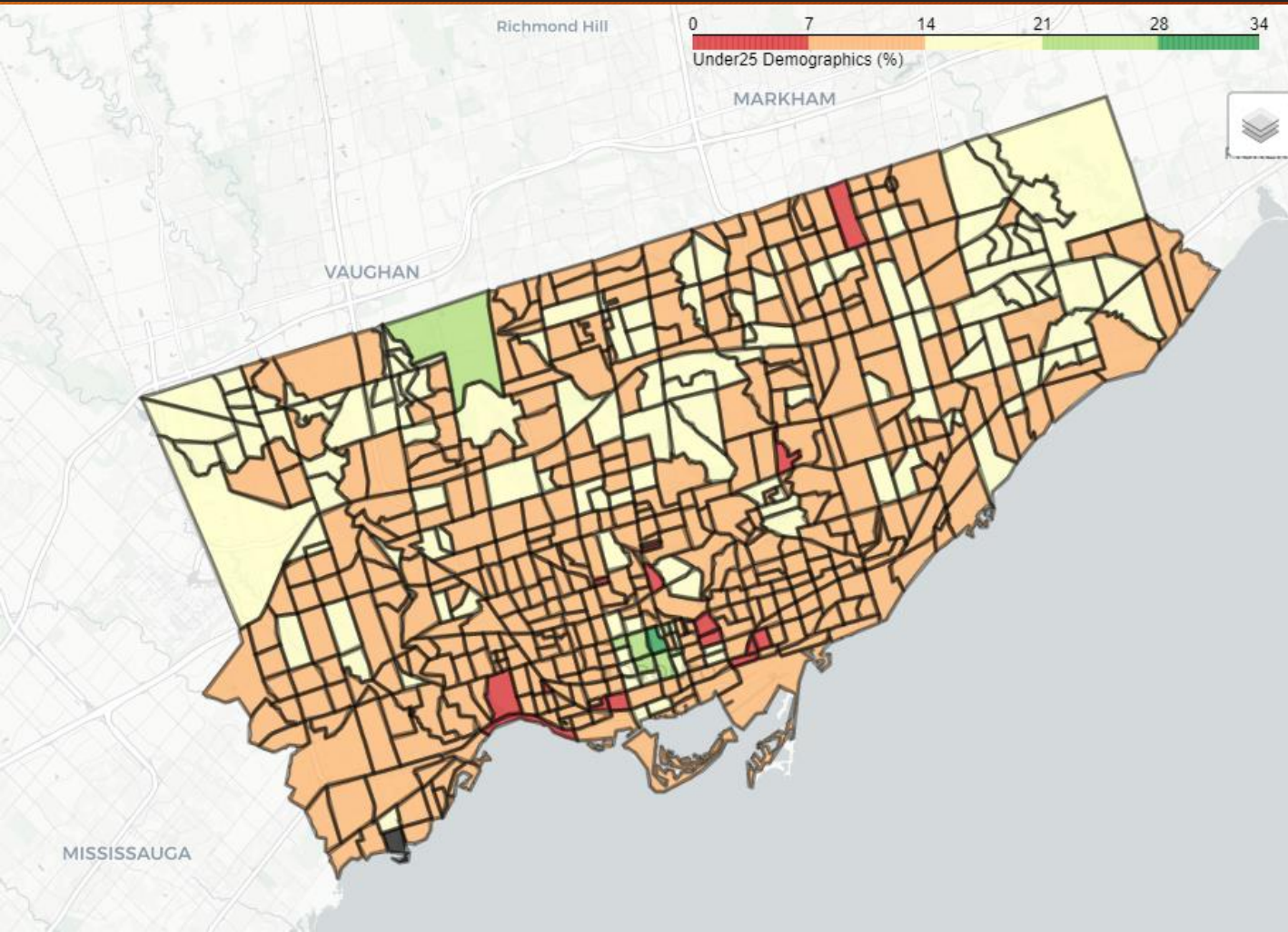
Under 15 Demographics Group



Downtown core area has significantly lower composition of the under 15 group per CT, as suggested by the observed pattern below.

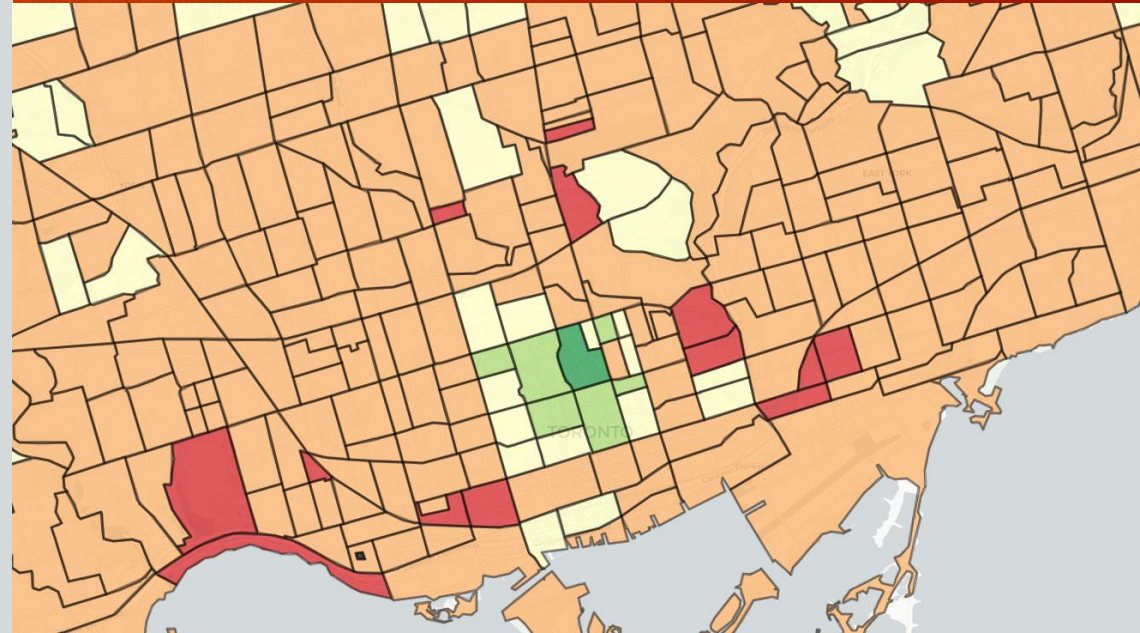


Under 25 Demographics Group

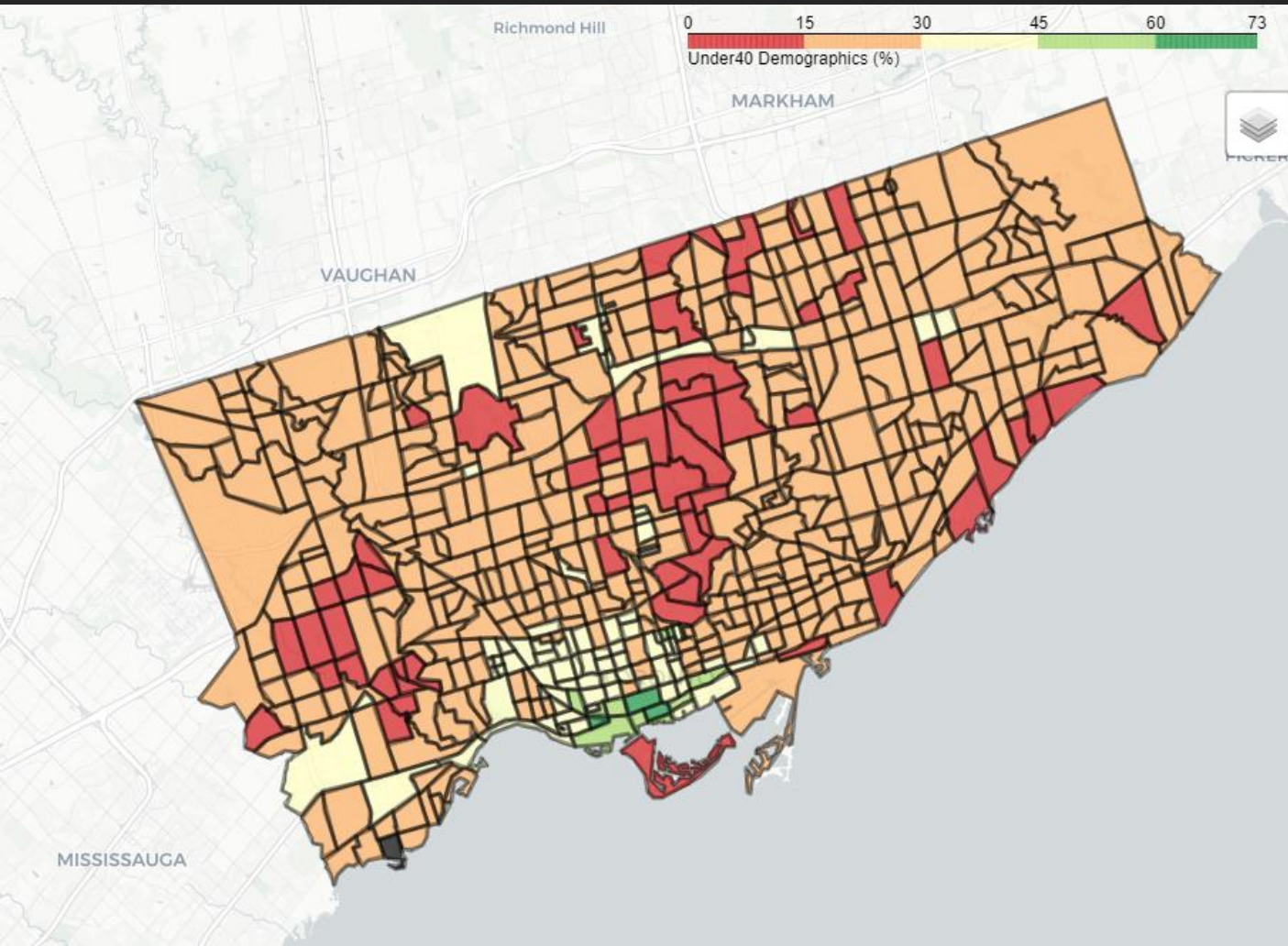


The green tracts are superimposed over the University of Toronto campus. Between 21 and 34 percent of the residents are under the age of 25.

Overall, this age group has double to quadruple of presence of under 15 age group in the green CTs.

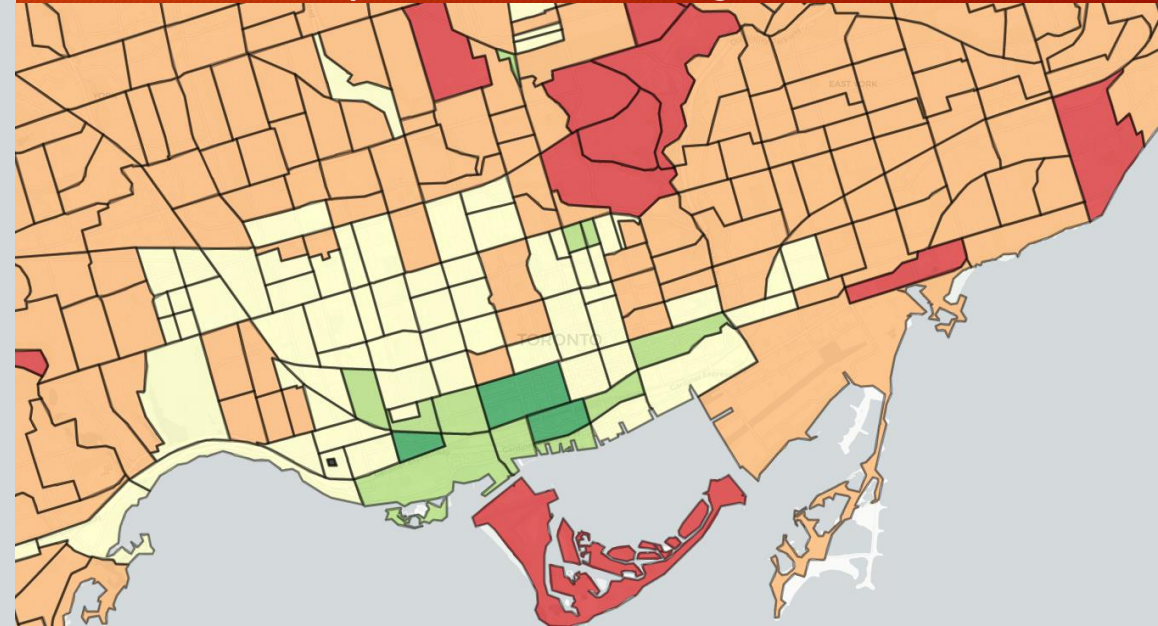


Under 40 Demographics Group

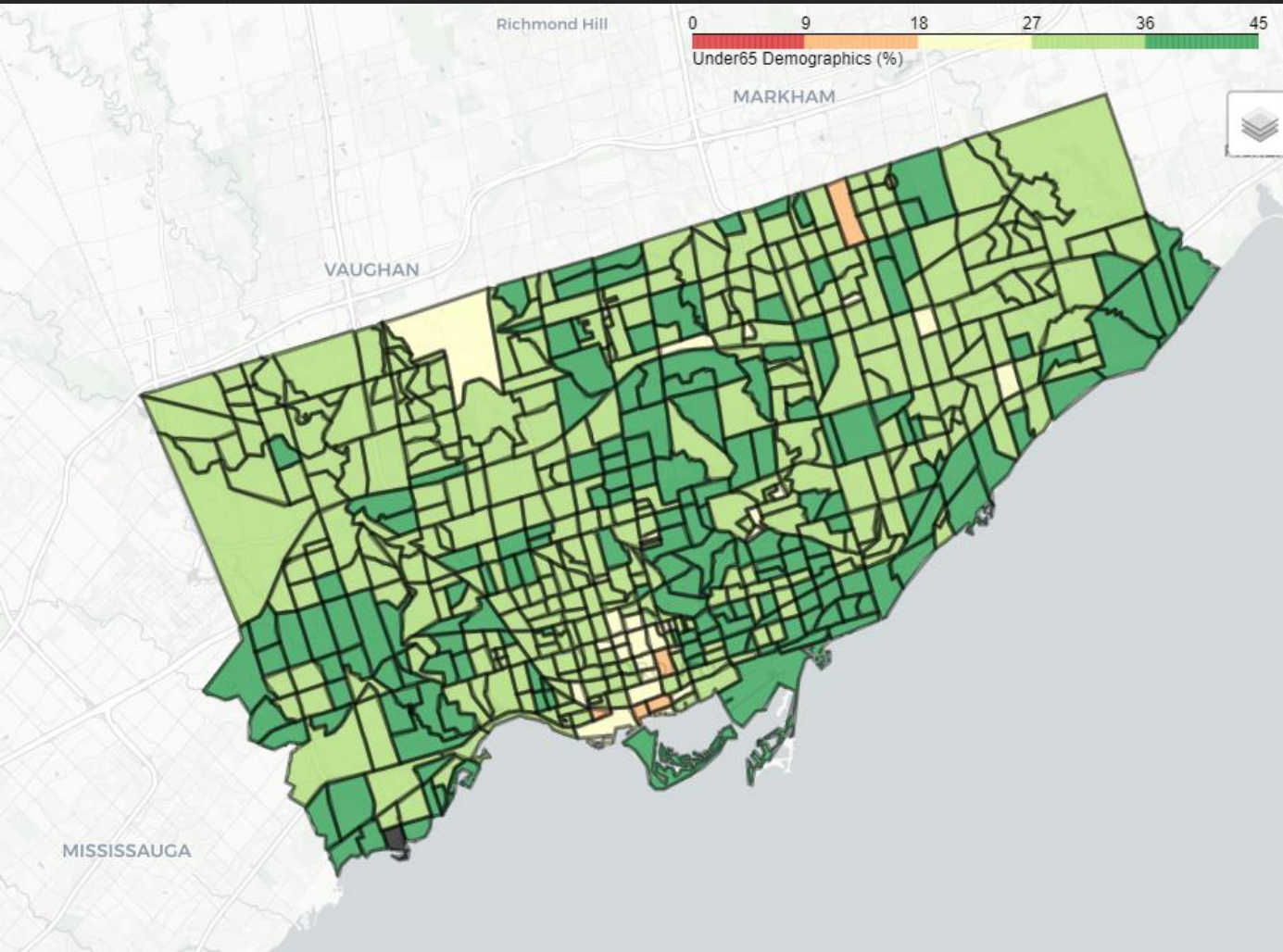


Major demographic make up of the tracts along lakeshore and entertainment district is of the under 40 age group.

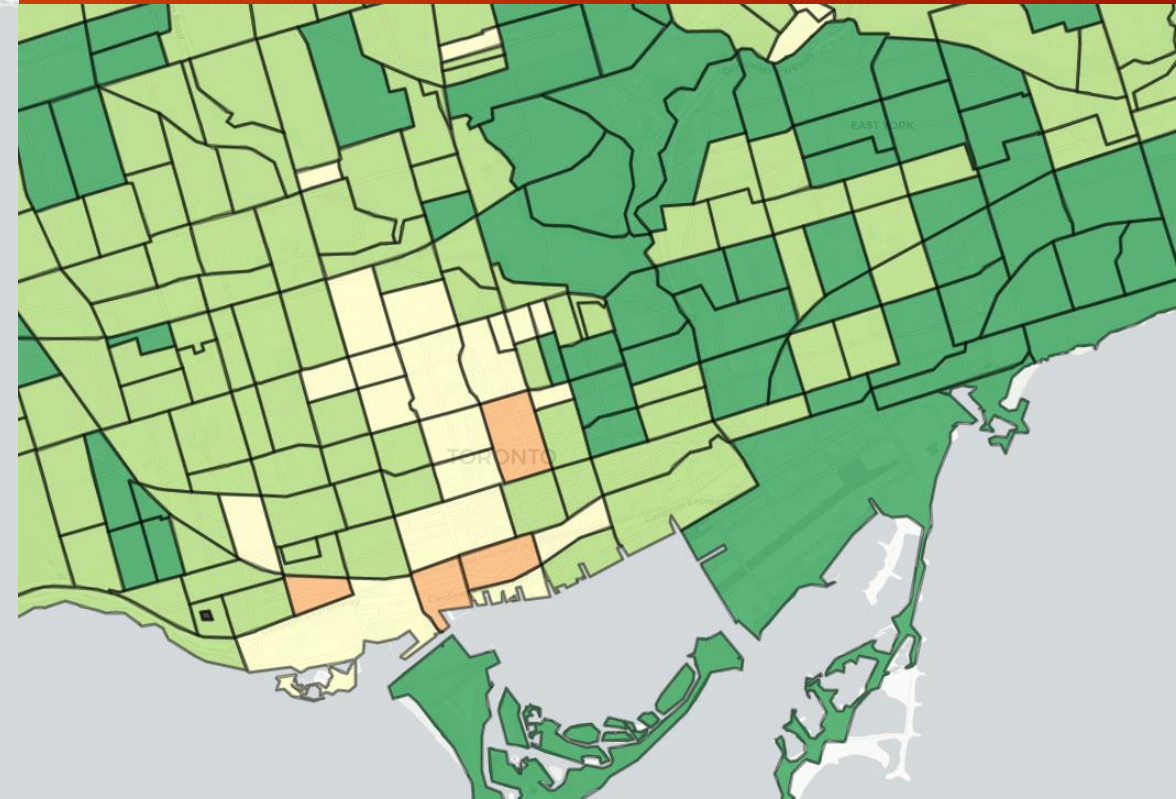
Another interesting pattern is observed in mid-town, west-end and along lakeshore east where this group is less and less present. Mass migration??



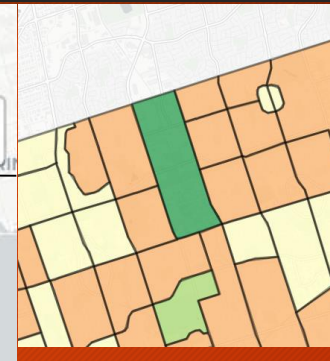
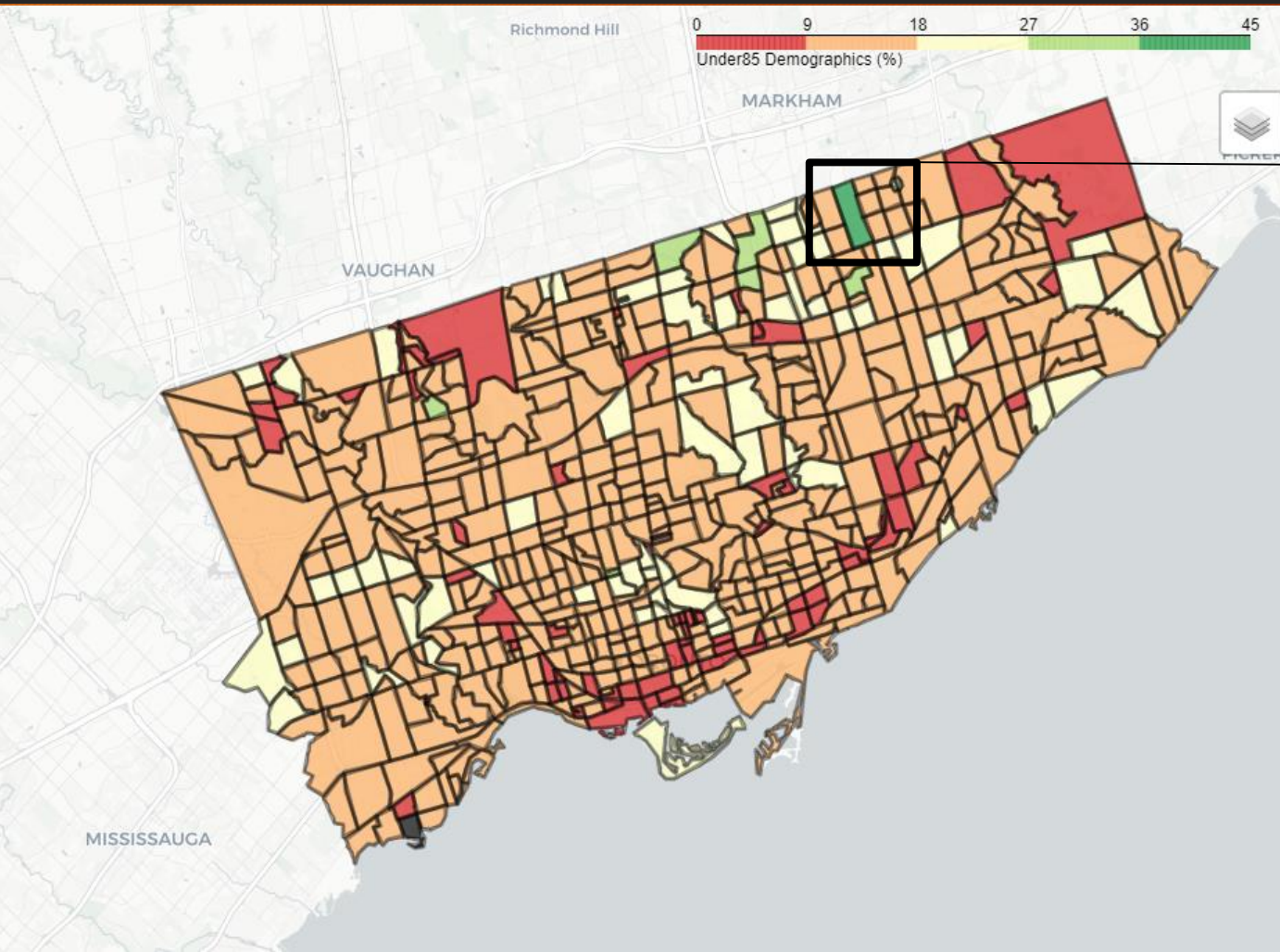
Under 65 Demographics Group



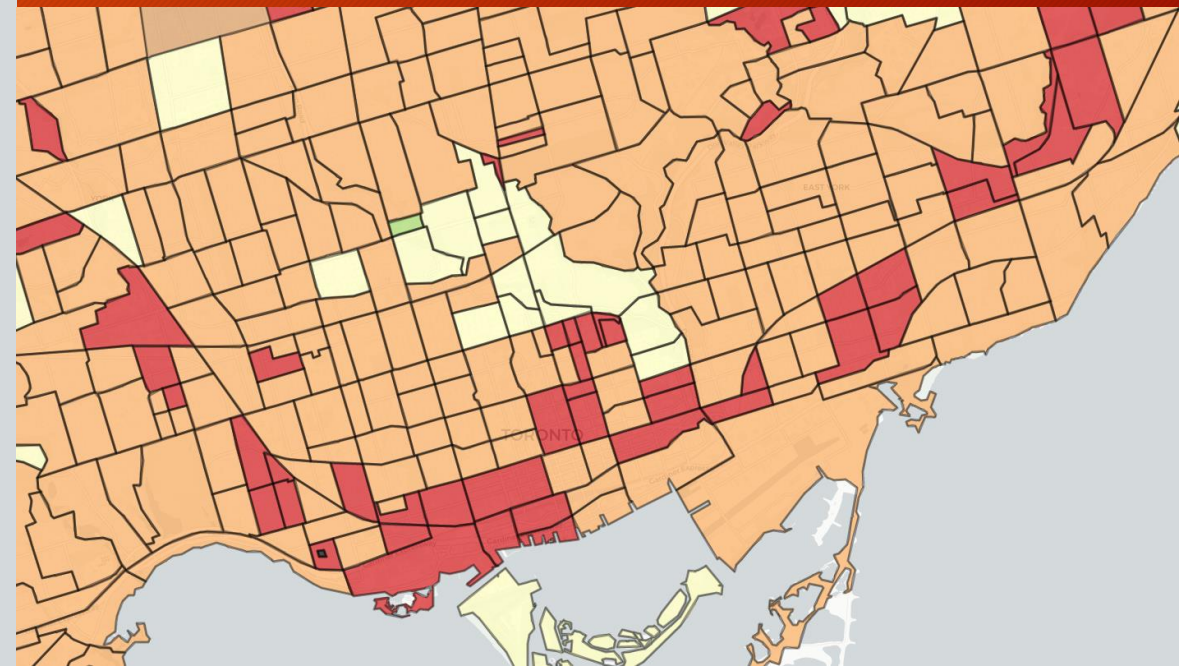
Residents of most tracts in Toronto belong to this demographics group, implying the increasing number of town's aging and retiring population.



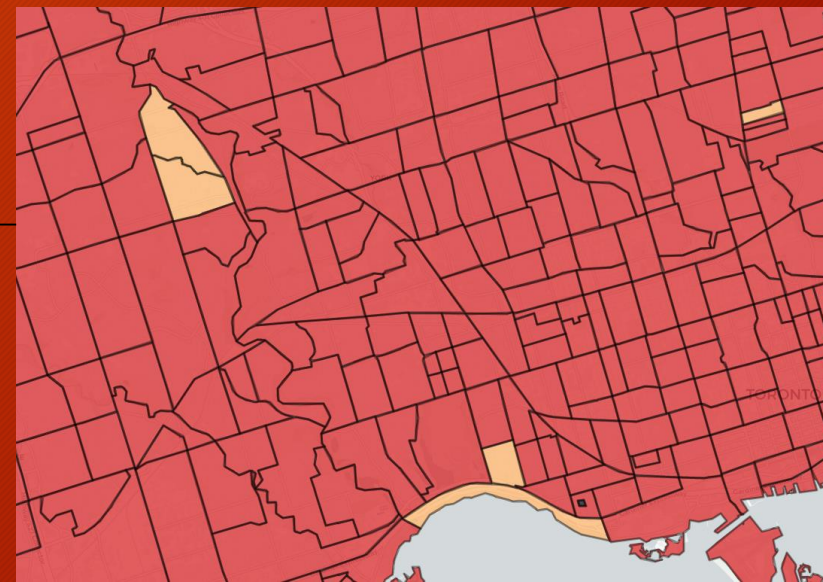
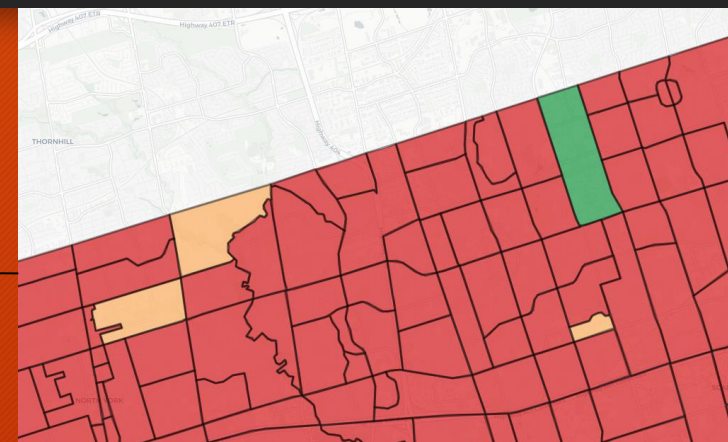
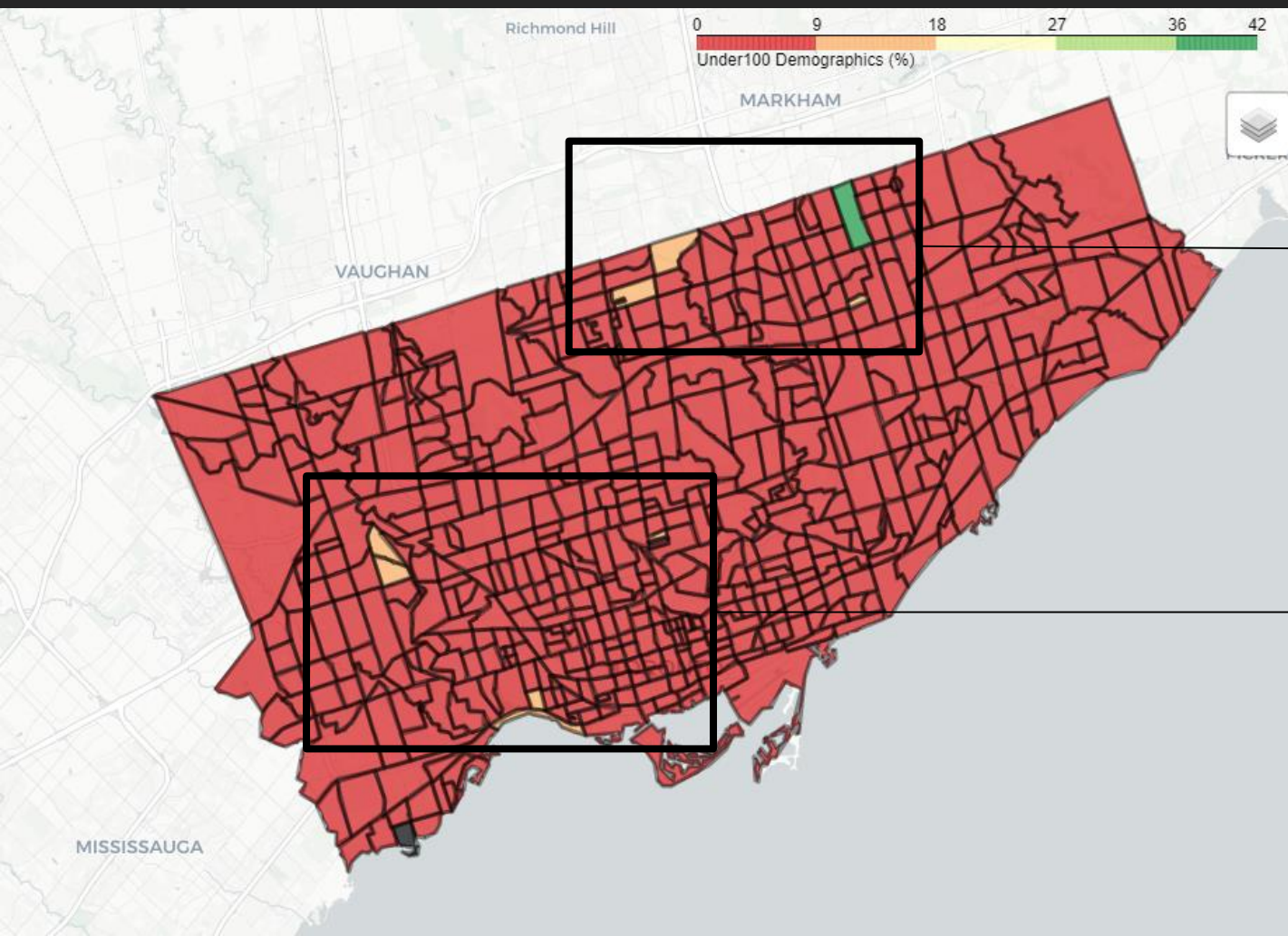
Under 85 Demographics Group



The pattern here indicates that this demographics group is lower in numbers across the town. Note the stark difference in downtown and entertainment district between this group and under 40s.

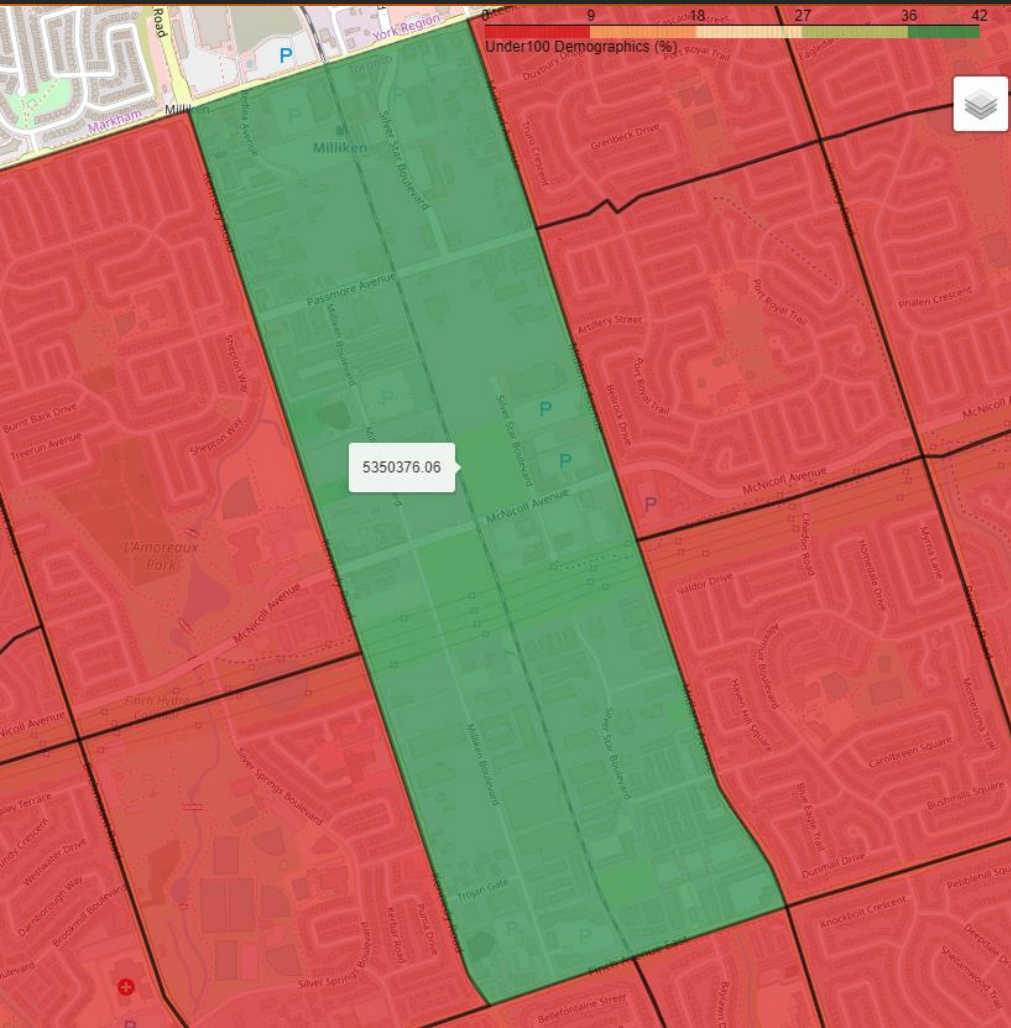


Under 100 Demographics Group



Fewer people
grow old
beyond 85.

Census Tract 5350376.06

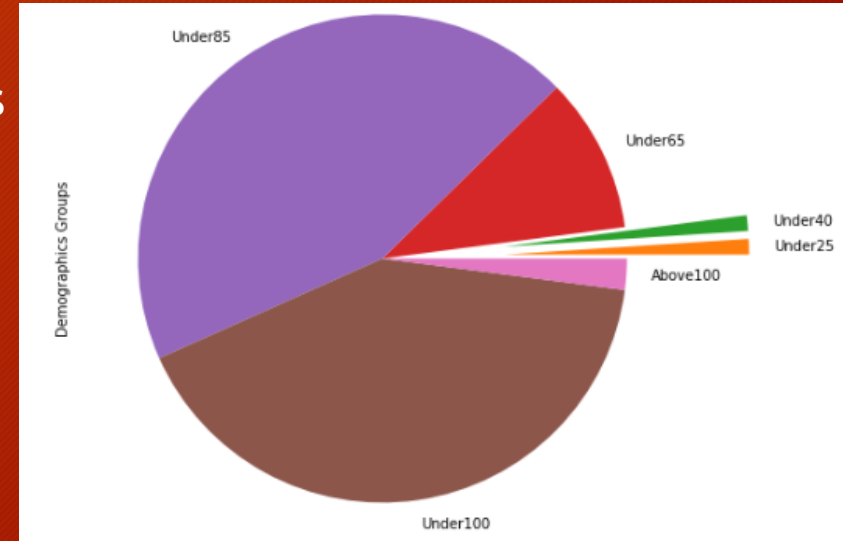


About 42% of the population of this census tract, in Markham, were between the ages of 85 to 100 years in 2015.

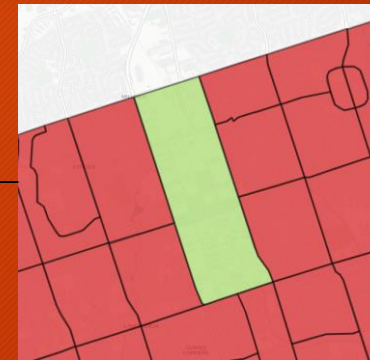
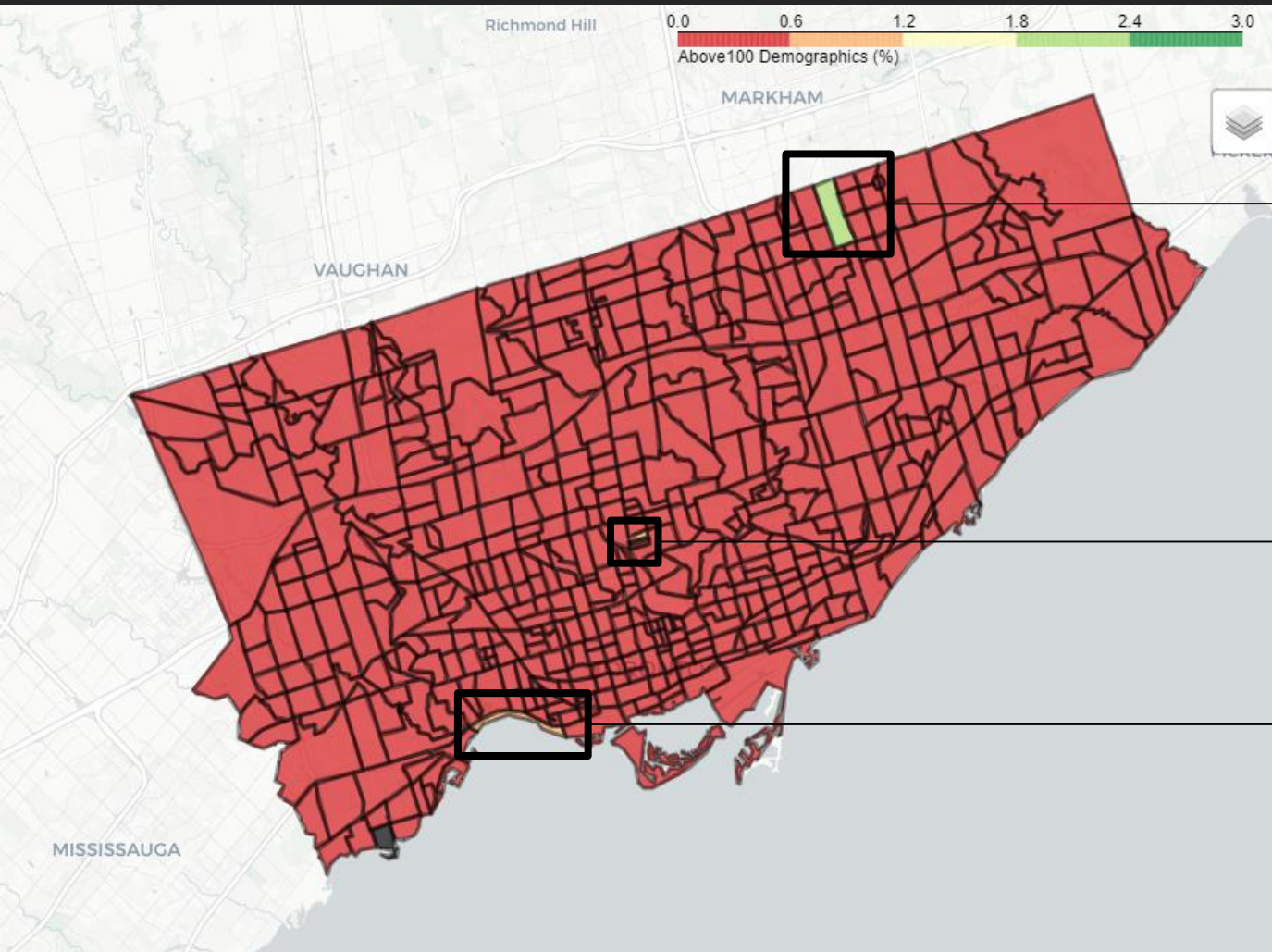
Also, as we saw with the under 85 demographics group, about 45% of the residents were between 65 and 85 years old in this tract.

This was the oldest census tract in Toronto in terms of its internal population-age composition in 2015.

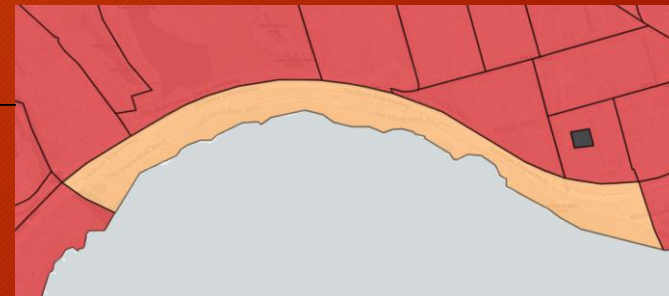
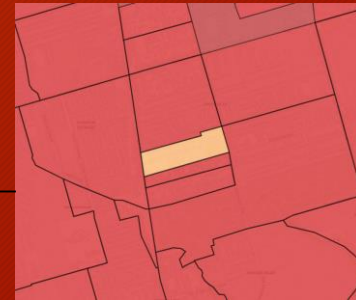
The under 15 demographics group were entirely missing from this tract and under 25 and under 40 groups (roughly 1% each) made up a tiny fraction of the tract.



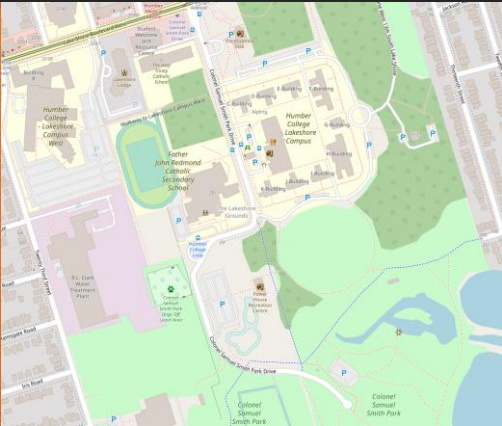
Above 100 Demographics Group



Indeed, fewer people grow beyond 100 years of age.

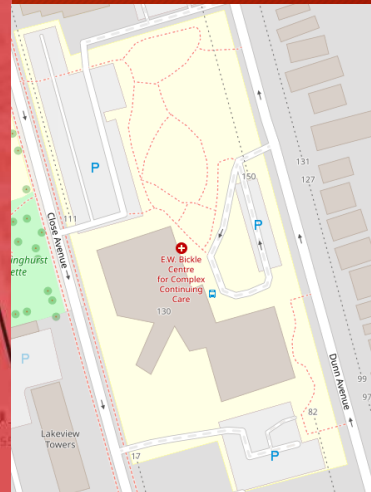
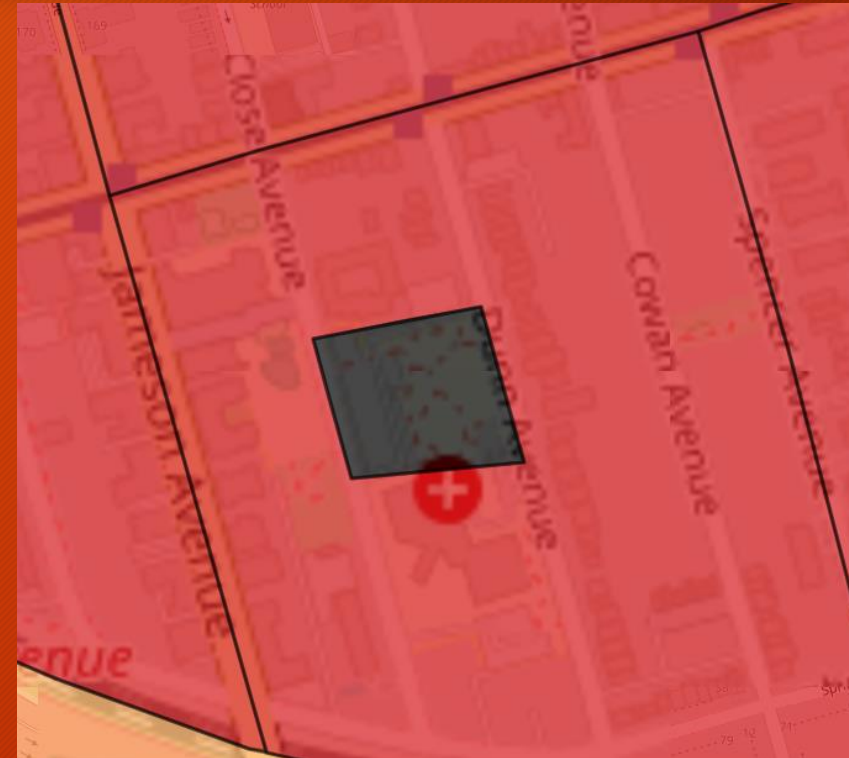
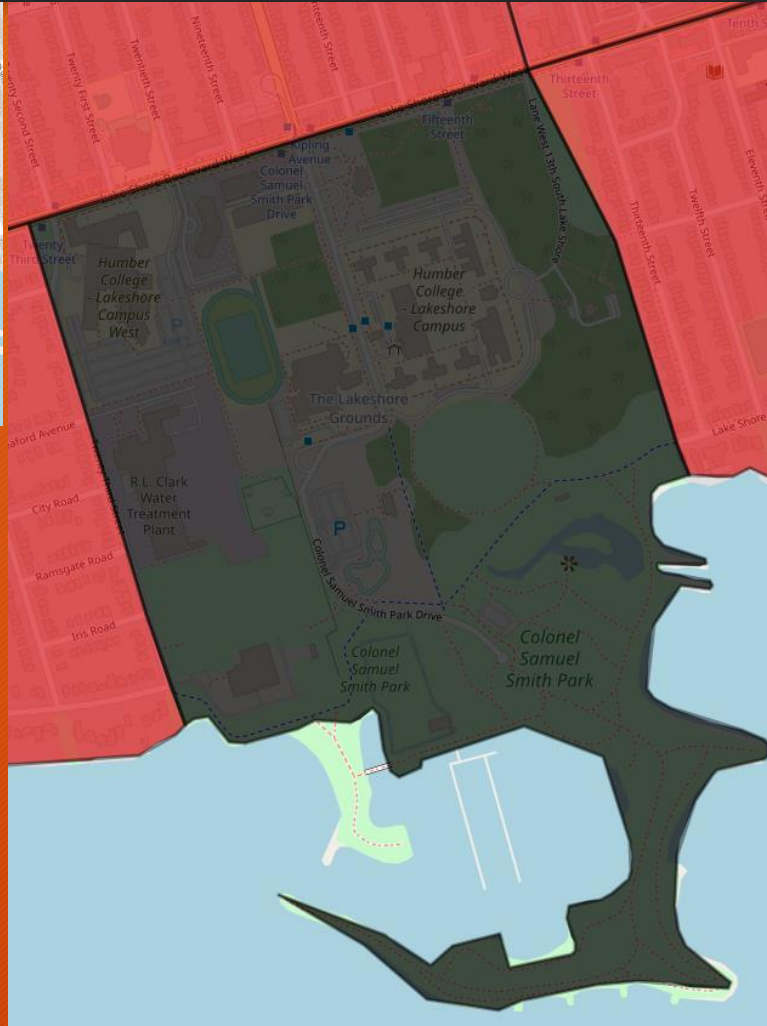


No Data!??



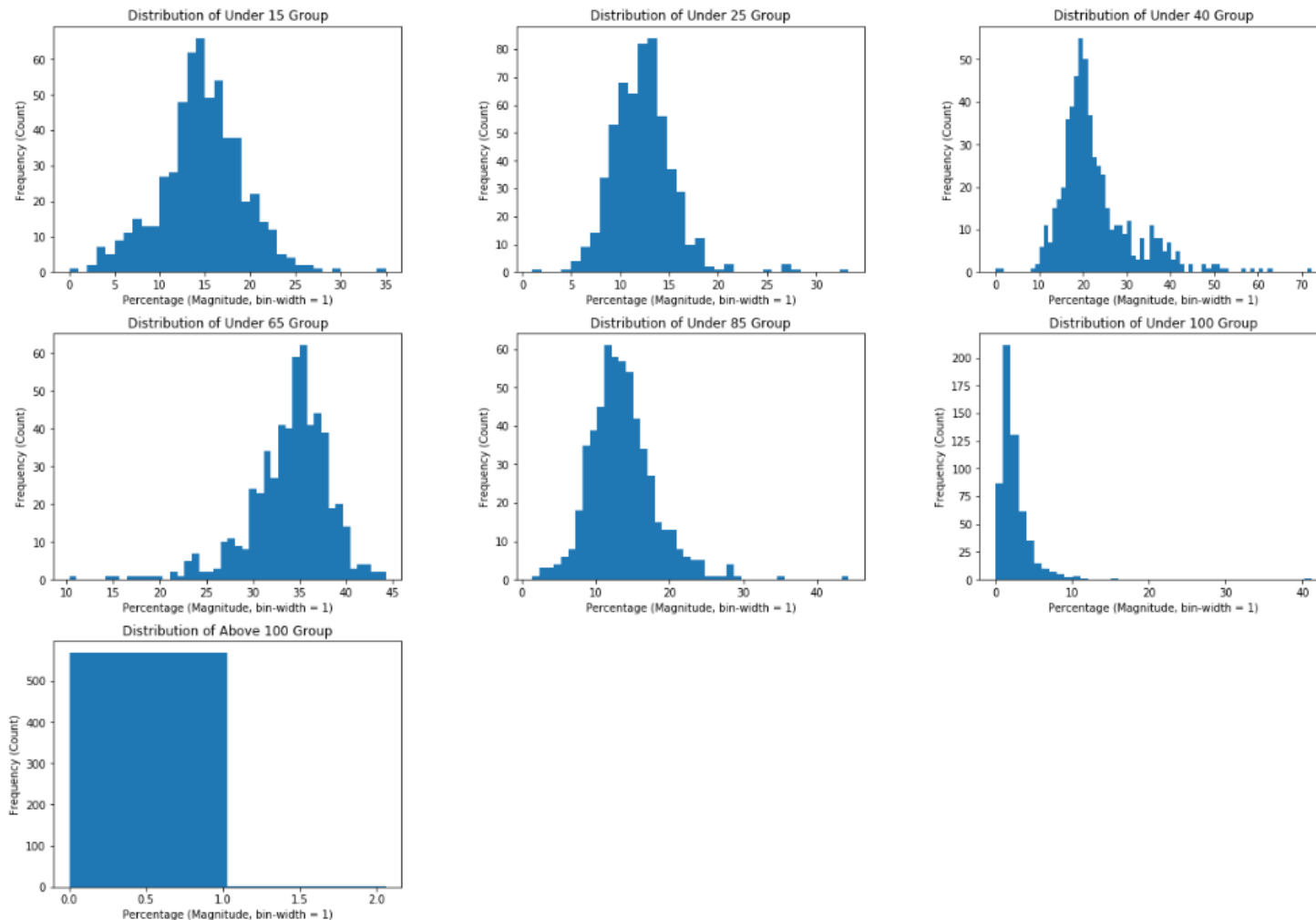
This area represents the Humber College Lakeshore Campus, and it includes Colonel Samuel Smith Park as well.

Therefore, it's not a residential tract.



There is a hole inside census tract 5350007.01; Although not a residential area, it is unclear why it has been digitized this way.

Demographics Histograms Across City of Toronto Census Tracts



It is observed that the Under 65 group makes up the greater share of the population per each census tract. The fact that the shape is skewed right with a range of 20 to 45 percent is an evidence of this.

The Under 40 group follows in second place. Although slightly skewed right, the mode is around 20% with a sharp point around the mode; range is roughly from 10 to 52 percent, with some outliers.

The distribution of Under 25 and Under 85 demographics groups follow a similar pattern and roughly a similar range.

Under 15 group has a relatively normal histogram and a similar range as groups under 25 and under 85.

Under 100 is skewed to the left, indicating very few people live that long.

Lastly, it is rare for people to live beyond 100 years. The height (570) of the first bin is due to the 0 to 1 range of the bins. In fact, every bin's range is 1 hence the interruptions between some bins.

Conclusion

- Through Visual Comparison:
 - The majority of the population in the city is under 85 years of age
 - The City is aging faster and needs to plan to support its older population; the above 40 demographics groups will pose a challenge to the city in terms of services and their associated costs.
 - Within the next 10 to 15 years there will be a huge increase in the number of older population.