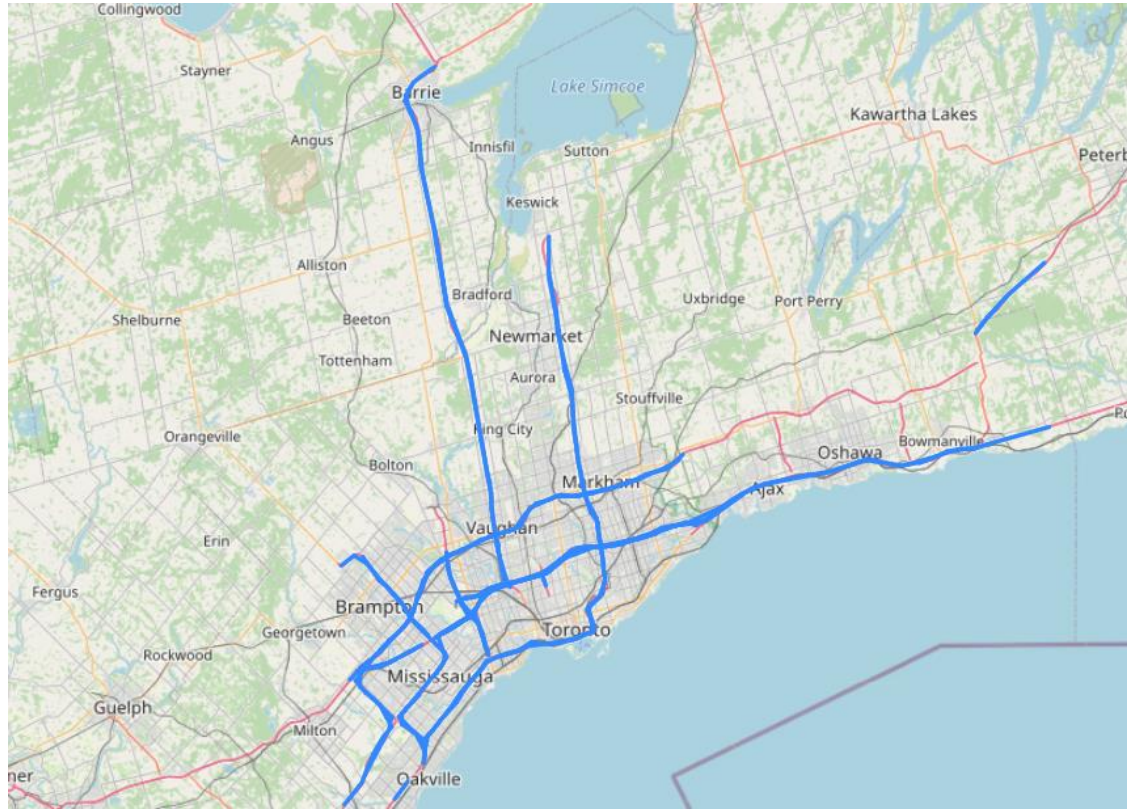


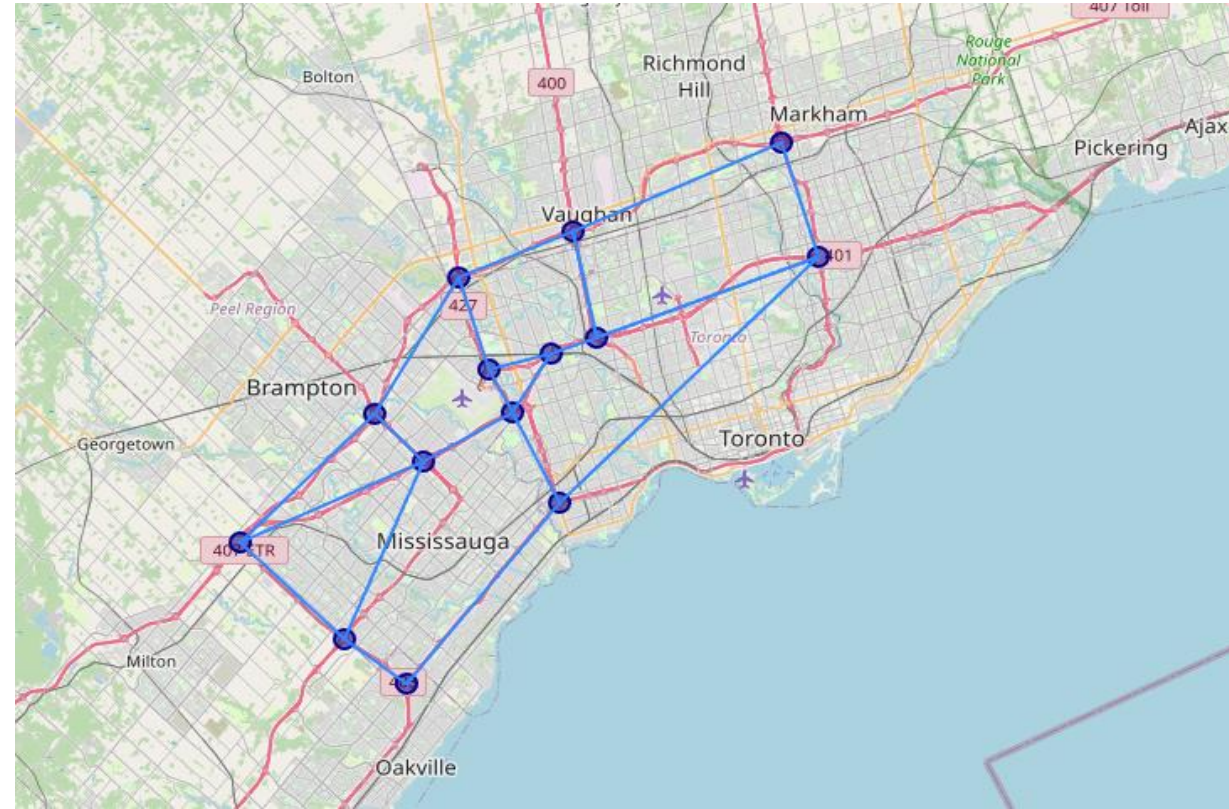
GTA highway network

# GTA highway network

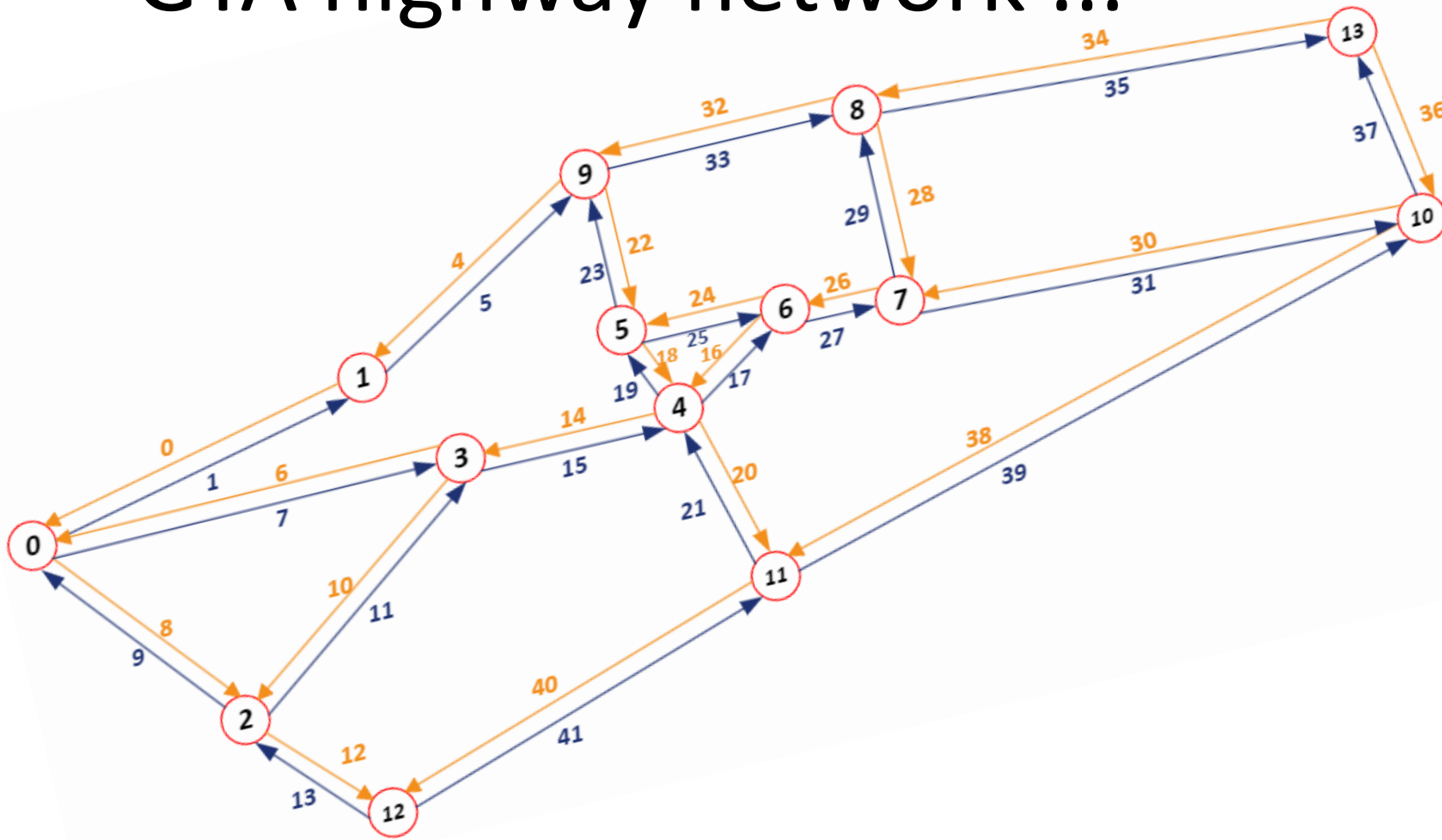
The highways with available traffic data in GTA



Our network for the GTA highways



# GTA highway network ...



## ***Available data:***

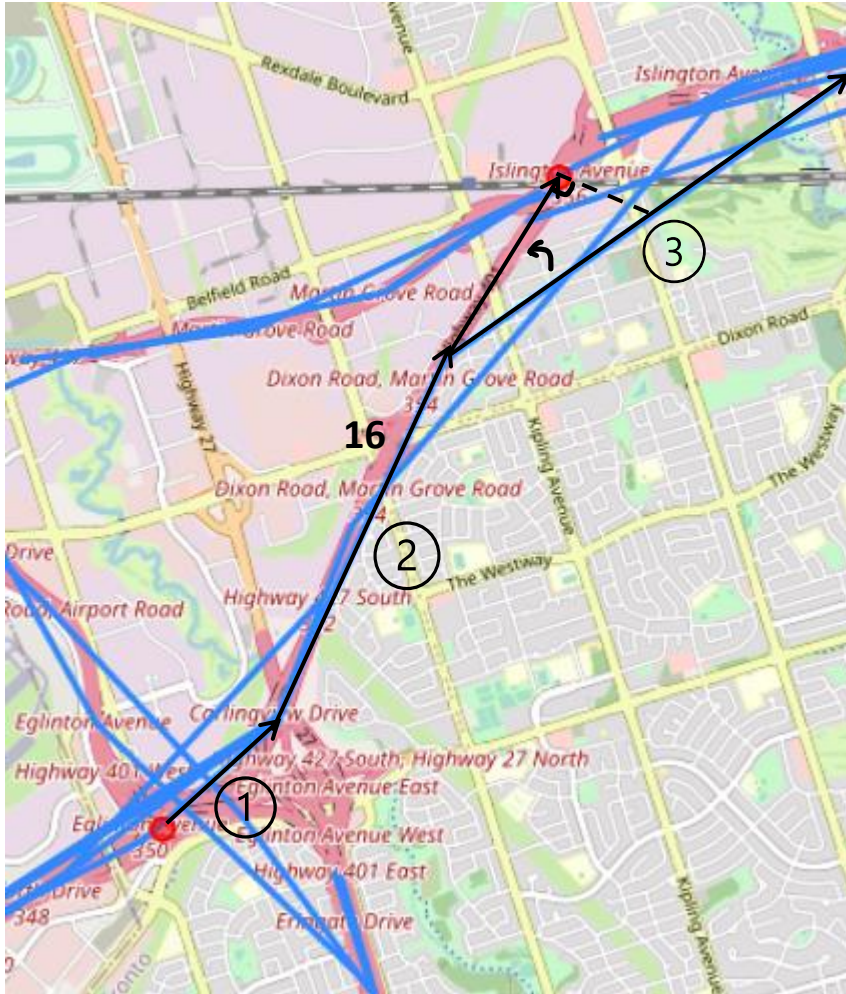
- *Arc length*
- *Speed*
- *Weather*
- *Population*

## ***Arc attributes:***

- *Travel time*
- *Risk*



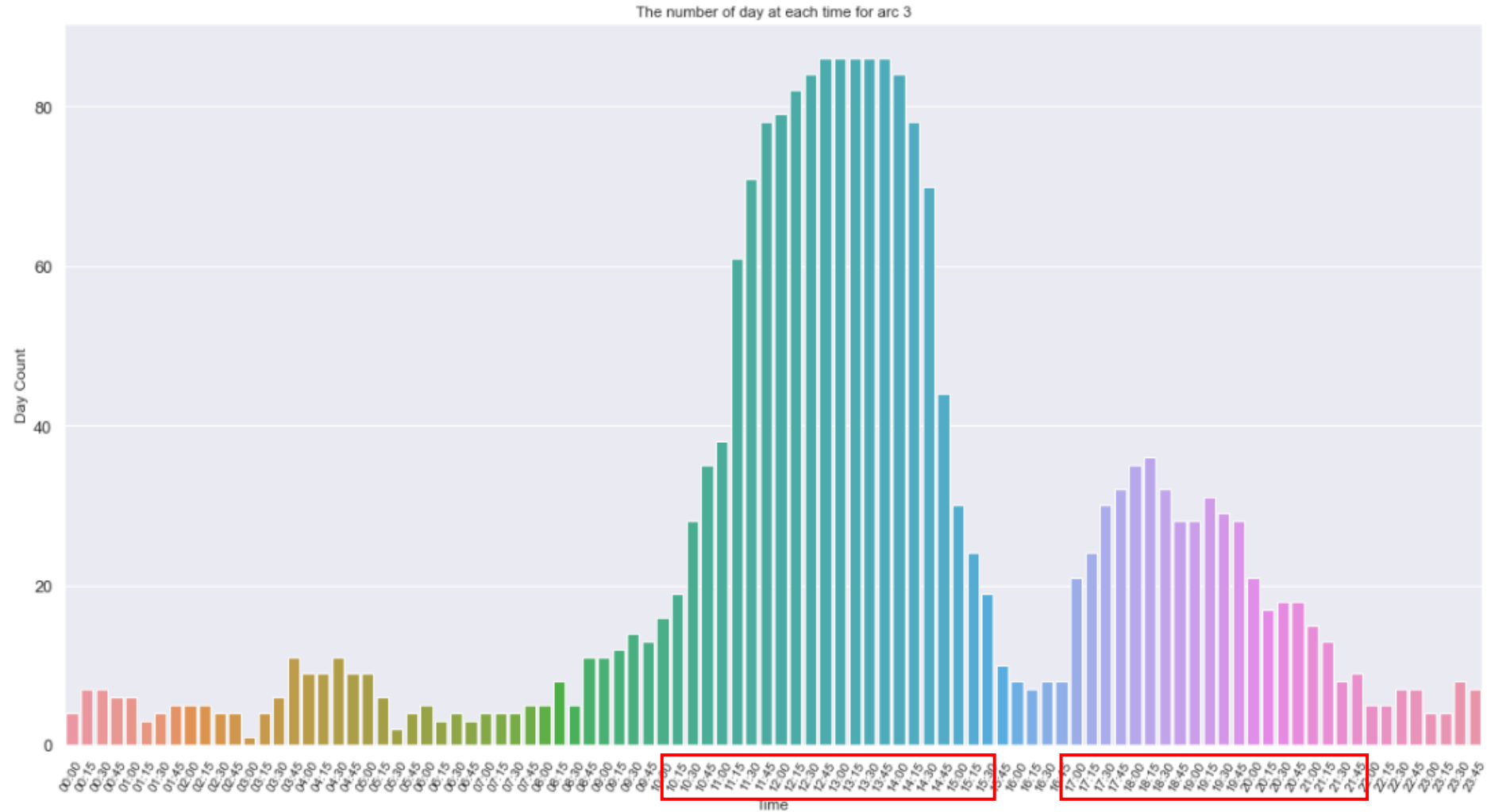
# Segments included in each arc



## Details for arc 16

arc_index	16
first_point	p6
first_coord	(-79.556121, 43.706824)
last_point	p4
last_coord	(-79.587072, 43.670112)
number of segments	3
speed segment	['LINESTRING (-79.50255274734734 43.7183439729...
distance	[0.25648214090444366, 2.4979915798922883, 0.78...
ratio	[0.07256157330670288, 0.7067088511687499, 0.22...
actual arc distance	4.9
Name:	16, dtype: object

# The availability of data at each time period



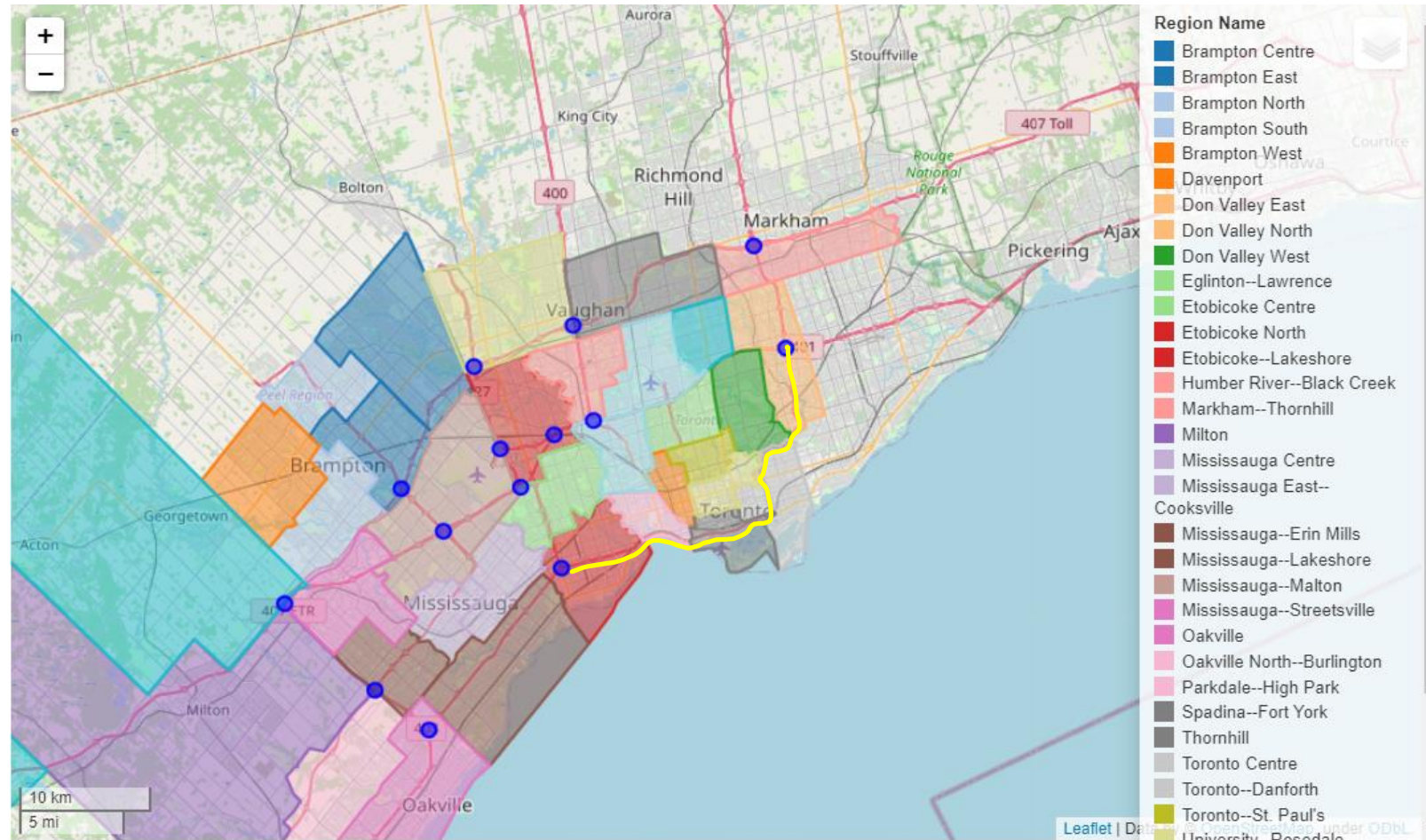
# Population

Source: 2016 Census of Population by Statistics Canada





# Population



# Exposed population to arc





# Weather

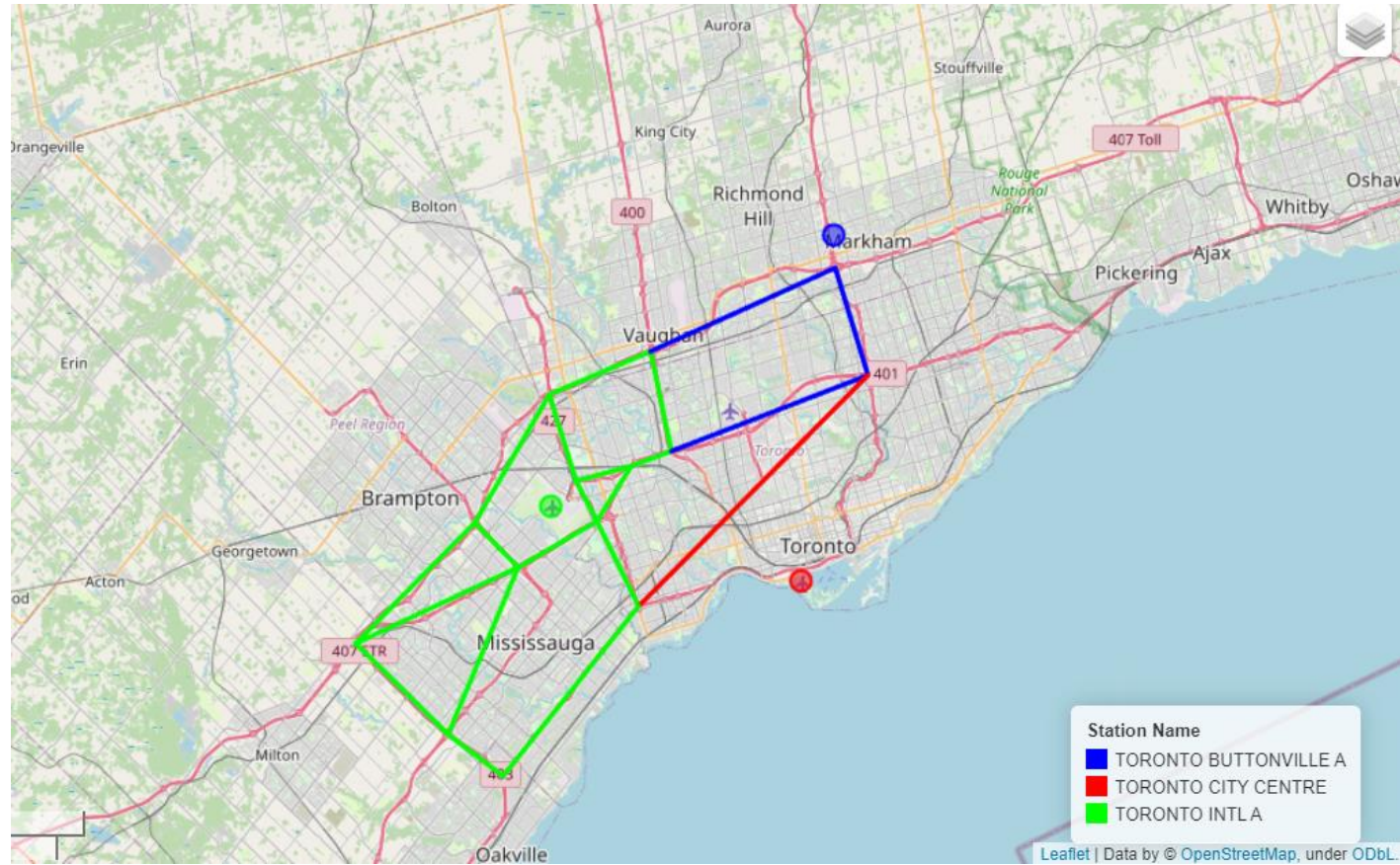
Source: [Historical climate data from the government of Canada](#)

Data includes: Temperature (°C), Precipitation(mm), Relative Humidity(%), Wind Speed (km/h),  
Visibility (km)

Hourly data for July 2016 – Oct 2016


Weather station
TORONTO BUTTONVILLE
TORONTO INTERNATIONAL AIRPORT (TORONTO INTL A)
TORONTO CITY CENTER

# Arc assignment to weather stations



# Weather data

## Hourly Data Report for August 25, 2016

<u>TIME</u>	<u>Temp</u>	<u>Dew</u>	<u>Rel</u>	<u>Precip.</u>	<u>Wind</u>	<u>Wind</u>	<u>Visibility</u>	<u>Stn</u>	<u>Hmdx</u>	<u>Wind</u>	<u>Weather</u>
<u>LST</u>	<u>°C</u>	<u>Point</u>	<u>Hum</u>	<u>Amount</u>	<u>Dir</u>	<u>Spd</u>	<u>km</u>	<u>Press</u>		<u>Chill</u>	
					<u>10's</u>						
		<u>°C</u>	<u>%</u>		<u>deg</u>	<u>km/h</u>		<u>kPa</u>			
00:00	23.2	19.6	80	0.0	26	5	16.1	100.44	30		<u>NA</u>
01:00	22.4	20.3	88	0.2	25	11	16.1	100.40	30		<u>Rain</u>
02:00	21.6	21.0	96	4.0	25	8	4.8	100.35	30		<u>Rain, Fog</u>
03:00	20.8	20.3	97	0.0	27	5	16.1	100.32	29		<u>NA</u>
04:00	20.8	20.5	98	0.0	24	8	4.8	100.31	29		<u>Fog</u>
05:00	21.3	21.0	98	0.0	23	8	9.7	100.36	30		<u>Fog</u>
06:00	21.6	21.1	97	0.0	24	5	9.7	100.40	30		<u>Fog</u>