

Community Density Calculation Methodology

The Provincial Growth Plan requires a minimum density of 50 residents and jobs combined per hectare in the Designated Greenfield Area (DGA) to be achieved by 2041. This is measured over the entire Designated Greenfield Area.

Density is a calculation that measures the concentration of residents and jobs per hectare of land.

$$\text{Density} = (\text{Residents} + \text{Jobs}) \div \text{Land Area (hectares)}$$

For the 12 case study areas, community density was calculated for 2016 data to align with the Census. A separate calculation was completed for the buildout of the community. Additional data and assumptions were used for the buildout estimate based on the most current available data.

Residents

2016

The number of residents for each community was obtained from Statistics Canada, 2016 Census. Residents within institutions such as long term care centres are included. An undercount factor of 3% was applied to capture residents not counted at the time of the Census.

Build Out

The number of residents at build-out was derived by assessing the units remaining to be built from 2016 onwards, and applying person per unit (PPU) factors to this growth. Municipality specific persons per unit by structure type (single detached, semi-detached, row, apartment and duplex) from the 2016 census were used to calculate the remaining population.

Table 1: 2016 Census Persons per Unit (PPU) by Local Municipality

Municipality	Single Detached	Semi-Detached	Row	Apartment	Duplex
Aurora	3.23	2.77	2.64	1.67	2.60
East Gwillimbury	3.00	2.98	2.55	1.73	2.31
Georgina	2.75	2.45	2.69	1.63	2.49
King	3.12	2.81	2.71	1.57	2.71
Markham	3.52	3.36	2.90	1.97	3.45
Newmarket	3.23	2.93	2.65	1.65	2.53
Richmond Hill	3.41	3.16	2.97	1.88	2.81
Vaughan	3.52	3.38	3.08	1.76	3.10
Whitchurch-Stouffville	3.11	3.16	2.52	1.55	2.55

This result was then added to the 2016 census population and an undercount applied.

It is important to note that municipal wide persons per unit are generally lower than persons per unit in recently developed areas such as the case study areas included in this report. As such, buildout population may be slightly under reported.

Jobs

2016

The number of jobs was obtained from York Region's 2016 employment survey. The survey results are georeferenced and include the type of employment and number of employees.

A work at home factor based on the ratio of work at home employment to population for York Region is added to the employment survey information. According to the 2016 Census, work at home employment in York Region was approximately 4% of the population.

Build Out

As a starting point for the number of jobs at build out, information from the 2019 employment survey was used.

Future potential schools were assessed using school board accommodation plans and development applications. An assumption of 43 jobs per elementary and 111 jobs per secondary school was applied to future schools.

A review of vacant parcels in the case study areas was undertaken to assess future potential non-residential uses and associated jobs where local municipal official plans designated commercial or mixed use. A density of 75 jobs per hectare for retail uses was applied to appropriate areas. As in 2016, a work at home factor was added to the estimated build out population.

Land Area

According to the Provincial Growth Plan, the developable area excludes the following:

- a) Natural heritage features and areas, floodplains
- b) Rights of way for:
 - i. Electricity transmission lines
 - ii. Energy transmission lines
 - iii. Freeways
 - iv. Railways
- c) Employment Areas
- d) Cemeteries

Buffers and rights of way areas associated with these land uses are also excluded from the developable area, however, areas with storm water management ponds are included.

2016

Areas of land under construction or vacant in 2016 were removed from the developable area for the 2016 density calculation. This ensures that only land area with completed residential units and businesses, and the associated residents and jobs is included in the calculation. For example, areas excluded were those with development applications not yet started or under construction as these residents would not have been included in the census, retail areas that were not yet constructed or future school site areas. Satellite imagery from 2016 was used to verify on the ground uses.

Build Out

The land area in the buildout scenario includes all developable area in the case study area as noted by the Growth Plan definition above.