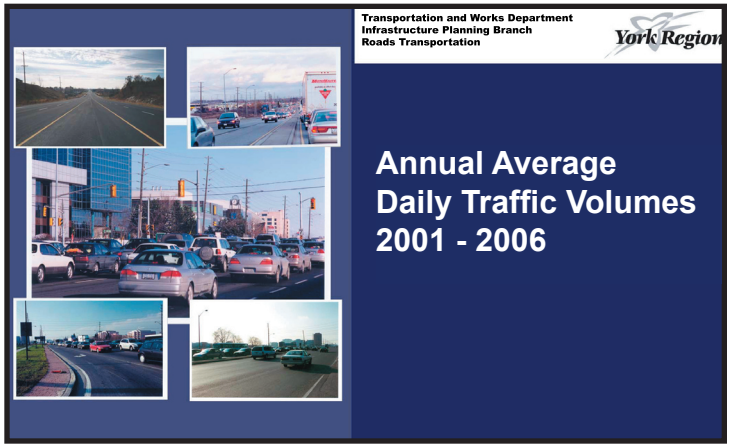
## SECTION 2

# System Usage

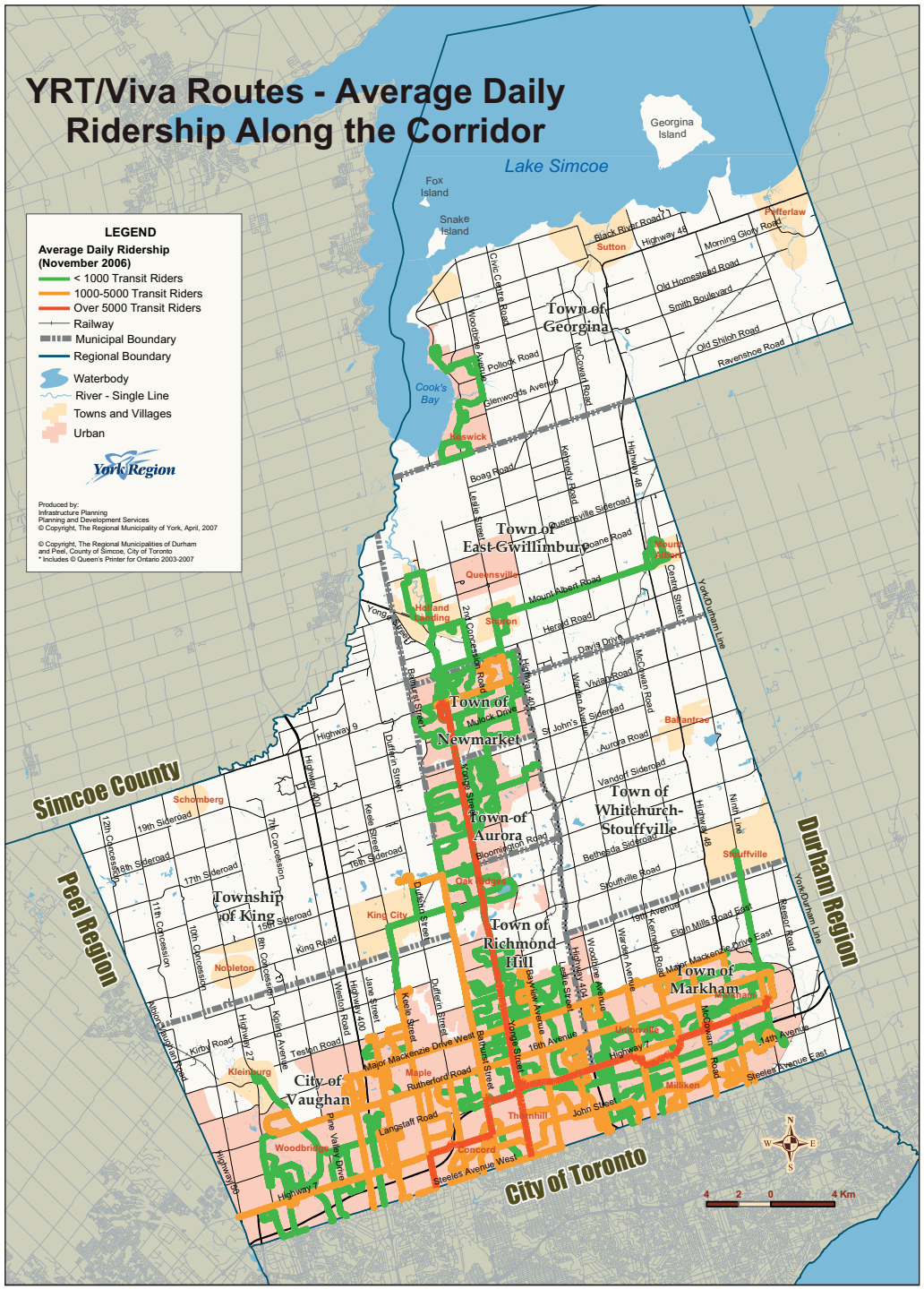



## Transportation System Monitoring

As with other complex systems, York Region monitors the usage and performance of its transportation system. York Region's transportation system is an essential component of the economy allowing people and goods to move efficiently. The main purpose of monitoring is to provide critical data necessary to make informed decisions on improving the performance of our road and transit systems, such as expanding services when and where appropriate.

On the transit side, York Region Transit counts ridership levels on a regular basis on key routes and locations to determine the need for additional bus service and new bus stop facilities.

For the road network, programs to monitor traffic volumes, traffic delays and turning movements at intersections and between intersections are conducted annually. With the help of York Regional Police, the number and types of collisions on the road network are also compiled.




## Transit Route Passenger Volume

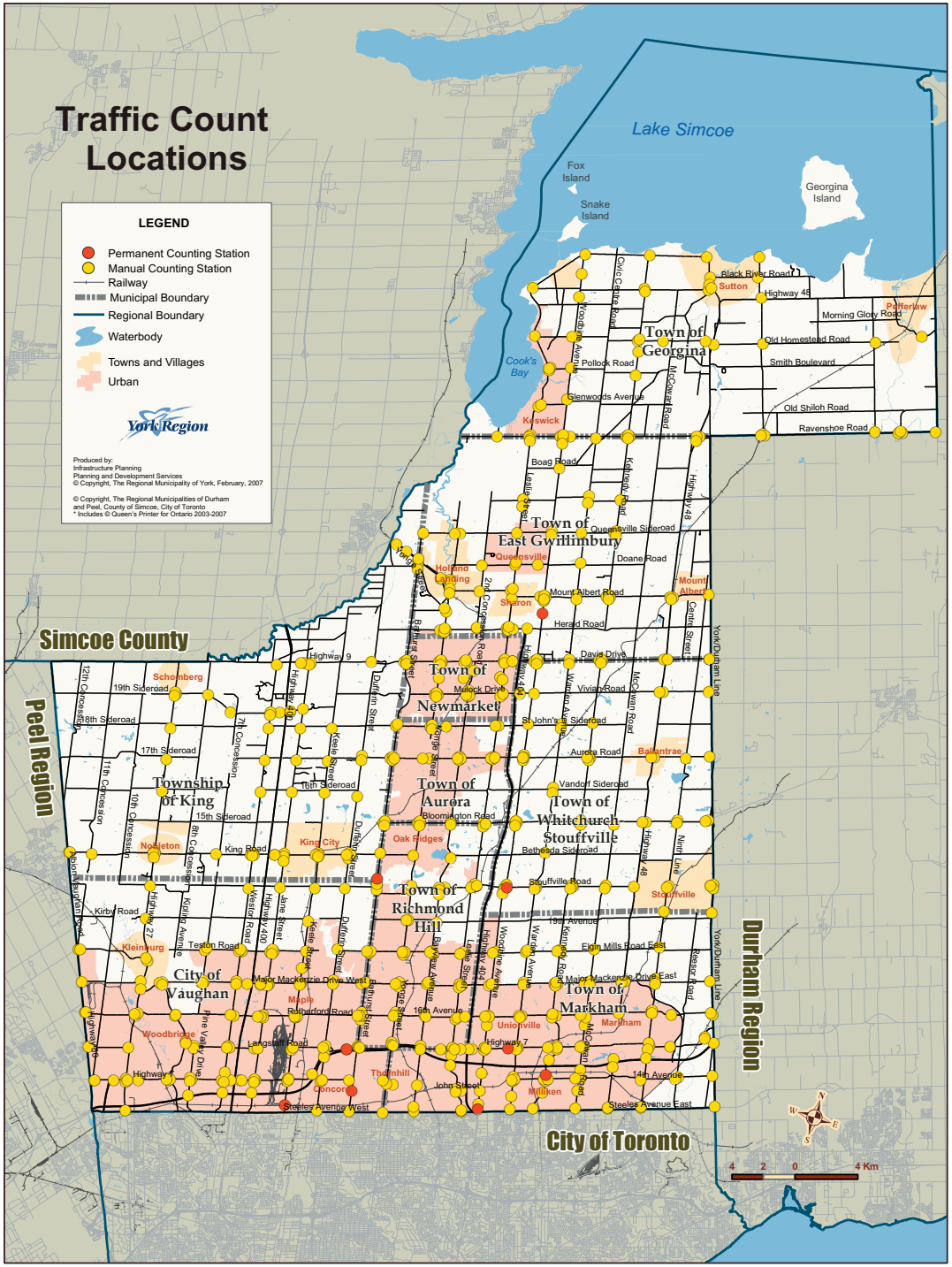
Since the amalgamation of transit services in 2001, ridership in York Region has grown by over 10 million riders, or an average of 12% per year. In 2006, YRT carried over 17.1 million passenger trips, an impressive 12.4% over the previous year. This figure equates to approximately 69,000 passenger trips on an average weekday. YRT experienced one of the highest growth rates in the GTA and also one of the highest in Canada (as per Canadian Urban Transit Association statistics).

This increase can be attributed to the significant increase in the transit service provided as well as the rate of population and employment growth, a heightened awareness of environmental stewardship, rising fuel prices and extensive marketing activities. Since amalgamation in 2001, the hours of revenue service have increased by an average of 16% per year. This unprecedented investment in public transit reflects York Region's commitment to the system's expansion and the development of a more balanced and transit supportive transportation network.

At the end of 2006, the YRT system consists of over 80 routes plus special routes designated for high school trips.The YRT/Viva system consists of:

- Viva rapid transit routes
- Core routes (operating along major arterial corridors)
- Feeder or local routes (operating in local neighbourhoods)
- High school specials (which focus on specific student demand)
- GO Train shuttles
- Express services
- Community Bus routes (Richmond Hill, Markham, and Newmarket).

Each category of routes serves a particular transit market and each plays an important role in the success of the overall system network.




## Road Traffic Monitoring Program

York Region conducts yearly traffic monitoring programs in order to evaluate changes in traffic patterns on the Regional road system. This assists in setting the priority of various road rehabilitation and construction projects, determining warrants for traffic signals, calibrating traffic models, and assessing the impact of new development on the Regional road system. Two traffic volume statistics used in traffic analysis are: annual average daily traffic (AADT) and turning movement counts (TMC). For AADT, the traffic monitoring program consists of a permanent (continuous) count program and a short duration count program. For TMC's, manual counts at intersections must be conducted.

## Permanent Count Station (PCS)

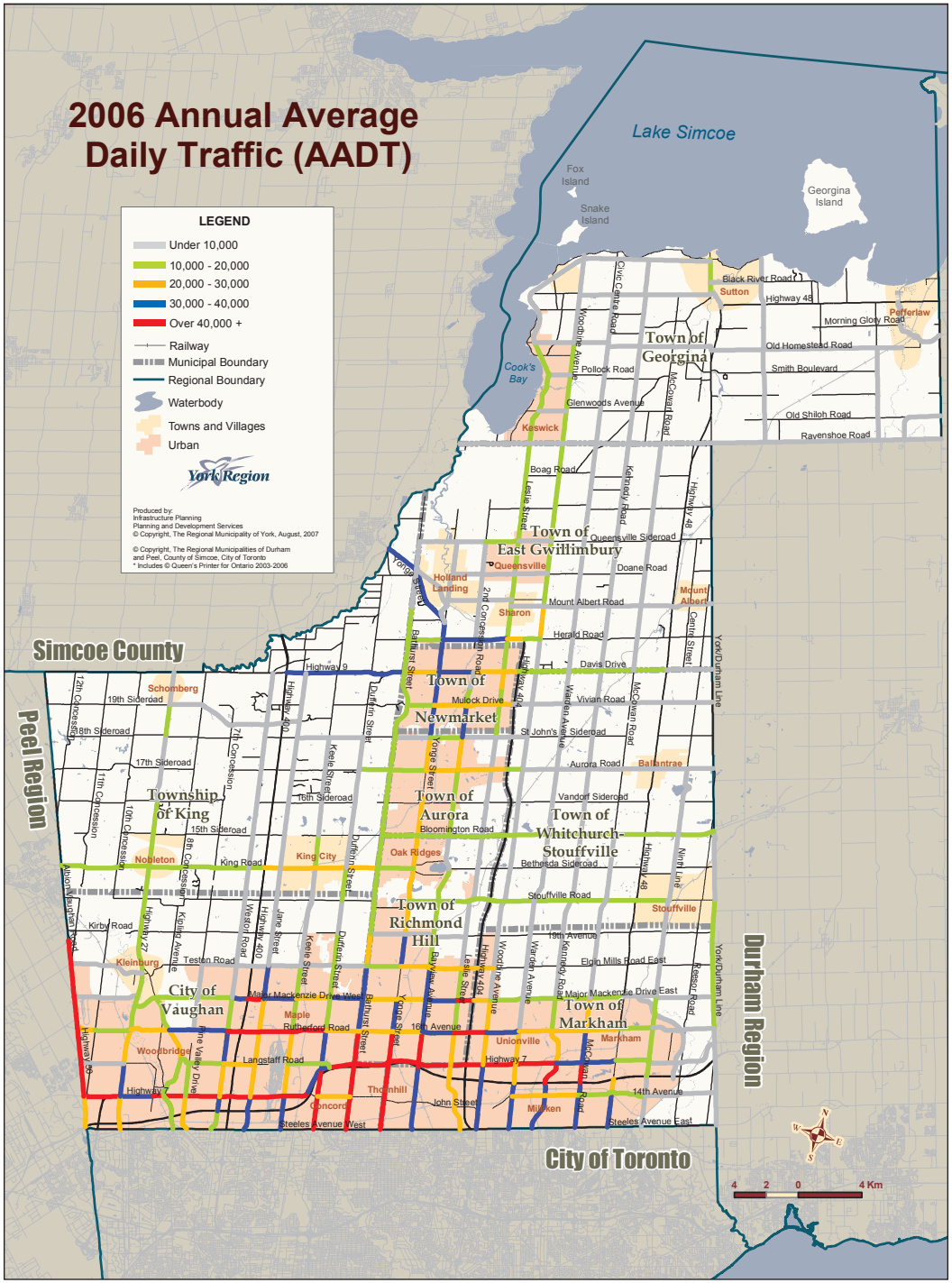
PCS data is needed to understand temporal (day-of-week, month, and seasonal) changes in traffic volume. These seasonal factors are applied to the short duration counts to develop the Region's AADT listing. The PCS program uses permanent vehicle detectors that are embedded into the pavement of the road making traffic data for every day of the year available. PCS detects traffic in each direction and is capable of detecting traffic in each lane. Currently, 9 PCS' are operational.

## Short Duration Counts or Automatic Traffic Recorder (ATR)

The Regions ATR program consists of approximately 350 short duration counts per year along Regional road links. The short duration count program is designed to provide roadway segment-specific traffic count information on an ongoing basis and forms the basic component for calculating annual average daily traffic volumes.

## Turning Movement Counts (TMC)

The Region conducts between 350 to 400 TMC surveys throughout the Region per year. A TMC is a manual count of an intersection generally over an eight hour period and captures detailed information such as the number of vehicles entering each approach of the location and the specific turning manoeuvre completed by each vehicle (i.e. left, through, or right). Information on the number of crossing pedestrians, heavy vehicles (3 or more axles), vehicle occupancy, and vehicle queues may also collected as part of an intersection TMC.




## Annual Average Daily Traffic (AADT)

AADT volumes are generated through the use of two types of automated counting stations; Permanent Count Stations (PCS) and Automatic Traffic Recorder (ATR) counts; which are strategically placed throughout the Region.

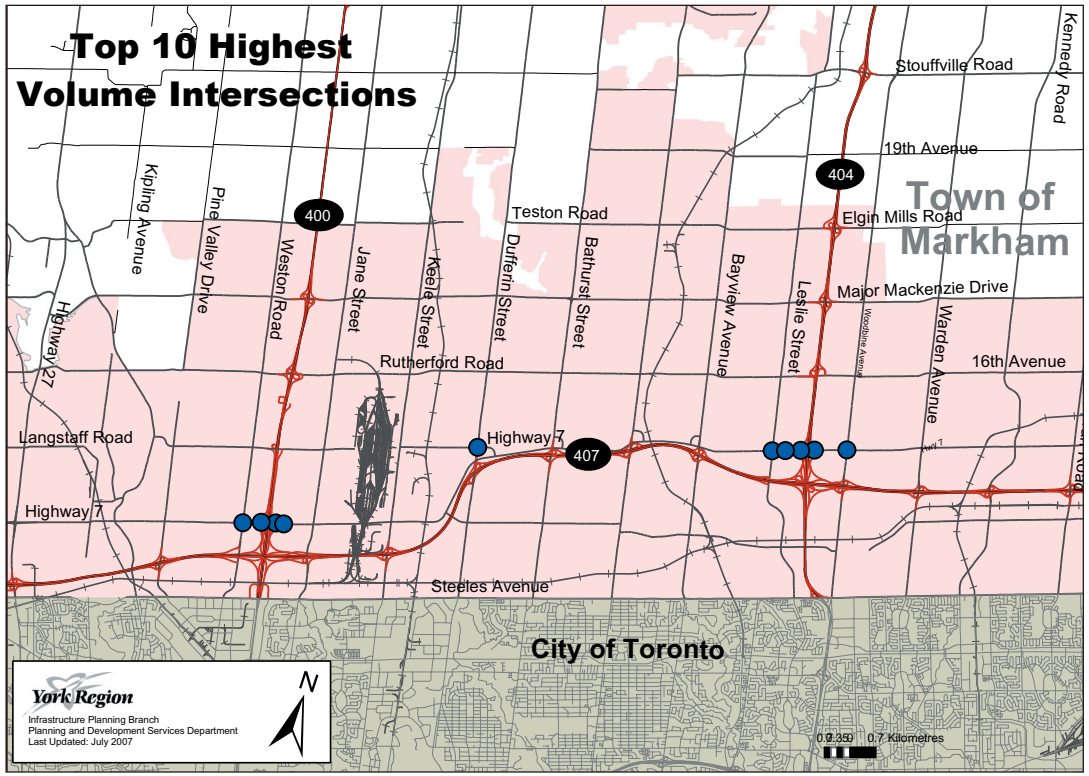
As each ATR count only captures traffic a few days a year [typically a 7 day period], a PCS station which has similar characteristics is assigned to it as a control station. Since a full year's worth of traffic counts can be obtained from the PCS stations, coefficients (on a half-month basis) for each control station are calculated, and subsequently used to adjust for any seasonal variation in the non-permanent stations to calculate a Week Day (WDAADT) average and a 7 Day average (AADT).

Regional Roads in the vicinity of major employment nodes are consistently among the highest volume roads in the Region. Highway 7 continues to be the busiest road.

A full copy of the AADT Report is available through:

**Traffic Engineering and Road Safety Section**
Transportation and Works Department

Tel: (905) 895-1200 ext. 5251
Toll Free: 1-877-464-9675 ext. 5251



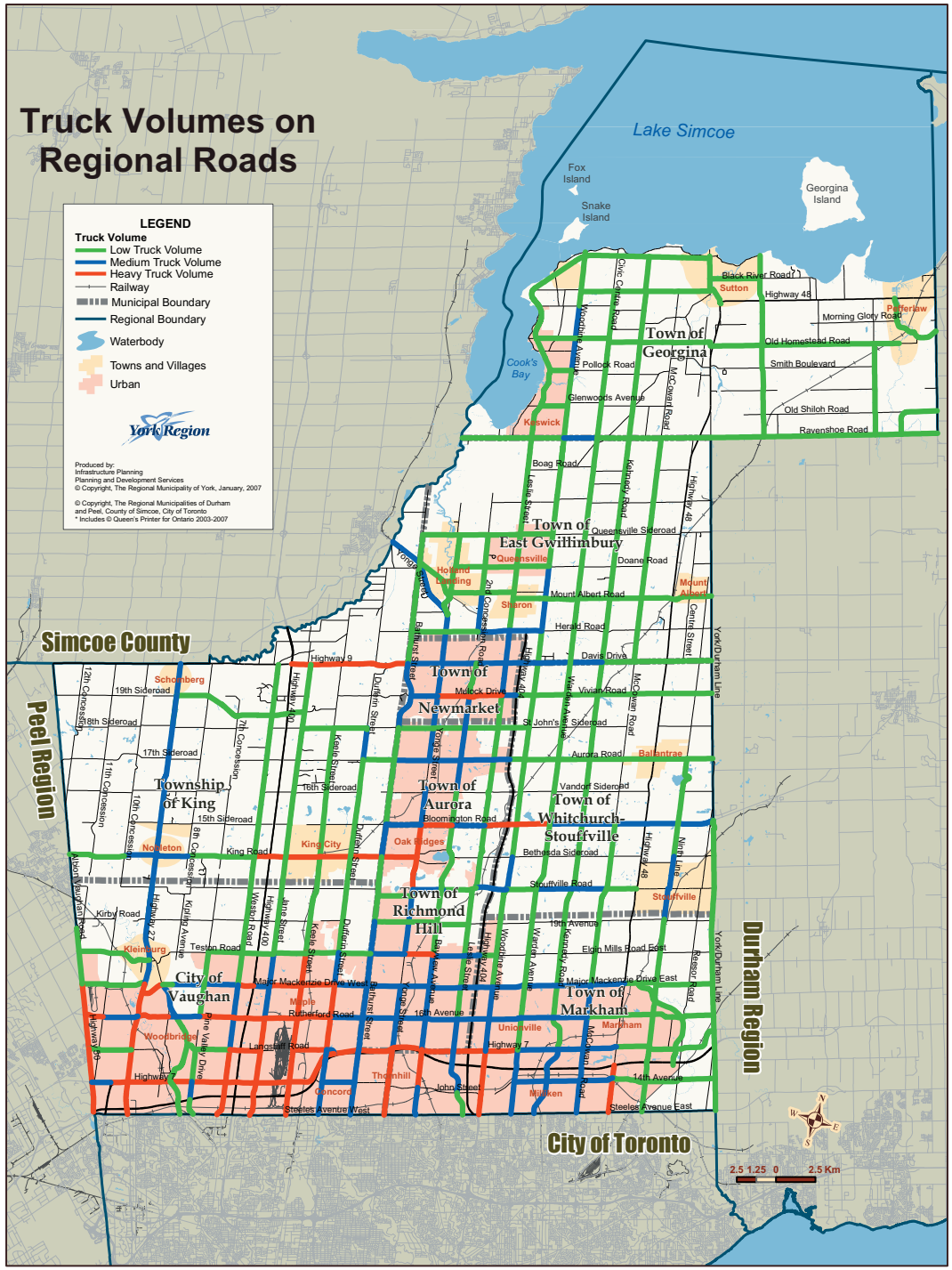

## Top 10 Highest Volume Intersections

Highway 7, in the vicinity of Highway 400 and Highway 404 have the busiest intersections in the Region.

Each of these high volume intersections are listed in the table below.

## Highest Volume Intersections

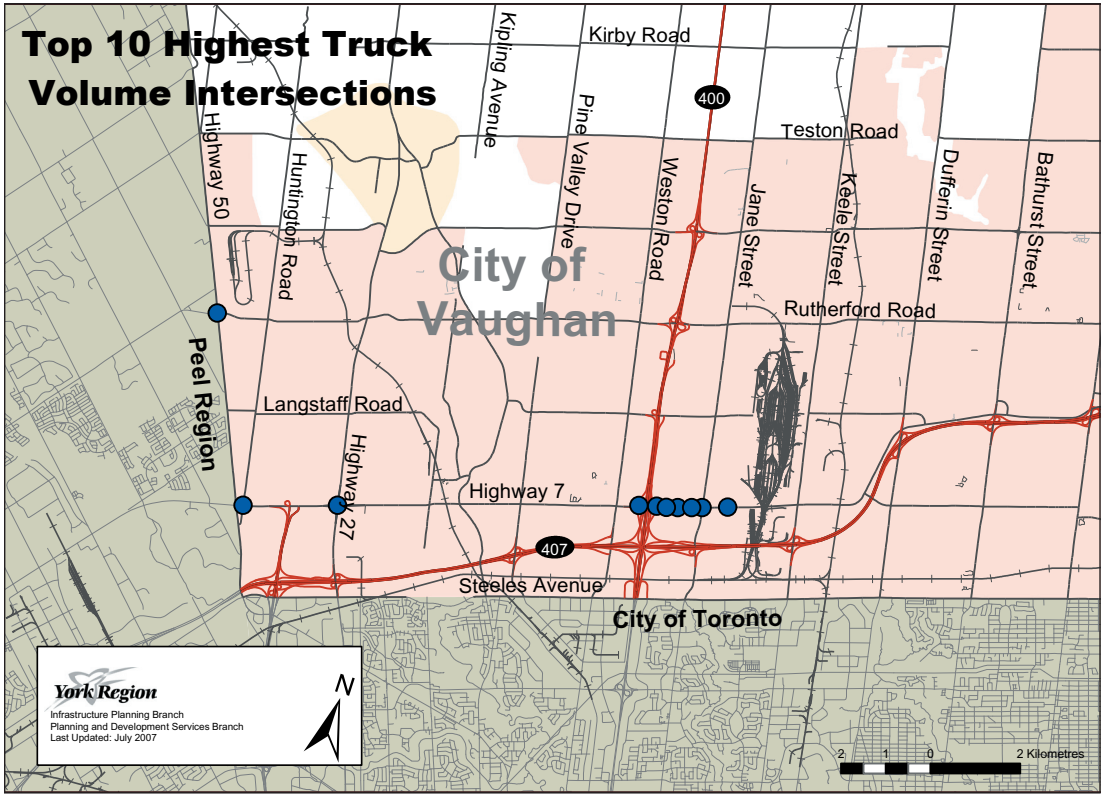
| RANK | DESCRIPTION | Count Date | Total Trucks | Total Cars | Total 8 Hour Volume | % of Trucks |
|---|---|---|---|---|---|---|
| 1 | Highway 7 @ Weston Rd | 06-Jun-06 | 3760 | 47682 | 51442 | 7% |
| 2 | Highway 400 N/E Ramp @ Highway 7 | 06-Jun-06 | 4509 | 44470 | 48979 | 9% |
| 3 | Colossus Dr @ Highway 7 | 06-Jun-06 | 4249 | 44501 | 48750 | 9% |
| 4 | Dufferin St @ Langstaff Rd | 07-Dec-06 | 2222 | 45841 | 48063 | 5% |
| 5 | Highway 404 N/E Ramp @ Highway 7 | 25-Mar-03 | 1695 | 44395 | 46090 | 4% |
| 6 | Highway 404 S/W Ramp @ Highway 7 | 29-Jun-04 | 2019 | 43666 | 45685 | 4% |
| 7 | Highway 7 @ Woodbine Ave | 12-Jun-03 | 2268 | 41819 | 44087 | 5% |
| 8 | Highway 7 @ Leslie St | 24-Jun-04 | 2064 | 40802 | 42866 | 5% |
| 9 | Commerce Valley Dr E @ Highway 7 | 23-Jun-04 | 2075 | 38410 | 40485 | 5% |
| 10 | Commerce St @ Highway 7 | 12-Dec-06 | 4194 | 36228 | 40422 | 10% |




## Truck Volumes on Regional Roads

High truck volumes are generally focused in key industrial areas such as the CN Yard in Concord and the CP Intermodal Yard and Sear's Distribution Centre both in the western area of the City of Vaughan. Other areas within the Region that can be characterized as major truck routes are Highway 50 and Highway 7 in Vaughan, Woodbine Avenue in Markham, and Bloomington Road in Whitchurch-Stouffville which serves as a major aggregate haulage route. Highway 9 and King Road serve as key access points to and from northern urban York via Highway 400.

On the map, road segments are classified as having high truck volumes when the truck volume along that road segment exceeds 1,000 vehicles; medium truck volumes when the truck volume exceeds 500 vehicles; and low truck volumes when the truck volumes are less than 500 vehicles, during a typical 8 hour week-day period.




## Top 10 Truck Volume Intersections

In 2006, the Region counted 300 intersections throughout the Region as part of their annual Turning Movement Count program.

The City of Vaughan, predominantly along Highway 7 between Hwy 400 and Jane Street, rates all of the top 10 highest truck volumes in the Region.

## Highest Truck Volume Intersections

| RANK | DESCRIPTION | Count Date | Total Trucks | Total Cars | Total 8 Hour Volume | % of Trucks |
|---|---|---|---|---|---|---|
| 1 | Highway 7 @ Jane St | 06-Jun-06 | 4935 | 35258 | 40193 | 12% |
| 2 | Highway 7 @ Huntington Rd | 05-Dec-06 | 4662 | 24276 | 28938 | 16% |
| 3 | Creditstone Rd @ Highway 7 | 20-May-03 | 4569 | 23889 | 28458 | 16% |
| 4 | Edgeley Blvd @ Highway 7 | 06-Jun-06 | 4516 | 33325 | 37841 | 12% |
| 5 | Highway 400 N/E Ramp @ Highway 7 | 06-Jun-06 | 4509 | 44470 | 48979 | 9% |
| 6 | Highway 50 @ Rutherford Rd | 13-Apr-06 | 4302 | 26554 | 30856 | 14% |
| 7 | Colossus Dr @ Highway 7 | 06-Jun-06 | 4249 | 44501 | 48750 | 9% |
| 8 | Commerce St @ Highway 7 | 12-Dec-06 | 4194 | 36228 | 40422 | 10% |
| 9 | Highway 27 @ Highway 7 | 05-Oct-06 | 3909 | 35469 | 39378 | 10% |
| 10 | Highway 7 @ Millway Ave | 06-Jun-06 | 3778 | 26373 | 30151 | 13% |