# Greater Toronto Area 2006 Cordon Count Program

# **Analysis of Peak Periods**

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## **Greater Toronto Area Cordon Count Analysis - Peak Periods**

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#### Prepared by: Data Management Group Joint Program in Transportation University of Toronto

The collection of traffic counts taken by various Regional Governments and the Province of Ontario at various locations in the Greater Toronto Area over the last several years have been assembled in one data base. This report presents a summary of conditions during the periods of maximum traffic flow at a collection of screenlines for the most recent counts in 2006. The data is presented without alteration or corrections as provided by the City of Toronto, the Regional Municipalities of Durham, Halton, Peel and York and the Ministry of Transportation Ontario. The data was collected in the May and June period of 2006.

Each Regional Municipality has their own set of needs and priorities for the data. Therefore, the data collection methods are somewhat different in each jurisdiction. The level of commonality in the data bases, which makes this report possible, is the result of efforts by the Transportation Research and Data Management Group (TRADMAG). TRADMAG is a technical committee with representatives from the Regional Municipalities mentioned above plus the City of Hamilton, GO Transit, Toronto Transit Commission and the Ministry of Transportation Ontario.

Eleven screenlines were chosen to illustrate the variation in vehicular counts. Common morning (6:00 to 10:00 A.M.) and evening (3:00 to 7:00 P.M.) time windows are used to represent the periods of peak travel and to provide a common frame for comparison. The screenlines are chosen to represent the interests of each jurisdiction in addition to providing information on the development of northsouth travel within some Regional Municipalities.

#### **Screenline Definitions**



#### Halton West Screenline

This screenline is located at the western edge of the Regional Municipality of Halton as an extension of the common boundary between Halton and the City of Hamilton to intersect the Burlington Skyway. The screenline follows this straight path rather than the Regional boundary to minimize the influence of trips double crossing the line. The dominant direction is east-west although the direction of the Burlington Skyway is north-south. Northbound traffic on this bridge is assumed to be destined to eastbound routes, while the reverse is assumed for southbound traffic. East(north)bound is the peak direction in the morning peak period and west(south)bound is the peak direction in the afternoon. Contra-flow (flow in the opposite direction during the peak 3 hour period) represents 57% of the peak direction in the morning and 70% of the peak direction in the afternoon.

#### Peak Period Analysis



#### Peak Three Hours

East(nor	th)bound	West(sou	th)bound
Time of Day	Total Number	Time of Day	Total Number
	of Vehicles		of Vehicles
6:00 to 9:00	60458	15:00 to 18:00	65098
6:15 to 9:15	60715	15:15 to 18:15	66179
6:30 to 9:30	59646	15:30 to 18:30	66724
6:45 to 9:45	57906	15:45 to 18:45	66355
7:00 to 10:00	56279	16:00 to 19:00	64683

The absolute peak three hour window in the morning occurs from 6:15 to 9:15 A.M., although the total number of vehicles in this three hour window is very similar for 6:00 to 9:00 A.M. In the afternoon, the peak three hours occur from 3:30 to 6:30 P.M., however, the number of vehicles is very similar in the three hour time windows beginning 15 minutes later. The number of vehicles in the peak three hours in the afternoon is 10% higher than the number in the morning peak, which reflects the sustained higher 15 minute traffic volumes over an extended period.

#### Morning and Afternoon Peak Hour

The peak one hour window occurred between 7:15 and 8:15 A.M. with a total of 21,827 vehicles representing 36% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 5:00 and 6:00 P.M. with a total of 24,542 vehicles representing 37% of the afternoon peak three hours. The afternoon peak hour is 12% larger than the morning peak hour.

#### Halton South Screenline

This screenline consists of all major streets crossing Dundas Street (Regional Road 5) in the northern sections of Burlington & Oakville. Although the actual direction is northeast and southwest, the screenline is considered to be east-west from Orchard Rd West to Indian Creek. The traffic directions are considered to be north and south. Northbound is the peak direction in the morning peak period and southbound is the peak direction in the afternoon. Contra-flow represents 76% of the peak direction in the morning and 85% of the peak direction in the afternoon.



#### **Peak Period Analysis**

#### **Peak Three Hours**

North	bound	South	bound
Time of Day	Total Number of Vehicles	Time of Day	Total Number of Vehicles
6:00 to 9:00	39602	15:00 to 18:00	45139
6:15 to 9:15	40630	15:15 to 18:15	46026
6:30 to 9:30	40896	15:30 to 18:30	46408
6:45 to 9:45	40577	15:45 to 18:45	46010
7:00 to 10:00	40010	16:00 to 19:00	45242

The absolute peak three hour window in the morning occurs from 6:30 to 9:30 A.M., although the total number of vehicles is very similar in the three hour time window beginning 15 minutes earlier and 15 minutes later. In the afternoon, the peak three hours occur from 3:30 to 4:30 P.M., however, the number of vehicles is very similar in the three hour time window beginning 15 minutes earlier and 15 minutes later. The number of vehicles in the peak three hours in the afternoon is 13% higher than the number in the morning peak.

#### **Morning and Afternoon Peak Hour**

The peak one hour window occurred between 7:30 and 8:30 A.M. with a total of 15,883 vehicles representing 39% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 4:45 and 5:45 P.M. with a total of 16,991 vehicles representing 37% of the afternoon peak three hours. The afternoon peak hour is 7% larger than the morning peak hour.

#### Halton-Peel Screenline

This screenline follows the western boundary of the Regional Municipality of Peel, including the full length of the common boundary with the Regional Municipality of Halton. The screenline follows the jurisdictional boundary and includes all major roads crossing the boundary in the east-west direction. Eastbound traffic is the dominant direction in the morning peak period and westbound traffic is the dominant direction in the afternoon peak period. Contra-flow represents 63% of the peak direction in the morning and 70% of the peak direction in the afternoon.



#### **Peak Period Analysis**

#### **Peak Three Hours**

Easth	bound	West	bound
Time of Day	Total Number of Vehicles	Time of Day	Total Number of Vehicles
6:00 to 9:00	71349	15:00 to 18:00	75074
6:15 to 9:15	71582	15:15 to 18:15	75598
6:30 to 9:30	71180	15:30 to 18:30	76594
6:45 to 9:45	69633	15:45 to 18:45	76489
7:00 to 10:00	67122	16:00 to 19:00	75527

The absolute peak three hour window in the morning occurs from 6:15 to 9:15 A.M. but is very similar to the three hour window beginning 15 minutes earlier. In the afternoon, the peak three hours occur from 3:30 to 6:30 P.M. but is very similar to the three hour window beginning at 3:45 P.M. The number of vehicles in the peak three hours in the afternoon is 7% higher than the number of vehicles in the morning peak.

#### Morning and Afternoon Peak Hour

The peak one hour window occurred between 7:00 and 8:00 A.M. with a total of 27,487 vehicles representing 38% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 4:00 and 5:00 P.M. with a total of 29,142 vehicles representing 38% of the afternoon peak three hours. The afternoon peak hour is 6% larger than the morning peak hour.

#### Peel Steeles Avenue Screenline

This screenline follows Steeles Avenue in the southern portion of the City of Brampton close to its common boundary with the City of Mississauga all within the Regional Municipality of Peel. The line extends in an east-west direction from the common boundary with the City of Toronto to the common boundary with the Regional Municipality of Halton. The screenline includes all major roads crossing the screenline in the north-south direction. Southbound traffic is the dominant direction in the morning peak period and northbound traffic is the dominant direction in the afternoon peak period. Contra-flow represents 59% of the peak direction in the morning and 69% of the peak direction in the afternoon.

#### **Peak Period Analysis**



#### **Peak Three Hours**

South	bound	North	bound
Time of Day	Total Number of Vehicles	Time of Day	Total Number of Vehicles
6:00 to 9:00	65243	15:00 to 18:00	65416
6:15 to 9:15	66300	15:15 to 18:15	66261
6:30 to 9:30	65514	15:30 to 18:30	66421
6:45 to 9:45	63232	15:45 to 18:45	65715
7:00 to 10:00	60663	16:00 to 19:00	64323

The absolute peak three hour window in the morning occurs from 6:15 to 9:15 A.M. In the afternoon, the peak three hours occur from 3:30 to 6:30 P.M., although the total number of vehicles is very similar in the three hour windows beginning 15 minutes before. The number of vehicles in the peak three hours in the afternoon is 0.2% higher than the number in the morning period.

#### Morning and Afternoon Peak Hour

The peak one hour window occurred between 7:15 and 8:15 A.M. with a total of 24,476 vehicles representing 37% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 5:00 and 6:00 P.M. with a total of 24,655 vehicles representing 37% of the afternoon peak three hours. The afternoon peak hour is less than 1% larger than the morning peak hour.

#### Peel-Toronto Screenline

This screenline is located at the western boundary of the City of Toronto and coincides with a portion of the eastern boundary of the Regional Municipality of Peel. The potential for vehicles double crossing the jurisdictional boundary is very high in the areas of the south and east of Toronto International Airport. For the sake of consistency, the stations included in the analysis are the same used by the Region of Peel. The screenline includes all major roads crossing the boundary in the east-west direction. Eastbound traffic is the dominant direction in the morning peak period and westbound traffic is the dominant direction in the afternoon peak period. Contra-flow represents 89% of the peak direction in the afternoon.

#### **Peak Period Analysis**



#### Peak Three Hours

Eastbound		Westbound	
Time of Day	Total Number	Time of Day	Total Number
	of Vehicles		of Vehicles
6:00 to 9:00	106763	15:00 to 18:00	120019
6:15 to 9:15	107774	15:15 to 18:15	120640
6:30 to 9:30	107824	15:30 to 18:30	121008
6:45 to 9:45	106656	15:45 to 18:45	120290
7:00 to 10:00	104580	16:00 to 19:00	119468

The absolute peak three hour window in the morning occurs from 6:30 to 9:30 A.M., however, the number of vehicles is similar in the three hour window starting 15 minutes earlier. In the afternoon, the peak three hours occur from 3:30 to 6:30 P.M., however, the number of vehicles is similar in the three hour time window starting 15 minutes earlier. The number of vehicles in the peak three hours in the afternoon is 12% higher than the number in the morning peak.

#### Morning and Afternoon Peak Hour

The peak one hour window occurred between 7:30 and 8:30 A.M. with a total of 37,267 vehicles representing 35% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 4:30 and 5:30 P.M. with a total of 42,608 vehicles representing 35% of the afternoon peak three hours. The afternoon peak hour is 14% larger than the morning peak hour.

#### **Peel-Simcoe-York Screenline**

This screenline is located at the western boundary of the Regional Municipality of York where it is coincident with the eastern boundary of the Regional Municipality of Peel and a portion of the south-eastern boundary of the County of Simcoe. Because it is a combination of directions, the screenline includes all major roads crossing the boundary regardless of the direction of the road. This analysis combines the eastbound with the southbound traffic and the westbound with the northbound traffic, which is consistent with travel entering or leaving the Greater Toronto Area. Contra-flow represents 83% of the peak direction in the morning and 91% of the peak direction in the afternoon.

#### Morning Peak Period in the Peak Direction Afternoon Peak Period in the Peak Direction 3500 3500 3000 3000 Number of Vehicles Number of Vehicles 2500 2500 2000 2000 1500 1500 1000 1000 500 500 0 0 15:45 6:45 7:15 7:30 7:45 8:00 8:15 8:30 8:45 9:00 9:15 9:30 5:30 16:00 16:15 16:30 16:45 17:45 18:00 18:15 18:45 6:15 7:00 17:00 17:15 18:30 6:30 17:30 9:00 5:1 **15 Minute Period Ending** 15 Minute Period Ending

### **Peak Period Analysis**

#### **Peak Three Hours**

East(south)bound		West(north)bound	
Time of Day	Total Number	Time of Day	Total Number
	of Vehicles		of Vehicles
6:00 to 9:00	29099	15:00 to 18:00	29388
6:15 to 9:15	29684	15:15 to 18:15	29574
6:30 to 9:30	29759	15:30 to 18:30	29465
6:45 to 9:45	29788	15:45 to 18:45	28873
7:00 to 10:00	29530	16:00 to 19:00	27992

The absolute peak three hour window in the morning occurs from 6:45 to 9:45 A.M. although the total number of vehicles in the period starting 15 and 30 minutes earlier and 15 minutes later are very similar. In the afternoon, the peak three hours occur from 3:15 to 6:15 P.M. although the total number of vehicles are very similar to those in the three hour period starting 15 minutes earlier and 15 minutes later. The number of vehicles in the peak three hours in the morning is 1% higher than the number in the morning peak.

#### **Morning and Afternoon Peak Hour**

The peak one hour window occurred between 7:15 and 8:15 A.M. with a total of 11,336 vehicles representing 38% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 4:45 and 5:45 P.M. with a total of 10,628 vehicles representing 36% of the afternoon peak three hours. The morning peak hour is 7% higher than the afternoon peak hour.

#### **Steeles Avenue Screenline**

This screenline is located along Steeles Avenue at the northern boundary of the City of Toronto and coincides with the southern boundary of the Regional Municipality of York. The potential for vehicles double crossing the jurisdictional boundary is very high as Steeles Avenue is a major thouroughfare. Counts are taken on the northern side of Steeles Avenue to minimize the impact of these double crossings. The screenline includes all major roads crossing the boundary in the north-south direction. Southbound traffic is the dominant direction in the morning peak period and northbound traffic is the dominant direction in the afternoon peak period. Contra-flow represents 67% of the peak direction in the afternoon.

#### **Peak Period Analysis**



#### **Peak Three Hours**

Southbound		Northbound	
Time of Day	Total Number of Vehicles	Time of Day	Total Number of Vehicles
6:00 to 9:00	152308	15:00 to 18:00	162046
6:15 to 9:15	157590	15:15 to 18:15	164860
6:30 to 9:30	160198	15:30 to 18:30	166202
6:45 to 9:45	160381	15:45 to 18:45	166330
7:00 to 10:00	158627	16:00 to 19:00	165069

The absolute peak three hour window in the morning occurs from 6:45 to 9:45 A.M., although the number of vehicles is very similar in the three hours time window 15 minutes earlier. In the afternoon, the peak three hours occur from 3:45 to 6:45 P.M., however, the number of vehicles is very similar in the three hour time window beginning at 3:30 P.M. The number of vehicles in the peak three hours in the afternoon is 4% higher than the number in the morning.

#### **Morning and Afternoon Peak Hour**

The peak one hour window occurred between 7:30 and 8:30 A.M. with a total of 60,295 vehicles representing 38% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 4:45 and 5:45 P.M. with a total of 59,372 vehicles representing 36% of the afternoon peak three hours. The morning peak hour is 2% larger than the afternoon peak hour.

#### **Durham-Toronto Screenline**

This screenline follows the eastern boundary of the City of Toronto and is coincident with a portion of the western boundary of the Regional Municipality of Durham. The screenline follows the jurisdictional boundary and includes all major roads crossing the boundary in the east-west direction. Westbound traffic is the dominant direction in the morning peak period and eastbound traffic is the dominant direction in the afternoon peak period. Contra-flow represents 33% of the peak direction in the morning and 52% of the peak direction in the afternoon.



#### **Peak Period Analysis**

#### **Peak Three Hours**

West	bound	Easth	bound
Time of Day	Total Number of Vehicles	Time of Day	Total Number of Vehicles
6:00 to 9:00	49392	15:00 to 18:00	42926
6:15 to 9:15	47613	15:15 to 18:15	42859
6:30 to 9:30	45539	15:30 to 18:30	42064
6:45 to 9:45	43388	15:45 to 18:45	41274
7:00 to 10:00	41146	16:00 to 19:00	40269

The absolute peak three hour window in the morning occurs from 6:00 to 9:00 A.M. In the afternoon, the peak three hours occur from 3:00 to 6:00 P.M., and is essentially the same as the total traffic in the three hour period starting 15 minutes later. The number of vehicles in the peak three hours in the afternoon is 15% higher than the number in the morning.

#### Morning and Afternoon Peak Hour

The peak one hour window occurred between 7:30 and 8:30 A.M. with a total of 18,340 vehicles representing 37% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 4:30 and 5:30 P.M. with a total of 15,789 vehicles representing 37% of the afternoon peak three hours. The morning peak hour is 16% larger than the afternoon peak hour.

#### **Durham-York Screenline**

This screenline is located at the eastern boundary of the Regional Municipality of York where it coincides with the western boundary of the Regional Municipality of Durham. Because it is a combination of directions, the screenline includes all major roads crossing the boundary regardless of the direction of the road. This analysis combines the eastbound with the southbound traffic and the westbound with the northbound traffic. Although this combination of directions is somewhat arbitrary, it is consistent with traffic moving between Durham and York. In addition, the definition is consistent with peak directions of traffic flow. West and northbound traffic is the dominant direction in the morning peak period and east and southbound traffic is the dominant direction in the afternoon peak period. Contra-flow represents 42% of the peak direction in the morning and 52% of the peak direction in the afternoon.

#### **Peak Period Analysis**



#### **Peak Three Hours**

West(north)bound		East(south)bound		
Time of Day	Total Number	Time of Day	Total Number	
	of Vehicles		of Vehicles	
6:00 to 9:00	19679	15:00 to 18:00	19252	
6:15 to 9:15	19971	15:15 to 18:15	19763	
6:30 to 9:30	19826	15:30 to 18:30	20091	
6:45 to 9:45	19278	15:45 to 18:45	19980	
7:00 to 10:00	18392	16:00 to 19:00	19605	

The absolute peak three hour window in the morning occurs from 6:15 to 9:15 A.M., however, the number of vehicles is very similar in the three hour time window starting at 6:30 A.M.. In the afternoon, the peak three hours occur from 3:30 to 6:30 P.M., although the number of vehicles is very similar in the three hour windows 15 minutes after. The number of vehicles in the peak three hours in the afternoon is 1% higher than the number in the morning peak.

#### Morning and Afternoon Peak Hour

The peak one hour window occurred between 7:15 and 8:15 A.M. with a total of 8,061 vehicles representing 40% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 4:45 and 5:45 P.M. with a total of 7,854 vehicles representing 39% of the afternoon peak three hours. The morning peak hour is 3% larger than the afternoon peak hour.

#### Durham South (Taunton Road) Screenline

This screenline consists of all major streets crossing Taunton Road, or a continuation of the alignment of this road, in the northern sections of the local municipalities of Pickering, Ajax, Whitby, Oshawa and Clarington. The screenline runs east-west from the eastern boundary of the Regional Municipality of Durham to the common boundary between Durham and the City of Toronto. The traffic directions on the intersecting roads are north and south. Both directions are similar in both morning and afternoon peak periods but for our purposes, southbound is considered the peak direction in the morning peak period and northbound is considered the peak direction in the afternoon. Contra-flow represents 94% of the peak direction in the morning and 82% of the peak direction in the afternoon.

#### **Peak Period Analysis**



#### **Peak Three Hours**

Southbound		Northbound	
Time of Day	Total Number of Vehicles	Time of Day	Total Number of Vehicles
6:00 to 9:00	21143	15:00 to 18:00	27450
6:15 to 9:15	21854	15:15 to 18:15	27547
6:30 to 9:30	22109	15:30 to 18:30	27427
6:45 to 9:45	22149	15:45 to 18:45	27040
7:00 to 10:00	22087	16:00 to 19:00	26548

The absolute peak three hour window in the morning occurs from 6:45 to 9:45 A.M., however, the number of vehicles is very similar in the three hour time window starting 15 minutes before and 15 minutes after. In the afternoon, the peak three hours occur from 3:15 to 6:15 P.M. however, the number of vehicles is very similar in the three hour time window starting 15 minutes later. The number of vehicles in the peak three hours in the afternoon is 24% higher than the number in the morning peak.

#### Morning and Afternoon Peak Hour

The peak one hour window occurred between 7:30 and 8:30 A.M. with a total of 8,930 vehicles representing 40% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 4:45 and 5:45 P.M. with a total of 9,912 vehicles representing 36% of the afternoon peak three hours. The afternoon peak hour is 11% larger than the morning peak hour.

#### **Durham East Screenline**

This screenline follows the eastern boundary of the Regional Municipality of Durham. The screenline is north-south in some portions and east-west in others. This analysis combines eastbound with northbound traffic on intersecting roads as a representation of traffic leaving the Greater Toronto area. Conversely, westbound and southbound traffic are combined to represent traffic entering the GTA. West(south)bound traffic is the dominant direction in the morning peak period and east(north)bound traffic is the dominant direction in the afternoon peak period. Contra-flow represents 56% of the peak direction in the morning and 76% of the peak direction in the afternoon.



#### **Peak Period Analysis**

#### **Peak Three Hours**

West(south)bound		East(north)bound	
Time of Day	Total Number of Vehicles	Time of Day	Total Number of Vehicles
6:00 to 9:00	8242	15:00 to 18:00	9508
6:15 to 9:15	8098	15:15 to 18:15	9431
6:30 to 9:30	7905	15:30 to 18:30	9324
6:45 to 9:45	7753	15:45 to 18:45	9080
7:00 to 10:00	7617	16:00 to 19:00	8824

The absolute peak three hour window in the morning occurs from 6:00 to 9:00 A.M., however, the number of vehicles is very similar in the three hour period starting 15 minutes later. In the afternoon, the peak three hours occur from 3:00 to 6:00 P.M., although the number of vehicles is comparable to those in the three hour period occuring 15 minutes later. The number of vehicles in the peak three hours in the afternoon is 15% higher than the number in the morning peak.

#### Morning and Afternoon Peak Hour

The peak one hour window occurred between 7:15 and 8:15 A.M. with a total of 2,840 vehicles representing 34% of the morning peak three hours. In the afternoon, the peak one hour window occurred between 4:15 and 5:15 P.M. with a total of 3,405 vehicles representing 36% of the afternoon peak three hours. The afternoon peak hour is 20% larger than the morning peak hour.

### **Cordon Count Information**

#### pages 2, 3

- Halton West Screenline
- Halton South Screenline

Data on these pages were extracted from records from the cordon count program carried out by the Regional Municipality of Halton. For more information on counts in this Region, please contact:

Andrew Head (905) 825-6000 X7475

#### pages 4,5

- Halton-Peel Screenline
- Peel Steeles Avenue Screenline

Data on these pages were extracted from records from the cordon count program carried out by the Regional Municipality of Peel. For more information on counts in this Region, please contact:

Margie Chung (905) 791-7800 X4510

#### pages 6, 8, 9

- Peel-Toronto Screenline
- Steeles Avenue Screenline
- Dundas-Toronto Screenline

Data on these pages were extracted from records from the cordon count program carried out by the City of Toronto (previously the Municipality of Metropolitan Toronto). For more information on counts in this Region, please contact: Vince Alfano (416) 392-4266

#### pages 7, 10

- Peel-Simcoe-York Screenline
- Durham-York Screenline

Data on these pages were extracted from records from the cordon count program carried out by the Regional Municipality of York. For more information on counts in this Region, please contact:

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pages 11, 12

- Durham South (Taunton Road) Screenline
- Durham East Screenline

Data on these pages were extracted from records from the cordon count program carried out by the Regional Municipality of Durham. For more information on counts in this Region, please contact:

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