



2001 GTA CORDON COUNT

TRANSPORTATION TRENDS 1991–2001



Prepared on behalf of:

*Ministry of Transportation, Ontario
Regional Municipality of Durham
Regional Municipality of Halton
Regional Municipality of Peel
Regional Municipality of York
City of Toronto
Toronto Transit Commission
GO Transit*

McCormick Rankin Corporation

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Introduction ...

The Cordon Count is a periodic counting program involving over a thousand counting stations across the Greater Toronto Area (GTA). Its purpose is to support transportation system planning and programming.

A formal Cordon Count program was first implemented in the City of Toronto (formerly the Municipality of Metropolitan Toronto) in 1975. Other GTA regions initiated similar counting programs in subsequent years. Although traffic counts had been conducted previously, the Cordon Count was designed from the start as a systematic program to assist in the identification of transportation trends.

Historically, the program has been undertaken biennially (in odd years) but more recently, scheduling adjustments have been made to coordinate the counts with other data collection programs such as the Transportation Tomorrow Survey (TTS) and the Statistics Canada Census.

The cordon count program represents a one-day “snapshot” of persons and vehicles passing each counting station. For the current analysis, the counting stations have been organized into screenlines at the boundaries of the GTA and at the boundaries of, and at key locations within, the regions of Durham, Halton, Peel, and York, and the City of Toronto.

The counting process involves classifying every vehicle by type and, in the case of passenger and transit vehicles, by the number of occupants. In this way, a complete picture of person movements, as well as vehicle movements, can be created. In many cases, traffic is counted manually, but automatic traffic recorders are also used.

The Cordon Count program is an invaluable source of data on trends in the growth and distribution of travel. The information produced by the program is used by both public and private-sector organizations for such purposes as the estimation of future transportation needs, capital works planning, the identification and resolution of transportation issues related to new development, and the development of new initiatives such as those related to high-occupancy vehicles. One particularly important feature of the program, contributing to its value for trend assessment, is the fact that it has been conducted more-or-less continuously for some 25 years.

The report that follows summarizes the transportation trends that have been observed over the past ten years (1991 through 2001) based on information from the Cordon Count program. Particularly significant are the high growth in travel observed to and from the “905” regions, strong growth in commercial vehicle movement, and trends towards decreasing auto occupancy and increasing “reverse-flow” travel.

... this report presents a summary of key transportation trends in the Greater Toronto Area, based on Cordon Count data over the 1991–2001 period.

... the focus is on transportation trends from an overall GTA perspective, complementing Cordon Count analyses prepared by individual regions and the City of Toronto.

...more detailed information and analysis of transportation trends based on the 1991 and 2001 Cordon Counts is available in a companion Technical Report.

The Cordon Count Program is coordinated by the Transportation Research and Data Management Group. Data is contributed by the following members of this Group:

- Ministry of Transportation, Ontario
- Regional Municipality of Durham
- Regional Municipality of Halton
- Regional Municipality of Peel
- Regional Municipality of York
- City of Toronto
- Toronto Transit Commission
- GO Transit

The report is organized around several key transportation trends (highlights are presented in the sidebar).

A description of the screenlines and a glossary of key terms are presented at the end of this report. Also provided are contact details for further information.

Highlights ...

- 1. OVERALL GROWTH IN TRAVEL.**
- 2. GROWTH IN GO RAIL RIDERSHIP BUT DECREASE OR LITTLE GROWTH IN MUNICIPAL TRANSIT USE FOR INTER-REGIONAL TRIPS.**
- 3. DECREASE IN AUTO OCCUPANCY AND IN HIGH-OCCUPANCY VEHICLES.**
- 4. STRONG GROWTH IN COMMERCIAL VEHICLES.**
- 5. INCREASE IN “REVERSE-FLOW” TRAVEL.**

1 Overall growth in travel ...

Generally, there was significant growth in peak-period vehicular travel across the GTA screenlines between 1991 and 2001, both numerically and in percentage terms.

Growth across the boundaries between the “905” regions has been strong, particularly in percentage terms, over the past decade, reflective of the rapid growth of both population and employment in these regions. In contrast, the level of vehicular travel to and from Toronto’s Central Area has remained virtually unchanged.

Growth in vehicular travel to and from the GTA has also been strong, reflecting expansion of the GTA commuter-

shed to include centres such as Barrie, Guelph, Cambridge and Peterborough.

Markedly high growth across the York/Peel and York/Toronto boundaries, coupled with relatively low growth across the Peel/Toronto boundary, is partially an indication of the effects of Highway 407 on travel patterns in the GTA. Note that Highway 407 east of Markham Road and west of Highway 403 were not yet open at the time of the 2001 Cordon Count.

Growth patterns in the afternoon peak period are similar to those in the morning peak period and growth patterns in person movement are similar to those for vehicular movement.

... growth typically in excess of 40% over ten years

... high rate of growth in trips to and from “905” regions and entering and leaving the GTA

... changes in travel patterns resulting from Highway 407

... little change in vehicular traffic entering and leaving Toronto’s Central Area

The screenlines with the highest growth in the number of vehicle crossings in the peak direction during the morning 3-hour peak period between 1991 and 2001 were:

	Vehicles
York/Toronto Boundary	+42,900
GTA West Boundary	+20,300
Durham/Toronto Boundary	+19,900
Peel/Halton Boundary	+18,800
Mississauga/Brampton Boundary	+17,500


The screenlines with the highest percentage growth in vehicle crossings in the peak direction during the morning 3-hour peak period between 1991 and 2001 were:


	Per cent
York/Peel Boundary	+149%
Durham/Toronto Boundary	+61%
GTA West Boundary	+55%
GTA North Boundary	+50%
Mississauga/Brampton Boundary	+47%

Change in Total Vehicles Crossing Screenlines 1991-2001

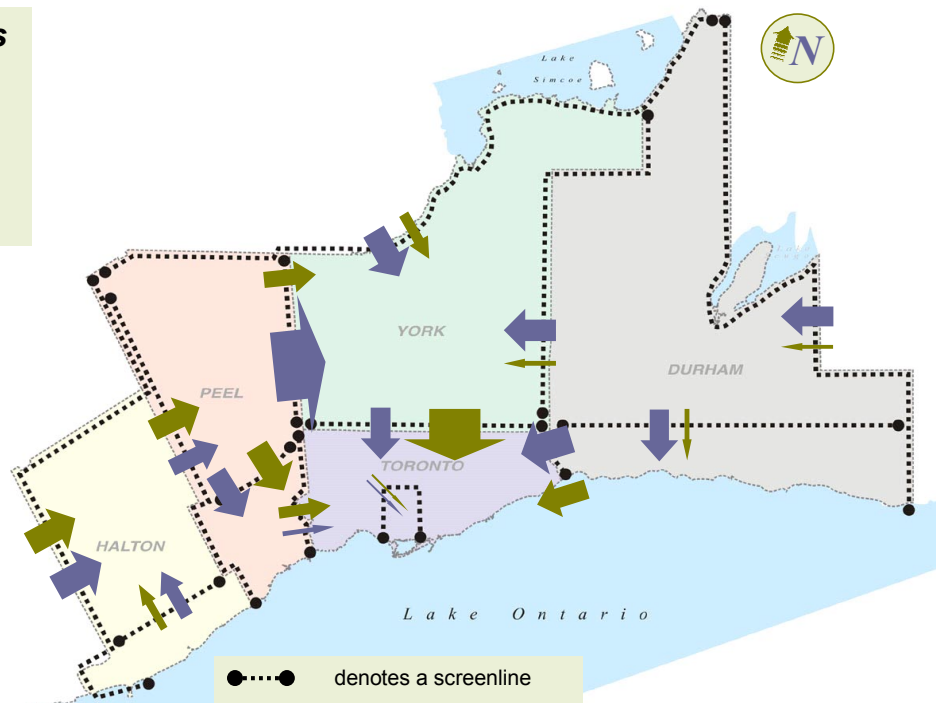
- ▶ Morning 3-hour peak period
- ▶ Peak direction

Legend

Growth in number of vehicles  = +20,000

Growth as percentage of 1991 levels  = +50%

Growth of 2,000 to 2,300 vehicles during the 3-hour peak period is equivalent to a single lane on an arterial road while growth of 5,300 to 6,000 vehicles is equivalent to a single expressway lane.



2 Growth in GO Rail ridership but decrease or little growth in municipal transit use for inter-regional trips ...

Between 1991 and 2001, the GO Rail system experienced steady growth in ridership and slight gains in market share. Ridership growth was typically in the 30 to 40 per cent range over the ten-year period.

GO Rail service was extended during the decade to serve Oshawa (Lakeshore East line), Hamilton (Lakeshore West line), and the Newmarket/Bradford corridor (Bradford line).

The largest increase was experienced at Toronto's Central Area boundary. This is not surprising given that more than 90 per cent of all GO Rail trips start or end at Union Station.

In contrast, the number of people using municipal transit and other bus services to cross regional boundaries declined or remained unchanged at most screenlines. The inter-regional market is, however, a small proportion of municipal transit (and school bus) service since their service areas are largely contained within regional boundaries. Toronto Transit Commission service accounts for almost half of all trips into the City's Central Area during the morning peak period.

Overall the gains in GO Rail ridership more than offset the decreased use of municipal transit and other bus services for inter-regional travel.

... at least 30% to 40% growth in GO Rail ridership at all screenlines where service is provided

... decline in the use of municipal transit and other bus services for inter-regional travel

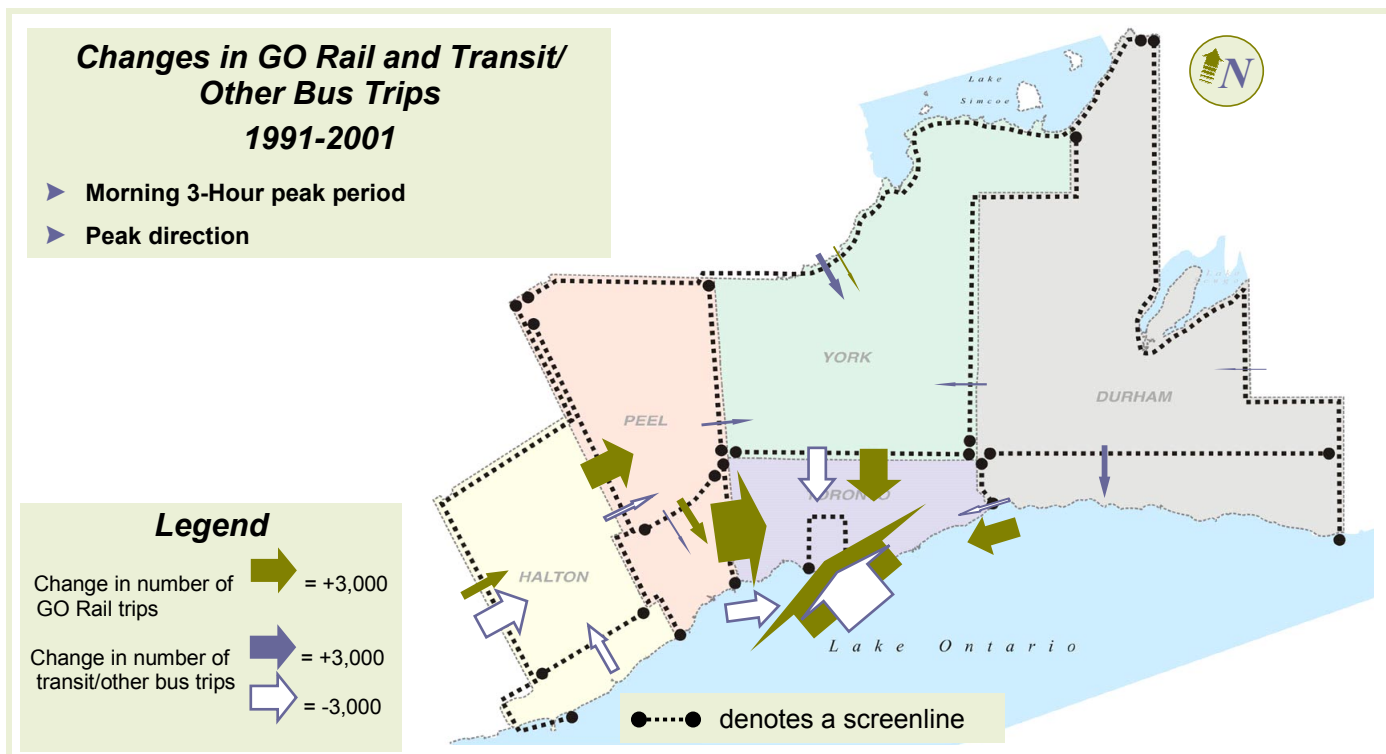
... overall, gains for GO Rail more than offset lower ridership and market share for other transit services

The screenlines with the highest growth in the number of persons using GO Rail services in the peak direction during the morning 3-hour peak period between 1991 and 2001 were:

	Persons
Toronto Central Area boundary	+15,000
Peel/Toronto boundary	+7,800
Peel/Halton boundary	+3,600
York/Toronto boundary	+3,600
Durham/Toronto boundary	+2,600

The screenlines with the largest change in the number of persons using municipal transit and other bus services in the peak direction during the morning 3-hour peak period between 1991 and 2001 were:

	Persons
Toronto Central Area boundary	-8,100
GTA West boundary	-3,000
Peel/Toronto boundary	-2,200
York/Toronto boundary	-2,100
Mississauga/Brampton boundary	+2,100



3 Decrease in auto occupancy and in high-occupancy vehicles ...

Perhaps the most significant trend to emerge over the past decade is a decrease in the average number of persons carried in each auto.

In 1991 average auto occupancy levels were generally in the range of 1.15 to 1.25 persons per auto. By 2001, these had declined to values in the range of 1.08 to 1.15. This decline has been relatively consistent across the GTA.

To put this in perspective, today's road system in the GTA has to accommodate approximately 5 to 10 per cent more

autos than it would have if average auto occupancies had remained at 1991 levels.

Accompanying the decrease in auto occupancy is a reduction (or minimal growth) in the number of vehicles eligible to use high-occupancy vehicle (HOV) lanes (typically buses, taxis, and autos with three or more occupants). During the peak period, HOV's as defined above typically constitute less than 2 per cent of all vehicles. If autos with two occupants were included in the HOV category, this proportion would increase to between 10 and 20 per cent of all vehicles at most screenlines.

... average auto occupancy has declined since 1991

... there are 5-10% more autos on the road today than there would be if average auto occupancy had remained at 1991 levels

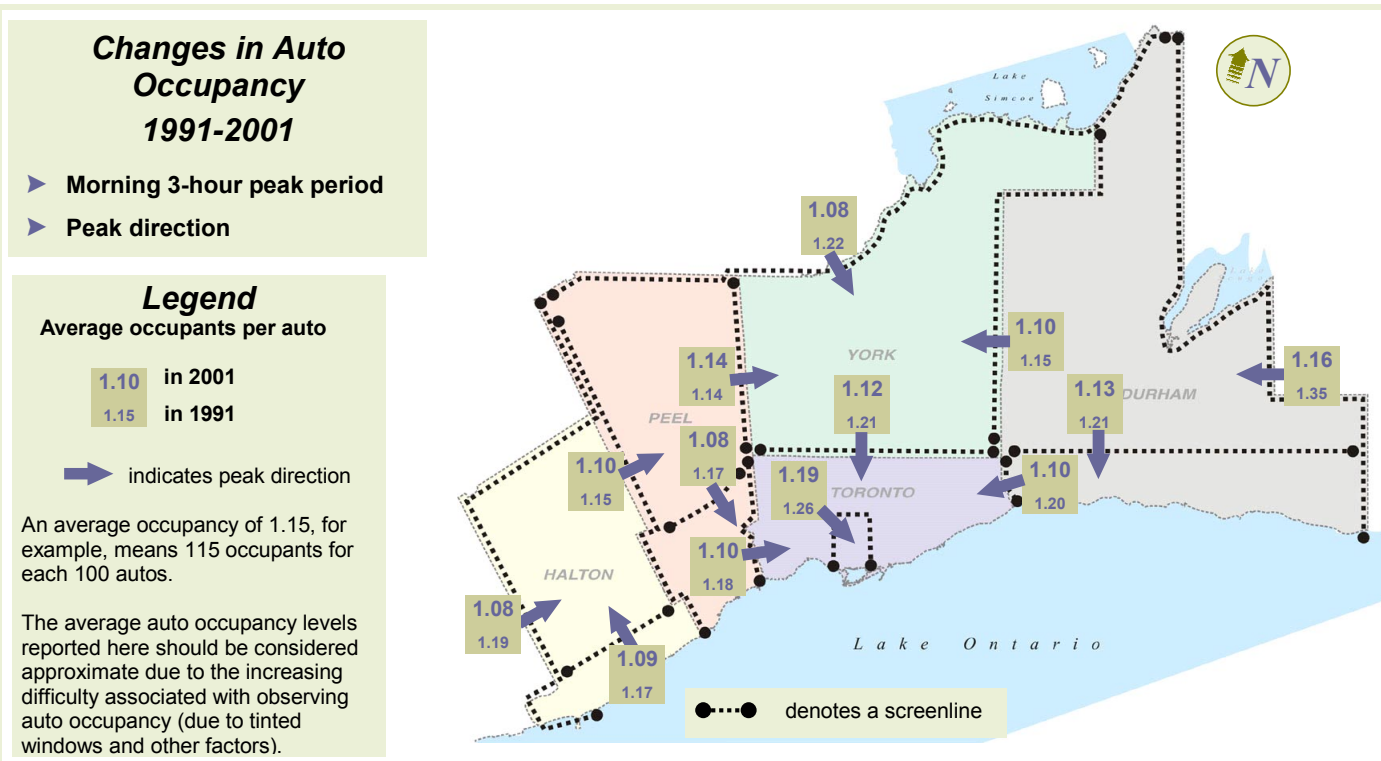
... less than 2% of autos during peak periods at most screenlines have 3 or more occupants

The screenlines with the greatest decrease in average auto occupancy in the peak direction during the morning 3-hour peak period between 1991 and 2001 were:

	Persons/auto
GTA East boundary	1.35 to 1.16
GTA North boundary	1.22 to 1.08
GTA West boundary	1.19 to 1.08
Durham/Toronto boundary	1.20 to 1.10
York/Toronto boundary	1.21 to 1.12

The screenlines with the greatest number of High-Occupancy Vehicles (based on 3 or more occupants per auto) during the afternoon 3-hour peak period in the peak direction in 2001 were:

	HOV's	% of all vehicles
Toronto Central Area boundary	6,540	6.2%
Peel/Toronto boundary	4,000	3.7%
York/Toronto boundary	2,800	1.9%
Peel/Halton boundary	1,230	1.7%
Mississauga/Brampton boundary	1,110	1.6%



4 Strong growth in commercial vehicles ...

Commercial vehicle traffic during the peak 12-hour period increased at a higher rate than passenger traffic at most screenlines between 1991 and 2001. The pattern of growth across the GTA reflects the economic interaction within the GTA and between the GTA and the rest of the 'Golden Horseshoe' and the United States.

Particularly in the more urbanized areas of the GTA, commercial traffic has tended to be higher outside the peak periods. In fact, 30 to 50 per cent of truck movements during a typical day on the expressway system occur

outside the 12-hour period generally covered by the Cordon Count program (from Ministry of Transportation, Ontario surveys). Nonetheless, at most screenlines in the GTA, medium and heavy trucks increased as a percentage of total vehicles during the peak periods between 1991 and 2001.

As in the case of passenger vehicles, commercial traffic patterns have been affected by the opening of Highway 407.

... truck traffic generally increased more than passenger traffic between 1991 and 2001

... strong growth in commercial vehicles reflects the economic interaction within the GTA and between the GTA and the rest of the 'Golden Horseshoe' and the United States

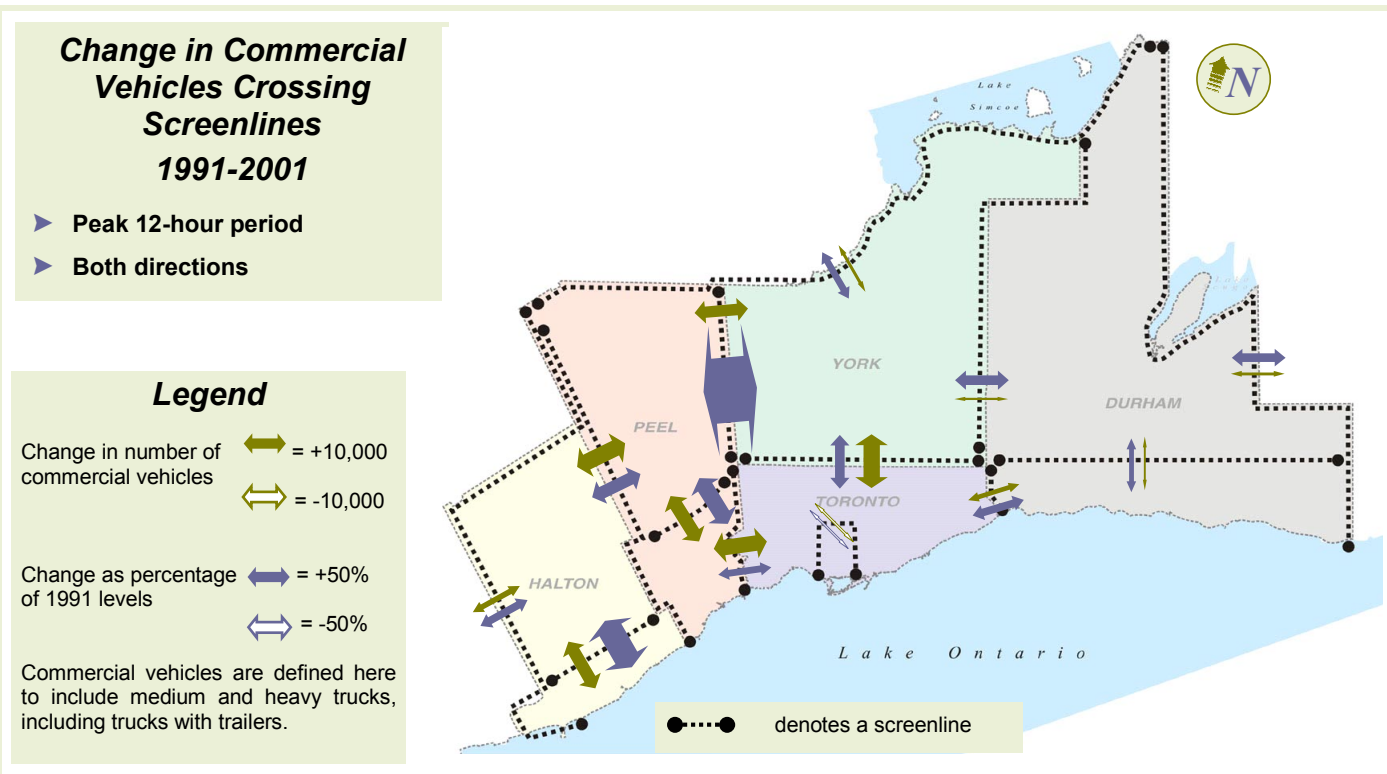
... the proportion of medium and heavy vehicles in peak period traffic increased at most screenlines

The screenlines with the highest growth in the number of commercial vehicle crossings in both directions during the peak 12-hour period between 1991 and 2001 were:

	Vehicles
Peel/Halton boundary	+17,400
York/Toronto boundary	+16,900
Peel/Toronto boundary	+15,900
Mississauga/Brampton boundary	+13,600
Halton - Dundas Street	+13,000

The screenlines with the highest percentage growth in commercial vehicle crossings in both directions during the peak 12-hour period between 1991 and 2001 were:

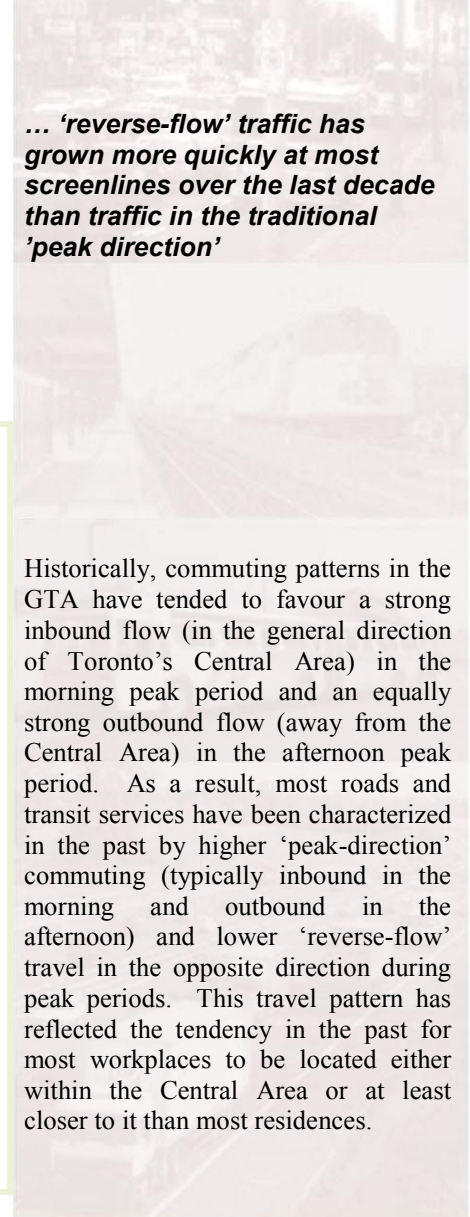
	Per cent
York/Peel boundary	+345%
Halton - Dundas Street	+130%
Mississauga/Brampton boundary	+84%
Peel/Halton boundary	+64%
York/Toronto boundary	+52%



5 Increase in 'reverse-flow' travel ...

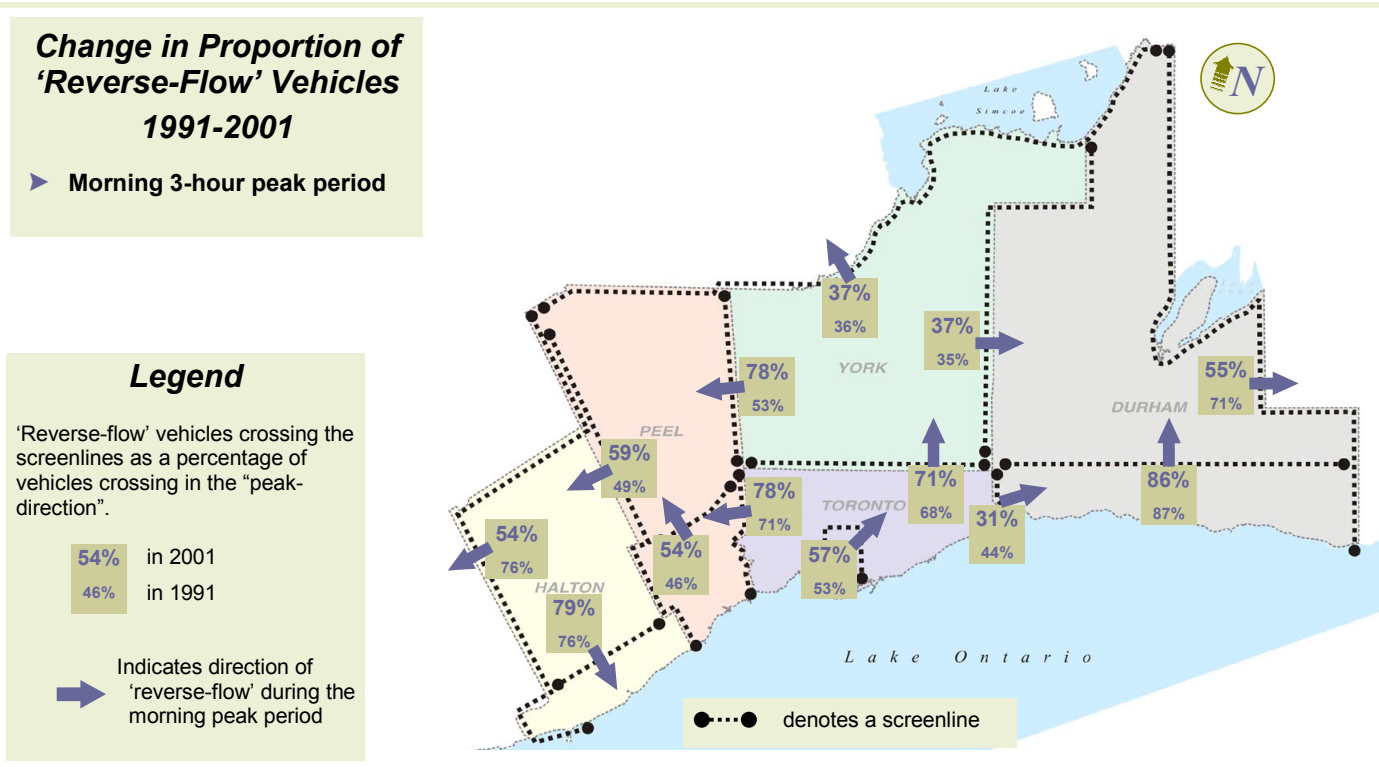
Comparison of 1991 and 2001 vehicular flows at screenlines shows that 'reverse-flow' commuting has increased at a higher rate than "peak-direction" commuting (see the explanation of 'reverse-flow' in the sidebar below right). This reflects the fact that, over the past decade, economic activity and the number of employment opportunities has enjoyed a high rate of growth in the "905" regions. As a result, vehicular flows have become more balanced by direction at most screenlines and 'reverse-flow' traffic volumes have increased as a proportion of 'peak-direction' volumes as shown on the graphic below.

Contrary to this trend are several of the outlying screenlines which have not historically been within the influence of the GTA commuter-shed; most of the peak-period traffic in these areas being oriented more to local employment opportunities. Outlying communities have, however, been increasingly drawn into the GTA commuter-shed over the past decade, mainly as a result of employment growth in the "905" regions, resulting in increased commuting inbound to the GTA during the morning peak period and outbound in the afternoon. The net result is a stronger 'peak-direction' orientation at these screenlines in contrast to screenlines in the more urbanized portion of the GTA.



... 'reverse-flow' traffic has grown more quickly at most screenlines over the last decade than traffic in the traditional 'peak direction'

Historically, commuting patterns in the GTA have tended to favour a strong inbound flow (in the general direction of Toronto's Central Area) in the morning peak period and an equally strong outbound flow (away from the Central Area) in the afternoon peak period. As a result, most roads and transit services have been characterized in the past by higher 'peak-direction' commuting (typically inbound in the morning and outbound in the afternoon) and lower 'reverse-flow' travel in the opposite direction during peak periods. This travel pattern has reflected the tendency in the past for most workplaces to be located either within the Central Area or at least closer to it than most residences.



Glossary ...

“905” Region - consists of the Regional Municipalities of Durham, Halton, Peel, and York.

Greater Toronto Area (GTA) - consists of the City of Toronto and the Regional Municipalities of Durham, Halton, Peel, and York.

Heavy Truck – a truck with more than 2 axles, typically a semi-trailer or truck with trailer.

HOV or High-Occupancy Vehicle – includes buses, taxis, and automobiles with at least 3 occupants

Medium Truck – a truck with more than 4 tires touching the road but with only 2 axles.

Peak Hour – the 4 consecutive 15-minute periods that yield the highest counted volume.

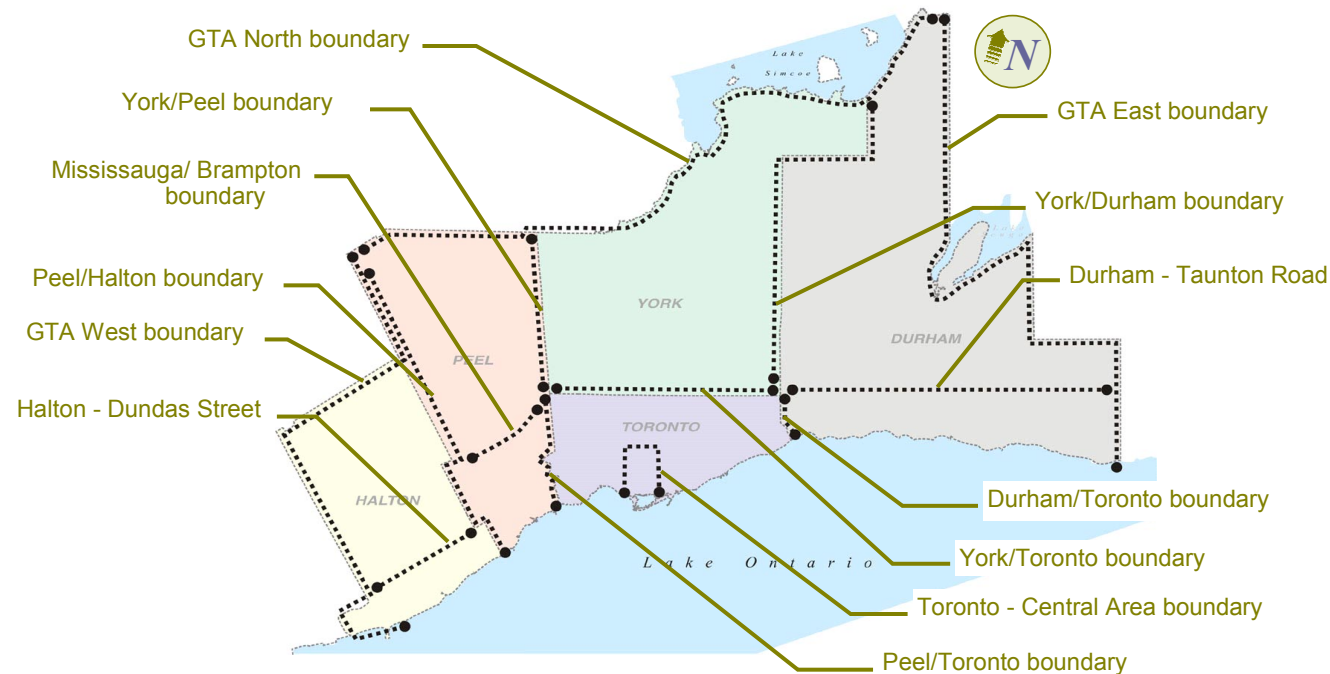
Peak Period – the 12 consecutive 15-minute periods that yield the highest counted volume.

Screenline – a linear group of counting stations designed to capture all or most of the movement across it.

Transit and other Bus – includes municipal transit services, GO bus services, inter-regional and charter buses, and school buses.

12-Hour Peak Period – the consecutive 12 hours yielding the maximum counted volume.

Screenline descriptions ...



For further information, contact ...

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Planning Department
Transportation Planning and Research
(905) 728-7731

Regional Municipality of Halton
Planning and Transportation Services
(905) 825-7500

Regional Municipality of Peel
Planning Department
(905) 791-7800 Ext. 4347

Regional Municipality of York
Transportation and Works Department
Infrastructure Planning Branch
(905) 764-6345 Ext.5030

City of Toronto
Urban Development Services
Transportation Planning
(416) 392-8101

Toronto Transit Commission
(contact the City of Toronto)

GO Transit
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