

OFFICE OF THE MAYOR

MARGARET BLACK
MAYOR



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September 28th, 2007

Mr. Bill Fisch, Regional Chair & CEO
Regional Municipality of York
17250 Yonge Street
NEWMARKET ON L3Y 6Z1

Dear Mr. Fisch,

RE: Highway #9 Traffic Increases Local Road Intersections

At its meeting of September 24th, 2007, Council in Committee of the Whole considered and approved the following recommendations of Operations/Clerks Department Joint Report JR07-04 regarding the increased traffic and the potentially unsafe traffic conditions along Highway #9:

“That the Regional Municipality of York be advised that Council has concerns with the increased traffic along the Highway 9 corridor between Bathurst Street and Highway 400 and its related impact to local residents, businesses and commuters creating increased risk and potentially unsafe operations at the intersections and accesses in this area; and

That Council receive the supporting documentation, being the York Region 2006 Cordon Count Bulletin as well as the Traffic Impact Study (Jan. 2007, Cansult Ltd.), that clearly indicates the “northern new developments having considerable effect on total traffic increases” and “that a traffic signal be installed at the intersection of Highway 9 and Keele Street to not only better accommodate existing and future traffic volumes but also to address the existing safety concerns at this intersection”, respectively; and

....2

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Mr. Fisch

Page 2

That Council requests the Regional Municipality of York to prioritize and evaluate the level of traffic on Highway 9 and consider intersection improvements where the Township of King's local roads intersect the highway between Bathurst Street and Highway 400."

Due to the increasing number of complaints the Township of King is receiving concerning this matter, we respectfully request that this correspondence be placed on the next Transportation and Works Committee Agenda.

A copy of Operations/Clerks Department Report JR07-04 is enclosed for your reference & information.

Yours truly

Chris Sawville for
Margaret Black,
Mayor

Encl.

TOWNSHIP OF KING

DATE: September 24, 2007
TO: Committee of the Whole
FROM: Operations/Clerks Department
Operations Report No. JR07-04
SUBJECT: Highway 9 Traffic Increases and Local Road Intersections

1. RECOMMENDATIONS

The Operations Department/Clerks Department respectfully submits the following recommendations for your consideration:

- a) That this report be received for information; and
- b) That the Regional Municipality of York be advised that Council has concerns with the increased traffic along the Highway 9 corridor between Bathurst Street and Highway 400 and its related impact to local residents, businesses and commuters creating increased risk and potentially unsafe operations at the intersections and accesses in this area; and
- c) That Council receive the supporting documentation, being the York Region 2006 Cordon Count Bulletin as well as the Traffic Impact Study (Jan. 2007, Cansult Ltd.), that clearly indicates the "northern new developments having considerable effect on total traffic increases" and "that a traffic signal be installed at the intersection of Highway 9 and Keele Street to not only better accommodate existing and future traffic volumes but also to address the existing safety concerns at this intersection", respectively; and
- d) That Council requests the Regional Municipality of York to prioritize and evaluate the level of traffic on Highway 9 and consider intersection improvements where the Township of King's local roads intersect the highway between Bathurst Street and Highway 400.

2. PURPOSE

The purpose of this report is to obtain the endorsement of Council to request that the Municipality of the Region of York review and evaluate the level of traffic on Highway 9 and consider intersection improvements where the Township of King's local roads intersect the highway, thereby identifying Council's concerns to the increased risk and potentially unsafe traffic conditions along this corridor.

COW
SEPT 24/07

3. **BACKGROUND**

At its meeting on September 10th, 2007, Committee of the Whole recommended that staff report back to Council at the September 24th 2007 meeting regarding traffic concerns along Highway #9 and the possibility of the installation of traffic lights at the Keele Street intersection.

4. **ANALYSIS**

The Operations Department has received a Traffic Impact Study, prepared by Cansult Ltd, January 2007 (attached as Schedule A) in connection with the site plan application for the Cardinal Golf Course expansion. This study assessed traffic volumes on typical weekday AM (7-9:00 am) and PM (4-7:00 pm) peak hour periods. It included intersection operation conditions such as through/turn movements as well as eastbound/westbound gaps to complete manoeuvres at the Keele St. and Highway #9 intersection. The study concluded that *"the severe delays experienced by drivers making minor turning movements onto Highway 9, the high volume of eastbound/westbound traffic and the associated lack of acceptable traffic gaps in the traffic flow, and the general trend of increasing collisions, it would be prudent for the Region to carefully monitor the traffic growth as well as future collision experience at this intersection to assess the potential for its signalization"*. The study recommended *"that a traffic signal be installed at the intersection of Highway 9 and Keele Street to not only better accommodate existing and future traffic volumes but also to address the existing safety concerns at this intersection."*

York Region conducts full cordon count surveys every five years to monitor and assess changes in transit use, vehicle occupancy rates, congestion levels, travel patterns and trends associated with York Region's rapid growth rates. The 2006 Regional Municipality of York Cordon Count Program was released June 2007 (attached as Schedule B). Since the last full count program in 2001, York Region's population has grown 23%. The volume change of Highway 400 has grown by 23.1% to 24.1% (within the study periods). The report states that within the York-Simcoe Cordon *"Highway 400 still carries the bulk of vehicular traffic, 58% of the total, followed by Yonge Street carrying 28%, and finally Highway 27 carrying 5%"*. Staff notes that that above statement indicates that the east/west link of persons crossing the York-Simcoe cordon most notably rely upon Highway #9, resulting in its subsequent volumes. This volume can only be assumed to increase with the future developments being proposed within the Township of King as well as by our neighbours to the north.

5. **FINANCIAL IMPLICATIONS**

There will be no costs associated with these recommendations.

6. **CONCLUSION**

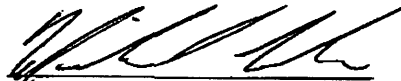
Staff supports the request for the Regional Municipality of York to evaluate the level of traffic on Highway 9 and consider intersection improvements where the Township of King's local roads intersect the highway between Bathurst Street and Highway 400.

7. **ATTACHMENTS**

1. Schedule A - Traffic Impact Study, Cansult Ltd. (Jan. 2007)
2. Schedule B - 2006 York Region Cordon Count Program (June 2007)

Submitted by:

Reviewed by:

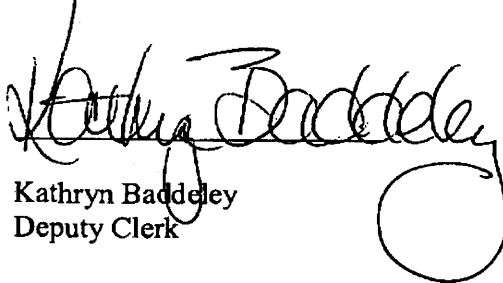


Michael A. Cole
Manager of Engineering & Development

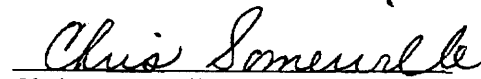


Jody LaPlante
Director of Operations

and



Kathryn Baddeley
Deputy Clerk



Chris Somerville
Clerk

C A N S U L T

Engineers and Project Managers

Traffic Impact Study

***Proposed Expansion of Cardinal Golf Club
Highway 9 / Keele Street
Township of King
Region of York***

Project No. C0399-R01
January, 2007

Prepared for:
Alcorn and Associates

C A N S U L T

Engineers and Project Managers

Jan 24, 2007

Ref: Our File No. C0399-R01

Alcorn and Associates
1 Valleywood Drive, Suite 1A
Markham, ON
L3R 5L9

Attention: Mr. Randy Alcorn,

Dear Mr. Alcorn,

**Re: Traffic Impact Study
Expansion of Cardinal Golf Club
Highway 9 / Keele Street, York Region**

Cansult Limited is pleased to submit our traffic impact study for the proposed 18-hole golf course expansion of the existing 54-hole Cardinal Golf Club development.

This report assesses the existing traffic conditions on the adjacent roadway network, estimates and examines the future background traffic growth at the key intersection of Highway 9 and Keele Street, and analyzes the traffic impacts of the proposed expansion of the Cardinal Golf Club on the abutting street network.

Based on our findings, it is recommended that a traffic signal be installed at the intersection of Highway 9 and Keele Street to address safety concerns at this intersection, improve the peak hour levels of service, and to better accommodate subject site development trips.

We would be pleased to assist if further information or clarification is required.

Yours very truly,
CANSULT LIMITED

Aman Syed,
Transportation Planner

.../as:jb

J.A. Bacchus
Project Manager

P:\C0000 - Trans Planning Open\C0399 Cardinal Golf Club TIS\Reports\070124\report cover.doc

Encl.

CANSULT LIMITED

An affiliate of UMA Engineering Ltd.

60 Renfrew Drive, #300, Markham, Ontario, Canada L3R 0E1

Tel: 905 470 2010 Fax: 905 470 2060 Email: cansult@cansult.com Website: www.cansult.com

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1.0 INTRODUCTION

Cansult Limited has been retained on behalf of Cardinal Golf Club to prepare a traffic impact assessment for a proposed expansion of the Cardinal Golf Club. The expansion plan proposes construction of an 18-hole golf course and associated pro-shop, clubhouse and dining facilities.

The subject site is situated in the north-west quadrant of the intersection of Highway 9 and Keele Street in the Township of King, York Region as shown in **Figure 1**. Access to the new golf course development is proposed via Keele Street, north of Highway 9. The proposed driveway entrance is situated on the west side of Keele Street approximately 0.65 Km. north of highway 9.

This study is intended to determine the traffic impacts from the proposed expansion considering the future traffic growth anticipated in the study area. This report assesses the existing traffic conditions on the adjacent roadway network, estimates and examines the future background traffic growth on roads and at the key intersection of Highway 9 and Keele Street and analyzes the traffic impacts of the proposed expansion of the Cardinal Golf Club.

Our findings and conclusions are contained herein.

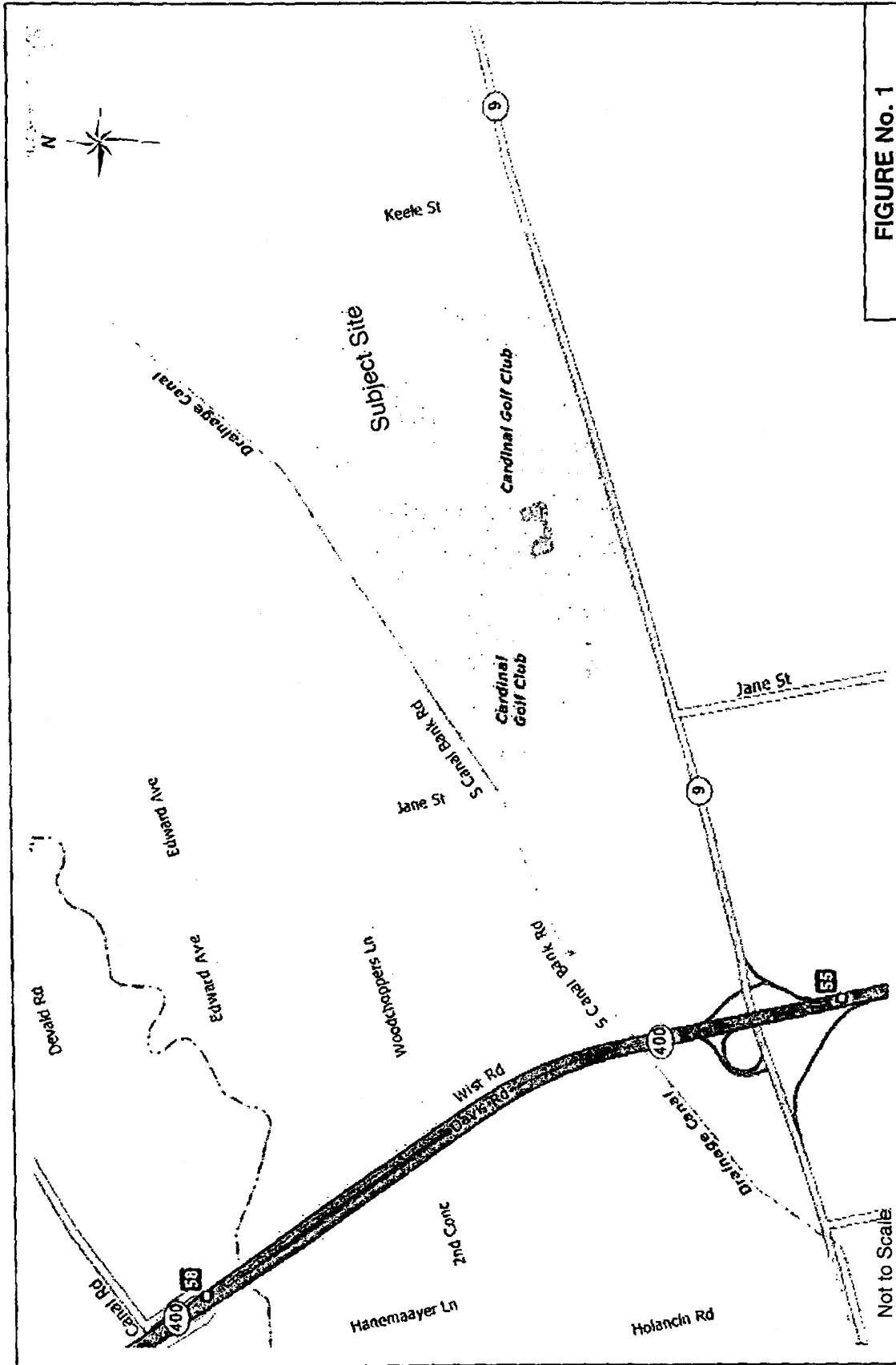
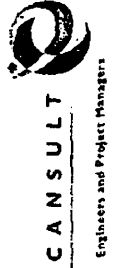


FIGURE No. 1



Traffic Impact Study – Cardinal Golf Club Expansion – HWY 9 / Keele Street, York Region

SITE LOCATION

2.0 PROPOSED DEVELOPMENT

This section will briefly describe the location of the proposed development, the intended land uses, and the proposed access to the site.

2.1 DEVELOPMENT DETAILS

Currently, the subject lands are predominantly zoned for industrial use and are being used for industrial and golf related use. The subject lands abut the existing Cardinal Golf Course to the west and the south, Keele Street to the east, and lands to the north which are generally vacant.

The development application for the subject site consists of constructing another 18-hole golf course, with ancillary pro-shop and clubhouse dining facilities, on a portion of their lands situated directly north and east of the existing Cardinal Golf Club facility.

2.2 PROPOSED SITE ACCESS

Currently, employee and service access to the existing 54-hole Cardinal Golf Club maintenance yard is via an existing entrance from Keele Street, which will be closed as part of the proposed expansion.

A new full-moves unsignalized access proposed for the site to Keele Street located approximately 0.65 Km. north of Highway 9 (just south of existing access) will replace this existing access to the maintenance yard and serve the combined access needs of the expanded Golf Club and the existing maintenance employee/ service access.

3.0 EXISTING CONDITIONS

This section will describe the adjacent road network, current traffic volumes, and key intersection operating characteristics as defined for existing conditions.

3.1 ROAD NETWORK

Keele Street in the vicinity of the site is oriented generally north-south and is under the jurisdiction of the Township of King. At the location of proposed access, there is one travel lane in each direction with asphalt surface and gravel shoulders in good condition.

The maximum speed limit is posted at 60 km/h to the north of Highway 9 and 50 Km/h to the south of Highway 9.

Highway 9 in the vicinity of the site is an east-west oriented major arterial roadway under the jurisdiction of Region of York with two lanes in each direction and a middle two way left turn lane. The maximum speed limit is posted at 80 km/h.

The intersection of Highway 9 and Keele Street is controlled by stop signs on the north and south Keele Street approaches. Exclusive right turn lanes are provided for eastbound and westbound approaches of Highway 9 to Keele Street.

3.2 TRAFFIC VOLUMES

Given the high volume of weekday peak hour commuter traffic on Highway 9, this assessment focuses on the typical weekday AM and PM peak hour periods.

In order to establish the current traffic conditions for these periods on the adjacent road network, a turning movement and vehicle classification count was conducted on October 18, 2006 during the hours of 7:00am to 9:00am and 4:00pm to 7:00pm at the intersection of Keele Street and Highway 9. In addition, turning movement counts were also conducted at the existing Cardinal Golf Club access for these same periods to assist in determining the existing and future site trip distribution of golf course traffic.

The baseline 2006 weekday AM and PM peak hour traffic volumes for the intersection of Keele Street at Highway 9 are illustrated in **Figure 2**. A summary of these recent turning movement counts have been attached as **Appendix A**.

EXISTING (2006) PEAK HOUR TRAFFIC VOLUMES

Traffic Impact Study – Cardinal Golf Club Expansion – HWY 9 / Keele Street, York Region

Legend
 77(138) AM (PM) – Existing 2006 Peak Hour Weekday Traffic Volumes
 Traffic Stop Control

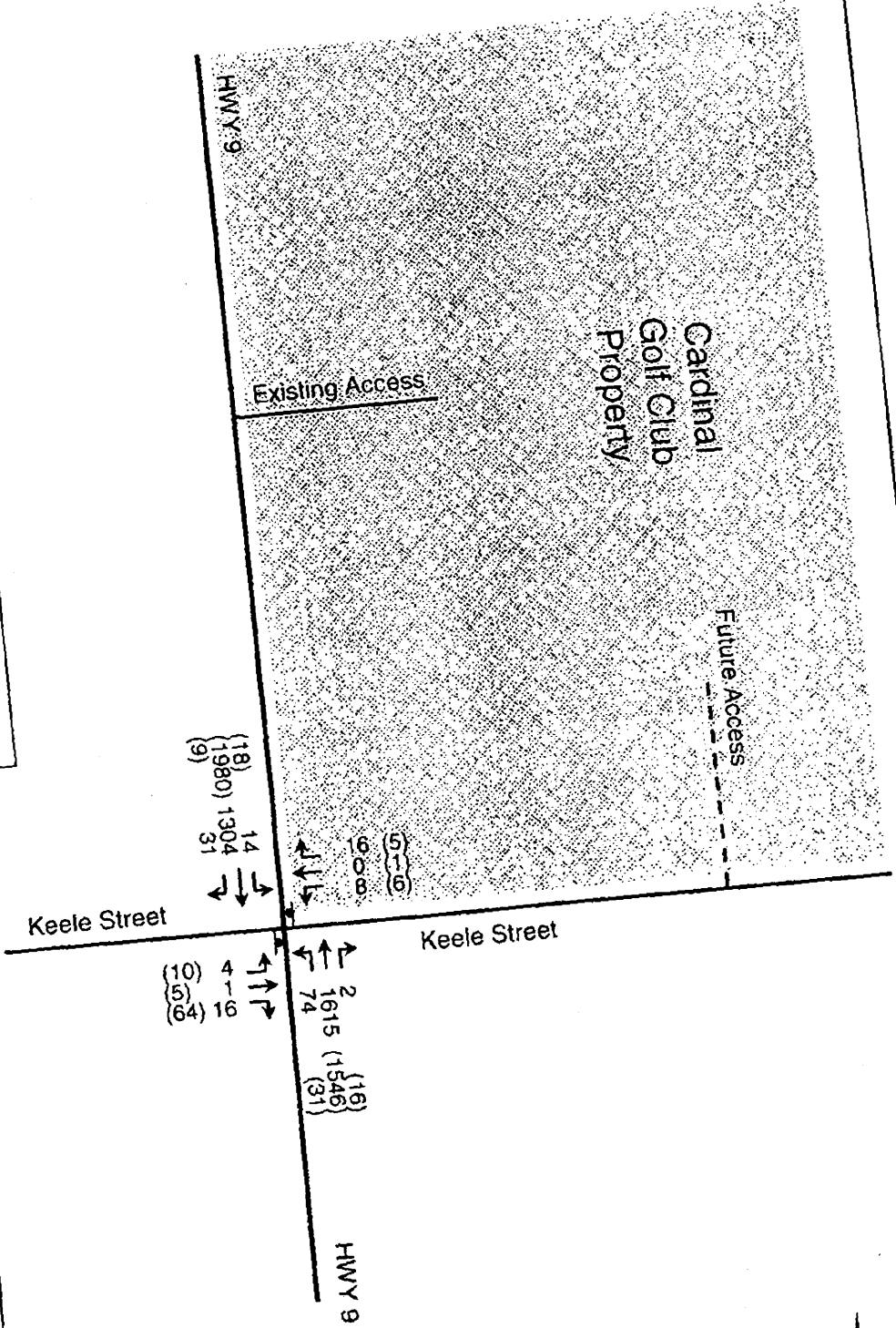
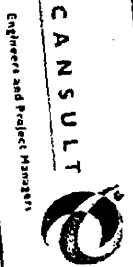


FIGURE No. 2

Not to Scale



3.3 INTERSECTION OPERATING CONDITIONS

Capacity analyses were then carried out under the 2006 baseline condition for the key Highway 9 / Keele Street intersection using Synchro-SimTraffic software (Version 6.14) following the methods and procedures outlined in the *Highway Capacity Manual 2000*.

The results of the analysis are summarized in **Table 1** below. Levels of service (LOS) definitions are contained in **Appendix B**, while detailed capacity analysis worksheets for the existing conditions are contained in **Appendix C**.

Table 1: 2006 Existing Traffic Conditions

Intersections & Critical Movements	AM Peak Hour			PM Peak Hour		
	Delay (sec.)	v/c	LOS	Delay (sec.)	v/c	LOS
Highway 9 @ Keele Street:						
Eastbound Left	10.9	0.02	B	10.6	0.03	B
Westbound Left	10.8	0.12	B	11.1	0.05	B
Northbound Left	>2 min.	0.39	F	>2 min.	>1	F
Northbound Shared Thru/Right	61.8	0.23	F	>2 min.	>1	F
Southbound Left	>2 min.	>1	F	>2 min.	>1	F
Southbound Shared Thru/Right	15.2	0.01	C	>2 min.	0.45	F

LOS = Level of Service; v/c = Volume/Capacity Ratio

As shown in the table, under existing traffic conditions and based on the current lane configurations and two-way stop control on Keele Street, all minor movement left turns and nearly all shared through/right turn movements from Keele Street are operating at unacceptable levels of service F in both AM and PM peak hours. The exception is the southbound shared thru/right, which operates at LOS C in the AM peak hour.

The analysis indicates that northbound and southbound Keele Street movements are experiencing extremely long delays waiting for long enough eastbound / westbound gaps to complete these manoeuvres.

3.4 GAP STUDY RESULTS

In addition to the traffic counts, a gap survey was conducted along Highway 9 during AM and PM peak hours on October 18, 2006. The frequency and length of two-way gaps in

eastbound / westbound Highway 9 traffic were recorded in order to estimate the capacity of left turning vehicles (i.e., to determine the theoretical capacity for left turn movements onto Highway 9).

A summary of the gap survey is attached as **Appendix D**, which shows the calculated 'capacity' of the minor approach left turn movements. Based on *Highway Capacity Manual* criteria, gaps observed during the AM peak hour translate into a minor approach left turn capacity of 18 vehicles while gaps observed during the PM peak hour translate into a capacity of just 5 vehicles.

Based on the observed left turn movements from Keele Street onto Highway 9, during the PM peak hour there were more left turn movements than there is theoretically capacity for. Therefore, drivers are currently accepting gaps which are shorter than theoretically safe to do so, contributing to increased risk and potentially unsafe operations at this intersection.

3.5 COLLISION DATA

In order to determine whether the short gap acceptance behaviour is translating into a documented safety concern, the collision history at the Highway 9/ Keele Street intersection was obtained from the Region of York (for years 1999 to 2005 inclusive) and are summarized in **Table 2** (the full reports are attached as **Appendix E**).

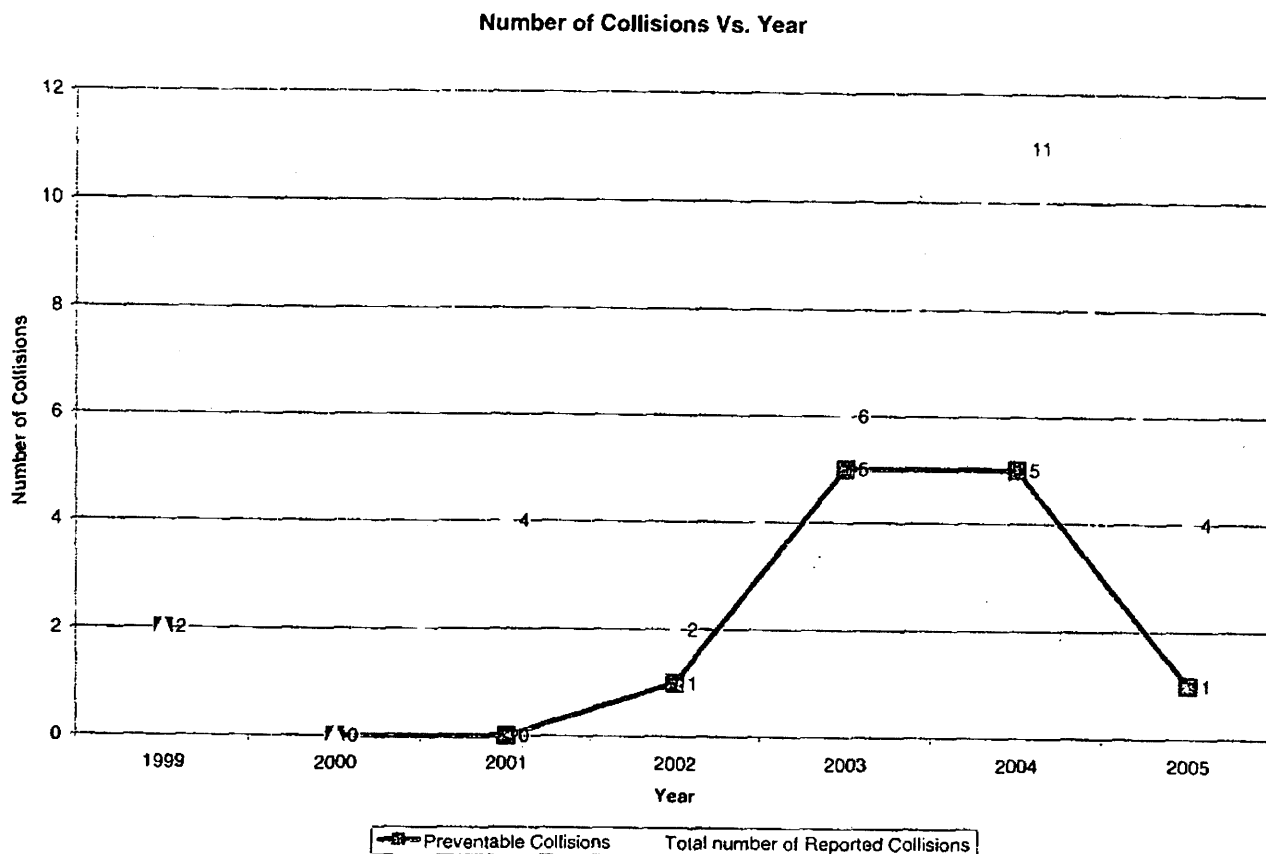
It should be noted that *preventable collisions* are defined by the Ministry of Transportation as those which may be mitigated by the installation of traffic signals (e.g., right angle collisions).

Table 2: Summary of Collision Data

Year	Preventable Collisions	Total number of Reported Collisions
1999	2	2
2000	0	0
2001	0	4
2002	1	2
2003	5	6
2004	5	11
2005	1	4

When plotted graphically, both *preventable* and *total reported collisions* data indicates the number of annual collisions at the Highway 9/ Keele Street intersection is increasing (as illustrated in Figure 3).

Figure 3 – Annual Number of Collisions; 1999 to 2005 Inclusive



When all the data is considered together, the severe delays experienced by drivers making minor turning movements onto Highway 9, the high volume of eastbound / westbound traffic and the associated lack of acceptable traffic gaps in the traffic flow, and the general trend of increasing collisions, it would be prudent for the Region to carefully monitor the traffic growth as well as future collision experience at this intersection to assess the potential for its signalization.

4.0 FUTURE BACKGROUND CONDITIONS

This section will describe the future roadway network, traffic volumes, and operating characteristics for the future horizon year. It is expected that the proposed development will be complete and fully operational in 5 years, thus a future horizon year of 2012 (2007 plus five years) was adopted for the purposes of this study to reflect the maximum traffic volumes expected from the subject development.

4.1 FUTURE ROAD NETWORK UPGRADES

To accurately assess future traffic impacts, it is necessary to identify and consider any significant road improvements in the vicinity of the site that will be completed by the 2012 horizon year.

Based on information obtained from Region of York staff and according to the Region's capital works program there are no major road network upgrades planned within the time horizon of this study that will directly affect the future traffic flows in the immediate study area.

4.2 2012 BACKGROUND TRAFFIC GROWTH

In order to measure impacts on the future roadway network from development of the subject site, estimations of future background traffic volumes must first be made. To assist in this regard, Cansult Limited obtained historic traffic volume data for Highway 9 and Keele Street collected by the Region of York in February of 2000. **Appendix F** contains the historic turning movement survey.

From our review of the historic traffic movement counts Highway 9 traffic volumes have increased at an annual rate of 4.1%. This annual traffic growth rate was therefore adopted and utilized to estimate the future 2012 background traffic volumes.

4.3 EXISTING SITE TRIP GENERATION

Given the nature of the golf course use, which peaks during the summer golfing season, since our traffic counts were conducted in late fall, an adjustment had to be made to

emulate summertime conditions (at the existing golf course) in efforts to adjust the nearby Highway 9 volumes accordingly.

Trip rates provided in the Institute of Transportation Engineer's (ITE) Trip Generation Manual (7th Edition) for a Golf Course Use (Code 430) were used for the purpose. The average rates of trip generation per hole were utilized to derive the trip rates for the existing 54 holes golf course for the typical summertime weekday AM and PM peak hour periods of adjacent street traffic.

Table 3 provides a breakdown of the inbound and outbound trips while details of the trip generation calculations are contained in **Appendix G**.

Table 3: Trip Generation Summary

Land Use	Number of Holes	Estimated Volumes					
		AM			PM		
		In	Out	Total	In	Out	Total
Golf Course (existing)	54	95	25	120	65	83	148

These trips were duly assigned to the abutting road system according to the existing observed golf course traffic distribution then added to the background traffic growth estimates outlined in the previous section.

The resulting 2012 future background peak hour turning movement volumes consisting of the projected background traffic growth and summertime golf course activity are shown in **Figure 4**.

4.4 FUTURE BACKGROUND INTERSECTION OPERATIONS

Level of service calculations for the 2012 future background traffic condition were then performed using the same methodology employed under baseline conditions. The results of the analysis are summarized in **Table 4**. Capacity calculation summary sheets for this 2012 future background 'pre-development' scenario are attached in **Appendix H**.

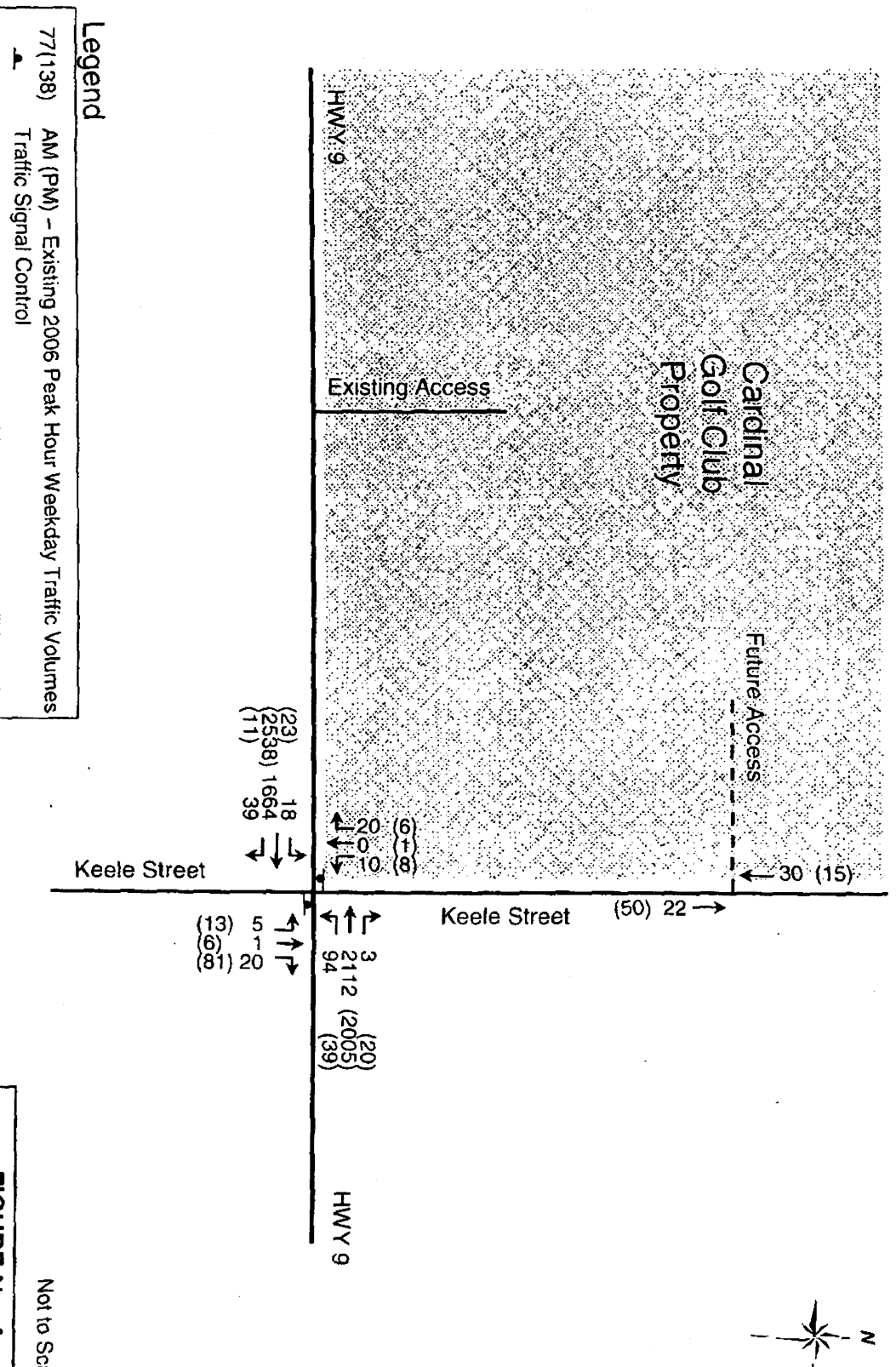


Table 4: 2012 Future Background Peak Hour Traffic Operations (Unsignalized)

Intersections & Critical Movements	AM Peak Hour			PM Peak Hour		
	Delay (sec.)	v/c	LOS	Delay (sec.)	v/c	LOS
Highway 9 @ Keele Street:						
Eastbound Left	11.4	0.03	B	11.1	0.04	B
Westbound Left	11.6	0.16	B	11.5	0.07	B
Northbound Left	>2 min.	>1	F	>2 min.	>1	F
Northbound Shared Thru/Right	>2 min.	>1	F	>2 min.	>1	F
Southbound Left	>2 min.	>1	F	>2 min.	>1	F
Southbound Shared Thru/Right	28.0	0.12	D	>2 min.	>1	F

LOS = Level of Service; v/c = Volume/Capacity Ratio

The intersection of Highway 9 / Keele Street is expected to continue to operate with poor levels of service for stop controlled northbound and southbound movements during both AM and PM peak hour periods under the 2012 total future background pre-site development scenario. The behaviour of drivers accepting unsafe gaps in traffic is likely to continue, in turn contributing to greater risks and further increases in collisions.

4.5 TRAFFIC SIGNAL WARRANTS AND SIGNALIZED INTERSECTION OPERATIONS

Based on the Ministry of Transportation's criteria, the potential signalization of intersection of Highway 9 and Keele Street was reviewed based on the 2012 future background traffic volumes and historic collision data. The results (summarized in Appendix I) are as follows:

- Minimum vehicular volume criteria is only 43% satisfied.
- Delay to cross traffic criteria is only 27% satisfied.
- Overall Accident Experience warrant is not 100% satisfied (although the sectional percentage is nearly 80% satisfied).

As is evident, the 2012 future background traffic volumes do not strictly speaking satisfy the signal warrant. However based on the poor operations, the unsafe gap acceptance behaviour, and the increasing trend of collisions at this location, the Region may want to consider signal control for this intersection to mitigate existing and future safety and operational concerns.

In order to investigate the performance of the Highway 9 / Keele Street intersection assuming signal controls are installed capacity analyses were carried out again using HCM methodology but for *signalized* intersections. The results of the analysis are summarized in **Table 5**. Capacity calculation summary sheets for the 2012 future background traffic with signalization of the Highway 9/ Keele Street intersection are attached in **Appendix I**.

Table 5: 2012 Future Background Peak Hour Traffic Operations (Signalized)

Intersection & Critical Movements	AM Peak Hour			PM Peak Hour		
	Delay (sec.)	v/c	LOS	Delay (sec.)	v/c	LOS
Highway 9 @ Keele St. (overall):	8.8	0.78	A	21.2	0.93	C
Eastbound Left	4.9	0.20	A	7.0	0.38	A
Westbound Left	12.0	0.55	B	33.9	0.69	C
Northbound Left	27.7	0.04	C	46.2	0.07	D
Northbound Shared Thru/Right	27.5	0.02	C	53.6	0.42	D
Southbound Left	28.1	0.10	C	46.1	0.06	D
Southbound Shared Thru/Right	27.9	0.08	C	45.2	0.01	D

LOS = Level of Service; v/c = Volume/Capacity Ratio

As shown in the table, under the 2012 future background pre-site development conditions with signal control all left turns and shared through/right movements in northbound and southbound direction at the intersection of Highway 9 / Keele Street are operating at much improved levels of service C in AM peak hour and levels of service D in PM peak hour. Further, acceptable overall intersection operations can be achieved.

5.0 SITE TRAFFIC SUMMARY

This section will present the estimated number of vehicle trips to be generated by the proposed Golf Club expansion and their distribution and assignment onto the abutting road network.

5.1 PROPOSED SITE TRIP GENERATION

Given the proposed land uses described in Section 2.0, the rates provided in the Institute of Transportation Engineer's (ITE) Trip Generation Manual (7th Edition) for a Golf Course Use (Code 430) were used.

The average rates of trip generation per hole were utilized to derive the trip rates for the proposed 18 hole golf course for the weekday AM and PM peak hour periods of adjacent street traffic.

Table 6 provides a breakdown of the primary and pass-by trips for the site. Details of the trip generation calculations are contained in Appendix G.

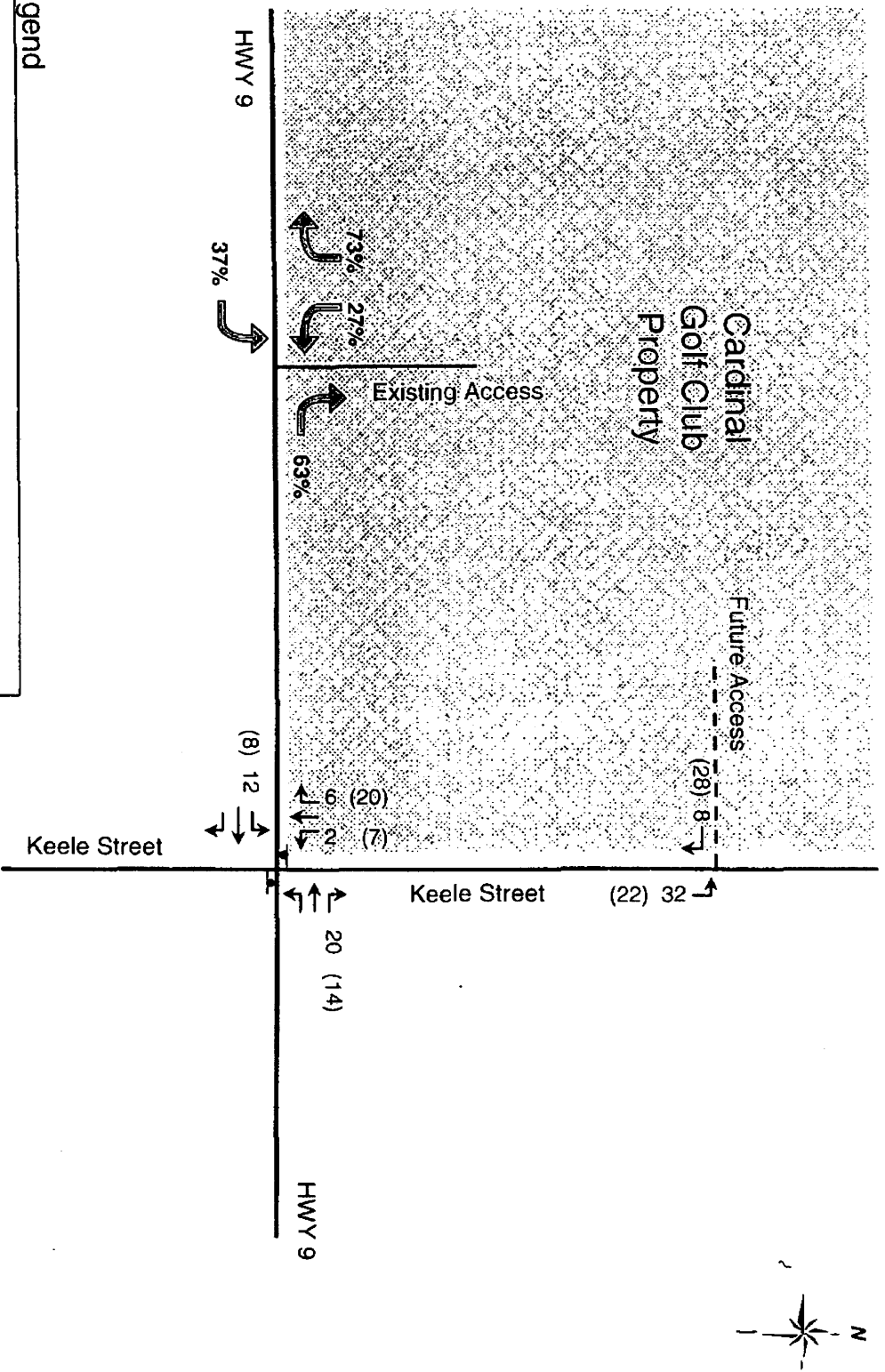
Table 6: Trip Generation Summary

Land Use	Number of Holes	Estimated Volumes					
		AM			PM		
		In	Out	Total	In	Out	Total
Golf Course (future)	18	32	8	40	22	28	49

5.2 TRIP DISTRIBUTION AND ASSIGNMENT

The estimated new trips were then distributed and assigned to the adjacent road network according to the area traffic distribution patterns evident from the 2006 count data at the existing golf course access and Highway 9 / Keele Street intersection, duly considering the proposed new access scheme to Keele Street.

The new site trips generated by the proposed golf club expansion are illustrated on Figure 5. The figure also illustrates the site trip distribution adopted for this exercise.



Legend

77(138) AM (PM) – Existing 2006 Peak Hour Weekday Traffic Volumes
 ▲ Traffic Signal Control

Traffic Impact Study – Cardinal Golf Club Expansion – HWY 9 / Keele Street, York Region
SITE TRAFFIC ASSIGNMENT (AND EXISTING DISTRIBUTION)



FIGURE No. 5

Not to Scale

6.0 TRAFFIC IMPACT ANALYSIS

In this section, site traffic impacts at the key study area intersection are assessed, and the feasibility and peak hour operation of the future subject site access is presented.

6.1 INTERSECTION OPERATING CONDITIONS – UNSIGNALIZED

To assess the overall impact of the proposed development on the adjacent road network, the overall subject site generated traffic (Figure 4) was added to the future 2012 background traffic volumes (Figure 3). The resultant 2012 Total Future Traffic is illustrated in Figure 6. The results from the subsequent capacity analysis are summarized and presented below in Table 7. Capacity calculation worksheets are attached in Appendix J.

Table 7: 2012 Total Future Peak Hour Traffic Operations (UnSignalized)

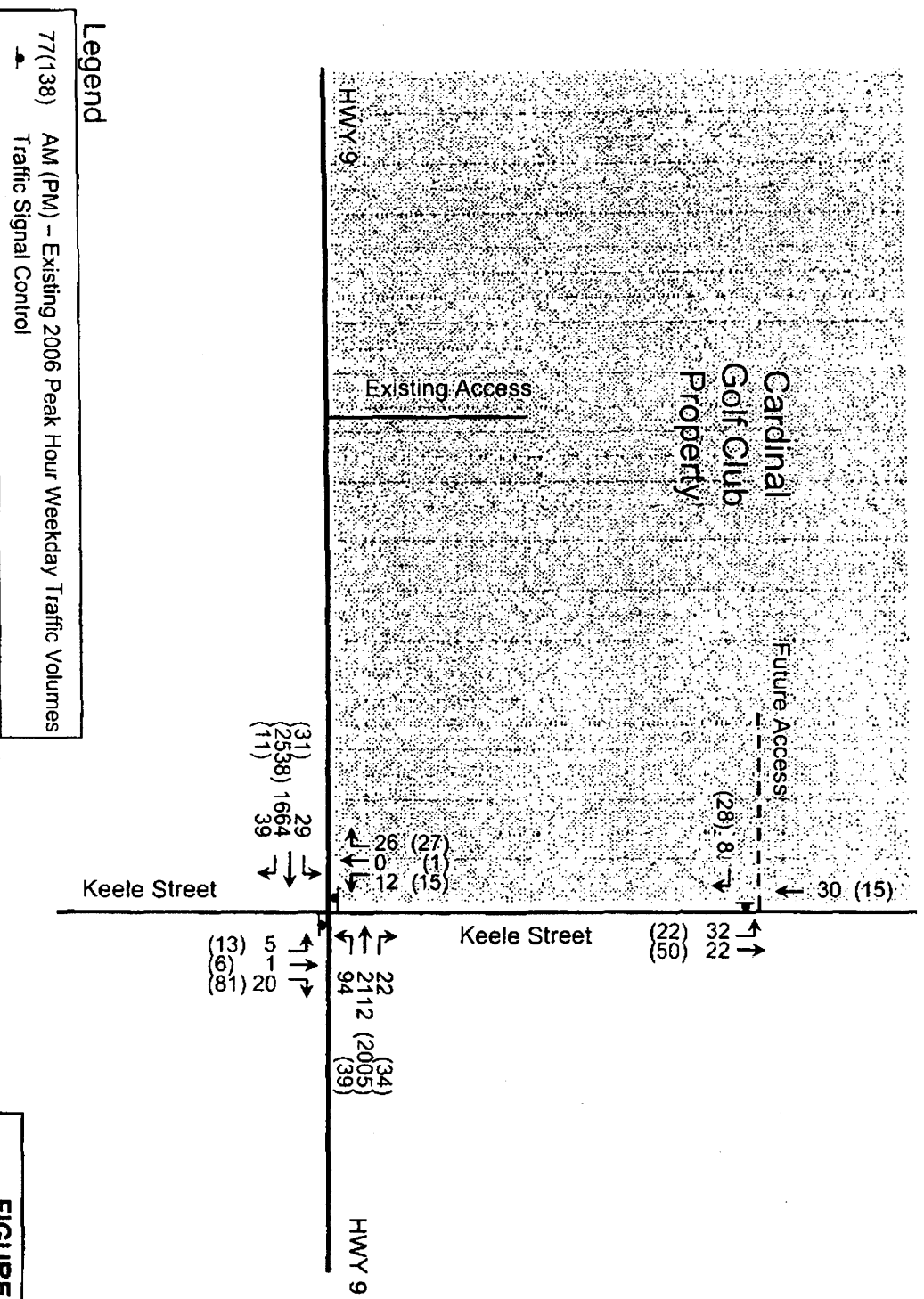
Intersections & Critical Movements	AM Peak Hour			PM Peak Hour		
	Delay (sec.)	v/c	LOS	Delay (sec.)	v/c	LOS
Highway 9 @ Keele Street:						
Eastbound Left	11.6	0.06	B	11.2	0.06	B
Westbound Left	11.6	0.16	B	11.5	0.07	B
Northbound Left	>2 min.	>1	F	>2 min.	>1	F
Northbound Shared Thru/Right	>2 min.	1.0	F	>2 min.	>1	F
Southbound Left	>2 min.	>1	F	>2 min.	>1	F
Southbound Shared Thru/Right	29.0	0.16	D	>2 min.	>1	F

LOS = Level of Service; v/c = Volume/Capacity Ratio

As an unsignalized intersection, Highway 9 / Keele Street is expected to continue to operate at unacceptable levels of service for stop controlled northbound and southbound movements during both AM and PM peak hour periods under the 2012 total future traffic scenario.

6.2 INTERSECTION OPERATING CONDITIONS – SIGNALIZED

Based on total future traffic volumes, signal warrant calculations were conducted for Highway 9 and Keele Street. The results are very similar to the future background condition (calculations are attached in Appendix K) and suggest that signal warrants are still not (strictly speaking) satisfied under 2012 total future conditions.

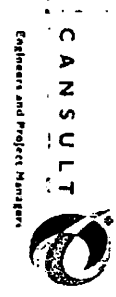


Traffic Impact Study – Cardinal Golf Club Expansion – HWY 9 / Keele Street, York Region

TOTAL FUTURE (2012) TRAFFIC VOLUMES

FIGURE No. 6

Not to Scale



However, as discussed previously the upward trend in collisions at the Highway 9/ Keele Street intersection combined with the poor operations and unsafe gap acceptance behaviour, the Region should consider the installation of traffic signal control at this location.

In order to measure the performance of the Highway 9 / Keele Street intersection after introduction of a potential traffic signal control and after introduction of golf course expansion trips, capacity analyses were carried out using the same methodology employed under signalized future background conditions. The results of the analysis are summarized in **Table 8**.

Capacity calculation summary sheets for this 2012 total future traffic with signalized control are attached in **Appendix K**.

Table 8: 2012 Total Future Peak Hour Traffic Operations (Signalized)

Intersections & Critical Movements	AM Peak Hour			PM Peak Hour		
	Delay (sec.)	v/c	LOS	Delay (sec.)	v/c	LOS
Highway 9 @ Keele Street:	19.9	0.77	B	21.3	0.93	C
Eastbound Left	10.9	0.39	B	9.7	0.50	A
Westbound Left	22.6	0.64	C	33.9	0.69	C
Northbound Left	26.1	0.02	C	46.3	0.07	D
Northbound Shared Thru/Right	26.1	0.02	C	53.6	0.42	D
Southbound Left	26.7	0.06	C	47.1	0.11	D
Southbound Shared Thru/Right	26.6	0.07	C	45.7	0.04	D

LOS = Level of Service; v/c = Volume/Capacity Ratio

As shown in the table, under the 2012 total future traffic conditions and with signal control installed at the intersection of Highway 9 / Keele Street, all left turns and shared through/right movements in northbound and southbound direction on Keele Street will operate at much improved levels of service C in AM peak hour and levels of service D in PM peak hour. Further, the overall operation of the Highway 9/ Keele Street intersection will also be quite acceptable after the introduction of signal control.

6.3 PROPOSED SITE ACCESS OPERATIONS

A capacity analysis was also carried out for the proposed site access to the golf club expansion site on Keele Street. The results of the analysis are summarized in **Table 9**. All movements to and from the future access on Keele Street operate at excellent levels of service A with little peak hour delay.

Capacity calculation summary sheets for the proposed access are attached in **Appendix L**.

Table 9: 2012 Total Future Peak Hour Traffic Operations

Intersections & Critical Movements	AM Peak Hour			PM Peak Hour		
	Delay (sec.)	v/c	LOS	Delay (sec.)	v/c	LOS
Future Access @ Keele Street:						
Eastbound Right	8.5	0.01	A	8.5	0.03	A
Northbound Left	7.3	0.02	A	7.3	0.02	A

LOS = Level of Service; v/c = Volume/Capacity Ratio

7.0 FINDINGS AND CONCLUSIONS

This report has assessed the traffic impacts of the proposed 18-hole expansion to the Cardinal Golf Club development at Highway 9 and Keele Street intersection in the Township of King.

The findings and conclusions of this study are summarized thusly:

- Under baseline 2006 traffic conditions and existing two-way stop control, all left turns and shared through/right movements in northbound and southbound direction on Keele Street are operating at unacceptable levels of service F in both AM and PM peak hours, except southbound shared thru/right, which operates at LOS C in the AM peak hour.
- Based on the results of a gap study, there are drivers accepting shorter gaps in traffic than is safe to do so in order to complete minor approach left turn manoeuvres.
- Collision history obtained from the Region of York (1999 through to 2005) suggests an increasing trend of collisions at the Highway 9 / Keele Street intersection.
- A future background traffic growth rate of 4.1% per annum (based on historic Highway 9 traffic growth) was applied to the baseline volumes for five years to simulate the future background traffic growth to the selected 2012 horizon year. An allowance for summertime activity at the existing golf course was also incorporated into the future background volumes.
- Under these 2012 future background traffic conditions, the intersection of Highway 9 / Keele Street is expected to continue to operate at unacceptable levels of service for stop controlled northbound and southbound movements during both AM and PM peak hour periods. The introduction of signal control significantly improves peak hour operations and would contribute to generally safer operations.

- The proposed 18-hole expansion to the Cardinal Golf Club development will generate 40 two-way trips in the weekday AM peak hour and 49 net two-way trips in the weekday PM peak hour. These trips were assigned to the adjacent street system in accordance with existing golf course traffic distribution.
- After the introduction of new site trips, under 2012 total future traffic conditions the intersection of Highway 9 / Keele Street is expected to continue to operate at unacceptable levels of service for stop controlled northbound and southbound movements during both AM and PM peak hour periods. Again, the introduction of signal control would significantly improve peak hour operations.
- Although calculations indicate that warrants will not strictly speaking be satisfied under the 2012 total future traffic conditions for the intersection of Highway 9 / Keele Street, increasing annual collision experience, severe minor movement delays, and unsafe gap acceptance behaviour all suggest that the Region should consider future signalization of the Highway 9 / Keele Street intersection.

Based on the findings of this traffic assessment, it is recommended that a traffic signal be installed at the intersection of Highway 9 and Keele Street to not only better accommodate existing and future traffic volumes but also to address the existing safety concerns at this intersection.



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Cordon Count Program



- [What is the Cordon Count Program](#)
- [Where are the Cordon Count Lines](#)
- [Map of the Region's Cordon Lines](#)
- [Obtain a copy of the 2001 Report Bulletin](#)
- [Obtain a copy of the 2004 Report Bulletin](#)
- [Obtain a copy of the 2006 Report Bulletin](#)

What is the Cordon Count Program

The Cordon Count Program is a vehicle and person survey that has been conducted in regular bases since 1983. Collecting consistent and accurate classified vehicle information are very important elements in providing traffic statistics. It provides a time series data of a given set of screen-lines; this is done to monitor changes to the travel behavioral pattern characteristics. The Cordon Count Program is traditionally coordinated together with the Toronto, the Regions of Durham, Peel, Halton, as well as GO Transit, TTC and the Ministry of Transportation.

The Cordon Count that was done in 2001 and the subsequent release of a report bulletin is a series of similar studies done for the reasons mentioned above. The Cordon Count Program has over 250 stations scattered along a set number of screen-lines thorough out the region. Screen-lines are imaginary lines that follow natural or man-made features such as roads or railways. A cordon represents areas enclosed by a series of screen-lines.

One-day counts were taken, at each station on weekdays, except Fridays, to provide a traffic passing a specific point. This survey is conducted during the months of May and June, at peak periods between 6:00 am and 7:00 pm across the above mentioned screen-lines. Data of type of vehicles and number of occupants were recorded every 15 minutes. Records of cars and cabs with 1, 2, 3 & 4 or more occupants were kept. Light, medium and heavy trucks were recorded, as well as York Region Transit buses, GO Transit and School buses.

The information collected through conducting regular cordon counts is used to assess transportation developmental activities in areas of rapid growth or the addition of road infrastructure or changes in travel pattern.

An update to the 2001 "full" Cordon Study of only the boundary screenlines and selected highway stations was done in 2004. The next full cordon update is currently underway and will be completed by early summer, with a final report released in the Fall.

Where are the Cordon Count Lines

Traffic counting stations are established at each point where a road or a rail route crosses a screenline. [Click here to see an example of the attached map.](#) Vehicles and persons are counted in each direction in order to classify traffic by vehicle occupancy levels and types of vehicle on roadways.

The **Regional Boundary Cordon Lines** were chosen to monitor both through traffic from York Region and the neighbouring regions. Comparisons have been made regarding progressive change in traffic volumes.

The four internal cordon lines done in 2001 were chosen to reflect major urban and municipal boundaries. The **South York** cordon line generally conforms to the northern boundaries of Markham and the northern limit of urbanization in Richmond Hill. The **East Gwillimbury** records north-south traffic to and from Georgina and East Gwillimbury. The last two cordons are located immediately west of **Highway 404** and along the east side of **Highway 400**, designed to monitor the flow of east-west traffic within the Region.

Three minor screenlines were established in 1998 to monitor short-term changes in the traffic volume. These lines are located immediately west of **Bathurst Street** and **McCowan Road** between Avenue and Major Mackenzie Drive to monitor east-west traffic flows attributed to the Highway 407. The third line in this series is located south of **Ravenshoe Road** dividing East Gwillimbury between Leslie Street and Highway 48. This screenline monitors growth in traffic flows in the northern portion of the region.

Obtain a copy of the bulletin

To obtain the 2001 Cordon Count Bulletin click here. [pdf 375KB]

To obtain the 2004 update bulletin click here [pdf 470KB]

To obtain the 2006 update bulletin click here [pdf 449KB]

To obtain a paper copy of the bulletin or for further information please contact:

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1. HIGHLIGHTS

Since the last full cordon count program in 2001, York Region has continued to experience rapid growth. The Region's population has grown from 759,320 to 929,950 (23%), and employment has risen from 380,800 to 454,900 (20%). This continuous growth requires additional transportation services and infrastructure. The rapid population growth has been partially due to York Region's strategic location directly north of the City of Toronto. Although most of this growth has been concentrated in the southern area municipalities, new development in municipalities to the north – Newmarket, Aurora, Keswick, and the external areas in Barrie and Simcoe County have also had a considerable effect on total traffic increases. This bulletin provides a strategic one day snapshot of traffic into, out of and within the Region.

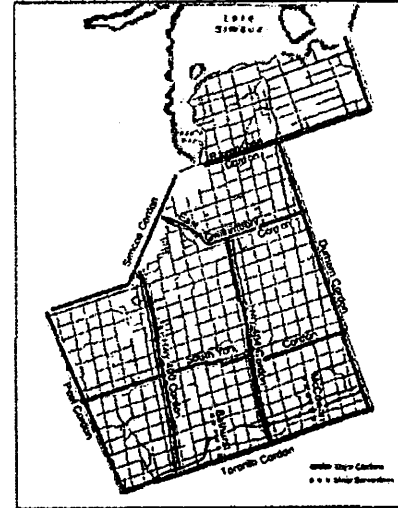


Exhibit 1: 2006 York Region Screenlines

Purpose

Full cordon count surveys are conducted every five years and are timed to coincide with other programs such as the GTA wide Transportation Tomorrow Survey (TTS) and the Federal Statistics Canada Census. A full cordon count was conducted in 2006 with the previous full count conducted in 2001. With York Region's rapid growth, interim monitoring is required more frequently than every five years. The last minor count was conducted in 2004. Collected data is used to assess changes in transit use, vehicle occupancy rates, congestion levels, travel patterns and trends. The purpose of this bulletin is to report on the analysis and findings of the 2006 full cordon count program.

"All day" 12-hour counts (7:00a.m. - 7:00p.m.) were taken during the months of April, May and June, on weekdays (excluding Fridays). The summary tables presented in this report include the peak periods (6:30 a.m. - 9:30 a.m.) and (3:30 p.m. - 6:30 p.m.). Records of the vehicle types and vehicle occupancy numbers were taken at 15-minute intervals. The following vehicle types were noted:

- Passenger cars, cabs and light trucks with 1, 2, 3, 4 and more occupants
- Medium and heavy trucks
- York Region Transit (YRT), VIVA Rapid Transit, Brampton Transit, TTC, GO Transit, school buses and other.

Cordon screenlines (Exhibit 1) are imaginary lines strategically located along natural or man-made barriers to travel, such as rivers or freeways, to assess changes in travel trends. The perimeter screenlines were chosen to monitor inter-regional traffic flow to and from York Region and the adjacent regions.

- **All** the screenlines experienced growth in vehicle trips, some more than others. This growth ranged between 8% along Georgina-East Gwillimbury screenline to 30% across the York - Durham screenline.

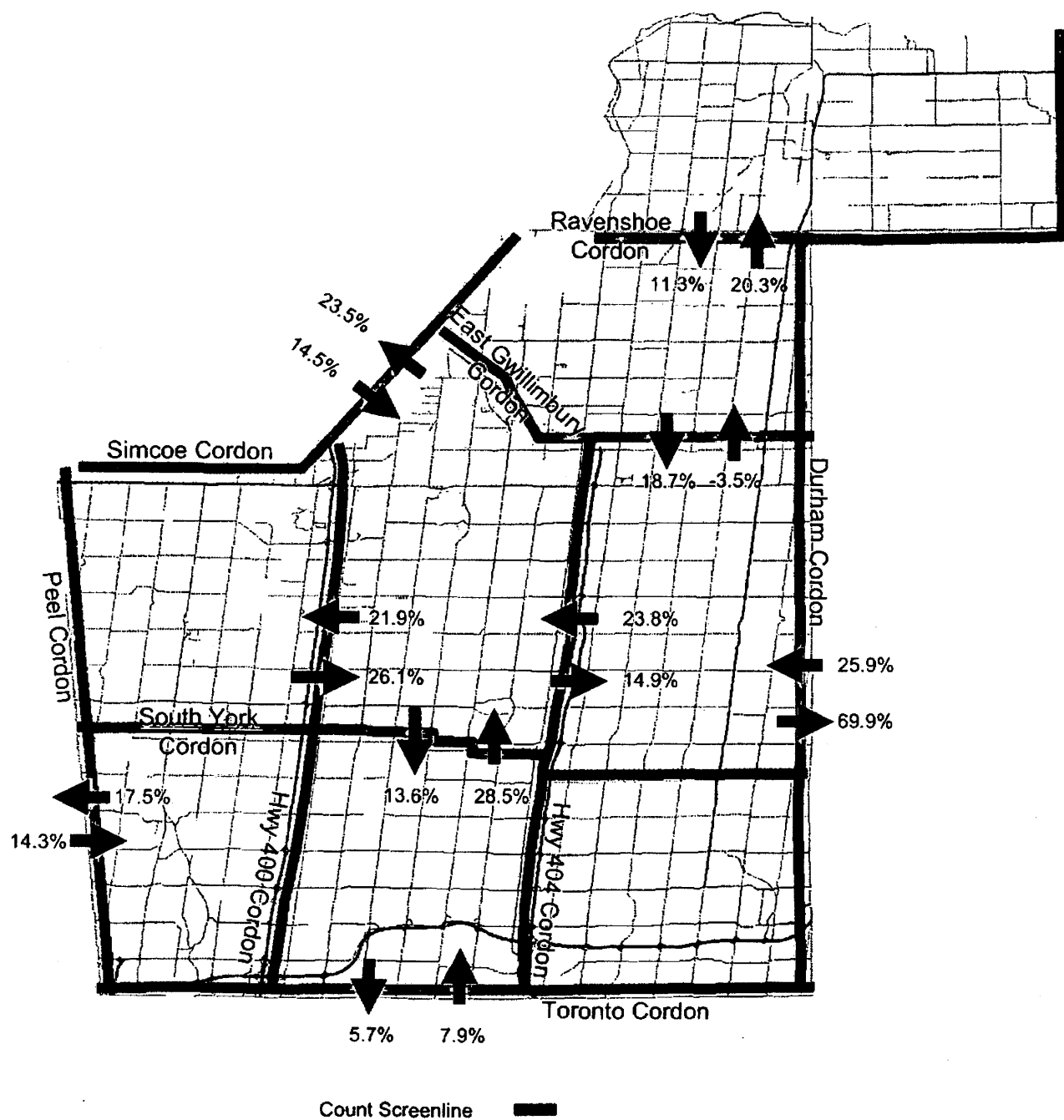
Table 1: 2001 to 2006 Period Volume Change

Cordon	Number of Vehicles		% Change	Number of Vehicles		% Change
	12-Hour Period			AM Peak Period		
	2001	2006		2001	2006	
York-Toronto	910,990	1,012,240	11.1	252,270	269,030	6.6
York-Peel	169,510	192,990	13.9	50,970	58,970	15.7
York-Durham	61,790	80,210	29.8	18,560	25,470	37.2
York-Simcoe	86,200	107,000	24.1	24,070	28,180	17.1
South York	225,540	277,210	22.9	70,410	82,820	17.6
Highway 400	260,190	320,310	23.1	73,960	91,790	24.1
Highway 404	278,700	321,450	15.3	77,050	91,860	19.2
Georgina-East Gwillimbury	61,650	66,450	7.8	16,710	18,750	12.2
Ravenshoe	32,280	36,310	12.5	9,660	10,950	13.4

- **T**ransit ridership increased at the major screenlines at a rate in excess of the very high growth of general traffic with the result that transit ridership gained market share in all areas except Durham and South York. This reverses a declining trend of ten years ago and sets transit forward on a positive note. This increase in the transit usage rate is attributed to the considerable number of local service improvements and new routes since the amalgamation into YRT of all the municipal transit services in 2001, and to the more recent VIVA rapid transit initiatives. The sharp increase in fuel costs from the 2001 price level, and the significant congestion conditions on most of the major roads may also be factors.
- **I**n 2006 the Provincial 400 series highways carry approximately 38% of all traffic into and out of the Region, as was the case in 2001.
- **A**verage car occupancy rates have dropped in most areas, prolonging a worrisome trend. Counts indicate there has been a significant upward trend in transit usage across almost all screenlines except the South York cordon and Durham and Peel boundaries. There have also been number of active attempts to encourage growth in car occupancy rates such as the introduction of carpool initiatives, along with other Smart Commute programs throughout the GTA, but to date they have not yet had an overall noticeable affect.

- **T**able 1 and Exhibit 2 show the changes in traffic volumes across all the screenlines. Peak period traffic continues to increase despite high congestion levels at the York-Toronto boundary. There have been 13,600 new person trips crossing the Toronto boundary in the reverse flow direction during the morning rush period compared to an increase of a total 18,400 southbound morning peak period trips. The reverse flow across the Toronto cordon has increased at a faster rate than peak direction traffic and is a result of all the new employment that has been created in York Region.
- **A**ll day person trips across all screenlines continued to grow between 2001 and 2006. This growth ranged between 5% at Georgina-East Gwillimbury cordon and 31% at the Durham boundary. Highway 407 accounted for 44% of the traffic crossing York-Peel Boundary and 26% of the traffic crossing the York-Durham Boundary.

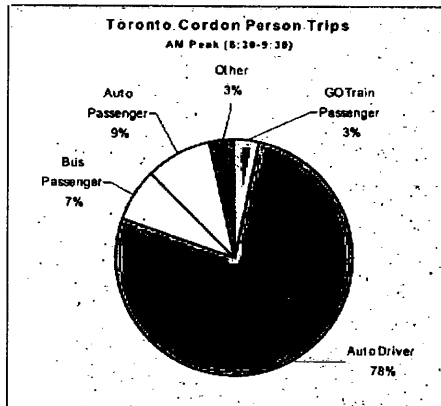
**Exhibit 2: Percent Change in A.M. Peak Period Traffic Flow
between 2001 and 2006**



2. RESULTS AND ANALYSIS OF SCREENLINE COUNTS

2.1. York - Toronto Cordon

The Toronto Cordon runs in an east-west direction along the north side of Steeles Avenue between Highway 50 in the west and York-Durham Line. Counts along this line were conducted in partnership with the City of Toronto, which coordinated counts west of Yonge Street, while York Region and the Town of Markham counted the eastern section.



Toronto Cordon	2001	2006	Change 2001-2006
Total Vehicle trips (12 hour) Two Way	910,990	1,012,240	+11.1%
A.M. Peak 3-hour - NB	105,180	113,500	+7.9%
A.M. Peak 3-hour - SB	147,090	155,530	+5.7%
% Truck Usage (12 hour) Two Way	6%	5%	-1%
Total Person trips (12 hour) Two Way	1,099,770	1,252,640	+13.9%
A.M. Peak 3-hour - NB	123,830	137,430	+11.0%
A.M. Peak 3-hour - SB	177,440	195,830	+10.4%
Average Car Occupancy Two Way	People per vehicle		
A.M. Peak 3-hour	1.12	1.12	No change
P.M. Peak 3-hour	1.18	1.17	-0.01
12 hour	1.16	1.16	No change
Transit Usage Two Way			
A.M. Peak 3-hour	8%	11%	+3%
P.M. Peak 3-hour	6%	9%	+3%
12 hour	5%	7%	+2%

Table 2:
Transit Usage on Selected Roads along the York-Toronto Screenline

Location	% Transit Usage		Difference
	2001	2006	
Yonge Street N of Steeles	34	44	+10%
Bathurst N of Steeles	4	12	+8%
Jane N of Steeles	9	23	+14%
Weston N of Steeles	3	7	+4%
Martin Grove N of Steeles	2	14	+12%
PVD N of Steeles	2	5	+3%
Don Mills N of Steeles	7	11	+4%
Markham N of Steeles	4	5	+1%

The provincial highways carry 36% of the traffic crossing Steeles Avenue during the all day 12-hour period. In the five year period between 2001 and 2006 traffic increased by 11% or 101,250 vehicular trips crossing the boundary in both directions during the 12-hour period, with a growth of 8% in the northbound direction and almost 6% in the southbound, during the AM peak period. Total daily person trips have increased by 14%, which is generally a result of the

increase in population and employment during the same period.

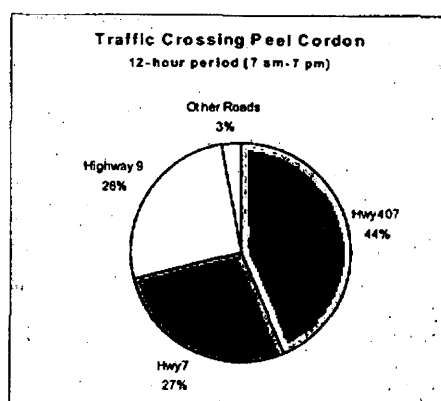
Transit usage (Table 2) has shown a significant increase as well. A jump of 2% in Toronto's cross boundary transit usage has been due to improved YRT services and the introduction of VIVA, the first Bus Rapid Transit System in the GTA, which was launched in September 2005. Car occupancy rates have essentially remained at the same level as in 2001.

In the AM peak period, for every 100 vehicles going south to Toronto, there are 73 vehicles going north to York Region.

2.2. York - Peel Cordon

The Peel cordon is the western boundary of York Region. High traffic growth was basically limited to all the major roads in the south including Highway 407, Highway 7, Langstaff Road, Rutherford Road, Major Mackenzie Drive and King Road. Highway 407 played the major role in the traffic crossing the Peel boundary, carrying 44% of the total all day traffic in 2006.

Although total all day vehicular traffic increased 14%, person trips increased almost 16%. This surge of person trips is reflected in an increase in transit usage of 2%. All day transit usage on Highway 407 increased from 1% to 3% and on Highway 7 increased from 2% to 4%.



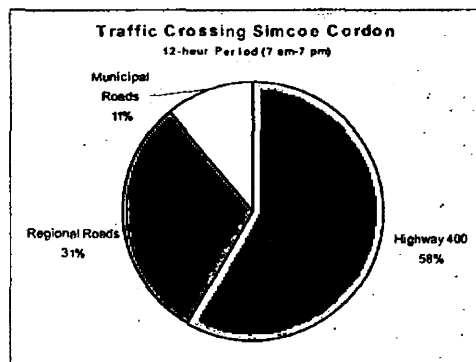
Peel Cordon	2001	2006	Change 2001-2006
Total Vehicle trips (12 hour) Two Way	169,510	192,990	+13.9%
A.M. Peak 3-hour - EB	28,890	33,020	+14.3%
A.M. Peak 3-hour - WB	22,080	25,950	+17.5%
% Truck Usage (12 hour) two way	11%	11%	No change
Total Person trips (12 hour) Two Way	188,520	218,000	+15.6%
A.M. Peak 3-hour - EB	32,580	36,050	+10.7%
A.M. Peak 3-hour - WB	23,820	28,500	+19.6%
Average Car Occupancy Two Way	People per vehicle		
A.M. Peak 3-hour	1.10	1.08	-0.02
P.M. Peak 3-hour	1.11	1.14	+0.03
12 hour	1.11	1.12	+0.01
Transit Usage Two Way			
A.M. Peak 3-hour	2%	3%	+1%
P.M. Peak 3-hour	1%	3%	+2%
12 hour	1%	3%	+2%

2.3. York - Simcoe Cordon

Person trips crossing the York-Simcoe boundary during the 12-hour all day period increased by 22% (about 22,890 person trips). Even though average car occupancy is still the highest at the northern border, the 2006 survey indicates a significant decline in the all day level from 1.19 to 1.16 people per vehicle. When the Region first started the cordon count program in the mid eighties, average car occupancy rates here were over 1.4 people per vehicle.

The percentage of travel by transit shows an increase in the am peak only, while the proportion of all day transit usage has remained at the same level of 5%. Even though all day rates remain the same, this translates into an increase of about 1140 daily riders. Total vehicle trips during the 12-hour period have increased by 24% during the 2001 to 2006 period.

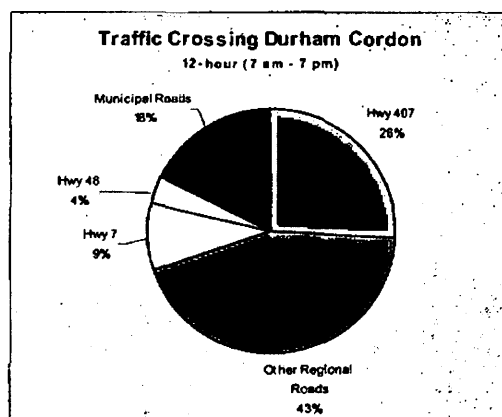
Highway 400 still carries the bulk of vehicular traffic, 58% of the total, followed by Yonge Street carrying 28%, and finally Highway 27 carrying 5%. Truck usage increased by 1% over the same period.



Simcoe Cordon	2001	2006	Change 2001-2006
Total Vehicle trips (12 hour) Two Way	86,200	107,000	+24.1%
A.M. Peak 3-hour - NB	6,940	8,570	+23.5%
A.M. Peak 3-hour - SB	17,130	19,610	+14.5%
% Truck Usage (12 hour) Two Way	7%	8%	+1%
Total Person trips (12 hour) Two Way	105,520	128,410	+21.7%
A.M. Peak 3-hour - NB	8,470	9,620	+13.6%
A.M. Peak 3-hour - SB	19,080	22,520	+18.0%
Average Car Occupancy Two Way	People per vehicle		
A.M. Peak 3-hour	1.11	1.10	-0.01
P.M. Peak 3-hour	1.20	1.17	-0.03
12 hour	1.19	1.16	-0.03
Transit Usage Two Way			
A.M. Peak 3-hour	4%	5%	+1%
P.M. Peak 3-hour	4%	3%	-1%
12 hour	5%	5%	No change

2.4. York - Durham Cordon

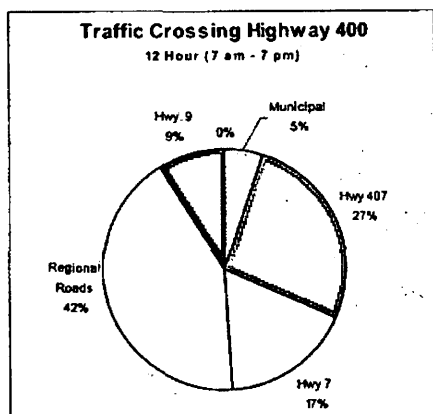
At the York-Durham boundary, there has been a 30% increase in all day traffic. This increase is largely attributed to the extension of Highway 407 into Durham Region. The extension of Highway 407 in 2002 into Durham has now redirected 47% of the commuter traffic from Highway 7 onto the new facility. All day person trips have increased by slightly more than 30% as a result of increases in car occupancy. However, despite an actual increase of almost 500 new transit riders, there was a decline in the overall transit market share (-1%) between 2001 and 2006. Truck traffic remained at the same rate as in 2001 (8%).



Durham Cordon	2001	2006	Change 2001-2006
Total Vehicle trips (12 hour) Two Way	61,790	80,210	+29.8%
A.M. Peak 3-hour - EB	4,790	8,140	+69.9%
A.M. Peak 3-hour - WB	13,770	17,330	+25.9%
% Truck Usage (12 hour) Two Way	8%	8%	No change
Total Person trips (12 hour) Two Way	70,970	92,760	+30.7%
A.M. Peak 3-hour - EB	5,430	9,360	+72.4%
A.M. Peak 3-hour - WB	15,340	18,610	+21.3%
Average Car Occupancy Two Way	People per vehicle		
A.M. Peak 3-hour	1.10	1.09	-0.01
P.M. Peak 3-hour	1.16	1.18	+0.02
12 hour	1.15	1.16	+0.01
Transit Usage Two Way			
A.M. Peak 3-hour	3%	2%	-1%
P.M. Peak 3-hour	2%	1%	-1%
12 hour	2%	1%	-1%

2.5 Highway 400 Cordon

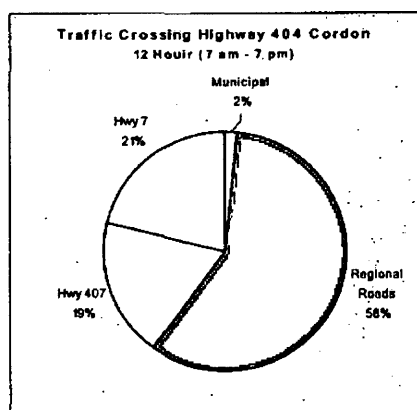
All day traffic crossing the Highway 400 cordon has increased by 23% or 60,120 trips between 2001 and 2006. A major role is now played by Highway 407 which carries 27% of the total 12-hour traffic crossing this screenline. Transit ridership increased by more than the overall growth and consequently increased transit market share by 1%. This may in part explain the drop in average car occupancy values.



Highway 400 Cordon	2001	2006	Change 2001-2006
Total Vehicle trips (12 hour) Two Way	260,190	320,310	+23.1%
A.M. Peak 3-hour - EB	38,760	48,890	+26.1%
A.M. Peak 3-hour - WB	35,200	42,900	+21.9%
% Truck Usage (12 hour) Two Way	9%	8%	-1%
Total Person trips (12 hour) Two Way	305,120	371,360	+21.7%
A.M. Peak 3-hour - EB	44,080	56,010	+27.1%
A.M. Peak 3-hour - WB	39,750	48,060	+20.9%
Average Car Occupancy Two Way	People per vehicle		
A.M. Peak 3-hour	1.11	1.10	-0.01
P.M. Peak 3-hour	1.19	1.15	-0.04
12 hour	1.15	1.13	-0.02
Transit Usage Two Way			
A.M. Peak 3-hour	3%	5%	+2%
P.M. Peak 3-hour	3%	4%	+1%
12 hour	3%	4%	+1%

2.6 Highway 404 Cordon

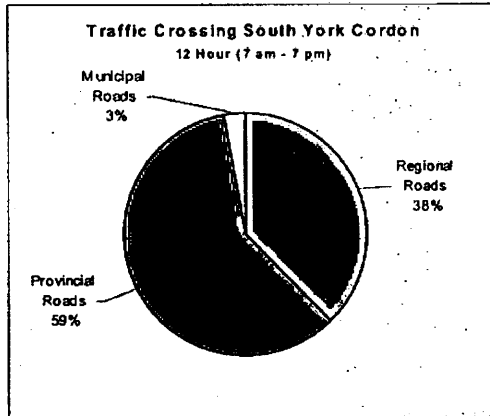
The traffic count conducted at this cordon was compared with results obtained from the 2001 cordon counts. The results show a growth of 15.3% in total vehicle trips during a 12-hour count period. Total person trips increased by 14.3%, while transit usage remained at the same level as in 2001. There was noticeable drop in car occupancy of 0.02% over the same period. Highway 407 carried 18% of the total traffic crossing the screenline and Highway 7 carried 20% of all traffic.



Highway 404 Cordon	2001	2006	Change 2001-2006
Total Vehicle trips (12 hour) Two Way	278,700	321,450	+15.3%
A.M. Peak 3-hour - EB	39,580	45,460	+14.9%
A.M. Peak 3-hour - WB	37,470	46,400	+23.8%
% Truck Usage (12 hour) Two Way	6%	5%	-1%
Total Person trips (12 hour) Two Way	324,830	371,350	14.3%
A.M. Peak 3-hour - EB	46,290	51,870	+12.1%
A.M. Peak 3-hour - WB	43,230	51,620	+19.4%
Average Car Occupancy Two Way	People per vehicle		
A.M. Peak 3-hour	1.13	1.10	-0.03
P.M. Peak 3-hour	1.18	1.15	-0.03
12 hour	1.15	1.13	-0.02
Transit Usage Two Way			
A.M. Peak 3-hour	4%	4%	No change
P.M. Peak 3-hour	3%	3%	No change
12 hour	3%	3%	No change

2.7 South York Cordon

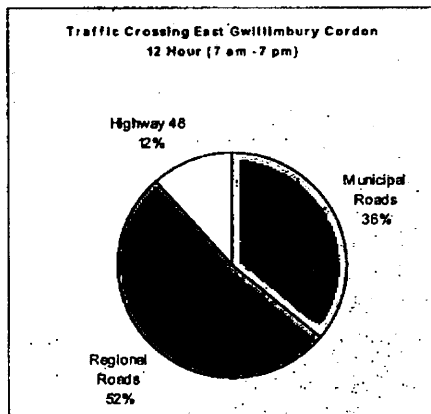
The count at this station was conducted to monitor changes to north-south traffic within York Region. A growth of 22.9% in total vehicles in a 12 hour day between the years 2001 and 2006 was observed. Total person trips increased by 22.3% while there was a decline in transit usage of 1% in the 12 hour period. There was a small increase of 0.01 persons per vehicle over the same period.



South York Cordon	2001	2006	Change 2001-2006
Total Vehicle trips (12 hour) Two Way	225,540	277,210	+22.9%
A.M. Peak 3-hour - NB	19,020	24,440	+28.5%
A.M. Peak 3-hour - SB	51,390	58,380	+13.6%
% Truck Usage (12 hour) Two Way	7%	7%	No change
Total Person trips (12 hour) Two Way	269,830	329,930	+22.3%
A.M. Peak 3-hour - NB	24,270	28,110	+15.8%
A.M. Peak 3-hour - SB	59,570	68,480	+15.0%
Average Car Occupancy Two Way	People per vehicle		
A.M. Peak 3-hour	1.11	1.10	-0.01
P.M. Peak 3-hour	1.13	1.16	+0.03
12 hour	1.13	1.14	+0.01
Transit Usage Two Way			
A.M. Peak 3-hour	8%	7%	-1%
P.M. Peak 3-hour	6%	6%	No change
12 hour	7%	6%	-1%

2.8 Georgina – East Gwillimbury Cordon

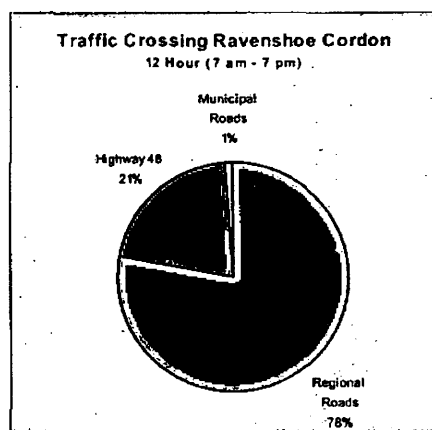
Between 2001 and 2006 there was a 7.8% growth in total vehicles crossing the Georgina – East Gwillimbury cordon line. Most of this traffic was handled on the Regional road system. Person trips increased by only 4.8% - the lowest of all the screenlines surveyed. This was due in large part to development constraints imposed because of limited road system capacity. The lower person trip increase reflects the significant drop in auto occupancy rates across this cordon.



Georgina-East Gwillimbury Cordon	2001	2006	Change 2001-2006
Total Vehicle trips (12 hour) Two Way	61,650	66,450	+7.8
A.M. Peak 3-hour - NB	4,890	4,720	-3.5
A.M. Peak 3-hour - SB	11,820	14,030	+18.7
% Truck Usage (12 hour) Two Way	5%	4%	-1%
Total Person trips (12 hour) Two Way	76,920	80,650	+4.8
A.M. Peak 3-hour - NB	6,080	5,480	-9.9
A.M. Peak 3-hour - SB	15,030	17,400	+15.8
Average Car Occupancy Two Way	People per vehicle		
A.M. Peak 3-hour	1.20	1.12	-0.08
P.M. Peak 3-hour	1.23	1.16	-0.07
12 hour	1.21	1.17	-0.04
Transit Usage Two Way			
A.M. Peak 3-hour	7%	10%	3%
P.M. Peak 3-hour	3%	4%	1%
12 hour	4%	5%	1%

2.9 Ravenshoe Cordon

This is the most northerly screenline in the region. In the period between 2001 and 2006 there was a 12.5% increase in traffic in the 12 hour period. A similar increase of the person trips was noted. There was no change in the proportion of transit and truck usage. There has been a significant drop in average car occupancy rates, particularly in the morning. However, given the northerly location of this Cordon and the 6:30 am count start time, there may be a significant number of early morning carpool commuters that are missed compared to the afternoon period. Nevertheless, carpooling in this corridor is important for both the Region in order to optimize limited transportation capacity, and for commuters who have the opportunity to save on gas costs. Transit ridership increases have kept pace with general traffic growth, but there would appear to be a great opportunity to do more to promote both transit and carpooling before Highway 404 is extended.



Ravenshoe Cordon	2001	2006	%Change 2001-2006
Total Vehicle trips (12 hour) Two Way	32,280	36,310	+12.5%
A.M. Peak 3-hour - NB	2,170	2,610	+20.3%
A.M. Peak 3-hour - SB	7,490	8,340	+11.3%
% Truck Usage (12 hour) Two Way	5%	5%	No change
Total Person trips (12 hour) Two Way	39,060	43,790	+12.1%
A.M. Peak 3-hour - NB	2,470	3010	+21.9%
A.M. Peak 3-hour - SB	8,890	9,450	+6.3%
Average Car Occupancy Two Way	People per vehicle		
A.M. Peak 3-hour	1.16	1.14	-0.02
P.M. Peak 3-hour	1.23	1.21	-0.01
12 hour	1.21	1.20	-0.01
Transit Usage Two Way			
A.M. Peak 3-hour	3%	2%	-1%
P.M. Peak 3-hour	2%	3%	+1%
12 hour	2%	2%	No change

3. TRAVEL CHARACTERISTICS

3.1. 400 SERIES HIGHWAYS

The 400 series Provincial highways system plays a major role in handling car and truck traffic through the Region. The system handles approximately 38% of all traffic entering and leaving the Region.

Highway 407 continues to play a major role in affecting travel patterns in the southern part of York Region. Since the last Cordon Count in 2001, Highway 407 has been extended east from Markham Road to Highway 7 east of Brock Road and now carries 28% of traffic to and from the east. Highway 407 crossing York-Durham Line carries approximately 20,630 vehicles during the 12-hour 7:00 am - 7:00 pm week day period. During the past five years the 407 was also extended west from Highway 410 to the Queen Elizabeth Way. Highway 407 at the York-Peel boundary handled 84,130 vehicles during the 12-hour week day period with an increasing number of trucks.

To the south, the combination of Highways 400, 404 and 427 handle approximately 36% of total traffic crossing to and from Toronto. To the north, Highway 400 handles 58% of total traffic. In all cases the 400 series highways carry the bulk of all heavy truck traffic crossing each boundary.

3.2. AUTO OCCUPANCY

Auto occupancy levels are monitored very closely as minor changes in the average level of car occupancy can have a significant effect on total traffic volume and congestion levels. Twenty years ago counts showed average levels at 1.26 to 1.43 on an all day basis crossing York's boundaries, compared to 1.12 to 1.20 in 2006. The continued decline in auto occupancy has resulted in an increase in traffic between 7.8% and 29.8%, as compared to the 2001 traffic levels. Table 3 summarizes the difference in auto occupancy over the 2001 to 2004 period at each screenline for the 12-hour span and during the a.m. peak and p.m. peak periods. In the five year period between 2001 and 2006, there has been a decline in car occupancy, which can be attributed to the improved transit services and the introduction of VIVA Rapid Transit.

Table 3: Average Auto Occupancy by Screenline

Cordon	Average 12-hour		Difference	Average AM 3-hour		Difference	Average PM 3-hour		Difference
	Auto Occupancy			Auto Occupancy			Auto Occupancy		
	2001	2006		2001	2006		2001	2006	
York-Toronto	1.16	1.16	0	1.12	1.12	0	1.18	1.17	-0.01
York-Peel	1.11	1.12	0.01	1.10	1.08	-0.02	1.11	1.14	0.03
York-Durham	1.15	1.16	0.01	1.10	1.09	-0.01	1.16	1.18	0.02
York-Simcoe	1.19	1.16	-0.03	1.11	1.10	-0.01	1.20	1.17	-0.03
South York	1.13	1.14	0.01	1.11	1.10	-0.01	1.13	1.16	0.03
Highway 400	1.15	1.13	-0.02	1.11	1.10	-0.01	1.19	1.15	-0.04
Highway 404	1.15	1.13	-0.02	1.13	1.10	-0.03	1.18	1.15	-0.03
Georgina-East Gwillimbury	1.21	1.17	-0.04	1.20	1.12	-0.08	1.23	1.16	-0.07
Ravenshoe	1.21	1.20	-0.01	1.16	1.14	-0.02	1.23	1.21	-0.02

3.3. TRUCK TRAFFIC

Truck counts include medium and heavy vehicles only. Commercial cars, vans and pickups are excluded. The large vehicles categorised as trucks have a significant effect on roadway capacity and the structural conditions of regional roads. Although truck traffic has continued to increase in actual volume, the percentage of total traffic that trucks represent has either dropped or remained the same at all the screenlines except at York-Simcoe (Table 4). This means that the actual volume of truck traffic has generally kept up with increases in general traffic.

Table 4: Percent Truck Ratio at Screenlines

Cordon	% Trucks		% Difference
	2001	2006	
York-Toronto	6	5	-1
York-Peel	11	11	No change
York-Durham	8	8	No change
York-Simcoe	7	8	1
South York	7	7	No change
Highway 400	9	8	-1
Highway 404	6	5	-1
Georgina-East Gwillimbury	5	4	-1
Ravenshoe	5	5	No change

Over the last decade there has also been a move to make goods movement and services delivery more efficient. Large trucks have become larger and operate with full loads in both delivery and return directions. Furthermore, medium sized vehicles have often been downgraded and replaced with newer vans or service cars as vehicle fleets are updated, consequently they are no longer counted in the truck category.

3.4. TRANSIT MODAL SHARE

Significant growth in transit ridership continues to occur. Transit usage includes trips on York Region Transit, VIVA, GO Transit, TTC, school and other buses. The greatest increase was at York-Toronto and York-Peel cordon, which showed an increase of 2% during the 12 hour period between 2001 and 2006. These increases in transit usage were even higher at individual transit corridors, which ranged between 1% and 14% as seen in Table 2.

Table 5: Percent Change in Transit Usage

Cordon	Average 12-Hour		% Change	Average AM 3-Hour		% Change	Average PM 3-Hour		% Change
	% Transit Usage	% Transit Usage		% Transit Usage	% Transit Usage		% Transit Usage	% Transit Usage	
	2001	2006		2001	2006		2001	2006	
York-Toronto	5	7	2	8	11	3	6	9	3
York-Peel	1	3	2	2	3	1	1	2	1
York-Durham	2	1	-1	3	2	-1	2	1	-1
York-Simcoe	5	5	0	4	5	1	4	3	-1
South York	7	6	-1	8	7	-1	6	6	0
Highway 400	3	4	1	3	5	2	3	4	1
Highway 404	3	3	0	4	4	0	3	3	0
Georgina-East Gwillimbury	4	5	1	7	10	3	3	4	1
Ravenshoe	2	2	0	3	2	-1	2	3	1

4. FINAL NOTE

The accelerated growth of development in York Region is planned to continue, but there are limited opportunities to increase the road capacity in the built up areas beyond the construction program scheduled for the Region during the next decade. Accommodating continued growth will require an aggressive effort to further measures to reduce travel demand and to increase use of alternative modes such as transit, carpooling, cycling and walking.

In an effort to reduce the impact of this growth, the Region has implemented its bold rapid transit initiative in York Region (VIVA). The first phase of VIVA was launched in September 2005, which shifted a large number of commuter trips per day from cars to public transit. Transit usage on Yonge Street at Steeles Avenue was 44% and on Jane Street at Steeles Avenue 23%. Further transit service improvements will be combined with other initiatives to increase auto occupancy rates, reduce commuting distances and spread travel demand throughout the day. Municipal governments of the Greater Toronto Area and Hamilton Region have embarked on a project to achieve these objectives. The Smart Commute project is delivering transportation demand management programs and services through the Smart Commute Association and local Transportation Management Associations (TMA's). Work has already begun through nine groups; the Smart Commute 404-7 Markham - Richmond Hill, Brampton - Caledon, Central York (Newmarket and Aurora), Durham, Halton, Hamilton, Mississauga, North Toronto - Vaughan and Toronto.



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York Region produces a number of additional brochures and reports on transportation that are available to the public in person or via the York Region web site:

www.york.ca