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TRANSPORTATION ANALYSIS FOR REGIONAL OFFICIAL PLAN AMENDMENT 3 (ROPA 3) IN MARKHAM

The Planning and Economic Development Committee recommends:

- 1. Receipt of the deputation and communication from Stephen D'Agostino, Solicitor, Thomson Rogers, dated January 11, 2012, on behalf of Colebay Investments Inc., Highcove Investments Inc., Firwood Holdings Inc., Major McCowan Developments Limited, and Summerlane Realty Corp.;**
- 2. Receipt of the communication from Ted Nickerson, Senior Project Manager, Malone Givens Parsons Ltd., on behalf of North Markham Landowners' Group, dated January 10, 2012; and**
- 3. Adoption of the recommendations contained in the following report dated December 14, 2011, from the Commissioner of Transportation and Community Planning.**

1. RECOMMENDATIONS

It is recommended that:

1. Council approve the recommendations of the Transportation Analysis for Amendment 3 to the Regional Official Plan.
2. The Transportation Master Plan be updated to include identification of Woodbine Avenue, Warden Avenue and Kennedy Road between Major Mackenzie Drive and the future Donald Cousens Parkway extension with Planned Basic Street widths of "up to 43 metres" and as Regional Transit Priority Network as identified in ROPA 3.
3. The Regional Clerk forward a copy of this report to the Clerks of the local municipalities.

2. PURPOSE

This report informs Council of the findings of the Transportation Analysis for Amendment 3 to the Regional Official Plan (ROPA 3) in Markham and seeks endorsement of the recommendations.

3. BACKGROUND

The 2009 Transportation Master Plan Update was completed as part of an integrated process with the Growth Management Initiative

The Region completed the Growth Management Initiative (GMI) entitled *Planning for Tomorrow* with input from the various infrastructure Master Plans. The Growth Management Initiative culminated in a newly adopted Regional Official Plan (2010). The Growth Management Initiative was undertaken in response to the Provincial Places to Grow Plan that defined the way growth would occur in the Greater Golden Horseshoe Area over the next 25 years.

The Regional Official Plan sets population and employment growth targets for each local municipality. The 2009 Transportation Master Plan (TMP) Update recommends infrastructure needs based on these population and employment growth targets. Accordingly, the recommended road and transit networks, and policies provide input to and are reflected in the Regional Official Plan adopted by Council in December, 2009.

Further changes and refinements to the land use forecasts were made after the 2009 TMP Update was finalized

When the Regional Official Plan was adopted in December 2009, Table 1 of the Official Plan identified the population and employment forecasts to 2031 allocated to each local municipality.

A refined Regional land budget analysis, endorsed by Council in March 2010, resulted from ongoing discussions with local municipalities regarding land supply, the reduction in the total employment numbers to 780,000 and refinement of land take-outs for environmental features and non-developable lands within white belt areas.

York Region introduced the proposed Amendment 3 to the Regional Official Plan (ROPA 3) in May, 2010

The March 2010 land budget report indicated that there was a need for urban expansions in the three white belt communities to meet Growth Plan requirements to 2031. One of these white belt areas is described as the ROPA 3 area endorsed by Council in May, 2010. The introduction of ROPA 3 would allow the expansion of the Urban Area in the Town of Markham to serve urban growth north of Major Mackenzie Drive to the year 2031.

A transportation impact analysis for the ROPA 3 area is required to determine any changes to the 2009 Transportation Master Plan Update

As a result of ROPA 3, the 2009 TMP Update as it applies to the North Markham area requires re-assessment to determine if any changes to the 2009 TMP Update recommendations are needed.

4. ANALYSIS AND OPTIONS

Regional staff completed a transportation analysis for North Markham to assess implications of ROPA 3

Regional staff carried out a transportation analysis to examine the implications of ROPA 3 on the recommended 2031 road and transit network and initiatives as identified in the 2009 TMP Update.

Council Attachment 1 is a technical transportation analysis report that documents the detailed methodologies, analyses and transportation recommendations for ROPA 3. This technical transportation analysis report also includes a comparison of the land use forecasts applied in the 2009 TMP Update and ROPA 3.

The TMP Update and ROPA 3 land use forecasts differ mainly in geographic distribution in North Markham

With the introduction of ROPA 3, population and employment numbers have been redistributed within the Town of Markham north of Major Mackenzie, however, the total land use forecasts for the Town changed slightly. ROPA 3 only modified the extent of the urban expansion and concentrated more growth to the westerly portion of North Markham. The analysis indicates that the differences in total population and employment forecasts for the Town of Markham used in the 2009 Transportation Master Plan Update and ROPA 3 forecast are minor as shown in *Table 1*.

Table 1 below summarizes the population and employment numbers used in the 2009 TMP Update compared with forecasts used in ROPA 3.

Table 1
Land Use Forecast Comparison for Markham

Land Use	Land Use Scenario used in 2009 TMP Update	Markham Forecast used in ROPA 3	Change between 2009 TMP Update and ROPA 3
Population	423,500	421,600	-0.45%
Employment	240,600	240,400	-0.08%

The transportation analysis methodologies and assumptions used for the ROPA 3 analysis are consistent with the approved 2009 Transportation Master Plan Update

The ROPA 3 transportation analysis applied the same methodologies and modelling tools employed in the Region's 2009 TMP Update. Accordingly, all land use scenario sets were tested with the same York Region Travel Demand Forecasting Model. All model run results were evaluated based on the following analytical methods to determine the road and transit network requirements to accommodate the proposed land uses:

- System-wide impact on road network.
- Level of service impact on specific road corridors.
- Transit usage on specific corridors.

These analyses determine whether additional road and transit improvements are required to accommodate the ROPA 3 land use forecasts and if changes to the 2009 TMP Update recommendations are required.

Results indicate that the recommended 2031 road network identified in the TMP Update will be able to accommodate ROPA 3

Analysis of the ROPA 3 population and employment forecasts for North Markham indicates that road network impacts are marginally less than the impacts in the 2009 Master Plan.

This does not lead to changes to the road improvement recommendations for the North Markham area except for increases in Planned Basic Street Widths for transit as discussed below. This confirms that the ROPA 3 approach to urban expansion is efficient in terms of use of road infrastructure resources.

The corridor analysis indicates that there are marginal differences in transit ridership forecasts along all Regional corridors between the two land use sets. However, key corridors such as Woodbine Avenue and Warden Avenue north of Major Mackenzie Drive are shown to have potential transit riderships which support the need for transit priority improvements and connectivity of the transit network.

Transit network enhancement is required on Woodbine Avenue, Warden Avenue and Kennedy Road north of Major Mackenzie Drive to accommodate ROPA 3 in 2031

There are several corridors that have increased in transit ridership potential as a result of ROPA 3. It is recommended that transit priority and access to the North Markham area (e.g., queue jump lanes, transit signal priority and/or HOV lanes) be provided on Woodbine Avenue, Warden Avenue and Kennedy Road north of Major Mackenzie Drive to the Donald Cousens Parkway extension in order to meet future transit service needs and transit connectivity. The transit priority improvement corridors identified will require Planned Basic Street Widths of “up to 43m”. Additional width may be required for localized improvements such as extra turn lanes and sight triangles at intersections to accommodate future traffic demands.

These transit network enhancements are already reflected in ROPA 3 and no further modification to ROPA 3 is needed.

Link to Key Council-approved Plans

This report supports the 2011 to 2015 Strategic Plan in the following priority area:

- Continue to deliver and sustain critical infrastructure.

This report also supports the following relationship to Vision 2026:

- Infrastructure for a Growing Region. In 2026, York Region will have effective, efficient and environmentally sensitive transportation system

The results also support the York Region Official Plan - 2010 policies regarding transit priority and providing convenient and accessible transit service to all residents and workers in York Region.

5. FINANCIAL IMPLICATIONS

This report does not have direct financial implications. Road network improvements in the North Markham area have been identified and costs estimated as part of the 2009 TMP Update. However, in order to provide additional transit priority to accommodate ROPA 3 enhancements along Woodbine Avenue, Warden Avenue and Kennedy Road north of Major Mackenzie Drive, the next version of the TMP Update should account for the financial implications in the area.

6. LOCAL MUNICIPAL IMPACT

As development applications and planning activity in the North Markham area increase, York Region staff will work with the Town staff to develop and coordinate conditions for development approvals consistent with the Regional OP. Landowners/applicants will be required to submit comprehensive transportation impact assessments, as well as detailed phasing plans to address transportation needs in the ROPA 3 area.

7. CONCLUSION

From the transportation analysis conducted for ROPA 3 in comparison to the findings of the 2009 Transportation Master Plan Update, the transportation performance indicators suggest that the 2031 recommended road and transit network identified in the Transportation Master Plan Update will be able to accommodate the ROPA 3 population and employment forecasts.

However, changes to the Transportation Master Plan Update (2009) are required to include identification of Woodbine Avenue, Warden Avenue and Kennedy Road between Major Mackenzie Drive and the future Donald Cousens Parkway extension with Planned Basic Street widths of "up to 43 metres" and as part of the Regional Transit Priority Network as identified in ROPA 3.

The transit priority improvements (e.g., queue jump lanes, transit signal priority and/or HOV lanes) will require Planned Basic Street Widths of "up to 43m" in order to improve transit service and network connectivity

Future comprehensive updates to the Transportation Master Plan will reflect and account for the transit priority improvements. Localized transportation improvements in the ROPA 3 area will be determined as part of the development review process and, where necessary, will be secured through the conditions of development approval.

Staff recommends that Council approve the transportation analysis for ROPA 3 and the above noted changes to the Transportation Master Plan Update (2009).

For more information on this report, please contact Loy Cheah, Director, Infrastructure Planning at 905-830-4444, Ext. 5024 or John B. Waller, M.C.I.P., R.P.P. Director Long Range and Strategic Planning at 905-830-4444, Ext 1525.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause is attached to this report.)

THOMSON ROGERS

LAWYERS

Stephen D'Agostino
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January 11, 2012

VIA E-MAIL & REGULAR MAIL

Chair & Members of the Planning and
Economic Development Committee
Region of York
17250 Yonge Street
Newmarket, Ontario
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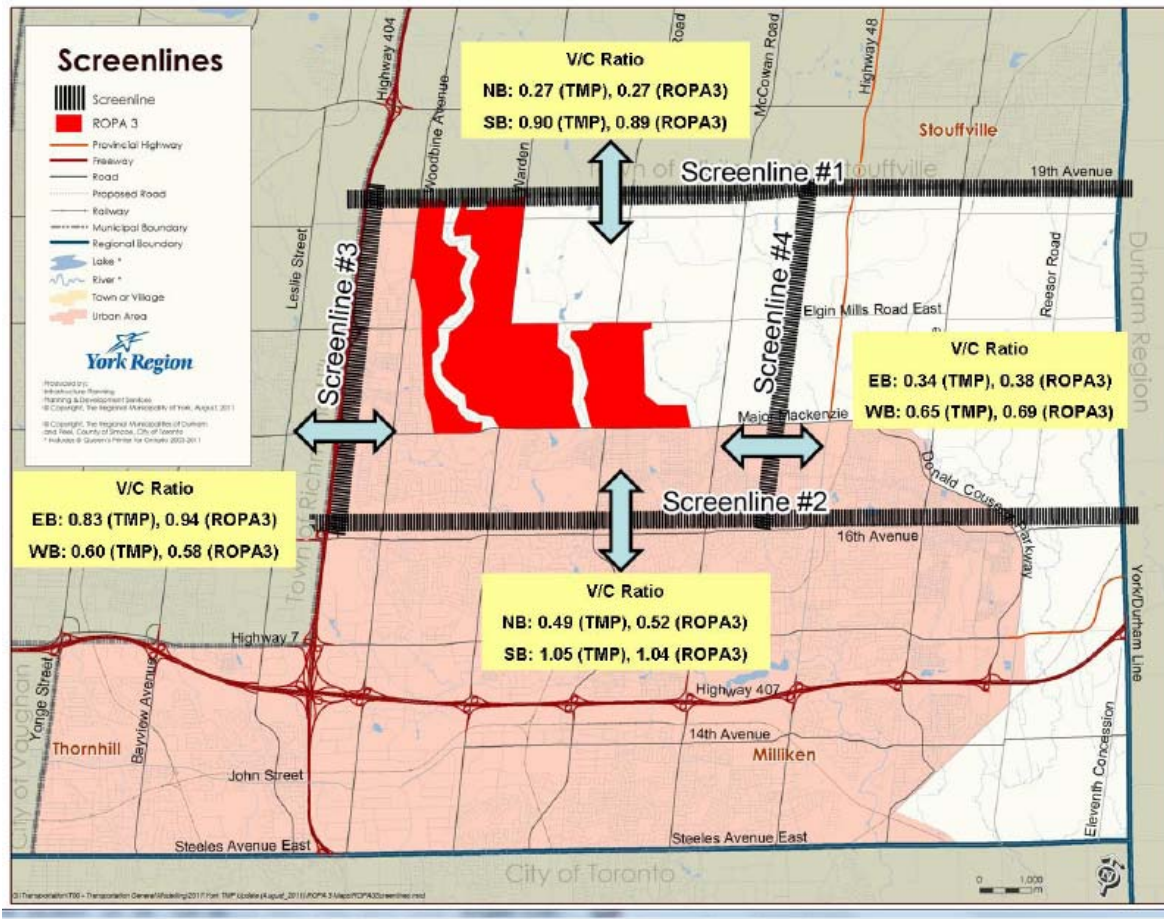
Dear Sirs/Mesdames:

January 11, 2012 Planning and Economic Development Committee Meeting
Item 7 – Transportation Analysis for Regional Official Plan
Amendment 3 in Markham
Our File No. 050917

We are counsel for Colebay Investments Inc., Highcove Investments Inc., Firwood Holdings Inc. Major McCowan Developments Limited and Summerlane Realty Corp. ("Trinison") who own land in North Markham within the study area identified in the above-captioned Transportation Analysis for ROPA 3 ("Transportation Analysis").

Trinison's land is located in the concession bordered by Major MacKenzie Drive, Elgin Mills Road East, McCowan Road and HWY 48. We note from the Transportation Analysis that Trinison's land was previously considered to have significant development potential in the Region's 2009 Transportation Master Plan Update. ROPA 3, in its current form removes that potential. We also note that the Transportation Analysis has been undertaken assuming that ROPA 3 will be approved by the Ontario Municipal Board without amendment. As committee may be aware, ROPA 3 is subject to numerous appeals which may affect the configuration and densities within the ROPA 3 area. For this reason alone, we believe that consideration of the Transportation Analysis is premature at this time.

In addition, we believe that the Transportation Analysis fails to address important opportunities related to the utilization of existing road capacity and satisfying the Region's "transit first" objective particularly as it affects the utilization of the Mount Joy GO Station.



For example, Figure 9 in the Transportation Analysis (above) demonstrates that the road capacity across screen line 2 is insufficient during the morning peak hour. That screen line's calculation is based on the traffic capacity available on all north/south freeway and arterial roads extending from HWY 404 to the York/Durham line. Because the current configuration of ROPA 3 concentrates development in the north-west sector of Markham, north of Major MacKenzie Drive, this will exacerbate the capacity constraint and inevitably impose heavy traffic loads on roads such as HWY 404, Woodbine Avenue, Warden Avenue and Kennedy Road that are already congested and already beyond capacity and negatively impact communities to the south. On the other hand, there will be an under utilization of available capacity on such roadways as 9th Line and the Donald Cousins Parkway, which continue to be expanded and funded by the Region notwithstanding that ROPA 3 will not permit development that will utilize them.

It is a well documented fact that over 80% of transportation employment travel by Markham residents is to the City of Toronto. GO Rail Service carries the largest part of this transit travel and the north-east sector of Markham is well serviced by the Stouffville GO line.

From a road capacity standpoint and satisfying the Region's "transit first" objective, we would have expected the Transportation Analysis to identify the need for a greater priority for phased development of land in north-east Markham compared to north-west Markham. By failing to consider this alternative, the Transportation Analysis fails to identify opportunities to maximize the east-west connection along Major MacKenzie Drive to take advantage of Mount Joy GO Station. The Transportation Analysis does not consider such an option notwithstanding that it will be a consideration as a result of the appeals to ROPA 3.

As a result of the foregoing, we suggest that the Transportation Analysis ought to be deferred until such time as the land-use issues related to ROPA 3 have been determined and opportunities to realize the Region's objectives from a road capacity stand point and transit first point of view have been realized. Trinison stands ready to work with Regional Staff to meet these objectives.

We will be present to answer any questions Committee may have with respect to this matter.

Yours very truly,

A handwritten signature in dark ink, appearing to read "S. D'Agostino". The signature is fluid and cursive, with the first name "Stephen" and last name "D'Agostino" clearly distinguishable.

Stephen J. D'Agostino
Stephen Joseph D'Agostino Law Professional Corporation

SJD/pgf



Via email to Ghislaine Boulianne, York Region
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January 10, 2012

The Regional Municipality of York
17250 Yonge Street
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Attention: Denis Kelly,
Regional Clerk

Re: Planning and Economic Development Committee
January 11, 2012 Agenda Item:
Transportation Analysis for Regional Official Plan Amendment 3 (ROPA 3) in
Markham

Dear Mr. Kelly,

The North Markham Landowners' Group (NMLG) is a group of developers and interested landowners that own or control approximately 860 hectares in North Markham in an area bounded by Major Mackenzie Drive to the south, the Markham municipal boundary to the north, Woodbine Avenue on the west and 9th Line on the east. Their holdings represent approximately 21 percent of the total area commonly referred to as the Markham Whitebelt.

Malone Given Parsons, on behalf of the North Markham Landowners Group, does not support the recommendation of the York Region *Transportation Analysis for Regional Official Plan Amendment 3* report to increase the Planned Basic street widths for Woodbine Avenue, Warden Avenue and Kennedy Road north of Major Mackenzie Drive to "up to 43 metres".

As a reflection of increased transit ridership potential, the report recommends that transit priority and access (e.g. queue jump lanes, transit signal priority and/or HOV lanes) be provided on these Regional roads. We support the intent of the report to address improved transit but do not agree that the rights-of-way on these roads need to be increased from "up to 36 metres" to "up to 43 metres" in order to accommodate those three transit enhancements. All can be achieved within the currently-designated 36 metre right-of-way.

The Group's transportation consultant, MMM Group, advises that:

- Queue jump lanes can readily be accommodated within a 36 metre right-of-way;
- Transit signal priority is a transit technology solution and requires no additional land; and
- HOV lanes are included within the Region's currently-adopted 36 metre, 6 lane Regional road cross-sections. Again, no increased right-of-way is required to implement the dedicated HOV lane enhancement.

As an example, attached is *Figure 7.8*, from *Chapter 7 – "Development of Cross Sections"* from the report *Towards Great Regional Streets for the Region of York* showing a 6-lane cross section that includes HOV, general traffic and bicycle lanes, all within a 36 metre right-of-way. In addition, *Figure 9.6* shows how queue jumps lanes can be accommodated at an intersection without compromising 6 traffic lanes and in a 36 metre cross-section.

Lastly, the North Markham Landowners Group has appealed York Region ROPA 3. One issue within that appeal is the amendment to re-designate the Woodbine Avenue, Warden Avenue and Kennedy Road rights-of-way from "up to 36 metres" to "up to 43 metres". The appeal process has not progressed to the stage where this issue has been discussed. A decision by the Planning and Economic Development Committee on the report's recommendation to increase the rights-of-way "up to 43 metres" on these regional roads might therefore be premature.

We request that the Planning and Economic Development Committee not ask Council to approve the report's recommendation to increase the rights-of-way for Woodbine Avenue, Warden Avenue and Kennedy Road from "up to 36 metres" to "up to 43 metres", nor approve the recommendation to update the Transportation Master Plan to reflect the increased rights-of-way on these regional roads.

We are available at your convenience to discuss our comments with York Region staff.

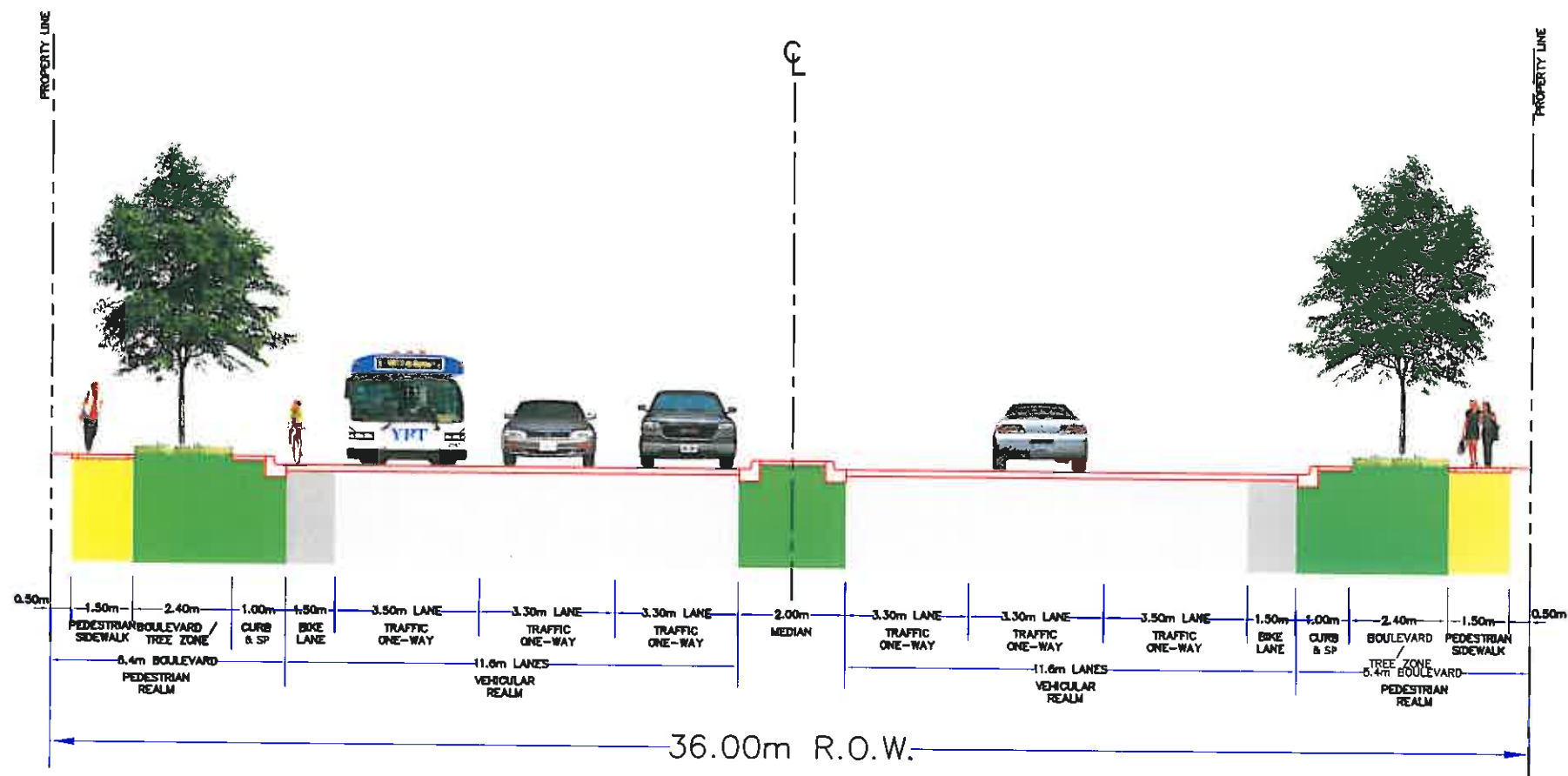
Sincerely,
MALONE GIVEN PARSONS LTD.



Ted Nickerson
Senior Project Manager

Cc.
North Markham Landowners' Group
Don Given, *Malone Given Parsons Ltd.*
N. Jane Pepino, *Aird & Berlis LLP*
Patricia Foran, *Aird & Berlis LLP*
David Richardson, *MMM Group*

Attachment:
Towards Great Regional Streets for the Region of York: Figure 7-9
Towards Great Regional Streets for the Region of York: Figure 9-6





Transportation Analysis for Amendment 3
to the Regional Official Plan (ROPA 3)

December 2011

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this report is to examine the transportation implications of Amendment 3 to the Regional Official Plan (ROPA 3) on the recommended 2031 road and transit network and initiatives as identified in York Region's 2009 Transportation Master Plan Update (TMP).

The Region's 2009 TMP Update was finalized in November 2009, and applied adopted land use forecasts at that time for north Markham which had a large geographical growth area than the ROP 3 area. Subsequent to the 2009 TMP Update finalization, ROPA 3 was adopted and refinements to land use forecasts were made to address the Ministry of Municipal Affairs and Housing's and Town of Markham's comments. As a result, the 2009 TMP Update as it applies to the north Markham area is re-assessed here to determine if any changes to the 2009 TMP Update are required.

1.2 ROPA 3 Background

Places to Grow, The Growth Plan for the Greater Golden Horseshoe, requires that Regional population and employment forecasts prescribed through Schedule 3 of the Growth Plan be allocated to local municipalities. Further, the Growth Plan requires comprehensive municipal reviews and land budget analyses to justify urban expansions.

The Regional population and employment forecasts and land budget were received and endorsed by Regional Council in January 2009 and population and employment forecasts were confirmed when the Draft York Regional Official Plan was released for public review and comment in June 2009.

The updated York Region Official Plan was adopted in December 2009 with Table 1 to the Official Plan identifying the population and employment forecasts to 2031 allocated to local municipalities.

A refined Regional land budget analysis, endorsed by Regional Council in March 2010, resulted from ongoing discussions with local municipalities regarding land supply, the reduction in the total employment numbers to 780,000 and refinement of land take-outs for environmental features and non-developable lands within white belt areas.

The land budget analysis has indicated that additional urban land designations are required in the white belt lands in the Towns of East Gwillimbury, Markham and City of Vaughan to meet the 2031 growth forecasts. The white belt area in the Town of

Markham is described as the ROPA 3 area endorsed by Regional Council in May, 2010.

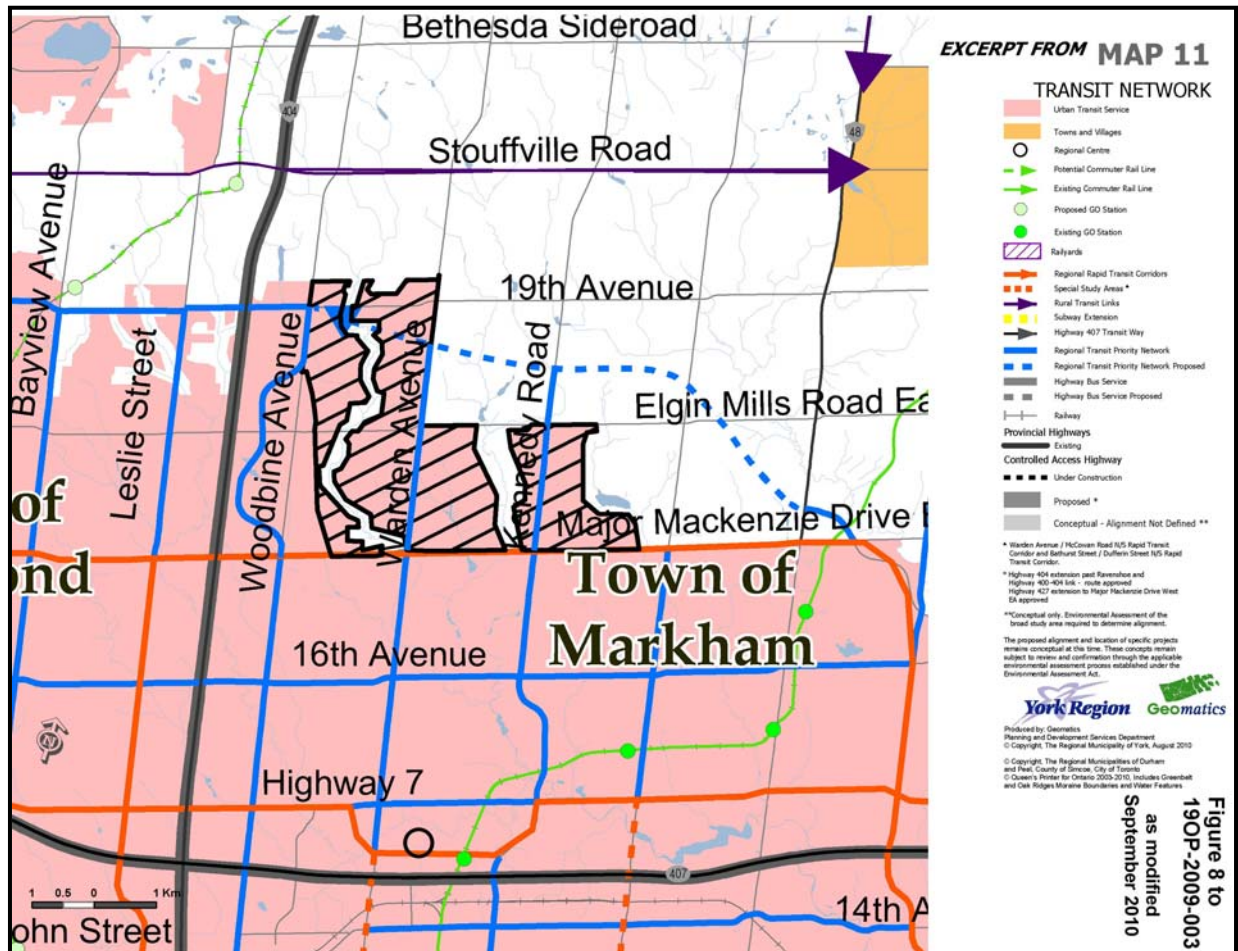
This Proposed Amendment provides for identification of an urban expansion area in the Town of Markham consistent with the Growth Management work undertaken by the Region.

There is one specific modification (Modification #9) in the Proposed Amendment related to Map 11 of the Official Plan (2010). This modification states that:

- 9. That Map 11 Transit Network as shown on Figure 8 following is amended by:*
- (a) designating the lands outlined in black and coloured pink within the Town of Markham as Urban Area;*
 - (b) designating the Woodbine Avenue Bypass between Major Mackenzie Drive East and 19th Avenue, as “Regional Transit Priority Network”;*
 - (c) designating Warden Avenue between Major Mackenzie Drive East and the proposed Donald Cousens Parkway right-of-way as “Regional Transit Priority Network”, and*
 - (d) designating Kennedy Road between Major Mackenzie Drive East and the proposed Donald Cousens Parkway right-of-way as “Regional Transit Priority Network”.*

Figure 1 illustrates the noted modifications to Map 11 of the Official Plan (2010). This figure is shown as Figure 8 in the ROPA 3 notice of adoption.

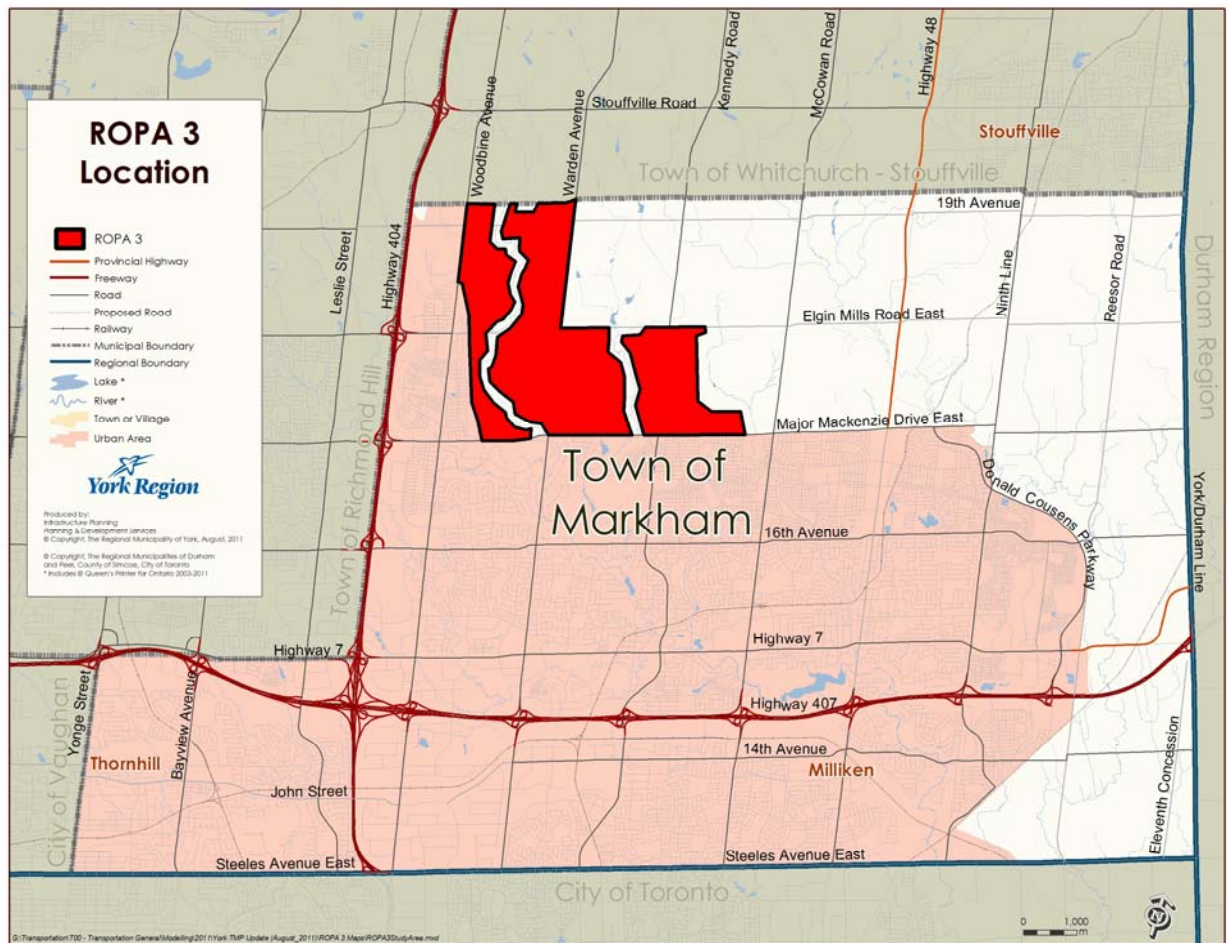
Figure 1 – ROPA 3 Modifications



1.3 ROPA 3 Area Boundary

This urban expansion is located within the Town of Markham as illustrated in **Figure 2**, which is bounded by Major Mackenzie Drive to the south, Markham/Stouffville boundary to the north, Woodbine Avenue to the west, and McCowan Road to the east.

Figure 2 – ROPA 3 Area Boundary



2.0 COMPARISON OF LAND USE SCENARIOS

2.1 Official Plan Update Land Use Allocation

The updated York Region Official Plan was adopted in December 2009 and approved by the Ministry of Municipal Affairs and Housing subject to modification in September 2010. The Plan is currently under appeal. Table 1 of the Regional Official Plan (2010) identified the allocated population and employment forecasts to 2031 for the Town of Markham and other local municipalities in York Region. With the introduction of ROPA 3, population and employment numbers have been redistributed for the Town of Markham north of Major Mackenzie, however, the assigned total for the allocated land use forecasts remained unchanged for the entire Town of Markham. ROPA 3 modified the extent of the urban expansion and concentrated more growth to the westerly portion of Markham, north of Major Mackenzie Drive.

2.2 Land Use Comparison

The analysis indicates that the differences in the total population and employment forecasts for the Town of Markham used in the 2009 Transportation Master Plan Update and the redistributed ROPA 3 forecast are negligible.

Table 1 below summarizes the population and employment numbers used in the 2009 TMP Update and redistributed ROPA 3.

Table 1 - Land Use Forecast Comparison for Markham

Land Use	Land Use Scenario used in 2009 TMP Update	Markham Forecast used in ROPA 3	Change between 2009 TMP Update and ROPA 3
Population	423,500	421,600	-0.45%
Employment	240,600	240,400	-0.08%

2.3 Redistributed Population and Employment Forecast for ROPA 3

As indicated, ROPA 3 modified the extent of the urban expansion and concentrated more growth to the westerly portion of Markham, north of Major Mackenzie Drive.

Figure 3 illustrates the differences in the population, while **Figure 4** illustrates the differences in employment forecasts between the 2009 TMP Update and the redistributed ROPA 3 in the north Markham area.

Figure 3 - 2031 Population Forecast Comparison for TMP and ROPA 3 Area

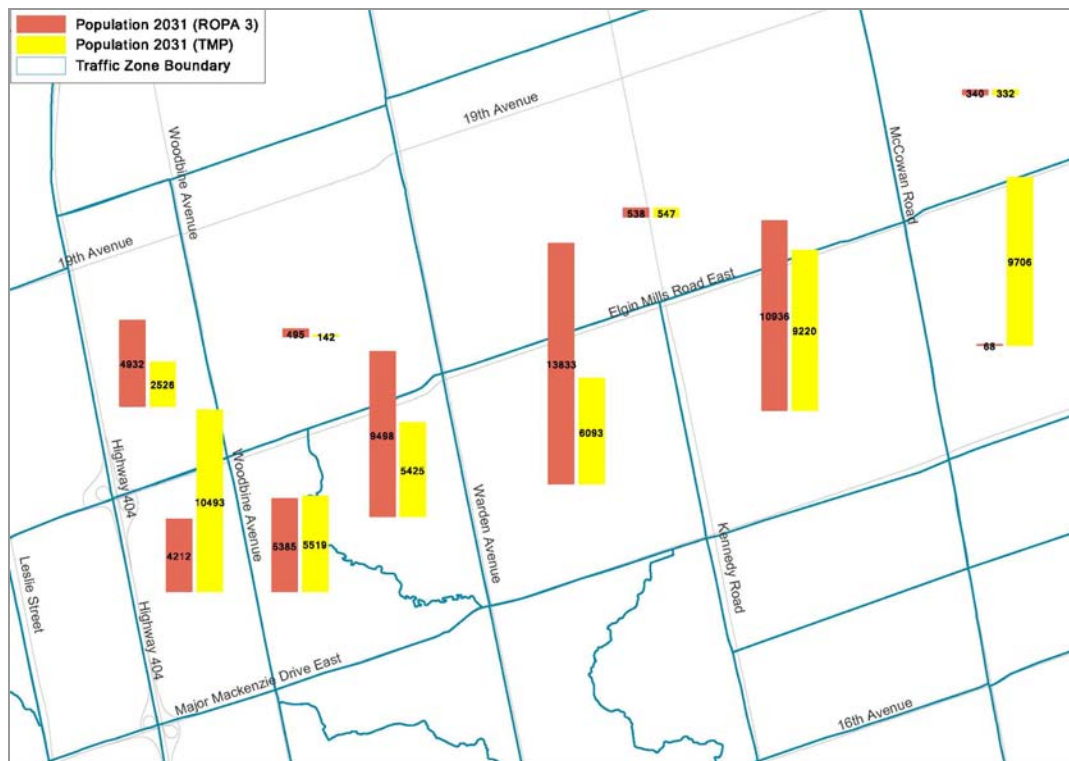
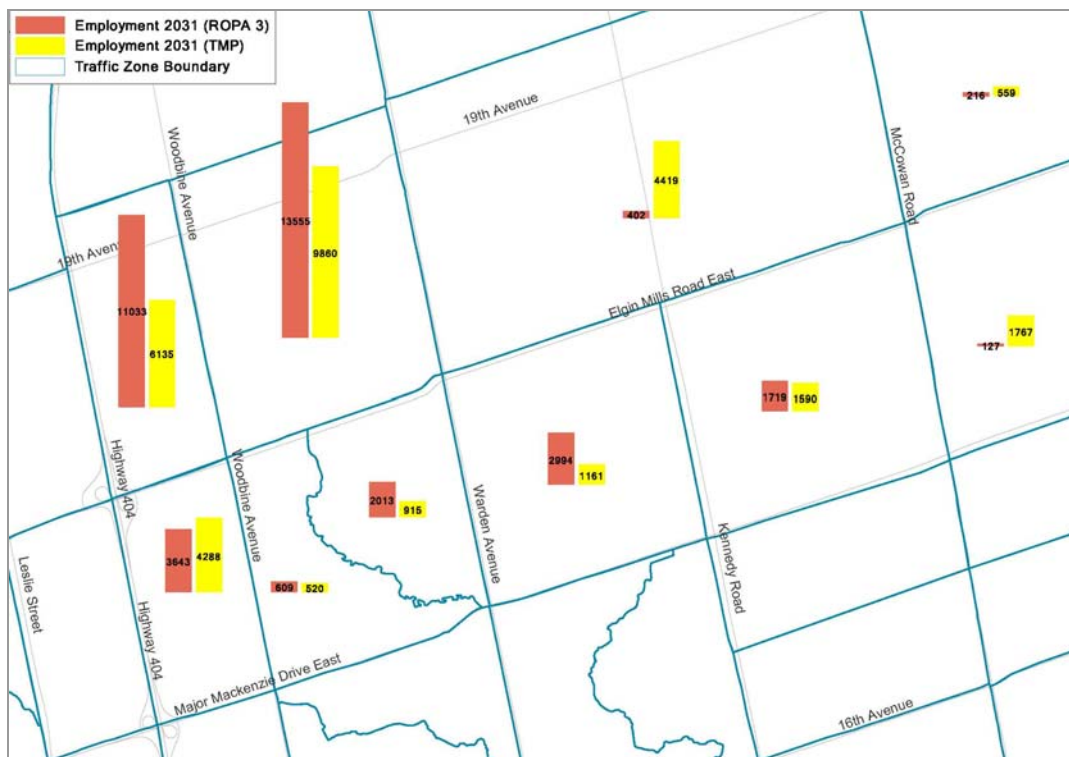


Figure 4 – 2031 Employment Forecast Comparison for TMP and ROPA 3 Area



3.0 METHODOLOGY

3.1 Analytical Methods

The intent of this analysis is to apply the same methodologies and modeling tools employed in the Region's 2009 TMP Update. Accordingly, all land use sets are tested with the same York Region Travel Demand Forecasting (YRTDF) Model. All model run results are evaluated based on the following analytical methods to determine the road and transit network requirements to accommodate the proposed land uses:

- i. System-wide impact (vehicle kilometres travelled and vehicle hours travelled comparison)
- ii. Screenline analysis (V/C ratios)
- iii. Link analysis (V/C ratios)
- iv. Simplified Corridor analysis for transit ridership in peak period

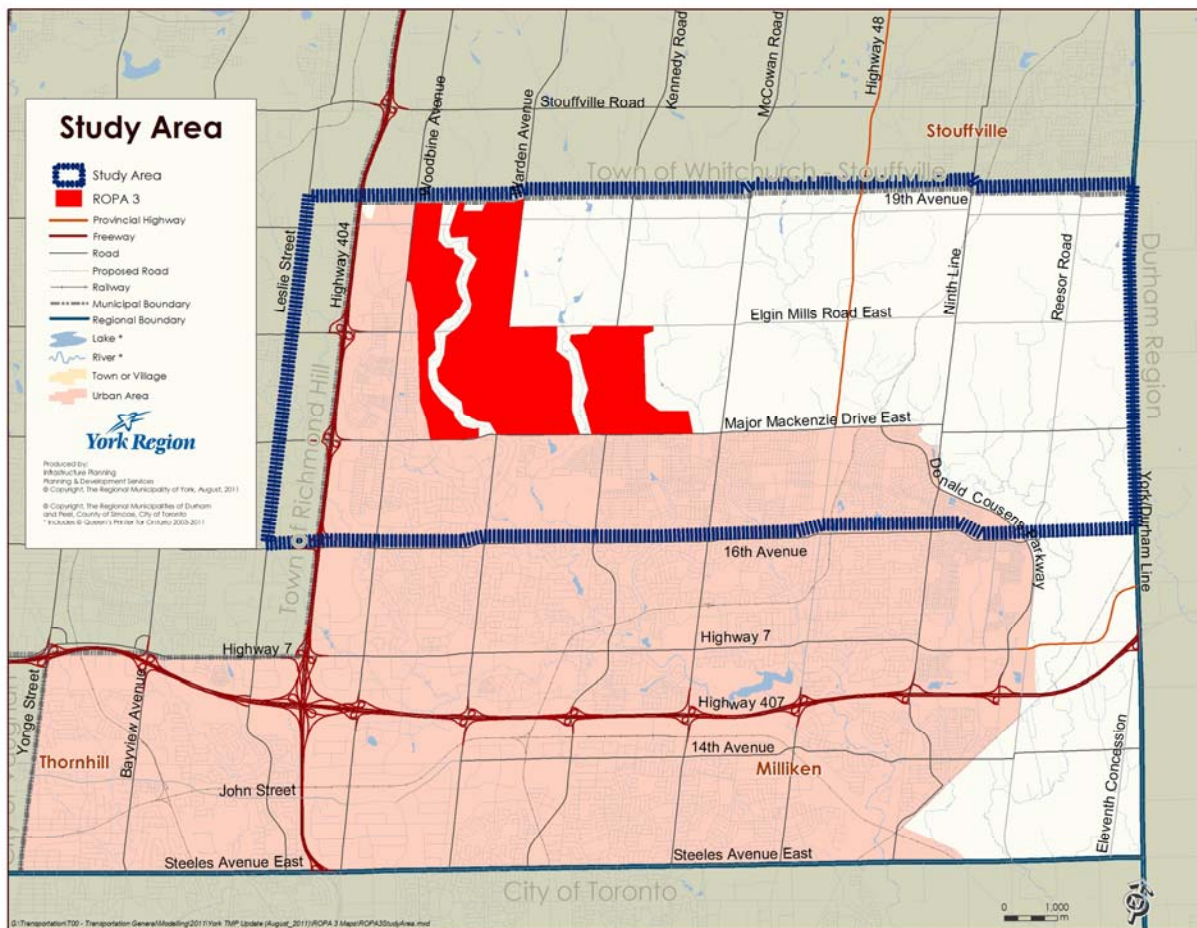
The detailed analysis of each transportation performance indicator noted is included in Section 4.0 of this report.

These analyses determine whether additional road and transit improvements are required to accommodate the ROPA 3 land use scenarios or if changes to the 2009 TMP Update recommendations are required.

3.2 Study Area

A transportation sub-area study has been established for ROPA 3 as illustrated in **Figure 5** below. The purpose of the study area is to examine more detailed transportation impacts and requirements specific to ROPA 3, whereas, the 2009 TMP Update had taken the entire Region as the broad study area. This study focuses on the North Markham sub-area of the Region where most of the ROPA 3 impacts would be noticeable.

Figure 5 – ROPA 3 Transportation Analysis Sub-Area



3.3 Study Horizon Years

To be consistent with the Region's 2009 Transportation Master Plan Update, a 2031 horizon year is selected as the full built-out year for this analysis purpose. This horizon year is also consistent with the proposed built-out of ROPA 3.

Other interim horizon years such as 2021 have also been considered, however, the detailed analysis was not considered as critical for the following reasons:

- The proposed ROPA 3 will not be fully built-out until 2031;
- The interval between 2011 and 2021 is relatively short and the majority of the road improvements have been identified in the Region's approved 2011 – 10 Year Roads Construction Program; and
- Localized improvements will be required as part of development approval.

3.4 York Region's Travel Demand Forecasting Model

The Region's Travel Demand Forecasting (YRTDF) Model used in the 2009 TMP Update is built on the EMME software platform by INRO Inc. The YRTDF model is a standard four-stage travel demand forecasting model, consisting of trip generation, trip distribution, modal split and trip assignment. The model simulates travel for four types of trip purposes during the morning (A.M.) peak period such as work, secondary school, post-secondary, and other. The model explicitly analyzes five motorized travel modes for work purpose and post secondary school trips. The YRTDF model uses network coding standard developed by the Data Management Group (DMG) at the University of Toronto. The YRTDF model was originally calibrated using the 2001 Transportation Tomorrow Survey (TTS) data and partially updated using the 2006 TTS data for the Region's 2009 TMP purposes.

3.5 Screenlines Selected

Screenlines are imaginary lines strategically selected to cross roadways (e.g. freeways, arterials and local roads) in order to assess crossing volumes within a corridor. For this study, the perimeter screenlines were chosen to monitor traffic flow to and from a specific area such as north Markham area. The outputs from The Region's Travel Demand Forecasting (YRTDF) Model can be summarized in the associated screenlines to identify the total changes in the levels of service across several north-south or east-west corridors for the two land use sets. The screenline analysis would provide an indication of whether additional road and transit improvements are required to accommodate the ROPA 3 land use scenario or if changes to the 2009 TMP Update recommendations are required.

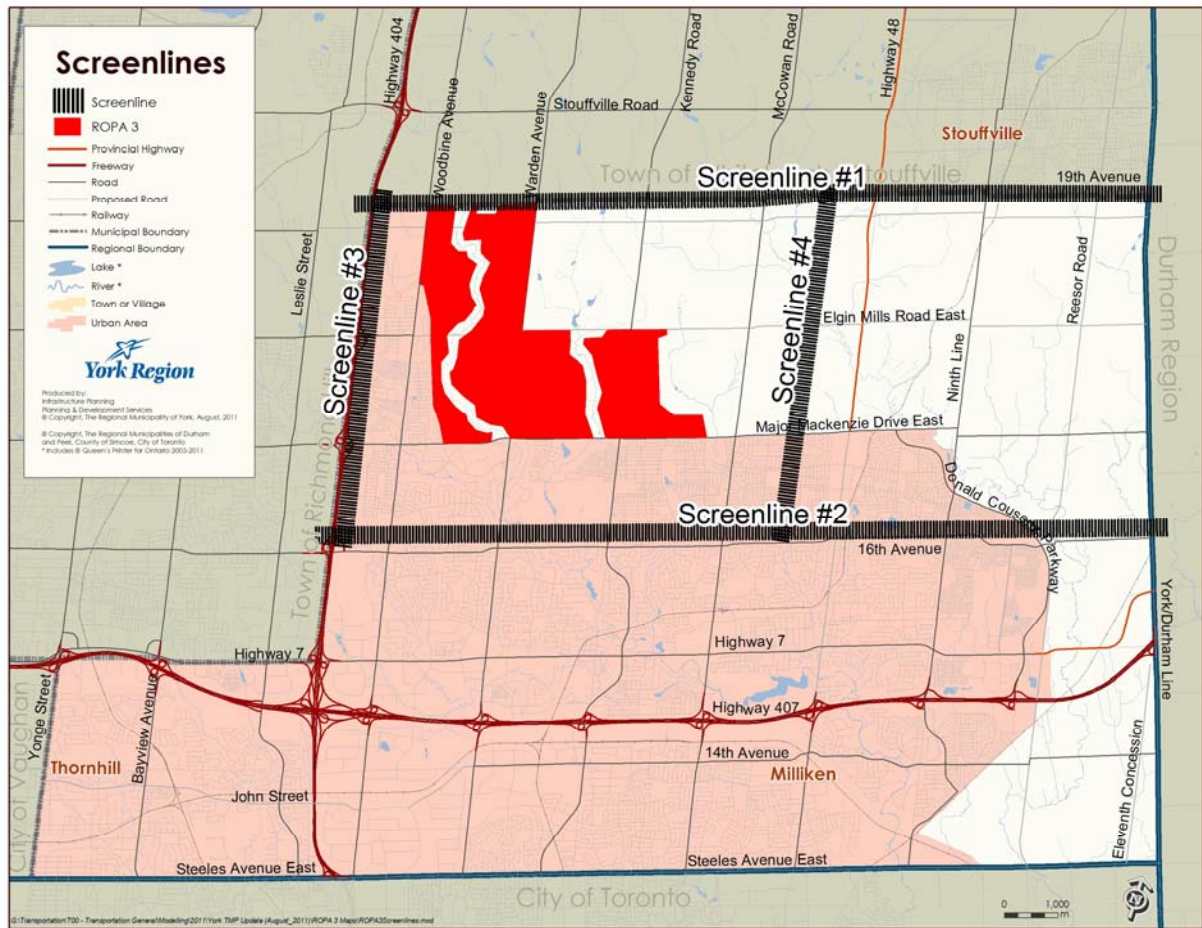
It should be noted that screenline analysis is also one of the transportation performance indicators used in the 2009 TMP Update, as such, this analysis is consistent with the 2009 TMP Update.

Accordingly, four screenlines are selected for analysis purposes. These screenlines include:

- Screenline #1: north of 19th Avenue (east-west screenline)
- Screenline #2: north of 16th Avenue (east-west screenline)
- Screenline #3: east of Highway 404 (north-south screenline)
- Screenline #4: west of Highway 48 (north-south screenline)

Figure 6 illustrates the selected screenlines for analysis purposes.

Figure 6 – Screenlines for Analysis



4.0 TRANSPORTATION ANALYSIS

4.1 2009 Transportation Master Plan (TMP) Update Recommendations

On November 19, 2009 Regional Council endorsed the Transportation Master Plan (TMP) Update which set a new bold direction for York Region's approach to transportation planning through to 2031. Building upon the 2002 Transportation Master Plan which was successful in securing Provincial and Federal commitments to implement the Region's Viva Rapid Transit Network, the Transportation Master Plan Update refocuses the Region's vision towards an enhanced mobility system using a "people and transit first approach" to connect land use and transportation planning. At the forefront of this approach is an emphasis on walking, cycling, transit use, and a per capita reduction in automobile/single occupant vehicle trips taken.

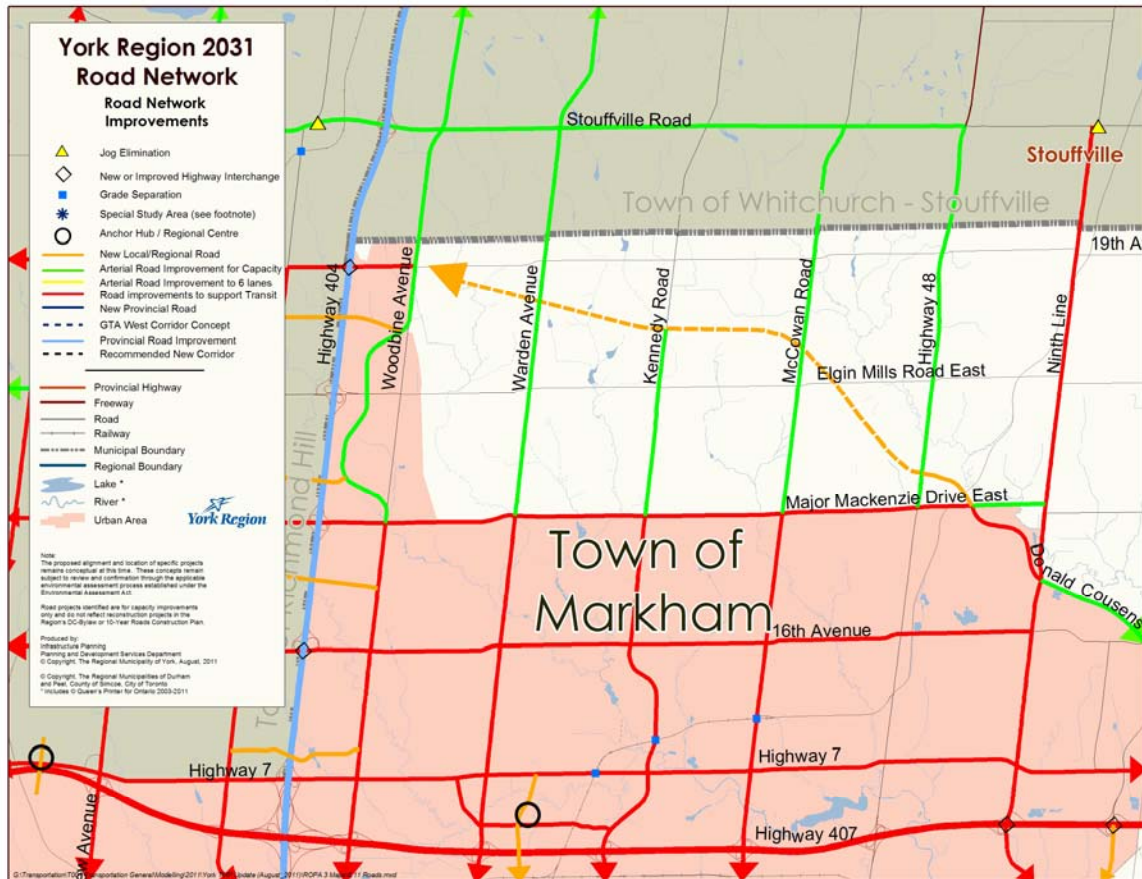
Some key road and transit network improvements identified in the 2009 TMP Update for the Markham area, north of Major Mackenzie Drive are included in Sections 4.1.1 and 4.1.2 of this report.

It should be noted that, for the purpose of this analysis, the same recommended road and transit network, including all of the identified improvements noted above, will be used to compare the 2009 TMP Update and the proposed ROPA 3 land uses. The detailed analysis for each transportation performance indicator is included in Sections 4.2 through 4.5.

4.1.1 2031 Road Network Recommendations

Figure 7 illustrates the recommended road network improvements as identified in the 2009 TMP Update for the northern part of the Town of Markham.

Figure 7 – 2009 TMP Update Recommended Road Improvements for 2031



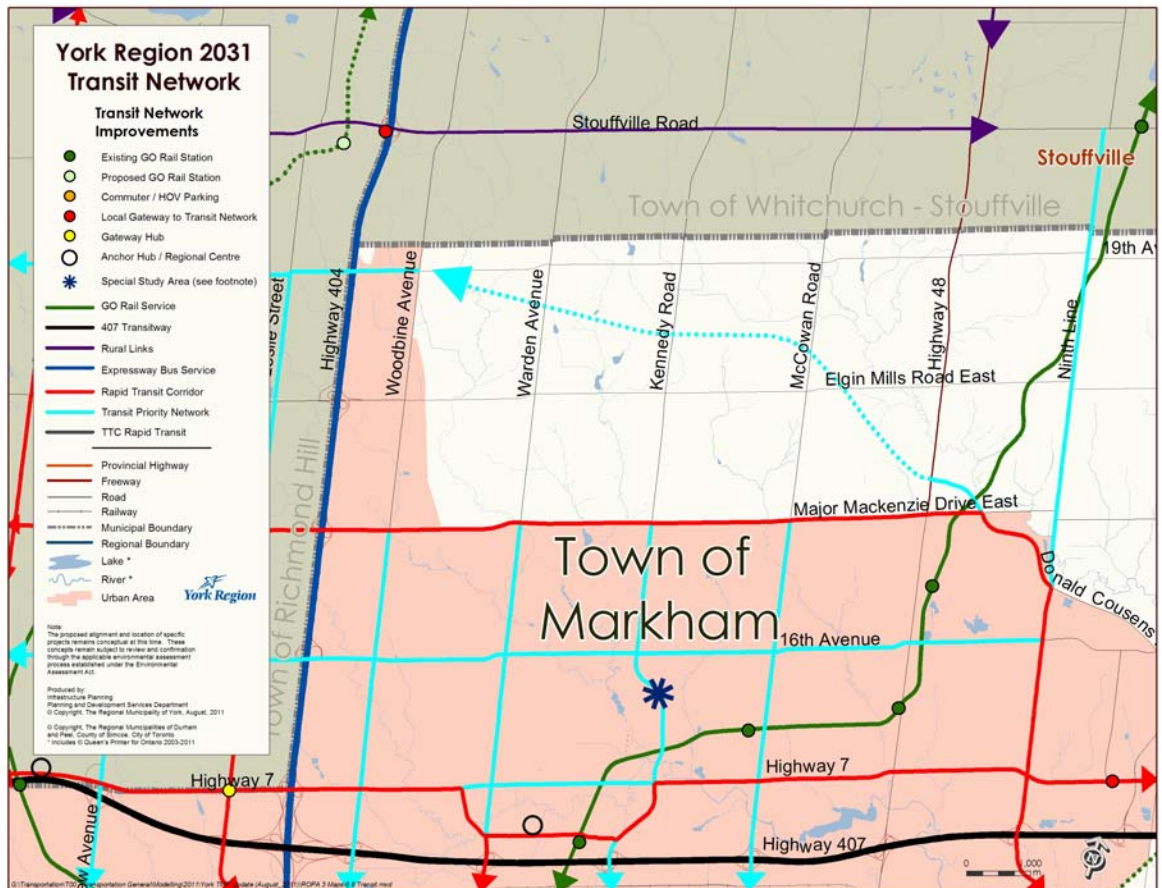
Recommended road network improvements include:

- Woodbine Avenue Bypass – widening from two to four lanes north of Major Mackenzie Drive
- Warden Avenue – widening from two to four lanes north of Major Mackenzie Drive
- Kennedy Road – widening from two to four lanes between Major Mackenzie Drive and future Donald Cousens Parkway extension
- McCowan Road – widening from two to four lanes between Major Mackenzie Drive and Stouffville Road
- Donald Cousens Parkway Extension – from Major Mackenzie Drive/existing Donald Cousens Parkway westerly to 19th Avenue/Woodbine Avenue
- 19th Avenue – widening from two to four lanes west of Woodbine Avenue
- Highway Interchange – a full highway interchange is proposed at 19th Avenue and Highway 404
- Highway 48 – widening two to four lanes from Major Mackenzie Drive to Stouffville Road
- Two midblock crossings over Highway 404, one between Major Mackenzie Drive and Elgin Mills Road, and one between Elgin Mills Road and 19th Avenue, connecting Leslie Street and Woodbine Avenue Bypass.

4.1.2 2031 Transit Network Recommendations

Figure 8 illustrates the recommended transit network improvements as identified in the 2009 TMP Update for the Town of Markham, in the vicinity of ROPA 3 area:

Figure 8 - 2009 TMP Update Recommended Transit Improvements for 2031



Recommended transit network improvements include:

- Donald Cousens Parkway Extension – transit priority network from Major Mackenzie Drive/existing Donald Cousens Parkway westerly to 19th Avenue/Woodbine Avenue
- Major Mackenzie Drive – widening to accommodate dedicated rapid transitway in the centre median of the road
- 19th Avenue – transit priority network west of Woodbine Avenue

4.2 System-wide Impact

The system-wide vehicle kilometres travelled (VKT) and vehicles hours travelled (VHT) assessments provide a direct comparison of the network performance statistics between the two land use scenarios considered. Lower VKT and VHT numbers simply mean that there are fewer cars on the road and that residents travel shorter distance to work or to other activities. As the land use intensification increases, VKT

and VHT are expected to decrease as the need to travel longer distance will be reduced. The reduction in VKT and VHT will result in reduction of road related improvements, greenhouse gas emissions and congestion.

Table 2 summarizes VKT and VHT during the A.M. peak hour for the affected areas including Markham, Richmond Hill and Whitchurch-Stouffville. **Table 3** summarizes VKT and VHT for the Town of Markham.

**Table 2 – VKT and VHT Comparison for Affected Areas
(Markham, Richmond Hill and Whitchurch-Stouffville)**

Performance Measure for 2031	2009 TMP	ROPA 3	Change
Vehicle Kilometres Travelled (A.M. Peak Hour)	1,543,026	1,513,427	-1.9%
Vehicle Hours Travelled (A.M. Peak Hour)	33,394	32,490	-2.7%

Table 3 – VKT and VHT Comparison for Markham Only

Performance Measure for 2031	2009 TMP	ROPA 3	Change
Vehicle Kilometres Travelled (A.M. Peak Hour)	970,087	959,448	-1.1%
Vehicle Hours Travelled (A.M. Peak Hour)	20,948	20,571	-1.8%

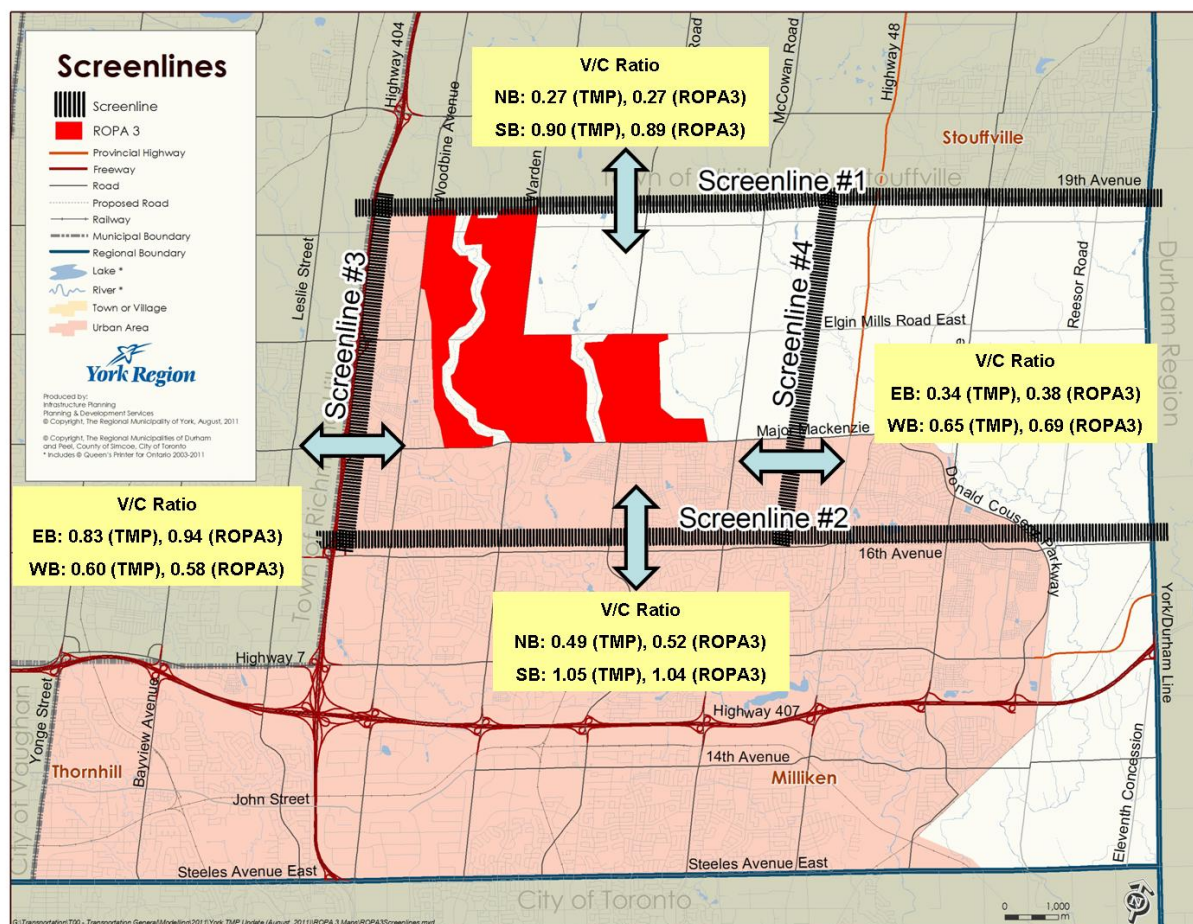
As indicated in Tables 2 and 3, the total VKT and VHT have slightly dropped with the proposed ROPA 3 population and employment forecasts. The reduction in automobile use is associated with the increased of land use intensification in the ROPA 3 area.

4.3 Screenline Analysis (V/C Ratios)

A demand to capacity analysis was conducted for the four screenlines defined in Section 3.5 for the 2031 morning peak hour. This analysis examines and identifies capacity surplus and deficiency in the auto network. As indicated in **Figure 9**, Screenline 2 (north of 16th Avenue) is anticipated to experience volume-to-capacity (V/C) ratios of 1.05 and 1.04 during the A.M. peak hour for the southbound (SB) direction in both land use scenarios. This is generally due to the travel demands for employment lands and destinations located in southern Markham and the City of Toronto areas. In addition, the proposed ROPA 3 population and employment forecasts will increase the eastbound travel demand across Highway 404, which stems mainly from the increase of area employment forecasts in ROPA 3. Two other

screenlines exhibit spare road capacity available during the morning peak period and are not significantly different.

Figure 9 – 2031 Screenline Demand to Capacity Ratio Comparison (AM Peak Hour)



Note*: WB = Westbound EB = Eastbound SB = Southbound NB = Northbound

4.4 Road Link Analysis (V/C Ratios)

Table 4 shows road links that are expected to experience V/C ratios greater than 1.0 in 2031. The results indicate that the impacts of both land use scenarios on major regional arterials in terms of the V/C ratio performance are very similar. As a result, the recommended road network in the York Region 2009 TMP Update is retained to serve the auto travel needs for the land uses contained in ROPA 3. This level of service leads to an examination and focus on other sustainable modes, as well as travel demand management measures in the area to relieve the potential need for further road capacity improvements.

**Table 4 – 2031 Link Analysis (V/C Ratios) in Peak Direction
(A.M. Peak Hour)**

Road	From	To	2009 TMP Update	ROPA 3
Woodbine Avenue Bypass	19th Avenue	Elgin Mills Road	1.02	1.04
Warden Avenue	Elgin Mills Road	Major Mackenzie Drive	1.14	1.22
Major Mackenzie Drive	Kennedy Road	Warden Avenue	0.95	1.08
Major Mackenzie Drive	Warden Avenue	Woodbine Avenue	1.00	1.08

4.5 Corridor Analysis for Transit Ridership

A simplified corridor analysis is specific to the study area to determine whether transit ridership will increase and warrant transit technology changes. The three-hour A.M. peak period ridership forecasts in the study area for both scenarios are presented in **Table 5**.

**Table 5 – 2031 Peak Transit Ridership within Corridors
(AM Peak Period)**

Corridor	To/From	2031 No. of Riders/A.M. Peak Period			
		2009 TMP Update		ROPA 3	
		NB/EB	SB/WB	NB/EB	SB/WB
19 th Avenue	Hwy 404 to Hwy 48	185	30	250	30
Major Mackenzie Drive	Hwy 404 to Hwy 48	1551	2565	1844	2596
Ninth Line	Major Mackenzie Drive to 19 th Avenue	299	866	327	798
Highway 48	Major Mackenzie Drive to 19 th Avenue	66	671	14	405
McCowan Road	Major Mackenzie Drive to 19 th Avenue	22	37	5	5
Kennedy Road	Major Mackenzie Drive to 19 th Avenue	81	47	115	532
Warden Avenue	Major Mackenzie Drive to 19 th Avenue	86	713	196	1424
Woodbine Avenue Bypass	Major Mackenzie Drive to 19 th Avenue	812	1573	1151	848

As shown in Table 5, in most cases there are marginal differences in ridership forecasts along regional corridors between the two scenarios. There are some decreases in transit ridership on Highway 48 and Woodbine Avenue Bypass, but

significant ridership increases on Warden Avenue. This can be explained by the fact that there is more land use intensification in ROPA 3 area. To meet transit service requirements resulting from growth, intensification and transit network connectivity in the ROPA 3 area, an enhanced level of transit access and priority such as queue jump lanes, transit signal priority and/or High-Occupancy-Vehicle (HOV) lane is recommended in this area.

4.6 Long Term Transportation Requirement Summary

The total vehicle kilometres travelled (VKT) and vehicle hours travelled (VHT) in the affected areas and the Town of Markham are expected to decrease slightly with the proposed ROPA 3 population and employment forecasts. The reduction in automobile use is associated with the increased of land use intensification in the ROPA 3 area.

The screenline analysis indicates that the expected volume-to-capacity ratios (V/C) with the proposed ROPA 3 land use are in the similar range, or lower in some cases, as those outlined in the 2009 TMP Update. However, the changes are not considered significant.

The road link analysis indicates that Woodbine Avenue Bypass, Warden Avenue, Kennedy Road, McCowan Road, Highway 48 and Donald Cousens Parkway extension will only require 4 lanes north of Major Mackenzie Drive to accommodate the proposed ROPA 3 population and employment forecasts. These findings are consistent with the recommendations identified in the 2009 TMP Update.

The corridor analysis indicates that in most cases there are marginal differences in ridership forecasts along Regional corridors between two land use scenarios. There are some significant increases in transit ridership on Warden Avenue. Key corridors such as Woodbine Avenue Bypass and Warden Avenue are shown to have potential transit ridership which supports the need for transit priority improvements and connectivity of the transit network. Although the analysis indicates that Kennedy Road has lower transit ridership, it has many important destinations and transit facilities such as GO stations to the south and has great potential to relieve the much higher transit ridership on Warden Avenue once transit priority improvements are implemented in this area.

In summary, all of the performance indicators suggest that the 2031 recommended road and transit network identified in the 2009 TMP Update would be able to accommodate proposed ROPA 3 population and employment forecasts. In order to enhance transit access and network connectivity to ROPA 3 area, queue jump lanes, transit signal priority and/or HOV lanes should be considered on the Woodbine Avenue Bypass, Warden Avenue and Kennedy Road to improve future transit service. These three corridors will require Planned Basic Street Widths of “up to 43m” to

include transit priority improvements. It is also recommended that localized transit improvements be provided in ROPA 3 area once major development occurs.

4.7 Short Term (5 Year) Transportation Improvement Requirements

Significant development applications along with construction are not anticipated in the ROPA 3 area within the short term (5 year) horizon. There is only one recommended road related improvement identified in the 2009 TMP Update for the 5 year horizon. This road improvement is related to the completion of the Woodbine Avenue Bypass between Major Mackenzie Drive and 19th Avenue. There is no transit improvements recommended for this area during the short term horizon.

4.8 2021 Transportation Improvement Requirements

There are several road and transit improvements identified in the 2009 Transportation Master Plan Update for the 2021 horizon. These improvements include:

- Widen Kennedy Road from two to four lanes;
- Construct a full interchange at 19th Avenue/Highway 404;
- Construct a midblock crossing connecting Leslie Street with Woodbine Avenue Bypass, between Major Mackenzie Drive and Elgin Mills Road;
- Construct a midblock crossing connecting Leslie Street with Woodbine Avenue Bypass, between Elgin Mills Road and 19th Avenue; and
- Transit priority measures on 19th Avenue west of Woodbine Avenue.

In addition to the recommended road and transit network improvements noted above, it is anticipated that localized improvements would also be required to accommodate the traffic generated from the proposed developments in the ROPA 3 area. These localized improvements include, but not limited to, intersection turning lanes, access management, midblock collector roads, active transportation and travel demand management. These localized improvements would be required through various conditions of development approvals as the landowners submit their development applications.

5.0 RECOMMENDATIONS AND CONCLUSIONS

5.1 Recommendations

Overall, the corridor analysis indicates that there are marginal differences in transit ridership forecast along some of the regional corridors in ROPA 3 area. However, there are a few corridors that have increased in transit ridership potential since the 2009 TMP Update recommendations. Therefore, it is recommended that enhanced transit access to this area, such as queue jump lanes, transit signal priority and/or HOV lanes be considered on Woodbine Avenue Bypass, Warden Avenue and Kennedy Road to meet future transit service needs and transit network connectivity. Planned Basic Street Widths of “up to 43m” is required for the transit priority improvement corridors. These recommendations are also consistent with Modification #9 of the Amendment 3 to the Regional Official Plan (ROPA 3).

In addition, although the ultimate road network has been identified for this area and consistent with the 2009 Transportation Master Plan Update, interim improvements are still required to address some of the localized transportation issues such as access management, turning requirements, intersection capacity improvements, active transportation and other travel demand management requirements. It is recommended that York Region staff continue to work with the Town of Markham to develop consistent conditions of development approvals to require the landowners/applicants to prepare comprehensive transportation impact assessment and travel demand management reports, as well as detailed phasing plans to address both the short and longer term transportation needs in the ROPA 3 area.

5.2 Conclusions

From the detailed transportation assessment, all of the transportation performance indicators suggest that the 2031 recommended road network identified in the 2009 Transportation Master Plan Update would be able to accommodate proposed ROPA 3 population and employment forecasts and no significant changes are required to update the approved 2009 TMP Update at this time.

However, in order to enhance transit access to the ROPA 3 area, queue jump lanes, transit signal priority and/or HOV lanes should be considered on Woodbine Avenue Bypass, Warden Avenue and Kennedy Road to improve future transit service and provide transit priority network connectivity. As a result, Planned Basic Street Widths of “up to 43m” is required for transit priority improvements along the three corridors. The next update to the Transportation Master Plan should reflect this level of transit enhancement in the area. In addition, some localized improvements to the transportation network in the ROPA 3 area will also be required and will be secured through the condition of development approval, similar to requirements identified in the 2009 TMP Update.