

TRANSPORTATION MASTER PLAN

Roadway Requirements and Staging Plan

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1 Introduction

1.1 Purpose

This report provides an outline of the process followed to:

- Identify the arterial road system required to accommodate the growth in population and employment levels projected to occur by the planning horizon of the City of Ottawa’s Official Plan
- Establish a plan for the staged introduction of the required road system.

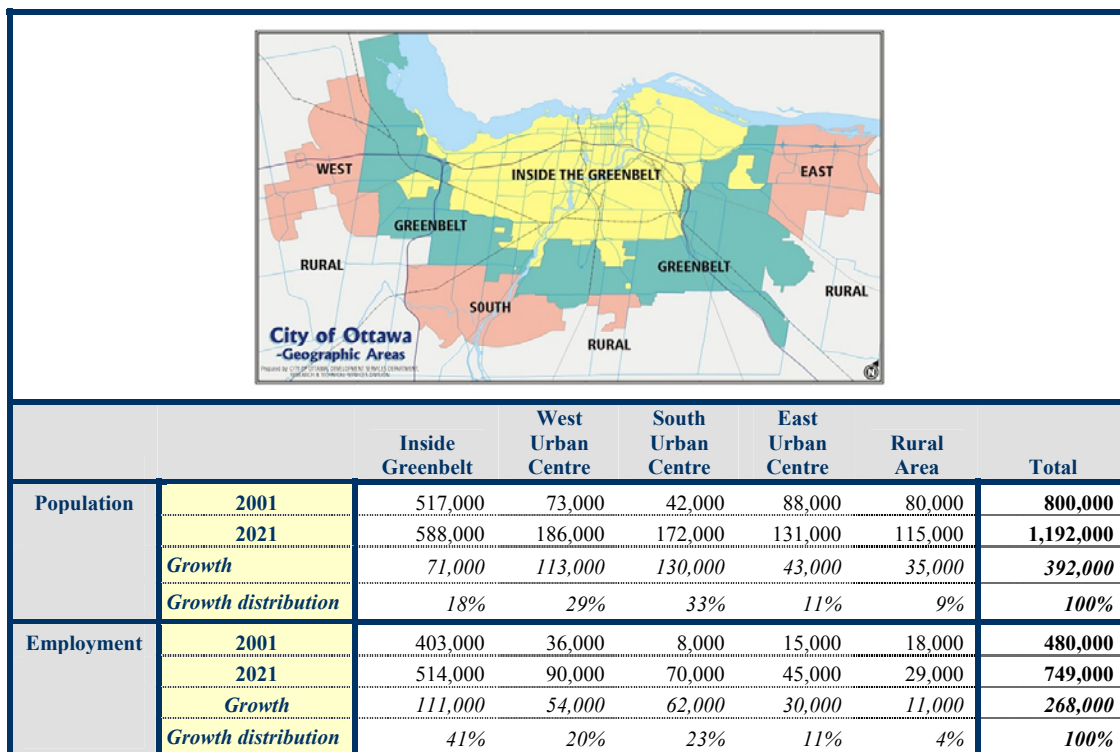
1.2 Population and Employment

The growth and distribution of population and employment levels across the City planned to occur within the Planning Horizon of the City’s Official Plan are indicated in Fig. 1.

It is emphasized that the road system identified in this report is based upon the following key assumptions:

- The forecast travel demand associated with the population and employment levels of 1,192,000 and 748,000, respectively, for the City of Ottawa and as allocated geographically in **Fig.1**
- The achievement of a 30% transit modal split during peak afternoon hour as well as additional changes in travel behaviour as outlined further in section 1.3.

Figure 1. Official Plan Projected Population and Employment Growth



Lower rates of employment/population growth over the Planning Horizon could defer the need for some elements of the network to beyond 2021. Similarly, different distributions of employment and population than those identified in Fig. 1 may eliminate the need for some elements while adding others. It important to point out that if the supporting measures identified to increase transit shares are not aggressively pursued and the transit target not realised, then significant additions to the road network identified herein will be required.

1.3 Future Peak Hour Traffic Volumes

A forecast of future traffic volumes was carried out for the typical weekday afternoon peak hour based on the extent and distribution of population and employment growth planned to occur by the end of the planning horizon year of 2021. The travel demand forecast relies on a critical understanding of today’s travel behaviours while also reflecting changes in travel behaviour such as increased opportunities for trip replacement/elimination, peak period spreading and increases in the proportion of trips by walking and cycling in a new transportation environment of aggressive automobile-use disincentive policies and extensive rapid transit services. The key assumptions affecting overall travel behaviour and demand forecasts are more thoroughly discussed and documented in the background report entitled “Strategic Analysis of Travel Demand” – Delcan Corporation - July 2003.

Forecast travel by auto and transit was assigned to the future road and transit networks. Key strategic screenlines (see Fig. 2) were used to assess and analyse various travel along major corridors across the City. The resulting future peak hour person volumes are summarized in Fig. 3 for the peak directions of travel at strategically located screenlines along with comparisons with current (2002) observed person travel volumes. The number of passenger car equivalents (PCU’s) associated with the forecast travel by auto is summarised in Fig.4 and reflects ridesharing (i.e., the number of persons per vehicle), commercial related traffic and the effect of heavy trucks within the traffic streams.

Figure 2. Key Strategic Screenlines

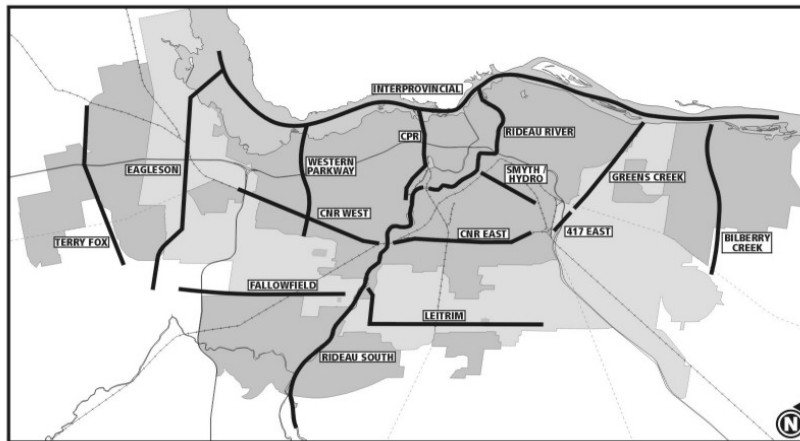


Figure 3. Afternoon Peak Hour Peak Direction Person Trips by Motorized Modes

Screenline *	Transit			Auto			Total		
	2002	2021	Growth	2002	2021	Growth	2002	2021	Growth
Rideau River	6,800	23,800	250%	17,500	23,500	34%	24,300	47,300	95%
CPR	5,900	17,100	190%	14,000	17,800	27%	19,900	34,900	75%
Total: Inner Area Cordon	12,700	40,900	222%	31,500	41,300	31%	44,200	82,200	86%
Green's Creek	4,300	8,800	105%	8,900	12,800	44%	13,200	21,600	64%
Hwy 417 East (2000)	0	0	0%	4,300	4,500	5%	4,300	4,500	5%
Leitrim	20	4,000	19,900%	3,100	8,400	171%	3,120	12,400	297%
Fallowfield	700	5,500	686%	7,400	12,000	62%	8,100	17,500	116%
Eagleson	1,600	9,400	488%	9,100	15,300	68%	10,700	24,700	130%
Total: Greenbelt Cordon	6,620	27,700	318%	32,800	53,000	62%	39,420	80,700	105%
Interprovincial**	2,300	10,200	343%	11,900	18,100	52%	14,200	28,300	99%
CNR West	1,900	7,200	279%	10,500	12,800	22%	12,400	20,000	61%
CNR East	2,100	8,600	310%	9,700	12,200	26%	11,800	20,800	76%
Western Pkwy (1996)	2,800	13,400	379%	15,400	19,300	25%	18,200	32,700	80%
Terry Fox (1996)	100	5,100	5,000%	3,500	9,700	177%	3,600	14,800	311%
Rideau South	400	4,700	1,075%	6,500	14,200	118%	6,900	18,900	174%
Bilberry Creek (1996)	1,900	5,600	195%	7,800	10,300	32%	9,700	15,900	64%
Smyth/Hydro (2001)	1,600	4,700	194%	4,000	6,200	55%	5,600	10,900	95%

* Observed existing traffic volumes based on 2002 counts unless otherwise noted (e.g., Hwy 417 East (2000))
 ** Interprovincial screenline projections are preliminary estimates subject to refinement through future work with the City of Gatineau and the National Capital Commission

Figure 4. Afternoon Peak Hour Peak Direction Traffic Volumes (PCU's)

Screenline	Passenger Car Units		
	2002	2021	Change
Rideau River	16,240	21,500	32%
CPR	13,390	16,100	20%
Total: Inner Area Cordon	29,630	37,600	27%
Green's Creek	8,030	11,600	44%
Leitrim	2,950	7,650	160%
Fallowfield	6,950	11,500	65%
Eagleson	8,530	14,100	65%
Total: Greenbelt Cordon	26,460	44,850	70%
Interprovincial	10,970	16,700	52%
CNR West	9,850	11,850	20%
CNR East	8,830	11,450	30%
Western Parkway	12,800	17,950	40%
Rideau South	5,910	13,200	123%
Bilberry Creek	6,710	9,350	40%
Smyth / Hydro	3,250	5,600	72%

2 Federal and Provincial Roads

2.1 National Capital Commission

A number of existing roadway facilities (primarily Parkways) under the jurisdiction of the National Capital Commission (NCC) offer varying levels of peak hour system capacity and have consequently been included in the overall roadway assessment for the Planning Horizon. However, it is important to note that no additional NCC roadway capacity along key strategic screenlines has been assumed in the needs analysis.

It is acknowledged however that the NCC will continue to play a key role in the National Capital Region as the coordinating agency for the planning for interprovincial infrastructure (i.e. Environmental Assessment of Ottawa River crossing needs).

2.2 Ontario Ministry of Transportation

It has been assumed that the Ministry of Transportation Ontario (MTO) will retain jurisdiction over its Highways within the City, except where a highway becomes redundant to Ministry needs (e.g. replaced by a parallel freeway) and is transferred to the City. It is also assumed that the Ministry will have completed the current plans to convert or replace all existing two-lane sections with freeways early within the planning period.

For capacity analysis purposes and based on the current MTO plans it has been assumed that the following modifications to the highway network within the City will be introduced by the Planning Horizon:

- Completion of the four-laning of Highway 417 from Panmure Road to beyond Arnprior;
- Conversion of the 2 lane Highway 7 to a four-lane freeway from Highway 417 to Carleton Place;
- Widening of Highway 417 from four to six lanes from Highway 7 to Palladium Drive;
- Widening of Highway 417 by one general traffic lane and one high occupancy vehicle (HOV) lane in each direction between Palladium Drive and Highway 416.

It is also assumed that a new Highway 417 interchange will be provided at Hunt Club Road and possibly another on 416 at Cambrian Road.

It is recognised that the Ministry's ongoing study directed at reducing operational difficulties on Highway 417 from Highway 416 to Anderson Road is likely to result in some measures that will also lead to some capacity increase on the freeway. Until the study is complete it is not possible to identify where, or by how much the capacity might be enhanced. Therefore, no increase in the capacity of the freeway has been assumed in developing the municipal road network requirements.

The Ministry is also currently embarking upon a study to examine the feasibility of a southern by-pass of the Urban Area from the vicinity of the junction of Highways 7& 417 in the West to Highway 417 in the East, primarily to enhance the inter-city level of service for commercial traffic while also diverting some truck traffic from Ottawa's Inner Urban Area¹. Such a facility would essentially be oriented at right angles to the radial corridors of heavy commuting demand during peak travel periods. While it would offer little or no direct capacity increase to these corridors at these critical times, it could potentially offer some network distributional advantages. The Ministry's timing for this by-pass, if implemented, is beyond the Planning Horizon for the Transportation Master Plan. Therefore, no additional roadway capacity along any strategic screenline was assumed.

3 Screenline Analysis

The deficiency in the roadway system capacity for the horizon year at each of the screenlines shown in **Fig 2** was determined by comparing the forecast traffic volume in passenger car units (PCUs) with the capacity of the existing roads (in PCU's) crossing the screenline. This analysis is provided in **Appendix A**. Consistent with the approach adopted in the 1997 ROC Transportation Master Plan, a volume to capacity ratio of 0.9 was applied throughout, with the exception of the Inner Urban Area where a volume to capacity ratio of 1.0 was adopted. Road widenings or new links necessary to meet the capacity deficiencies are shown in **Fig 5** and were identified on the following basis:

- Wherever possible limiting all roads to four lanes or less
- Widening existing arterial road(s) from two to four lanes before considering additional roads.
- Providing new arterial road(s) including HOV lanes where viable
- Widening four lane arterials to six lanes where no opportunity to do any of the preceding remains. (With the recognition of HOV lanes potential)
- Wherever possible limiting widenings or new roads to those included in the 1997 ROC Master Plan.

¹ The Inner Urban Area is bounded by the Ottawa River, the Rideau River, the Queensway and the CPR rail line.

Figure 5. 2021 Road Network Deficiencies and Requirements at Screenlines

Screenline	Existing Capacity PCU	2021 Demand PCU	Deficiency PCU	Road	Lanes
Bilberry Creek	8,900	9,350	450	Innes Road	2 to 4 lane widening
CNR East	9,350	11,450	2,100	Airport Parkway Conroy Road	2 to 4 lane widening 4 to 6 lane widening
CNR West	11,100	11,850	750	Prince of Wales	2 to 4 lane widening
CPR	16,000	16,100	100	None	
Eagleson	10,200	14,100	3,900	Need met by MTO 417 project	4 to 6+2HOV lane widening
Fallowfield	10,100	11,500	1,400	Prince of Wales Woodroffe Avenue	2 to 4 lane widening 2 to 4 lane widening
Greens Creek	10,000	11,600	1,600	Innes-Walkley connection	New 4 lanes
Inter-provincial	10,000	16,700	6,700	At least two additional crossings	To be determined*
Leitrim	4,700	7,650	2,950	Riverside Drive Albion Road Bank Street	2 to 6 lane widening 2 to 4 lane widening 2 to 4 lanes S of screenline 4 to 6 lanes N of screenline
Rideau River	16,800	21,500	4,700	Alta Vista Transportation Corridor New E-W road	New 4 lanes New 4 lanes
Rideau South/ Manotick	7,100	13,200	6,100	Hunt Club Bridge Strandherd Armstrong New Crossing	4 to 6 lane deck reconfiguration New 6 arterial lanes New 6 arterial lanes
Smyth/Hydro	4,200	5,600	1,400	Alta Vista Transportation Corridor	New 4 lanes
Western Parkway	14,100	17,950	3,850	Hunt Club Road New E-W road Richmond Road	4 to 6 lane widening New 4 arterial lanes 2/3 to 4 lane widening

* It is not the mandate of the Transportation Master Plan to determine the needs for the number and location of new or widened bridges across the Ottawa River. Preliminary demand/capacity analysis suggests the need for additional crossings within the Planning Horizon. Confirmation of need as well as the exact locations of new crossings will be dealt with in more details in subsequent NCC-led study.

4 Road Network Link Analysis

Arterial road network links both upstream and downstream of those identified in the screenline analysis were reviewed as to their capability to deliver/receive the traffic volumes accommodated at the screenlines by the measures identified in **Fig 5**. This analysis identified the need for a number of additional roadway modifications as illustrated in **Fig 6**.

In addition to the network capacity enhancements above, localized widenings will be required at locations of development/redevelopment or infill. Other widenings will be required to address public transit needs such as Riverside Drive in Confederation Heights.

Figure 6. Upstream and Downstream Road Network Requirements

Road	Limits	Lanes
Airport Parkway	Brookfield Drive to Lester Road	2 to 4 lane widening
Albion Road	Lester Road to Earl Armstrong Road	2 to 4 lane widening
Alta Vista Transportation Corridor	Nicholas Street to Walkley Road	4 lanes
Earl Armstrong Road	Rideau River to Limebank Road Limebank Road to Albion Road Albion Road to Bank Street	2 to 4 lane widening 2 to 4 lane widening 2 lanes
Bank Street	Leitrim Road to Armstrong Road	2 to 4 lane widening
Blackburn Hamlet Bypass	Innes Road to Navan Road	4 to 6 lane widening
Carling Avenue	Richmond Road to Holly Acres Road	4 to 6 lane widening
Conroy Road	Bank Street to Hunt Club Road Hunt Club Road to Walkley Road	2 to 4 lane widening 4 to 6 lane widening
Fallowfield Road	Strandherd Dr to Prince of Wales Dr	2 to 4 lane widening
Hunt Club Road	Rideau River to Bank Street Hawthorne Road to Highway 617	4 to 6 lane widening 4 lanes
Innes Road	From Blackburn Hamlet Bypass to Frank Kenny Rd	2 to 4 lane widening
Innes –Walkley Connection	Blackburn Hamlet Bypass to Highway 417	4 lanes
Lester Road	Airport Parkway to Albion Road	2 to 4 lane widening
Limebank Road	Riverside Drive to Earl Armstrong Road	2 to 4 lane widening
New East-West Road	Hwy 416 to Rideau River Rideau River to Hwy 417	4 lanes 4 lanes
Prince of Wales Drive	Woodroffe Avenue to Collonade Road	2 to 4 lane widening
Richmond Road	Golden Ave to Carling Ave	2/3 to 4 lane widening
Riverside Drive	Hunt Club to Limebank	4 to 6 lane widening
Strandherd Drive	Rideau River to Woodroffe Avenue Woodroffe Ave. to Greenbank Rd. Greenbank Road to Fallowfield Road	6 lane 2 to 6 lane widening 2 to 4 lane widening
Walkley Road	Heron Road to Highway 417	4 to 6 lane widening
Woodroffe Avenue	Fallowfield Road to Nepean Sportsplex	4 to 6 lane widening

The determination of where such widenings would be required within the Planning Horizon was developed from a variety of sources including existing traffic congestion hot-spots, completed or ongoing development approvals, community planning studies, traffic studies, environmental assessment or other relevant studies. **Fig 7** illustrates the resulting widening requirements to address localized growth needs.

The first two lanes of future arterial roads, particularly those required initially to provide access to new developments will be introduced in concert with development. These roads are shown in **Fig 8**. Terry Fox Drive will need to be widened by the City within the Planning Horizon to address increased traffic needs of the wider community. However, the Blackburn Hamlet Bypass Extension will not require such widening until beyond the Planning Horizon.

Figure 7. Road Widening to Accommodate Localized Growth

Road	Limits	Lanes
Albert Street	Empress Avenue to Booth Street	4 to 6 lane widening
Campeau Drive	March Road to Terry Fox Drive	2 to 4 lane widening
Coventry Road	Belfast Road to St. Laurent shopping Centre	2 to 4 lane widening
Cummings Avenue	Ogilvie Road to Cyrville Road	2 to 4 lane widening
Cyrville Road	Cummings Avenue to Innes Road	2 to 4 lane widening
Eagleson Road	Cadence Gate to Hope Side Road	2 to 4 lane widening
Greenbank Road	Malvern Drive to Cambrian road	2 to 4 lane widening
Hazeldean Road	Terry Fox Drive to Carp Road	2 to 4 lane widening
Jockvale Road	Strandherd Road to Jock River (relocated) Jock River to Prince of Wales Drive	4 lanes 2 to 4 lane widening
Katimavik Road	Eagleson Road to Terry Fox drive	2 to 4 lane widening
Riverside Drive	Heron Road to Brookfield Drive	4 to 6 lane widening
March Road	Morgans Grant to Old Carp Road	2 to 4 lane widening
Mer Bleue Road	Innes Road to Blackburn Hamlet Bypass Extension.	2 to 4 lane widening
Merivale Road	Slack Road to Amberwood Crescent	2 to 4 lane widening
St Joseph Boulevard	Tenth Line to Dairy Road	2 to 4 lane widening
Terry Fox Drive	March Road to Campeau Drive	2 to 4 lane widening
Terry Fox Drive	Hazeldean Road to Winchester Drive	2 to 4 lane widening
Trim Road	North Service Road to South of Innes Road	2 to 4 lane widening

The road network enhancements to accommodate the Kanata West development are given in **Fig 9** and represent the requirements as identified in Document 3 of the Planning and Development Committee Report 46 to City Council of 26 March 2003. Document 3 identifies two alternative scenarios of municipal road network enhancements dependent upon the number of lanes to be provided on Highway 417. As the Ministry of Transportation has now elected to provide an eight-lane configuration from Highway 416 to the interchange with new north-south arterial road serving Kanata West, the second scenario has been adopted. It is noted that no additional interchange is being introduced, but that the existing Palladium Drive interchange will be modified to directly accommodate the new north south arterial road.

Figure 8. New Two-Lane Arterial Roads in New Urban Areas

Road	Limits
Blackburn Hamlet Bypass Extension	Navan Road to Frank Kenny Road
Terry Fox Drive	Goulbourn Forced Road to Richardson Side Road
Terry Fox Drive	Cope Drive to Fernbank Road and Fernbank Road to Eagleson Road

Figure 9. Arterial Roads to Accommodate the Kanata West Development

Road	Limits	Lanes
Campeau Drive	Terry Fox Drive to new N-S arterial	New link
Egleson Road	Hope Side Road to Fallowfield Road	2 to 4 lane widening
Hazeldean Road	Terry Fox Drive to Huntmar Drive	4 to 6 lane widening
Huntmar Drive	Richardson Side Road to Campeau Drive	Upgrading
	Campeau Drive to Maple Grove Road	Widening
	Maple Grove Road to Hazeldean Road	New link
Maple Grove Road	Terry Fox Drive to Huntmar Drive Huntmar Drive to new N-S arterial	Widening Relocation
New N-S arterial road	Palladium Drive to Hazeldean Road	New Link
Palladium Drive	Huntmar Drive to new N-S arterial	Realignment
Terry Fox Drive	Campeau Drive to Hazeldean Road	4 to 6 lane widening

5 Ottawa-Carleton 1997 TMP Comparison

By 2021 the transportation system in the City’s Master Plan will need to accommodate a growth in peak period travel, of approximately twice that previously identified in the 1997 ROC Plan. This is the direct consequence of the City’s Official Plan projection of a growth in population of approximately 50% compared to the 1997 ROC Official Plan projection of about 25% for the same planning period.

A major difference between the two plans in accommodating peak period travel in 2021, is that the City’s plan sets a much more aggressive target for transit usage, and identifies major expansions to the rapid transit system necessary to encourage and accommodate such use. Transit travel shares were developed on a trip end basis reflecting type of land use, density and rapid transit proximity. Consequently, in corridors where transit can readily provide an attractive alternative to automobile travel, particularly radial corridors focussed on the Central Area, the transit share was increased to such a level that the residual level of automobile travel is similar to that projected in the ROC Plan. This has the impact of resulting in similar road capacity requirements in these corridors.

At the other end of the spectrum, as in the case of long-distance suburban-to-suburban trips with neither end on the rapid transit system, transit provides a much less attractive travel alternative. This results in a low share of travel by transit, with a consequent substantial increase in automobile traffic for such trips.

The overall effect, after taking into account all of the diversity of travel between these extremes within what is essentially an elongated east-west Urban Area with few east-west major roads, is essentially similar traffic demands for roads radiating from the Central Area, but substantial increases in east-west traffic demand, particularly across the Rideau River.

This translates into similar road system requirement to that in the ROC 1997 Plan for the corridors radiating from the Downtown but the need for substantial additional east-west capacity, necessitating the addition of a new arterial road within the urban envelope from Highway 416 in the west to Highway 417 in the east. It should be noted that any capacity improvements resulting from operational enhancements to Highway 417 would both defer and reduce this new east-west arterial road requirement.

The Rapid Transit Expansion Study (RTES) identified several arterial roads to be used for new rapid transit links such as Carling and Baseline Avenues. This eliminates the potential for using the space for accommodating general traffic growth. Other nearby arterials were not identified for such within the planning period of the ROC Plan (e.g., Richmond Road widening and new east-west arterial).

The substantial capacity increase offered by proposed widening of Highway 417 from Highway 416 to Highway 7 by two traffic lanes plus two HOV lanes enables the deferment of the widening of Carling Avenue across the Greenbelt, as provided for in the ROC plan, to beyond the planning horizon.

The differences between the municipal road network for the two Plans and supporting rationale are summarized in **Figs 10 and 11**. Although these figures may leave the impression that the road requirements of the two plans differ dramatically, it should be noted, that for the most part, the Plans remain very similar even though the City's Plan has had to accommodate a 50% population increase compared to that of only a 25% increase in the Region's TMP.

Figure 10. Roads Previously Identified in the ROC Plan not included in City Plan

Roads	Limits	Primary Reasons
Bowesville Road	Armstrong Road to the Airport Parkway	Replaced by widening of Albion Road which is able to meet both the peak period capacity needs for Riverside South traffic and special event traffic needs to the Rideau-Carleton Raceway and future Exhibition site.
Bronson/Portage link	Laurier Avenue to Portage Bridge	Council resolution (April 2003)
Carling Avenue widening	Moodie Drive to March Road	Additional capacity to be provided by the four lane widening of Highway 417 across the Greenbelt by MTO
Greenbank Road	Fallowfield Road to Hunt Club Road.	Adequate capacity across the Greenbelt can be provided by widening Prince of Wales Drive and Woodroffe Avenue.
Navan Road widening	Blackburn Hamlet Bypass Extension 1.5 km westerly	High transit use target reduces auto demand to be accommodated within the Planning Horizon.

Figure 11. Roads in the City Plan not included in ROC's Plan *

Road	Limits	Primary Reason
Albion Road	Lester Road to Earl Armstrong Road	Replaces alternative to a new Bowesville Road connection whilst also distributing the traffic volumes from widened Earl Armstrong Road as well as accommodating special event traffic from Rideau-Carleton Raceway and future Exhibition site
Carling Avenue widening from 4 to 6 lanes	Richmond Road to Holly Acres Road	Addresses capacity deficiencies at the Western Parkway screenline, in conjunction with the improvements to Richmond Road and Hunt Club Road
Greenbank Road	Strandherd Drive to Cambrian Road	Arterial road continuity to new Highway 417 Interchange at Cambrian
Innes Road Widening	Trim Road to Frank Kenny Road	Reflects completed environmental assessment relocation for Trim Road
Katimivak Road Widening	Castlefrank Road to Terry Fox Drive	Accommodate growth within the centre of Kanata and arterial road continuity
Lester Road Widening	Albion Road to the Airport Parkway	Accommodate growth from the south growth area and continuity from Albion Road
Longfields Drive New road	Woodroffe Avenue to Southpoint Business Park	Accommodate traffic growth in the Southpoint Business Park
Merivale Road	Prince of Wales Drive to Fallowfield Road	Accommodate traffic growth in the Southpoint Business Park
New east-west arterial road	Highway 416 to Highway 417 east within the urban area	Accommodate increased east-west traffic demand
Old Trim Road Widening	Trim Road to Innes Road	Consequence of the completed environmental assessment and resulting realignment of Trim Road
Richmond Road Widening from 2 or 3 lanes to 4 lanes	Golden Avenue to Carling Avenue.	Addresses capacity deficiencies at the Western Parkway screenline, in conjunction with Carling Avenue and Hunt Club Road widenings and new location-undefined east-west road facility
Terry Fox Drive New arterial (initial 2 lanes)	Goulbourn Forced Road to Richardson Side Road	Identified in the former Kanata Official Plan to access adjacent developments in north Kanata
Terry Fox Drive Widening 2 to 4 lanes	March Road to Campeau Drive	Accommodate growth in north areas of Kanata
Terry Fox Drive New arterial (initial 2 lanes)	Cope to Fernbank Road and Fernbank Road to Eagleson Road	Identified in the former Kanata Official Plan to access adjacent developments in Hazeldean
Woodroffe Avenue widening	Stoneway Drive to Strandherd Road	Accommodate traffic growth from the urban areas south of Fallowfield Road.

* Other road projects were added to the City Plan as a result of Kanata West development approval as shown in Fig. 9.

6 Staging Plan

6.1 General

It is recognized that priorities for introducing any road infrastructure is established annually by Council at budget time based on its assessment of the relative value of investment in transportation versus the many other programs or services competing for limited funding resources. However, for the purpose of identifying the priorities and timing of road network improvements on a rational basis, it has been assumed that full funding will be available and that the tax burden to both existing and future residents will be distributed equitably.

It is noted that if future funding is severely deficient, then the value of substantially increasing the share of annual transportation related expenditure on intersection improvements should be assessed to establish the highest value transportation investments considering safety, delay, emissions and other factors.

6.2 Priority Setting

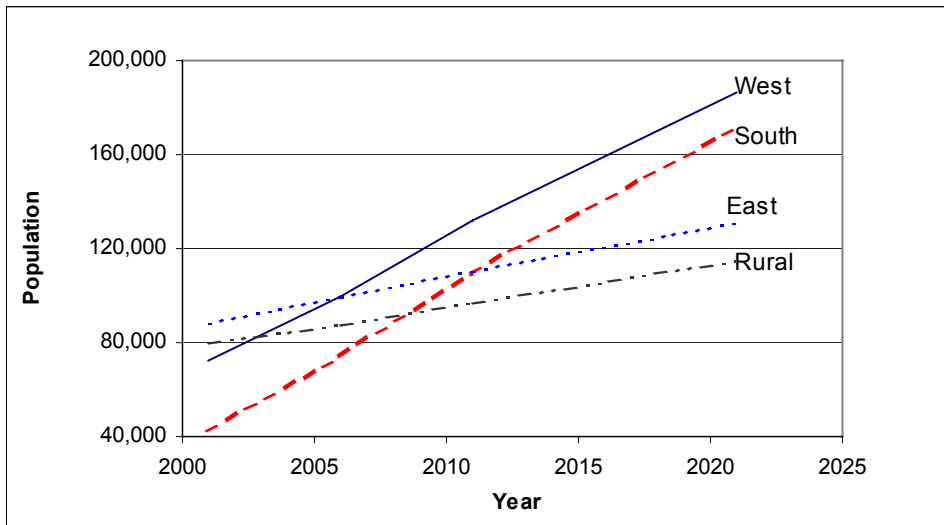
In setting the priority for staging the required roadway infrastructure the following four principles were adopted:

- Locations experiencing the highest delays (lowest level of service) receive the highest priority for provision of additional capacity.
- Capacity will be enhanced by widening existing facilities before adding new roads.
- Facilities closer in proximity to serving the demand receive priority over more remote links.
- Investment per capita will remain constant in real dollars over the life of the plan (i.e. the annual expenditure on roads at the horizon year for a population of 1.5 times today's will be 1.5 times today's annual expenditure).

For links crossing screenlines, the priority sequence has been determined upon the basis of the date at which the screenline volume to capacity ratio exceeds 0.9 (1.0 for the Inner Urban Area). This analysis is given in Appendix B. Given that the current projections of population growth for the urban communities beyond the greenbelt is nearly linear (see **Fig 12**), it can be anticipated that traffic across the critical screenlines can be anticipated to grow also in a nearly linear fashion.

Preliminary analysis based upon this traffic growth assumption clearly identified that there are parts of the system that have been deficient for about the last four or five years and other parts that will require additions or widenings today or within the next five to seven years.

Figure 12. Population Projections for Urban Communities Beyond the Greenbelt



Priorities for upstream or downstream links assessed as requiring capacity enhancements to deliver or accommodate the link volume at the screenline crossing link were assigned a staging sequence shortly ahead or shortly after that of the triggering screenline link dependant upon their current reserve or lack of additional capacity.

For other links, particularly links within developing communities, priorities were established using information from various development approval studies, ongoing or completed environmental assessments, and the expected timing of adjacent major roadworks by the City or others. The results of this analysis is provided in Figs. 13A and 13B. Detailed network analysis beyond what can be undertaken within the time frame available for developing the Master Plan would be necessary to fine tune there projects.

Figure 13A. Network Priorities First Ten years

Infrastructure				Timing			
Facility	La.	Cost (\$000)	Cumm Cost (\$000)	Screenline Capacity Need (Year)	Screenline	Upstream or Downstream Capacity Need (Year)	Accom Adjact Devlp. (Year)
Alta Vista Corridor (Nicholas to Riverside)	4	30,000	30,000	1998	Rideau River		
Innes Road (Hwy 417 to Blair Rd)	4>6	20,000	50,000				2003
Innes Road (Orleans Blvd.-Frank Kenny)	2>4	20,000	70,000				2003
Richmond Road (Carling to Golden)	2/3>4	19,940	89,940	2003	Western Parkway		
Carling Avenue (Richmond to Holly Acres)	4>6	14,500	104,440		Western Parkway	2003	
Woodroffe Avenue (CNR to Sportsplex)	2>4	46,509	150,949	2003	Fallowfield		
Woodroffe Avenue (Stoneway to Strandherd)	2>4	3,414	154,363				2003
Hunt Club Bridge Deck Modification.	4>6	1,500	155,863	2005	Rideau Manotick		
New Arterial East (Rideau River to 417E)	4	72,000	227,863	2005	Rideau River		
Albert Street (Empress to Booth)	4>6	1,400	229,263				2006
Eagleson Road (Cadence to Fernbank)	2>4	4,025	233,288				2006
March Road (Morgans Grant to Old Carp Rd)	2>4	9,140	242,428				2006
Greenbank Road (Malvern to Nepean South Main St)	2>4	30,000	272,428				2006
Strandherd- Armstrong Bridge	6	19,880	292,308	2006	Rideau Manotick		
Strandherd Drive (Rideau River to Woodroffe)	4	19,284	311,592		Rideau Manotick	2006	
Total Phase I			311,592				
Strandherd Drive (Woodroffe to Greenbank)	2>4	14,450	326,042		Rideau Manotick	2008	
Strandherd Drive (Greenbank to Fallowfield)	2>4	21,005	347,047		Rideau Manotick	2010	
Armstrong Road (Rideau Riv.to LimebankRd)	2>4	24,500	371,547		Rideau Manotick	2006	
Armstrong Road (Limebank Rd to Albion Rd)	2>4	36,500	408,047		Rideau Manotick	2008	
Armstrong Road (Albion Road to Bank Street)	2	12,980	421,027		Rideau Manotick	2010	
Hunt Club Road (416 to Rideau River)	4>6	27,090	448,117	2007	Western Parkway		
Hunt Club Road (Rideau Riv.to Bank St)	4>6	18,050	466,167		Western Pkwy	2007	
Hunt Club Road (Hawthorne to 417E)	4	34,940	501,107		Western Pkwy	2007	
Riverside Dr (Hunt Club to Limebank)	2>4	6,000	507,107	2007	Leitrim	2014	
Innes-Walkley Connection	2	6,000	513,107	2007	Greens Creek		
Blackburn Hamlet Bypass (Innes to Navan)	4>6	9,280	522,387		Greens Creek	2007	
Coventry Rd (Belfast to S.L.Shop Ctr.)	2>4	2,580	524,967				2008
Prince of Wales Drive (Fisher to Woodroffe)	2>4	43,560	568,527	2010	Fallowfield		
Fallowfield (Strandherd Rd to Woodroffe)	2>4	15,000	583,527		Fallowfield	2010	
Terry Fox Drive (March Rd. to Richardson S Rd.)	2>4	29,454	612,981				2018
Greenbank Road (Nep S Main St to Cambrian)	2>4	36,440	649,421				2006
Total Phases I & II			649,421				

Figure 13B. Network Priorities Balance of Plan

Infrastructure				Timing			
Facility	La.	Cost (\$000)	Cum Cost (\$000)	Screenline Capacity Need (Year)	Screenline	Upstream or Downstream Capacity Need (Year)	Accom Adjact Devlp. (Year)
Hazeldean Road (Carp to Terry Fox)	2>4	31,460	680,881	2021+	Terry Fox		2008
Trim Road (N Service Rd to south of Innes)	2>4	46,050	726,931				2011
Riverside Drive (Heron to Brookfield)	4>6	1,810	728,741				2011
Mer Bleue Road (Innes Rd to BHBPEX)	2>4	7,340	736,081				2011
Longfields Extension (Woodroffe to JDS)	2	1,360	737,441				2011
Jockvale Road (Prince of Wales to Strandherd)	2>4	23,330	760,771				2011
Cyrville Road (Cummings to Innes)	2>4	19,390	780,161				2011
Campeau Drive (March Rd to Terry Fox Dr)	2>4	17,560	797,721				2011
Old Trim Road (Trim Rd to Innes Rd)	2>4	6,400	804,121				2011
March Road (Old Carp Rd to Dunrobin Rd)	2>4	22,850	826,971				2011
Fallowfield (Woodroffe to Prince of Wales)	2>4	43,260	870,231		Fallowfield	2011	2011
Strandherd Drive (Woodroffe to Rideau River)	2>4	9,643	879,874		Rideau Manotick	2011	
New Arterial West (416 to Rideau River)	4	108,000	987,874	2011	Western Pkwy		
Albion Road (Armstrong to Lester)	2>4	18,660	1,163,174	2012	Leitrim		
Alta Vista Corridor (Riverside to Hospitals)	4	25,000	1,012,874	2012	Smyth		
Limebank Road (Armstrong Rd to Riverside Dr)	2>4	27,450	1,040,324	2014	Leitrim		
New Rideau River Bridge		20,000	1,060,324	2014	Rideau		
Bank Street (Conroy to Leitrim)	4>6	3,320	1,255,414	2014	Leitrim		
Bank Street (Leitrim to Armstrong)	2>4	12,730	1,268,144	2014	Leitrim		
Cummings Avenue (Ogilvie to Cyrville)	2>4	2,150	1,062,474				2015
Eagleson Road (Fernbank to Hope)	2.4	4,000	1,066,474				2015
Innes-Walkley Connection	2>4	4,090	1,070,564				2015
Merivale Road (Fallowfield to Prince of Wales)	2>4	6,000	1,076,564				2015
Merivale Road (Slack to Amberwood Cres)	2>4	26,950	1,103,514				2015
St Joseph Blvd (Tenth Line to Dairy Rd)	2>4	9,060	1,112,574				2015
Strandherd Drive (Greenbank to Woodroffe)	4>6	14,450	1,127,024				2015
Katimavik Road (Terry Fox to Eagleson)	2>4	17,490	1,144,514				2015
Riverside Dr (Hunt Club to Limebank)	4>6	3,170	1,166,344	2016	Leitrim		
Conroy Road (Walkley to Hunt Club)	4>6	4,050	1,170,394	2003	CNR East		
Alta Vista Corridor (Hospitals to Walkley)	4	42,500	1,212,894		CNR East	2018	
Lester Road (Airport Parkway to Albion Rd).	2>4	5,000	1,217,894		Leitrim	2014	
Walkley Road (Heron Rd.to Highway 417E)	4>6	34,200	1,252,094		CNR East	2015	
Conroy Road (Hunt Club to Bank)	2>4	24,750	1,292,894		Leitrim	2014	
Airport Parkway (Brookfield to Lester)	2>4	15,860	1,308,754	2012	CNR East		
Total Phases I, II & III			1,308,754				

		Theoretical	Selected
Total expenditure for first five years at a constant rate per capita (\$000)	\$314,101	\$314,101	\$311,592
Total expenditure for first ten years at a constant rate per capita (\$000)	\$667,465	\$353,364	\$337,829
Total expenditure by end of the Plan (\$000)	\$1,308,754	\$641,290	\$659,333

Appendix A Screenline Capacity Analysis

NOTE: PREFERRED OPTIONS ARE SHOWN IN **BOLD**.

Bilberry Creek	Forecast transit person trips	5640
	Forecast auto person trips	10,330
	Forecast transit modal split	35.3%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Jeanne D'Arc	600	600	600	
RR 174	4,400	4,620	3500	
St. Joseph	1,600	1,680	1100	
Des Epinettes	600	600	600	
Innes	1,300	1,365	1950	
Navan	1,000	1,050	400	
Innes By-pass Ext.	0	0	300	
Centroid	0	0	900	
Total	9,500	9,915	9350	450
@ LOS D	8,550	8,900		

Option		Additional Capacity	V/C
1	2 LA --> 4LA Innes Road	800	0.87

CNR East	Forecast transit person trips	8560
	Forecast auto person trips	12,160
	Forecast transit modal split	41.3%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Riverside	2,000	2,100	2000	
McCarthy	600	600	700	
Airport Parkway	1,700	1,700	2700	
Bank	1,800	1,890	1500	
Conroy	2,100	2,205	1800	
Hawthorne	1,800	1,890	1250	
Centroids	0	0	1400	
Total	10,000	10,385	11,450	2,100
@ LOS D	9,000	9,350		

Option		Additional Capacity	V/C
1	2 LA --> 4 LA Airport Parkway** 4 LA --> 6 LA Conroy ** Downstream capacity constrained @ Bronson/Sunnyside	1000 1000 Total 2000	0.92
2	4 LA --> 6 LA Conroy 2 LA --> 4 LA Hawthorne This option provides capacity remote from the centroid of demand located west of Pkwy	1000 900 Total 1900	0.93

CNR West	Forecast transit person trips	7240
	Forecast auto person trips	12,770
	Forecast transit modal split	36.2%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Highway 416	4,400	4,620	3350	
Cedarview	600	600	650	
Greenbank	1,900	1,995	1950	
Woodroffe	1,900	1,995	2350	
Merivale	1,600	1,680	1750	
Prince of Wales	1,400	1,470	1800	
Total	11,800	12,360	11850	750
@ LOS D	10,620	11,100		

Option		Additional Capacity	V/C
1	2 LA --> 4LA Fisher Avenue	900	0.89
2	2 LA --> 4LA Prince of Wales	900	0.89

CPR	Forecast transit person trips	17130
	Forecast auto person trips	17,810
	Forecast transit modal split	49.0%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Ottawa River Parkway	2,500	2,500	2000	
Scott	1,600	1,680	1200	
Somerset	900	945	600	
Gladstone	900	945	300	
Highway 417	8,000	8,400	7900	
Carling	1,600	1,680	2200	
Prince of Wales	1,000	1,000	900	
Colonel By	600	600	1000	
Total	17,100	17,750	16,100	100
@ LOS D	15,390	16,000		

Notes: P.O.W and O.R.P have no truck component
Q'way assumed to have a 3 1/2 effective lanes.

Option		Additional Capacity	V/C
1	No additional capacity required.	0	0.91

Eagleson North	Forecast transit person trips	8,897
	Forecast auto person trips	9,698
	Forecast transit modal split	47.8%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Carling	1,000	1,050	1700	
Corkstown	600	600	800	
H417	4,400	4,620	6200	
Total	6,000	6,270	8700	3,100
@ LOS D	5,400	5,600		

Option		Additional Capacity	V/C
1	4 LA --> 6 LA+ 2 HOV Lane on Hwy 417 by MTO	4620	0.79

Eagleson South	Forecast transit person trips	535
	Forecast auto person trips	5,588
	Forecast transit modal split	8.7%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Timm	600	600	600	
Robertson (Hwy 7)	1,900	1,995	1800	
Hope Side	600	630	1300	
Fallowfield	1,000	1,050	1100	
Stonehaven		800	641	
Total	4,100	5,075	5,400	800
@ LOS D	3,690	4,600		

Option		Additional Capacity	V/C
1	DO NOTHING. Assume shift to North part of Screenline.	0	1.07

Total Eagleson *	Forecast transit person trips	9432
	Forecast auto person trips	15286
	Forecast transit modal split	38.2%

Sub Screenline	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
North	6,000	6,270	8700	
South	4,100	5,075	5400	
Total	10,100	11,345	14,100	3,900
@ LOS D	9,090	10,200		

Option		Additional Capacity	V/C
1	4 LA --> 6 LA+ 2 HOV Lane on Hwy 417 by MTO	4620	0.88

* This screenline differs from City's Eagleson Road-LN10 (Richmond-LN43 has been added not including Richmond Rd with the addition of Fallowfield Road)

Fallowfield East		Forecast transit person trips		5517
		Forecast auto person trips		7,560
		Forecast transit modal split		42.2%
Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Greenbank	1,300	1,365	1800	
Woodroffe	1,300	1,365	1500	
Merivale	1,000	1,050	1400	
Prince of Wales	1,400	1,470	2400	
Total	5,000	5,250	7,100	2400
@ LOS D	4,500	4,700		
Option			Additional Capacity	V/C
1	2 LA --> 4 LA Prince of Wales 2 LA --> 4 LA Woodroffe Ave :		1000 1000 Total 2000	0.97
2	2 LA --> 4 LA Prince of Wales 2 LA --> 4 LA Woodroffe Ave 2 LA --> 4 LA Merivale Rd		1000 1000 800 Total 2800	0.87
3	2 LA --> 4 LA Prince of Wales 2 LA --> 6 LA Woodroffe Ave Inconsistent with limiting arterial widenings to 4 lanes where possible (With Transitway in Woodroffe corridor, total of 8 lanes.)		1000 2000 Total 3000	0.85

Fallowfield West		Forecast transit person trips		13
		Forecast auto person trips		4,466
		Forecast transit modal split		0.3%
Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Moodie	700	735	350	
Highway 416	4,400	4,620	3000	
Cedarview	600	600	900	
Centroids	0	0	150	
Total	5,700	5,955	4400	1,000
@ LOS D	5,130	5,400		
Option			Additional Capacity	V/C
1	No additional capacity required.			0.82

Total Fallowfield		Forecast transit person trips		5530
		Forecast auto person trips		12026
		Forecast transit modal split		31.5%

Sub Screenline	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
East	5,000	5,250	7,100	
West	5,700	5,955	4,400	
Total	10,700	11,205	11,500	1,400
@ LOS D	9,630	10,100		

Option			Additional Capacity	V/C
1	2 LA --> 4 LA Prince of Wales 2 LA --> 4 LA Woodroffe Ave (Some demand pushed to Cedarview/Hwy 416):		1000 1000 Total 2000	0.87

Greens Creek	Forecast transit person trips	8750
	Forecast auto person trips	12,840
	Forecast transit modal split	40.5%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Rockcliffe Parkway	1,000	1,000	600	
Queensway	4,400	4,620	4600	
St. Joseph (Montreal)	2,000	2,100	1900	
Innes*	3,200	3,360	3600	
Innes-Walkley Connection	0	0	900	
Total	10,600	11,080	11,600	1,600
@ LOS D	9,540	10,000		

* Includes imminent 2 la widening

Option		Additional Capacity	V/C
1	4 LA Innes-Walkley Connection	2000	0.89

Inter-Provincial	Forecast transit person trips	10,200
	Forecast auto person trips	18,100
	Forecast transit modal split	36.0%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Champlain	1,500	1,500	2300	
Chaudiere	1,500	1,575	1900	
Portage	2,350	2,350	4100	
Alexandra	1,000	1,000	1000	
McDonald-Cartier	4,500	4,725	5100	
East bridge**	0	0	1300	
West bridge**	0	0	1000	
Total	10,850	11,150	16,700	6,700
@ LOS D	9,765	10,000		

** The bridges were assumed to be in place for assignment purpose

Option		Additional Capacity	V/C
1	Additional bridge crossing(s) required		

Leitrim	Forecast transit person trips	3970
	Forecast auto person trips	8,360
	Forecast transit modal split	32.2%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
River	1,500	1,575	2400	
Albion	1,000	1,050	900	
Bank	1,500	1,575	2300	
Hawthorne	1,000	1,050	800	
<i>Bowesville Rd</i>	0	0	1200	
Centroid	0	0	50	
Total	5,000	5,250	7,650	2,950
@ LOS D	4,500	4,700		

Option		Additional Capacity	V/C
1	2 LA --> 6LA Riverside 2 LA --> 4 LA Albion 2 LA --> 4 LA Bank St south of Leitrim 4 LA --> 6 LA Bank St from Leitrim to Conroy Directly addresses RC Raceway and EX traffic needs. Also requires widening of Lester from 2 to 4 lanes between Bank and Airport Pkwy	2500 400* 500 Total 3400	0.89
2	2 LA --> 6 LA Riverside 2 LA Bowesville Does not address needs of the EX and the RC Raceway	2500 1350 Total 3850	0.84

* Recognises discontinuity at Lester Road

Rideau River North	Forecast transit person trips	3300
	Forecast auto person trips	4,660
	Forecast transit modal split	41.5%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Sussex	1,300	1,300	1000	
Minto Bridges	600	600	0	
St. Patrick	2,000	2,100	2000	
Montreal / Cummings	1,600	1,680	1600	
Total	5,500	5,680	4,600	(500)
@ LOS D	4,950	5,100		

Option		Additional Capacity	V/C
1	Theoretical capacity surplus. Reality is traffic diversion from the directly adjacent heavily overloaded Rideau River Queensway and Rideau River Central sub screenlines	0	0.81

Rideau River Queensway	Forecast transit person trips	13,480
	Forecast auto person trips	10,120
	Forecast transit modal split	57.1%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Hwy 417	7,000	7,350	8800	
Total	7,000	7,350	8,800	2,200
@ LOS D	6,300	6,600		

Option		Additional Capacity	V/C
1	Do nothing	0	1.20
2	6 > 8 LA Highway 417	2400	0.98

Rideau River Central	Forecast transit person trips	7,010
	Forecast auto person trips	8,730
	Forecast transit modal split	44.5%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Smyth	1,400	1,470	1600	
Bank / Billings	1,400	1,470	1500	
Bronson / Dunbar	2,600	2,730	2900	
Alta Vista Transportation Corridor	0	0	2200	
Total	5,400	5,670	8,200	3,100
@ LOS D	4,860	5,100		

Option		Additional Capacity	V/C
1	4 LA Alta Vista Parkway	1600*	1.12
2	4 LA Alta Vista Parkway New 4 LA E-W Rd'	1600* 3000	0.75
		Total 4600	

* Recognizes downstream capacity constraint @ Laurier

Rideau River Total	Forecast transit person trips	23790
	Forecast auto person trips	23,510
	Forecast transit modal split	50.3%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
North	5,500	5,680	4600	
Queensway	7,000	7,350	8800	
Central	5,400	5,670	8100	
Total	17,900	18,700	21,500	4,700
@ LOS D	16110	16,800		

Option		Additional Capacity	V/C
1	4 LA Alta Vista TC	1600	1.06
2	4 LA Alta Vista TC 6 LA --> 8 LA Queensway	1600 2400	
		Total 4000	0.95
3	4 La Alta Vista TC New 4 lane E-W Arterial	1600 3000	
		Total 4600	0.92

Rideau South	Forecast transit person trips	3530
	Forecast auto person trips	7,190
	Forecast transit modal split	32.9%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Heron	2,500	2,625	2000	
Hogs Back	900	900	800	
Hunt Club	2,500	2,625	3700	
Centroid	0	0	0	
Total	5,900	6,150	6,500	1,000
@ LOS D	5,310	5,500		

Option		Additional Capacity	V/C
1	4 LA --> 6 LA Hunt Club Bridge Deck	500	0.98
2	4 LA --> 6 LA Hunt Club Bridge New bridge 2 La River Crossing	500 800 Total 1300	0.88

Manotick	Forecast transit person trips	1200
	Forecast auto person trips	6,980
	Forecast transit modal split	14.7%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Bankfield / Bridge	800	840	750	
Roger Stevens / Kars	900	945	850	
Fallowfld/Leitrim Brdg			1150	
Armstrong			2400	
OTC North Alignment			1550	
Total	1,700	1,785	6,700	5,100
@ LOS D	1,530	1,600		

Option		Additional Capacity	V/C
1	6 LA Strandherd/Armstrong link 6 LA New link	3000 3000 Total 6000	0.86

Total Rideau / Manotick	Forecast transit person trips	4730
	Forecast auto person trips	14170
	Forecast transit modal split	25.0%

Sub Screenline	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Rideau South	5,900	6,150	6500	
Manotick	1,700	1,785	6700	
Total	7,600	7,935	13,200	6,100
@LOS D	6,840	7,100		

Option		Additional Capacity	V/C
1	4 LA --> 6 LA Hunt Club bridge 6 LA Strandherd/Armstrong link 6 LA New link	500 3000 3000 Total 6500	0.91

Smyth / Hydro	Forecast transit person trips	4700
	Forecast auto person trips	6,200
	Forecast transit modal split	43.1%

Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Riverside	1,800	1,890	1800	
Alta Vista Dr.	600	600	600	
Russell	300	300	300	
St. Laurent	1,800	1,890	1300	
Alta Vista Transportation Corridor			1600	
Total	4,500	4,680	5,600	1,400
@ LOS D	4,050	4,200		

Option		Additional Capacity	V/C
1	4 LA Alta Vista Parkway	2000	0.83
2	2 LA Alta Vista Parkway	1000	0.98

Western Parkway North		Forecast transit person trips		10650
		Forecast auto person trips		13,270
		Forecast transit modal split		44.5%
Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Richmond		950	700	
Carling		1,900	2650	
Queensway		6,900	7900	
Iris		600	250	
Centroid			500	
Total			10,350	12,000
@ LOS D			9,300	2,800
Option			Additional Capacity	V/C
1	2 LA --> 4 LA Richmond 6 LA --> 8 LA Queensway		800 2200 Total 3000	0.90
2	2 LA --> 4 LA Richmond 4 LA --> 6 LA Carling*		800 800 Total 1600	1.0
3	2 LA --> 4 LA Richmond		800	1.07

* Precludes opportunity for moderate cost rail rapid transit

Western Parkway South		Forecast transit person trips		2750
		Forecast auto person trips		6,060
		Forecast transit modal split		31.2%
Link	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Baseline		2,600	1200	
Knoxdale		600	400	
Hunt Club		2,100	3150	
Majestic		0	350	
Centroids		0	850	
Total			5,300	5,950
@ LOS D			4,800	1,150
Option			Additional Capacity	V/C
1	4 LA --> 6 LA Hunt Club		1000	0.94
2	4 LA --> 6 LA Hunt Club New 2 LA E-W arterial		1000 900 Total 1900	0.82
3	4 LA --> 6 LA Hunt Club 4 LA --> 6 LA Baseline*		1000 800 Total 1800	0.83

* Precludes opportunity for moderate cost bus rapid transit

Total Western Parkway		Forecast transit person trips		13400
		Forecast auto person trips		19330
		Forecast transit modal split		40.9%
Sub Screenline	Capacity		Demand	Deficiency
	Veh	PCU	PCU	PCU
Western Parkway North			10,350	12000
Western Parkway South			5,300	5950
Total			15,650	17,950
@ LOS D			14,100	3,850
Option			Additional Capacity	V/C
1	2 LA --> 4 LA Richmond 4 LA --> 6 LA Hunt Club New 4 LA E-W arterial		800 1000 2000 Total 3800	0.92
2	2 LA --> 4 LA Richmond 4 LA --> 6 LA Hunt Club 6 LA --> 8 LA Queensway		800 1000 2200 Total 4000	0.91

Appendix B Staging Analysis

Billberry Creek	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
Existing	9915	9915	8924	2018	
2>4 La Innes Road	800	10715	9643.5	2023	2018

Demand		
YEAR	Veh	PCU
2001	6630	6710
2021		9350

CNR East	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
Existing	10385	10385	9346.5	2003	
4>6 La Conroy Road	1000	11385	10246.5	2012	2003
2>4 La Airport Parkway	1000	12385	11146.5	2019	2012

Demand		
YEAR	Veh	PCU
2001	8440	9280
2021		11450

CNR West	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
Existing	12360	12360	11124	2010	
2>4 La Prince of Wales	900	13260	11934	2023	2010

Demand		
YEAR	Veh	PCU
2001	9570	10527
2021		11839

CPR	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
Existing	17750	17750	15975	2020	
	131	17881	16093	2021	2020

Demand		
YEAR	Veh	PCU
2001	11170	12287
2021		16093

Eagleson	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
Existing	11345	11345	10210.5	2009	
4 > 6 La 417 by MTO	2310	13655	12289.5	2015	2009
6 > 8 La 417 by MTO	2310	15965	14368.5	2022	2015

Demand		
YEAR	Veh	PCU
2001	7070	7777
2021		14079

Fallowfield East	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
Existing	5250	5250	4725	2003	
2>4 La Woodroffe	1000	6250	5625	2010	2003
2>4 La Prince of W	1000	7250	6525	2017	2010
To Fallowfield West Sceneline	1290	7815	7033.5	2021	2017

Demand		
YEAR	Veh	PCU
2001	4065	4472
2021		7033

Greens Creek	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
Existing	11080	11080	9972	2007	
2 La Innes-Walkley	1000	12080	10872	2015	2007
2>4 La Innes- Walkley	1000	13080	11772	2023	2015

Demand		
YEAR	Veh	PCU
2001	8390	9229
2021		11585

Leitrim	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
	Existing	5250	5250	4725	2007
2>4 Riverside	1250	6500	5850	2012	2007
2>4 La Albion	400	6900	6210	2014	2012
Bank 2>4 S of L&4>6 L to Conroy	500	7400	6660	2016	2014
4>6 La Riverside	1250	8650	7785	2021	2016

Demand		
YEAR	Veh	PCU
2001	3150	3465
2021		7673

Rideau-Manotick	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
	Existing	7935	7935	7141.5	2005
4>6 La Hunt Club Bridge	500	8435	7591.5	2006	2005
6 La. Armstrong Strandherd Bridge	3000	11435	10291.5	2014	2006
6 La Additional Bridge	3000	14435	12991.5	2021	2014

Demand		
YEAR	Veh	PCU
2001	5120	5632
2021		13251

Rideau River	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
	Existing	18700	18700	16830	1998
2 La Alta Vista T.C	800	19500	17550	2002	1998
2>4 la Alta Vista T.C.	800	20300	18270	2005	2002
New 4 La E-W Arterial	3000*	22300	20970	2018	2005

Demand		
YEAR	Veh	PCU
2001	15850	17435
2021		21506

* Assumed 6 arterial lane capacity structure at the river addressing 4 la E-W and 2 la N-S demands

Smyth-Hydro	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
	Existing	4680	4680	4212	2006
2 La Alta Vista parkway	1000	5680	5112	2016	2006
2>4 La Alta Vista parkway	1000	6680	6012	2026	2016

Demand		
YEAR	Veh	PCU
2001	3440	3784
2021		5576

Western Parkway	Capacity			Year	
	Road	Cum	Effective	Full	Requ'd
	Existing	15998	15998	14398.2	2003
2 > 4 La Richmond	800	16798	15118.2	2007	2003.
4 > 6 La Hunt Club	1050	17848	16063.2	2012	2007
New 4 Lane E-W Arterial	2100	19948	17953.2	2021	2012

Demand		
YEAR	Veh	PCU
2001	12710	13981
2021		17921