2008 Transportation Master Plan
City of Ottawa

Road Infrastructure Needs Study

prepared for:
City of Ottawa

prepared by:
Delcan
1223 Michael Street
Suite 100
Ottawa, ON K1J 7T2

November 3, 2008

TO3022TOD00

Table of Contents

List of Tables

List of Figures

List of Appendices

1.0 PURPOSE OF REPORT

A fundamentally important component of the 2008 Transportation Master Plan (TMP), one of the supporting documents to the 2008 Official Plan Review by the City of Ottawa, is the determination of the major road network requirements to serve the City's population and employment by the Official Plan horizon year of 2031. The major road network, comprised of new arterials and major collectors, and widenings to existing arterials and major collectors, is that which is required to accommodate peak hour travel by, and the delivery of goods and services to, the City of Ottawa population and employment projected to be in place by that time.

This report addresses only the road network requirements for the 2031 planning horizon. A separate report addresses the transit system requirements to 2031 and beyond, both inside and outside the Greenbelt. The transit system requirements, necessary to achieve a 30% City-wide peak hour modal split, (including both a rapid transit network and supplementary system of transit priority measures on arterial roads), were identified first. This was followed by the identification of the complementary road network needed to accommodate the residual peak hour travel demand. It is important to note that the road network analysis assumes that all of the identified/required transit infrastructure is in place, and that the 30% City-wide peak hour transit modal split is achieved. If this does not occur, there may be a need for additional road widenings or new road links not identified/recommended herein if the same level of service is to be maintained.

The detailed assessment of long-term transit and road infrastructure needs, (the two dominant delivery components of transportation service), both currently and long-term, involved the use of computer-based software to project how future travel demand in both the morning and afternoon peak hours, on a typical weekday, could change as a result of the projected population and employment growth now being planned for the City of Ottawa in the 2008 City Official Plan (OP) Update.

It is noteworthy that in preparation for the 2008 OP Update, City staff were cognizant of the need to update their basic travel demand tool, which is the TRANS Travel Demand Forecasting Model (TRANS Model). To this end, in 2005 a City-wide Origin-Destination Survey of travel within the National Capital Region was completed. Based on the detailed findings of inter-zonal travel data, the TRANS model was calibrated to reflect changes that had occurred over the 10-year period since the last model update in 1995. The updated model was then used to estimate Ottawa's future travel demands, by both transit and private vehicle, on which to base the long-term transportation infrastructure network requirements that will reflect the policies of City Council with regard to the provision of these services.

2.0 BACKGROUND DATA

The TRANS Model, updated to reflect the findings of the 2005 City-wide Origin-Destination Survey, uses the assumptions reflected in Table 2-1 as its base parameters of growth.

Table 2-1: Base Growth Parameters: 2008 OP/TMP Update

	Base Year		Horizon Year: 2031		% Growth	
	Ottawa	**NCR**	**Ottawa**	**NCR**	**Ottawa**	**NCR**
Population	870,700	1,149,900	1,135,700	1,503,900	+30%	+31%
Employment	521,700	624,300	703,000	866,000	+35%	+39%
Households	351,000	N/A	496,000	N/A	+41%	N/A
NCR: = National Capital Region						

As shown in Table 2-1, the population of the City of Ottawa, and of the National Capital Region (NCR) is now being projected to grow by approximately 30% over the projected lifetime (year 2031) of the 2008 Official Plan. The employment projections reflect growth within the range of 35% to 39%.

It is noteworthy that the current base growth parameters of population and employment, which are the key determinants of future travel demand and need, reflect projected data for 2031 for the City of Ottawa that are lower than the 2021 projections on which the 2003 Official Plan and Transportation Master Plan were based, i.e., the 2021 population was assumed to be 1,192,000 compared to the current 2031 projection of 1,136,000 (56,000 fewer persons). Also, the 2031 employment target of 703,000 jobs is now 46,000 jobs fewer than the previous 2021 employment projection.

Base parameters for the planned growth inside and outside the Greenbelt, and for the rural area are presented in Table 2-2.

Table 2-2: Base Growth Parameters for Inside and Outside Greenbelt

Location	Population			Employment		
	Base Year	2031	% Growth	Base Year	2031	% Growth
Inside Greenbelt	533,100	585,800	+10%	428,600	505,500	+18%
Outside Greenbelt	251,900	433,300	+72%	71,300	161,300	+126%
Rural	85,700	116,600	+36%	21,800	36,200	+66%
TOTAL	**870,700**	**1,135,700**	**+30%**	**521,700**	**703,000**	**+35%**

As will be identified later in this report, the vast majority of future arterial road needs are located within the suburban growth centres and through the Greenbelt leading to/from these centres, as opposed to inside the Greenbelt.

An immediate and not unexpected consequence of the lower growth targets on which the 2008 OP/TMP are based is the need for a reduced amount of new road infrastructure compared to the 2003 TMP's projected needs. Also assisting in reducing additional road infrastructure needs is the projected change in demographics as shown in Table 2-3, and the predicted increase in transit modal share, resulting in higher transit usage This finding, coupled with the reality that the somewhat lesser road needs can now be spread over a longer period of time, to 2031, means that the annual cost to implement the identified road infrastructure needs will be substantially reduced.

Table 2-3: Projected Demographic Changes: 2006 to 2031 (rounded)

Age Groups	2006	2031
0 – 19	24%	20%
20 – 34	22%	19%
35 - 49	25%	23%
50 – 64	18%	19%
65+	12%	20%
Of particular interest from the transportation perspective is the anticipated reduction over the next 25 years in the percentage of the population in the under 19 years of age cohort and the increase in the percentage of the population in the over 65 years of age cohort. The impact of these changes is most likely to be felt on peak hour transit ridership.		

3.0 TRANSIT AND AUTOMOBILE USE

While the demand forecasting process estimated future growth in passenger travel demand by all travel modes (walking, cycling, transit and automobile), a subsequent detailed analysis was needed to determine the implications of automobile and transit demand on the capacity requirements of the road and rapid transit systems.

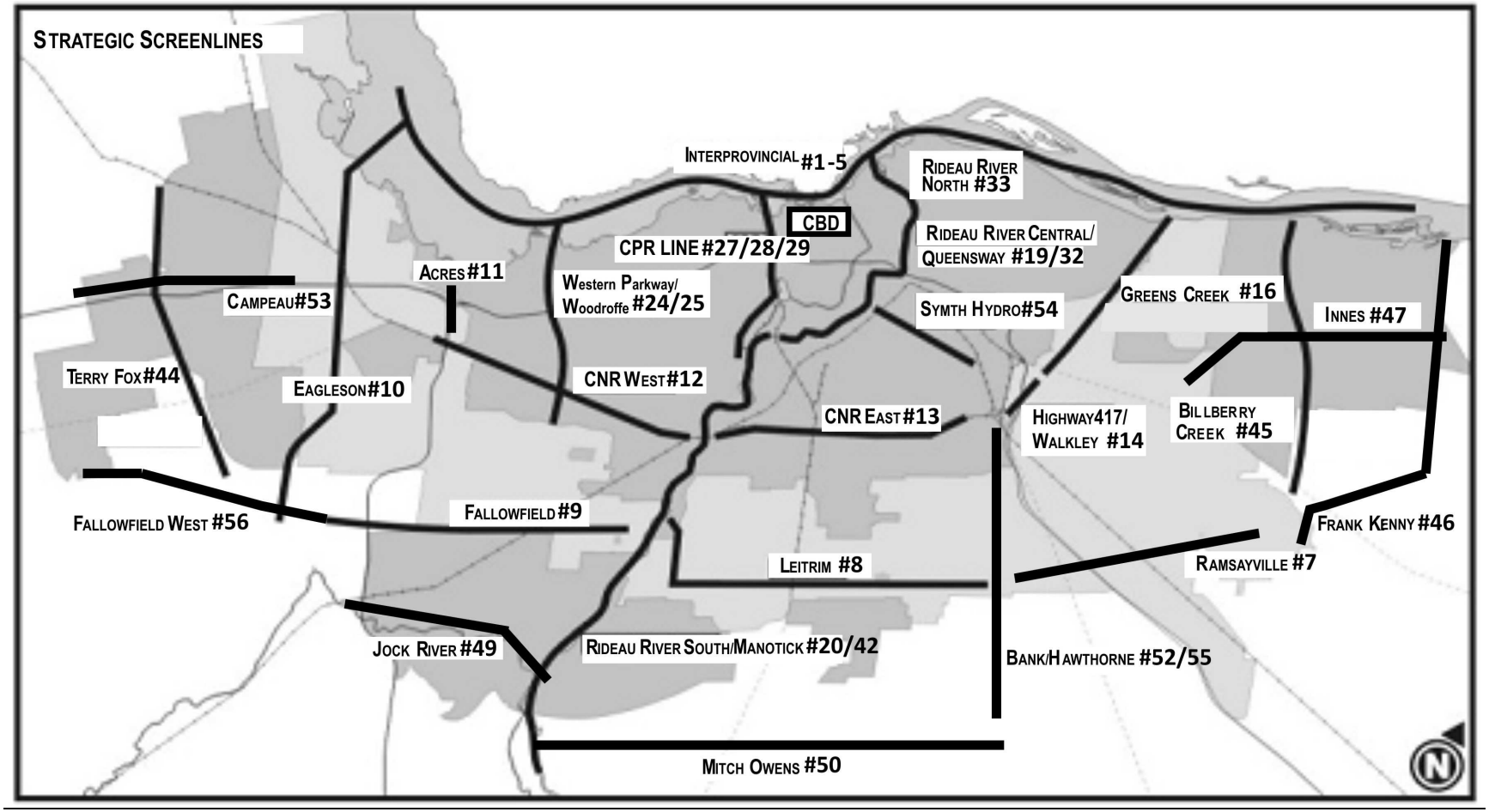
This analysis used a number of strategic screenline groupings to assess travel demand in all the key corridors of travel between the Central Area (CBD), and areas inside the Greenbelt, as well as the urban growth centres developing outside the Greenbelt. These include the West Urban Community (Kanata/Stittsville), the East Urban Community (Orléans), the Southeast Urban Community (Riverside South/Leitrim) and the Southwest Urban Community (Barrhaven), as well as interprovincial travel between Ottawa and Gatineau. The major screenlines are listed in Table 3-1 and illustrated on Figure 3-1.

The selected screenlines in Table 3-1 reflect major regional travel corridors that capture the projected travel demand to 2031, along with both existing and proposed transit and arterial roadway networks that cross these screenlines. Screenlines that were judged to be excessively long were broken into more relevant constituent components. This was done to better determine future infrastructure needs that more effectively reflect emerging travel patterns. The screenline names and numbers listed in Table 3-1 reflect the City of Ottawa's naming and numbering convention, as they determine screenline data by an annual counting procedure of screenline traffic.

Table 3-1: Strategic Screenlines Used for Needs Analysis

Travel Corridor Served	Screenline	
	Number	Name
North	1-5	Interprovincial
West	44	Terry Fox
	10	Eagleson
	10a	Eagleson North (of Highway 417)
	10b	Eagleson South (of Highway 417)
	11	Acres
	24 and 25	Western Parkway/Woodroffe
	27, 28 and 29	CPR Line
	53	Campeau
	56	Fallowfield West
South West	12	CNR West
	9	Fallowfield
	49	Jock River
South East	14	Highway 417/Walkley
	13	CNR East
	8	Leitrim
	19 and 32	Rideau River Central/Queensway
	50	Mitch Owens
	52 and 55	Bank/Hawthorne
	54	Smyth/Hydro
	7	Ramsayville

Figure 3-1: Strategic Screenlines



Travel Corridor Served	Screenline	
	Number	Name
East	33	Rideau River North
	16	Greens Creek
	45	Bilberry Creek
	46	Frank Kenny
	47	Innes
East-West Outside Greenbelt	20/42	Rideau River South/Manotick

4.0 CURRENT SCREENLINE CAPACITIES

Each screenline captures a number of existing City of Ottawa arterial and collector roads. A few of the screenlines are also crossed by elements of the Provincial Highway System (Highways 416, 417), and by elements of the National Capital Commission Parkway System.

Appendix 'A' contains the estimated current directional capacity of each screenline and of screenline sub-sections expressed in passenger car units (pcus). Buses and large trucks take up more space than cars, thus there are factors to convert these larger vehicles to passenger car equivalents.

Since the 2003 TMP, increases in the available screenline capacity up to July 2008 have been limited to the Bilberry Creek Screenline (#45) in Orléans resulting from the four-laning of Innes Road, the Green's Creek Screenline (#16) west of Blackburn Hamlet resulting from the 6-laning of Innes Road, the Fallowfield Road Screenline (#9) in Barrhaven as a result of the four-laning of Woodroffe Avenue through the Greenbelt, and the Campeau Drive Screenline (#53) as a result of the extension of Terry Fox Drive as a four-lane arterial.

It is noteworthy that the existing and/or assumed available capacity at a number of screenlines has been modified to reflect the proposed conversion of general traffic lanes to transit-only lanes where planned. One example is the Heron Road Bridge, on which one lane in each direction is proposed to be converted to bus-only operation.

5.0 HORIZON YEAR ARTERIAL NETWORK CAPACITY NEEDS: 2031

The determination of long-term arterial network capacity needs to satisfy the travel requirements of the City of Ottawa by the 2031 horizon year of the 2008 OP/TMP has been primarily based on the following sources of data, analysis and information.

a. Analysis of year 2031 estimated peak hour travel across the strategic screenlines within the City of Ottawa that are listed in Table 3-1 and depicted on Figure 3-1.

   The 2031 forecast screenline travel demand is based on the TRANS Model travel predictions relating to the overall predicted population and employment assumptions that are depicted in Table 2-1 and are distributed within the major growth centres in accordance with Table 2-2.

   Both morning and afternoon peak hour travel data has been analyzed at all screenlines with the peak capacity deficiency, if one exists in either the morning or afternoon peak hour, determining the long-term infrastructure needs. It is noteworthy that in most cases, the morning peak hour was the time period with the

larger capacity deficiency at screenlines. This trend is also reflected in actual current screenline traffic counts and is primarily due to the fact that trips in the morning peak, being predominantly "work" and "school" related, tend to be more concentrated and predictable whereas trips during the afternoon peak, while still dominated by "from work" trips, have fewer "school" and more "shopping" and "personal business" trips which tends to result in afternoon peak period trips being more spread out than morning peak period trips.

b. Analysis of localized arterial road needs based on additional travel data ascertained from completed Traffic Impact Studies, Community Development Plans, etc., the recommendations of which would not have been appropriately reflected in the general traffic predictions at dispersed screenlines that result in the foregoing part (a) analysis.

c. Information from City staff regarding current operational and safety concerns with the existing road system.

5.1 Basic Assumptions: Screenline Needs Analysis

The basic assumptions for the analysis of long-term arterial needs at the strategic screenline locations are as follows:

i. Peak hour directional person trip data predicted by the TRANS Model at the 2031 horizon years are assumed to apply.

ii. Projected transit modal split at individual screenlines emanating from the TRANS Model based on the assumed implementation of the primary and supplementary transit infrastructure detailed in the Rapid Transit Project, assumed to be achieved by 2031.

iii. A private vehicle occupancy rate (persons per vehicle) assumed to be 1.2 ppv. Appendix B documents the rationale in support of this assumed vehicle occupancy rate for the horizon year 2031.

iv. Commercial vehicle volumes at screenlines are accounted for by the application of a 1.16 factor (5% heavy goods, 6% light goods) to the projected private vehicle passenger car unit (pcu) volumes.

v. The assumed standard operating level at screenlines in the Central Area is LoS 'E', while for screenlines outside of the Central Area, the assumed standard operating level is LoS 'D', representing 100% and 90% respectively, of the existing screenline capacities detailed in Appendix 'A'. These assumed operating capacities are similar to the assumptions in the 2003 TMP and are recommended for the following reasons:

- Within the Central Area, as there is limited opportunity for infrastructure capacity improvements of any significance and where there is a general acceptance among private vehicle users of congested downtown operating conditions during peak periods, a peak hour operating standard of LoS 'E', denoting the total utilization of the full capacity of the available network at screenlines, has been considered appropriate over the past several years.
- For suburban screenlines, the adoption of a operating standard denoted by LoS 'D' and which implies an overall screenline utilization of 90% of the available

capacity is considered to be more appropriate due to the generally greater length of screenlines and the resultant public good from the improved efficiency and reduced vehicular operating and environmental costs that a more stringent standard would result in. Allowing a 10% cushion in the peak hour operating standard makes a reasonable allowance for the inevitable reductions in the actual available capacity at any one time that will arise due to traffic collisions, maintenance operations, weather, etc.; and

- Even with an assumed average operating standard of LoS 'D', the actual uneven distribution of traffic on the various roads across screenlines in the suburban areas of the City will result in some critical links operating at design capacity during peak periods, e.g., Highway 417.

5.2 City-wide and Screenline Peak Hour Data

Table 5-1 compares the Base Year and 2031 Horizon Year peak hour data that are projected by the TRANS Model for the City of Ottawa.

The Base Year represents the applicable situation and is used in the calibration of the TRANS Model, Official Plan and Transportation Master Plan, while the 2031 data reflects the projected activity at 2031, the horizon year.

Table 5-1: Projected City-Wide Travel Demand: All Modes

Trip Mode	Base Year			2031			
	AM Peak Hour						
	Person Trips	Mode Share	Modal Split	Person Trips	Mode Share	Modal Split	% Growth
Walking/Cycling (non-motorized)	23,700	11%	-	35,400	12%	-	49%
Transit Rides	44,500	21%	23%	78,300	26%	30%	76%
Private Auto Trips	146,600	68%	77%	182,300	62%	70%	25%
Total: All Trips	**214,800**	**100%**	**100%**	**296,000**	**100%**	**100%**	**38%**
PM Peak Hour							
Walking/Cycling (non-motorized)	27,000	11%	-	40,200	12%	-	49%
Transit Rides	42,500	17%	19%	85,300	25%	29%	101%
Private Auto Trips	175,700	72%	81%	209,800	63%	71%	19%
Total: All Trips	**245,200**	**100%**	**100%**	**335,300**	**100%**	**100%**	**37%**

As shown in Tables 2-1 and 5-1, while population and employment within the City of Ottawa are projected to increase by 30% and 35% respectively, overall person trips are projected to increase by 37%/38% while the growth in transit trips is projected to be 76%/101% and the growth in private vehicle trips is projected to be 19%/25%. These percentages reflect the greater share of travel by transit, and the achievement of the peak hour transit modal splits of 29%/30%. .

The overall future peak hour travel share by transit represents the return on the investment in the City's approved Rapid Transit Strategy. The 29%/30% overall transit modal split by 2031 is reflected in a variety of individual transit modal splits at each of the strategic screenlines, and each projected screenline transit modal split has been assumed to be achieved when determining the 2031 arterial roads needs in the ensuing Section 5.3.

It is also noteworthy that although the total number of trips projected by the TRANS model during the 2031 afternoon peak hour (335,300) exceeds the projected morning peak hour total (296,000), in most cases the projected individual screenline totals during the morning peak hour exceed the projected afternoon screenline totals.

5.3 Screenline Analysis: Horizon Year Arterial Road Needs

Detailed in Table 5-2 are the projected horizon year peak hour screenline data, for the peak direction of travel, resulting from the TRANS Model. In general, and as previously noted, morning peak hour travel projections exceed the afternoon peak hour projections.

As depicted in Table 5-2, all screenlines show sizeable growth in transit trips to 2031 due to the assumed implementation, by the TMP Horizon Year, of the City's approved Rapid Transit Strategy, which assumes the implementation of rapid transit corridors to the extremities of the Urban Area by 2031.

Table 5-2: Projected Horizon Year (2031) Transit and Automobile Travel Demand: Strategic Screenlines (A.M./P.M. Peak Hour, Peak Direction, Person Trips)

	Transit PersonTrips			Automobile Person Trips			Total PersonTrips		
	Base	2031	Growth	Base	2031	Growth	Base	2031	Growth
#1-5: Interprovincial	5100 / 5900	11,800 / 11,100	+132% / +88%	14,200 / 13,300	15,800 / 15,500	+11% / +17%	19,300 / 19,200	27,600 / 26,600	+43% / +39%
#7 Ramsayville	100/0	200 / 0	+100% / 0%	4650 / 4350	5900 / 5650	+27% / +30%	4850 / 4350	5900 / 5650	+22% / +330%
#8: Leitrim	200 / 200	2300 / 2000	+1050% / +900%	4200 / 4000	6800 / 6400	+62% / +60%	4400 / 4200	9100 / 8400	+107%/ +100%
#9: Fallowfield	1900 / 1300	4800 / 4800	+153% / +270%	9400 / 9100	11,600 / 10,400	+23%	11,300 / 10,400	16,400 / 15,200	+45%
#10: Eagleson	3100 / 2400	6600 / 7300	+113% / +204%	9900 / 10,100	13,100 / 12,100	+32% / +20%	13,000 / 12,500	19,700 / 19, 400	+52% / +55%
#10a Eagleson North	3000 / 2300	6400 / 6950	+113% / +202%	6800 / 6900	8850 / 8150	+30% / +18%	9800 / 9200	15,250 / 15,100	+56% / +64%
#10b Eagleson South	100 / 100	200 / 350	+100% / +250%	3100 / 3200	4250 /4000	+37% / +25%	3200 / 3300	4450 / 4300	+39% / +30%
#11 Acres	3450 / 2850	7050 / 7750	+105% / +172%	9450 / 9600	11,600 / 10,400	+23% / +8%	12,900 / 12,450	18,600 / 18,200	+44% / +46%
#12: CNR West	2900 / 2200	5900 / 5800	+104% / +164%	10,900 / 11,100	12,100 / 11,400	+11% / +3%	13,800 / 13,300	18,000 / 17,200	+30% / +29%
#13: CNR East	3300 / 2100	6000 / 5850	+82% / +179%	9000 / 9000	10,100 / 9400	+12%	12,300 / 11,100	16,100 / 15,250	+31% / +38%
#14: Highway 417/Walkley	0 / 0	0 / 0	0% / 0%	3600 / 3400	4900 / 4700	+36% / +38%	3600 / 3400	4900 / 4700	+36% / +38%
#16: Greens Creek	6000 / 5100	8400 / 7800	+40% / +53%	11,300 / 10,800	11,100 / 10,200	-2% / -6%	17,300 / 15,900	19,500 / 18,000	+13% / +13%
#19/32 Rideau River Central / Queensway	11,650 / 9950	16,200 / 15,800	+39% / +59%	14,000 / 14,700	14,900 / 15,100	+7% / +3%	25,650 / 24,650	31,100 / 30,900	+21% / +25%
#24/25: Western Parkway	5200 / 4600	9800 / 10,900	+88% / +137%	18,200 / 18,600	19,000 / 17,900	+4% / -4%	23,400 / 23,200	28,800 / 28,800	+23% / +24%
#27/28/29: CPR	9200 / 7800	17,500 / 17,100	+90% / +119%	16,000 / 16,400	16,700 / 16,100	+4% / +2%	25,200 / 24,200	34,200 / 33,200	+44% / +37%

	Transit PersonTrips			Automobile Person Trips			Total PersonTrips		
	Base	2031	Growth	Base	2031	Growth	Base	2031	Growth
#20/42: Rideau River South / Manotick	900 / 1100	2700 / 2700	+200% / +145%	7100 / 7700	9200 / 9400	+30% / +22%	8000 / 8800	11,900 / 12,100	+49% / +38%
#33: Rideau River North	1500 / 1800	5100 / 5200	+240% / +189%	5100 / 5150	4950 / 4150	-3% / -19%	5600 / 6000	8600 / 7200	+54% / +20%
#44: Terry Fox	400 / 500	2400 / 3000	+500% / +500%	5600 / 5900	9300 / 9200	+66% / +56%	6000 / 6400	11,700 / 12,200	+95% / +91%
#45 Bilberry Creek	3900 / 3300	5100 / 5200	+31% / +58%	6800 / 7100	7800 / 8300	+15% / +17%	10,700 / 10,400	12,900 / 13,500	+21% / +30%
#46 Frank Kenny	100 / 0	300 / 0	+200% / 0%	2800 / 2700	3500 / 3600	+25% / +33%	2900 / 2700	3800 / 3600	+31% / +33%
#47 Innes	500 / 400	3100 / 3300	+520% / +725%	2200 / 3000	4700 / 5400	+114% / +80%	2700 / 3400	7800 / 8700	+189%/ +156%
#49: Jock River (2nd Interchange)	100 / 100	1500 / 1450	+1400% / +1350%	3500 / 3500	7300 / 7150	+109% / +103%	3600 / 3550	8800 / 8600	+142%/ +143%
#49: Jock River (no 2nd Interchange)	100 / 100	1500 / 1450	+1400% / +1350%	1550 / 1650	4950 / 4900	+220% / +197%	1650 / 1750	6350 / 6350	+285%/ +263%
#50 Mitch Owens	0 / 0	0 / 0	0% / 0%	2400 / 2300	3700 / 3600	+54% / +57%	2400 / 2300	3700 / 3600	+54% / +57%
#52/55 Bank / Hawthorne	0 /0	0 / 0	0% / 0%	1600 / 1500	2800 / 2900	+75% / +93%	1600 / 1500	2800 / 2900	+75% / +93%
#53 Campeau	500 / 900	3600 / 4300	+620% / +377%	4900 / 5400	7300 / 8000	+49% / +48%	5400 / 6300	10,700 / 12,400	+98% / +97%
#54: Smyth / Hydro	4300 / 3600	5700 / 5300	+33% / +47%	3600 / 4100	4600 / 4900	+28% / +20%	7900 / 7700	10,300 / 10,200	+30% / +35%
#56 Fallowfield West	0 / 0	0 / 0	0% / 0%	1100 / 1200	1600 / 1600	+46% / +33%	1100 / 1200	1600 / 1600	+46% / +33%

Projected transit ridership increases within the urban transit area, range from +31% at the Bilberry Creek Screenline (#45) to +1400% at the Jock River Screenline (#49). Other screenlines with noteworthy transit trip growth are the Leitrim Screenline (#8), +1050% and the Terry Fox Screenline (#44), +500%, although one must be cognizant of the current lower base transit riderships at these peripheral locations.

In general, growth in automobile trips also occurs at most of the screenlines. However, there are a few notable exceptions where automobile trips are projected to decline. These locations being the Rideau River North Screenline (#33), (-3%/-19%), the Greens Creek Screenline (#16) (-2%/-6%) and Western Parkway/Woodroffe Screenline (#24/25)(-4% in the afternoon peak).

This modelled decline in automobile trips at some screenlines in the Eastern Sector is primarily due to a combination of increased transit usage, demographic changes and increased employment opportunities in the Orléans which results in the retention of a much greater number of trips within the sector, with lesser travel to destinations outside the sector.

With regard to total projected morning peak hour person trips, all screenlines are shown to experience increases by the 2031 horizon year, which reflects the urban growth projections of the 2008 COP.

The projected automobile-based person trip totals for each of the strategic screenlines were then used as a basis for estimating future arterial road needs in each of the principal corridors of growth within the City of Ottawa. These being the North, East, Southeast,

Southwest and West sectors of the City, along with analysis of Rideau River crossing needs in order to determine long-term additional bridge requirements across the Rideau River south of the Greenbelt.

The primary needs analysis was based on the assumptions that are detailed earlier in Section 5.1. The individual analysis sheets for each screenline resulting in the data in Table 5-2 are provided as Appendix 'C'. Each individual screenline analysis sheet also includes the projected transit modal split which is assumed to be achieved at that screenline during the morning and afternoon peak hours by 2031.

The resultant road capacity deficiencies for both morning and afternoon peak periods are listed in Table 5-3, which also includes the current and projected transit modal splits at each screenline.

The conclusions of the primary road needs analysis at strategic screenlines within each of the principal corridors of growth are detailed in the ensuing Section 6.0.

Table 5-3: Projected 2031 Peak Hour Screenline Road Capacity Deficiencies: PCUS/Direction

Screenline Number / Name	Directional Deficiency (PCUs): AM/PM	Existing A.M./P.M./Future A.M./P.M. Transit Modal Split
#1-5: Interprovincial	4130 / 3840	26%:31% / 43%:42%
#7: Ramsayville	None / none	0%:0% / 0%:0%
#8: Leitrim	2120 / 1740	5%:5% / 25%:24%
#9: Fallowfield	None / none	17%:13% / 29%:32%
#10: Eagleson	3580 / 2620	24%:19% / 34%:38%
#10a: Eagleson North	2910 / 2180	N/A / 42%:46%
#10b: Eagleson South	670 / 430	N/A / 4%:7%
#11: Acres	850 / none	27%:23% / 38%:42%
#12: CNR West	580 / none	21%:17% / 33%:34%
#13: CNR East	410 / none	27%:19% / 37%:38%
#14: Highway 417 / Walkley	None / none	0%:0% / 0%:0%
#16: Greens Creek	760 / none	35%:32% / 43%:43%
#19/32: Rideau River Central / Queensway	2690 / 2990	40%:37% / 52%:51%
#20/42: Rideau River South / Manotick	3180 / 3380	11%:13% / 23%:22%
#24/25: Western Parkway / Woodroffe	3710 / 2640	22%:20% / 34%:38%
#27-29: CPR Line	1270 / none	37%:32% / 51%:52%
#33: Rideau River North	None / none	40%:37% / 43%:43%
#44: Terry Fox	None / none	7%:8% / 21%:25%
#45: Bilberry Creek	None / none	35%:32% / 40%:39%
#46: Frank Kenny	None / none	0%:0% / 9%:0%
#47: Innes	None / none	29%:12% / 40%:38%
#49: Jock River / No 2nd Interchange	910 / 870 or 1570 / 1530*	3%:3% / 23%:23%
#49: Jock River/2nd Interchange	None / none or none / none*	3%:3% / 17%:17%
#50: Mitch Owens	None / none	0%/0% / 0%/0%
#52/55: Bank/Hawthorne	None / none	0%/0% / 0%/0%

Screenline Number / Name	Directional Deficiency (PCUs): AM/PM	Existing A.M./P.M./Future A.M./P.M. Transit Modal Split
#53: Campeau	630 / 1300	9%:14% / 33%:35%
#54: Smyth / Hydro	230 / 520	54%:47% / 55%:52%
#56: Fallowfield West	None / none	0%/0% / 0%/0%
*without Cambrian Road link over Highway 416 to Moodie Drive		

6.0 GROWTH CORRIDOR NEEDS: SCREENLINE-BASED ANALYSIS

North Corridor (Interprovincial) Screenline Needs: The projected maximum road capacity deficiency across the Ottawa River occurs during the morning peak hour when, subject to the achievement of a 43% transit modal split (compared to the current 26%) a deficiency of approximately 4100 pcus is projected by 2031.

This maximum projected deficiency requires up to three/four lanes of additional capacity per direction depending on the efficiency of the feeder route network. This results in a need for one or two crossings of the Ottawa River (one serving east-end and the other serving west-end needs), depending on the crossing configurations eventually adopted.

The location(s) of future crossing(s) of the Ottawa River is (are) the subject of a current Environmental Assessment Study.

An important issue associated with the Interprovincial Screenline is whether it would be feasible, under the current or future projected operating circumstances, to reduce the capacity of King Edward Avenue north of Rideau Street from the current six lanes down to four lanes.

Clearly, at this time, (and for some time to come), the available capacity of the Interprovincial Screenline, as currently configured, relies greatly on the six-lane MacDonald-Cartier Bridge functioning at its maximum capacity during peak periods. Although two of the six lanes feed to/from Sussex Drive, the four through-lanes of freeway capacity on the bridge require the six-lanes of urban street capacity that are currently being rehabilitated on King Edward Avenue between Boteler Street and Rideau Street in order to function with reasonable efficiency during peak periods.

Another important consideration is the fact that the MacDonald-Cartier Bridge is one of the two interprovincial truck routes currently available, and it is the predominant route. All of this leads to the conclusion that until a new interprovincial crossing is implemented in the east-end, and adequately linked to the existing freeway network on either side of the Ottawa River, the suggested lane reduction on King Edward Avenue cannot be recommended from a road network capacity and goods movement mobility perspective.

It is noteworthy that upon the construction of an appropriately located east-end bridge and the determination of its actual impact on the vehicular use of King Edward Avenue, the four-laning of King Edward Avenue can be re-examined.

The TRANS Model, which has assumed a new crossing of the Ottawa River being in place at Kettle Island, has predicted peak hour volumes on King Edward Avenue within the range 2400/2500 pcus north of St. Patrick Street by 2031. Were these volumes to actually remain on King Edward Avenue following the construction of a new east-end crossing, an argument could be made for maintaining the current six-lane cross-section. However, with the removal of trucks, the availability of new river crossing capacity and the social pressures

along King Edward Avenue, a four-lane King Edward could also be rationalized from a screenline perspective.

Regardless of the number of traffic lanes on King Edward Avenue, some relief will definitely be achieved by the removal of King Edward Avenue from the City's Truck Route Network that would be possible upon the implementation of a new east end crossing of the Ottawa River.

East Corridor: Screenline Needs: The projected screenline-based needs in the East Corridor have been established by the analysis of the Rideau River North, Greens Creek, Bilberry Creek, Frank Kenny and Innes Screenlines.

Subject to the achievement of a projected 43% transit modal split during both morning and afternoon peaks at the Rideau River North Screenline, no deficiency is projected to occur by year 2031 at this screenline.

This conclusion means it is unnecessary to provide any additional road capacity compared to today, and confirms that there is no need for the reintroduction into the Official Plan of a facility such as the Vanier Parkway Extension north of Beechwood/St. Patrick.

At the Green's Creek Screenline, subject to the achievement of a 43% transit modal split, a projected maximum deficiency of approximately 800 pcus, is projected to occur in the morning peak hour.

While this projected deficiency can be addressed by the widening of OR174 between the Jeanne d'Arc and Highway 417/OR174 split, recommended to be implemented to resolve operating and safety issues, it is also recommended that the Innes-Walkley-Hunt Club link should remain in the 2008 OP/TMP. The Hunt Club Road extension to a new Highway 417 interchange would be a first priority, while the link from Innes Road to Highway 417 East would be a 2nd Phase priority with it initially being implemented as a two-lane arterial.

Within Orleans at the Bilberry Creek Screenline, the achievement of a projected peak hour transit modal split of 40%/39% (a.m./p.m.), compared to the current 35%/32%, results in no projected future deficiency at the screenline compared to today. (This is one of the few screenlines that has realized increased capacity since 2003 due to the four-laning of Innes Road.)

At the periphery of the East Urban Community, analysis of needs at the Frank Kenny Screenline, revealed no projected deficiency in either morning or afternoon peak. It is noteworthy that the location of this screenline is to the east of Trim Road and to the east of the urban boundary, therefore, the higher future transit use as a result of the Trim Rd park-and-ride, the future Millennium park-and-ride and the two rapid transit corridors in Orleans will not be reflected at this screenline.

As the existing Frank Kenny Screenline capacity comprising OR174, St. Joseph, Innes, Trim, Tenth Line, Mer Bleue, and Navan Roads does not reveal any long-term capacity deficiencies by year 2031, the four-laning of OR174 east of Trim Road is not recommended at this time.

Finally, the Innes Road Screenline, which reflects future travel south of Innes Road, has no projected deficiency during the peaks, subject to the achievement of 40%/38% (a.m./p.m.) transit modal splits.

Southeast Corridor Screenline Needs: Arterial needs at screenlines in the Southeast Corridor have been addressed by analysis of the Rideau River Central/Queensway,

Smyth/Hydro, CNR East, Leitrim, Highway 417/Walkley, Mitch Owens, Bank/Hawthorne and Ramsayville Screenlines.

At the Rideau River Central/Queensway Screenline, the maximum projected deficiency of approximately 3000 pcus occurs in the afternoon peak hour subject to the achievement of a 51% modal split.

This projected deficiency can be addressed by the proposed widening of the Queensway at the Hurdman Bridge by MTO which will address approximately half of the projected deficiency, and the retention of the Alta Vista Transportation Corridor (AVTC) in the 2008 Official Plan to address the remaining deficiency needs.

Further south, at the Smyth/Hydro corridor, the assumed achievement of a projected transit modal split of 52%, during afternoon peak hour operating conditions, results in a maximum deficiency of approximately 500 pcus. As will be seen later in this report, intensification and redevelopment in the Alta Vista area, primarily at the Hospital Lands, will require additional infrastructure to be included in the 2008 OP/TMP. Thus the Alta Vista Transportation Corridor is recommended to remain in the upcoming 2008 OP/TMP to serve both general traffic needs and for enhanced transit service to the Ottawa Hospital Campus.

At the CNR East Screenline, subject to the achievement of the projected 37% transit modal split (compared to the current 27%) during the morning peak hour, a maximum deficiency of approximately 400 pcus is projected.

This projected operating deficiency would require the addition of one lane per direction to the current capacity of the screenline, which could be achieved by either twinning of the Airport Parkway or six-laning Conroy Road for general traffic.

As the six-laning of Conroy Road from Hunt Club Road north to Walkley Road coupled with bus-only lanes in the Walkley/Heron Road corridor is a recommended component of the future Supplementary Transit Network, the twinning of the Airport Parkway is preferred as it will serve the anticipated growth at both the MacDonald-Cartier International Airport and in Riverside South.

At the Leitrim Screenline, which is the one most directly impacted by the future growth in Leitrim/Riverside South, the maximum deficiency arises during the morning peak hour where, subject to the achievement of a 25% transit modal split (currently 5%), a deficiency of approximately 2100 pcus is projected.

This maximum deficiency, requiring the addition of at least two arterial lanes per direction at the screenline, results in the need for two out of the three currently identified widenings in the 2003 OP/TMP, i.e., the Limebank Road/Riverside Drive link, Bank Street or Albion Road. Limebank Road and Bank Street are the preferred pair, as Limebank Road directly serves the Riverside South community and Bank Street will require widening for local development reasons in Leitrim and further south in Greely. Albion Road is recommended to be protected for future widening to address potential growth needs beyond the OP horizon year of 2031.

At the extremities of the Southeast Corridor, there are no additional capacity needs identified at the Highway 417/Walkley, Bank/Hawthorne, Mitch Owens or Ramsayville Screenlines.

Southwest Corridor Screenline Needs: Arterial road needs at the screenlines in the Southwest Corridor were determined by analysis of the CNR West, Fallowfield and Jock River Screenlines reflecting the suburban growth needs of the Barrhaven Community.

Subject to the projected achievement of a minimum 33% transit modal split at the CNR West Screenline during the morning peak hour (compared to the current 21%), a maximum deficiency of approximately 600 pcus was determined.

Consequently, the addition of one lane per direction is recommended at this screenline before the horizon year of the 2008 OP/TMP, with the four-laning of Prince of Wales Drive recommend to satisfy the established minimum needs.

Further south, at the Fallowfield Screenline, the achievement of 29%/32% (a.m./p.m.) transit modal splits (compared to the current 17%/13%) will result in no projected additional capacity needs by 2031. Nevertheless, the recommended widening of Prince of Wales Drive south to Woodroffe Avenue will add capacity to the Fallowfield Screenline with resultant improvements in peak hour operating conditions.

Without a new Highway 416 interchange, the Jock River Screenline capacity available for Barrhaven growth is confined to the existing City arterials as available Highway 416 capacity is of little value (not accessible) to Barrhaven residents living south of Fallowfield Road. Subject to the achievement of the projected 23% transit modal split, the projected deficiency in the afternoon peak hour is estimated at approximately 1000 pcus requiring the addition of one arterial lane which would be satisfied by the widening of one of the four existing two-lane arterials, Cedarview Road, Greenbank Road, Jockvale Road or Prince of Wales Drive. As shown later in this report, local development needs within the Barrhaven South Community require more than one arterial to be widened. This conclusion assumes the completion of the Cambrian Road overpass of Highway 416 and the consequent availability of Moodie Drive capacity for Barrhaven residents. Without the completion of the Cambrian Road link, the deficiency at the Jock River Screenline would increase to approximately 1600 pcus requiring two arterial widenings which will be required in any case for local development needs.

As it is very unlikely that the Barrhaven Community, projected to grow to a population of approximately 105,000 by 2031, could continue to be adequately served by only one (Fallowfield) interchange on Highway 416, it is recommended that MTO be requested to build an interchange to serve the Barrhaven South Community at Barnsdale Road, the location recommended in the Barrhaven South Community Design Plan. By comparison, Kanata is directly served by four Highway 417 interchanges and Orléans is served by three OR 174 interchanges.

While the implementation of a second Barrhaven interchange at Barnsdale Road might result in the full Highway 416 capacity not being totally convenient to all Barrhaven South residents, its availability as an alternative to a severely congested Fallowfield/Highway 416 Interchange will be of major importance to the developing community.

Construction of an interchange at Barnsdale Road would likely result in the need to widen Barnsdale Road from Highway 416 to Prince of Wales Drive with this being the responsibility of the City of Ottawa.

West Corridor Screenline Needs: Long-term deficiencies and screenline needs in the West Corridor were determined by analysis at the CPR Line, Western Parkway/Woodroffe, Acres, Eagleson, Terry Fox, Campeau, and Fallowfield West Screenlines. The Eagleson

Screenline was further subdivided into two parts, north and south of Highway 417 because of the requirement to investigate specific capacity needs in both North and South Kanata.

At the CPR Line Screenline, subject to the achievement of a 51% transit modal split in the morning peak hour (compared to the current 37%), the maximum road capacity deficiency was projected at approximately 1300 pcus. As the proposed supplementary transit system will utilize existing lanes on Carling Avenue on either side of this screenline, there is limited opportunity to address the projected morning deficiency. However, the Highway 417 improvements by MTO and the recommended implementation of a six-lane Hunt Club Road, the extension of Hunt Club Road east to Highway 417 and the development of the Strandherd-Earl Armstrong Road corridor as an extensive east-west alternative, may alleviate the long-term congestion to a greater extension than currently estimated. Nonetheless, LoS 'E' can be anticipated at this screenline during the morning peak hour by 2031.

Further west, at the Western Parkway/Woodroffe Screenline, the achievement of a 34% transit modal split during the morning peak hour (compared to the current 22%) will result in a maximum deficiency of approximately 3700 pcus by 2031.

The proposed upgrading of Highway 417 by MTO (adding one lane per direction) will partly address this deficiency but it will still be necessary to initiate widening of some of the existing east-west arterials, such as Richmond Road, as the available Carling Avenue capacity is expected to be impacted by the supplementary transit network and not to be available for added automobile lanes.

Capacity needs at the eastern limit of the Greenbelt were ascertained by analysis of the Acres Screenline, where subject to the achievement of a 38% transit modal split (compared to the current 27%), a maximum deficiency of approximately 900 pcus in the morning peak was established. The proposed upgrading of Highway 417 by MTO will address this deficiency.

Future capacity needs through the Greenbelt were established at the Eagleson Screenline where, subject to the achievement of a future transit modal split of 34% (compared to the current 24%), the maximum deficiency was established at approximately 3600 pcus during the morning peak hour.

With the projected widening of Highway 417 by MTO and the planned addition of one general purpose (±2200 pcus) and 1 HOV (±1400 pcus) lane for a total of ±3600 pcus per direction, all future projected needs will be satisfied by the MTO highway widening proposals. Nevertheless, the future four-laning of Hope Side Road, confirmed by the Eagleson South Screenline analysis, where a maximum deficiency of approximately 700 pcus was established, and the extension of Hope Side Road to Highway 416 is recommended to remain in the 2008 TMP/OP. This widening and new link (which is a substantial distance from the proposed Highway 417 corridor widening) coupled with the completion of Crown Ridge Drive, will address local operating problems in south Kanata and will relieve congestion on the collector road system within Bridlewood (Stonehaven).

As confirmed by the Eagleson North analysis where a maximum deficiency of approximately 3000 pcus was established, the oncoming additional capacity in the Highway 417 corridor makes it unnecessary to widen Carling Avenue to four lanes through the Greenbelt to address screenline needs by 2031.

At the western periphery of Kanata, the analysis of the Terry Fox Screenline revealed that, subject to the achievement of 21%/25% transit modal splits during the afternoon peak hour, no deficiencies were determined.

Consequently, as the eight-laning of Highway 417 by MTO is projected to extend west of Terry Fox to the Palladium Interchange, from a screenline demand perspective, all future needs will be more than adequately addressed by MTO's highway widening plans. Nevertheless, as presented later in this report, local development needs within the Kanata West, Stittsville, and proposed Fernbank Communities will result in additional arterial capacity needs being recommended in the upcoming 2008 TMP/OP.

Analysis of needs at the Campeau Screenline revealed a maximum deficiency in the afternoon peak hour of 1300 pcus, subject to the achievement of a 35% transit modal split (compared to the current 14%), indicating the long-term need for the six-laning of Terry Fox Drive and the widening of Huntmar Drive to four lanes south of the extended Campeau Drive.

For the areas south of Stittsville and the future Fernbank development between Stittsville and Kanata, no arterial widenings were deemed necessary at the Fallowfield West Screenline by 2031.

East-West Arterial Needs: Outside Greenbelt: Additional east-west arterial needs south of the Greenbelt and crossing the Rideau River were addressed by the analysis of the Rideau River South/Manotick Screenline.

Subject to the achievement of a 22% transit modal split by 2031 during the afternoon peak hour (compared to the current 13%), the maximum projected deficiency of approximately 3400 pcus was established requiring the addition of up to four arterial lanes per direction.

The Strandherd-Armstrong Bridge is proposed to be constructed by 2011/12, initially as a six-lane structure with four lanes for general traffic and two lanes for rapid transit, and with the six lanes to be eventually available for general purpose traffic. It would appear that the six-lanes for general traffic will be required before the end of the planning period and will be at capacity before the horizon year of the OP, requiring the construction of a second additional Rideau River bridge. Consequently, although the timing of the future capacity needs is close to the horizon year, it is recommended that a second potential crossing of the Rideau River, the Fallowfield/Leitrim link, be protected.

It is also noteworthy that the general traffic needs prior to 2031, requiring the full capacity of the proposed six-lane Strandherd-Armstrong Bridge, will likely coincide with the need for the initial rapid transit lanes to be removed and relocated on their own structure so that the required grade-separation, for true "rapid transit", at the adjacent north-south arterials, Prince of Wales Drive and River Road, can be achieved.

7.0 OTHER RELATED LONG-TERM ARTERIAL WIDENING AND NEW ROAD NEEDS

Following the completion of the primary needs analysis at all the strategic screenlines, detailed in the foregoing Sections 5.0 and 6.0, the secondary determination of long-term road widenings and new roads, based on road capacity needs identified as a result of the more localized impact of proposed urban development, was established. These secondary requirements emanate from studies that have been completed in recent years and have resulted from a number of sources such as Community Design Plans (CDPs), Environmental Assessments (EAs), Traffic Impact Studies (TISs) etc., and also include long established

links identified in earlier Official Plans that logically complete road networks within the growth sectors of the City.

The following Table 7-1 summarizes the combined arterial capacity needs established at screenlines and the supplementary roadway capacity needs identified to address the servicing of local developments emanating from new urban growth and intensification proposals in all sectors of the City, as well as links identified for network continuity, operational, and safety requirements.

Table 7-1: Recommended Road Projects: Based on Screenline Needs, Local Development Needs and Road Network Continuity and Operational Needs by 2031

Project	General Description	Rationale	EA Status
Airport Parkway	- Widen from two to four lanes from Brookfield Drive to Lester Road	- Accommodates residual vehicle needs across the CNR East Screenline, reflecting growth in the suburban communities of Riverside South and Leitrim - Accommodates traffic increases related to projected air travel and employment growth at Ottawa's International Airport - Relieves delays and safety issues due to current Parkway congestion between Brookfield Road and Hunt Club Road	Not started
Albert Street	- Widen from four to six lanes from Booth Street to Empress Avenue	- Provides network continuity, and capacity for City Centre and LeBreton Flats development, and local access - Reduces "though" traffic south of Albert Street	Not started
Alta Vista Transportation Corridor	- New 4-lane arterial (2 general purpose lanes+ 2 for transit/HOV) linking Conroy Road at Walkley Road with the Nicholas Street Interchange on Highway 417	- Addresses potential future capacity needs at Rideau River Central/Queensway Screenline - Addresses potential future capacity needs at Smyth/Hydro Screenline - Facilitates development of, and intensification within, the Hospital Lands - Relieves "short- cutting" through existing residential communities between Walkley Road and Smyth Road - Relieves congestion on Alta Vista Drive (major collector) and Smyth Road - Facilitates transit service to Ottawa Hospitals Campus	Completed

Project	General Description	Rationale	EA Status
Bank Street	- Widen from two to four lanes from south of Leitrim Road to Parkway Road (Greely)	- Services growth in Leitrim and Greely	Not started
Barnsdale Road	- Widen from two to four lanes Highway 416 to Prince of Wales Drive	- The recommendation to construct a 2nd Interchange on Highway 416 at Barnsdale Road will require this widening, if implemented	Not started
Belcourt Boulevard / Mer Bleue Road connection	- Widen existing south of Innes Road from two to four lanes and extend four lanes from Renaud Road to Navan Road - New four-lane collector link from Belcourt Boulevard to Mer Bleue Road	- Provides access to development in Orléans, south of Innes Road	N/A
Blackburn Hamlet Bypass	- Widen from four to six lanes from Innes Road West Intersection to Innes Road East Intersection	- Required to service growth in Orleans and deficiency at Greens Creek Screenline	Not started
Blackburn Hamlet Bypass Extension	- New four-lane road from Blackburn Hamlet Bypass/Innes Road east intersection to Navan Road south of Hydro Corridor - New two-lane road from Navan Road/Hydro Corridor to Tenth Line Road - New two-lane road from Portobello Road to Frank Kenny Road - (Protect for four-lane arterial beyond 2031)	- Provides access to new development in South Orléans community - Relieves congestion in the Innes Road Corridor	Completed
Campeau Drive	- Widen from two to four lanes from March Road to Didsbury Road - New four-lane arterial road from Didsbury Road to new North-South Arterial in Kanata West	- Provides continuity in Kanata north of Highway 417, and addresses capacity needs in the Kanata Town Centre - Accommodates Kanata West Development north of Highway 417	Completed Completed as part of Kanata West Study

Project	General Description	Rationale	EA Status
Cambrian Road	- Widen from two to four lanes from Jockvale Road to new Greenbank Road	- Provides access to new development in Barrhaven South	Parts 1 and 2 of EA completed in Barrhaven South CDP
Carp Road	- Widen from two to four lanes from Hazeldean Road to Highway 417 interchange	Provides additional capacity to address growth of Stittsville and development in vicinity of the Carp/Hazeldean Road intersection	Not started
Chapman Mills Drive	- New four-lane road from Strandherd Drive to Woodroffe Avenue	- Services the development of Barrhaven Town Centre	N/A
Country Club / Jinkinson Road	- New two-lane service road parallel to widened Highway 7 between existing Jinkinson Road and the Country Club subdivision near Dwyer Hill Road	- Facilitates access to development on south side of Highway 7 (Freeway)	Completed
Coventry Road	- Widen from two to four lanes from Belfast Road to St. Laurent Shopping Centre	- Provides continuity through commercial and industrial area between existing four-lane sections of Coventry Road	Not started
Eagleson Road	- Widen from two to four lanes from Cadence Gate to Hope Side Road	- Provides capacity for additional travel demands from new development in south Kanata - Completes four-lane continuity to Hope Side Road	Completed
Earl Armstrong Road	- Widen from two lanes to four lanes from River Road east to High Road	- Provides capacity for growth in Riverside South/Leitrim, with connection to the major north-south corridors in the southeast (River Road, Limebank Road), and to new six-lane Rideau River crossing	Completed
	- New two-lane arterial road from High Road east to Bank Street	- Provides capacity to service growth in South Gloucester and completes linkage to Bank Street	Not started
Earl Grey Drive – Goulbourn Road underpass	- New underpass on Terry Fox Drive Interchange at the Earl Grey/Goulbourn Road intersection	- Facilitates access to Kanata Centrum and Kanata West - Reduces operational deficiencies on Terry Fox Drive	Not Started

Project	General Description	Rationale	EA Status
Fallowfield Road	- Widen from two to four lanes from Woodroffe Avenue east to Prince of Wales Drive - Widen from two to four lanes from Cedarview Road to Strandherd Drive	- Provides capacity to service growth in Barrhaven - Provides capacity required to service development needs of the Barrhaven Business Park	Completed Completed
Goulbourn Forced Road	- New two-lane road from Kanata Avenue to Terry Fox Drive	- Services Kanata North growth	N/A
Greenbank Road	- Widen from two to four lanes from Malvern Drive to south of Jockvale Road - New four-lane road from south of Jockvale Road to Cambrian Road	- Accommodates Barrhaven development needs	Completed
Hazeldean Road	- Widen from two to four lanes from Terry Fox Drive to Carp Road	- Accommodates growth in Stittsville, Kanata West and Fernbank Communities	Completed
Hope Side Road / Crown Ridge Drive Completion	- Widen from two to four lanes between Eagleson Road and Richmond Road including completion of Crown Ridge Drive - New two-lane extension from Richmond Road to Highway 416	- Provides capacity and network continuity for Kanata/Fernbank growth - Relieves traffic congestion in Bridlewood (Stonehaven Drive) - Provides corridor for congestion relief in South Kanata that is environmentally more acceptable than widening existing corridors	Underway
Highway 416 Interchange	- New interchange at Barnsdale Road	- Serves Barrhaven Community growth	Not started
Hunt Club / West Hunt Club Widening	- Widen existing Hunt Club/West Hunt Club Road from four to six lanes between Bank Street and Highway 416	- Enables the full utilization of the inherent capacity in the Hunt Club Bridge over the Rideau River which has recently been modified to maximize capacity. - Serves increasing development / intensification along Hunt Club/West Hunt Club Road Corridor inside the Greenbelt - Facilitates Hunt Club/West Hunt Club Road functioning as a quasi-bypass of CBD - Relieves Queensway congestion through CBD	Not started

Project	General Description	Rationale	EA Status
Hunt Club Road extension (Phase 1) and Innes-Walkley-Hunt Club Link (Phase 2)	- New two-lane link from Hawthorne Road to a new interchange on Highway 417 East - (Protect for four lanes beyond 2031) - New two-lane roadway from Innes Road to the new Highway 417 interchange - (protect for four lanes beyond 2031)	- Provides arterial access to the Provincial freeway system. - Relieves the congestion on the Queensway through the CBD - Completes the link from Highway 417 east to Highway 416 in the west end, enabling Hunt Club Road to function as a quasi-ring road - Relieves congestion in Walkley/Russell intersection and Walkley/Highway 417 interchange area - Serves development in Orléans south	Completed
Jockvale Road	- Widen existing road from two to four lanes south of Jock River to Prince of Wales Drive	- Accommodates development access and growth within south Barrhaven	Underway
Jockvale / Longfields Link	- New four-lane road from Strandherd Drive to Jock River	- Accommodates development access and growth within South Barrhaven - Relieves operational problems at Greenbank/Jockvale intersection - Addresses residual capacity needs at Jock River Screenline	Completed
Kanata Avenue	- Upgrade existing from Goulbourn Forced Road to Richardson Side Road	- Services development in Kanata North	N/A
Kanata West Main Street	- New two-lane road from Maple Grove Road to Palladium Drive	- Services Kanata West development	N/A
Kanata West North-South Arterial	- New road in Kanata West/Fernbank Development from Palladium Drive to Fernbank Road	- Accommodates Kanata West/Fernbank development - Bypasses Stittsville Main Street congestion	Completed south to Hazeldean Road In Kanata West Study. Section south of Hazeldean Road is included in Fernbank CDP
Katimavik Road	- Widen from two to four lanes from Terry Fox Road to Eagleson Road	- Provides continuity between four-lane Palladium Drive and Eagleson Road	Not Started

Project	General Description	Rationale	EA Status
Leitrim Road	- Widen to four lanes from River Road to east of Limebank Road and realign east of Limebank Road to Bowesville Road	- Addresses Riverside South growth needs	Not started
Limebank Road	- Widen from two to four lanes from Riverside Drive to Mitch Owens Road	- Addresses capacity deficiencies across the Leitrim Screenline, in conjunction with Riverside Drive and Bank Street widening	Completed
Longfields Drive (Extension)	- New two-lane link from Woodroffe Avenue to South Pointe Business Park	- Services South Pointe Business Park	Completed
Maple Grove Road	- Widen from two to four lanes from Terry Fox Drive to Huntmar Drive	- Accommodates Kanata West Development	Completed
March Road	- Widen from two to four lanes from north of Morgan's Grant Way to Dunrobin Road	- Provides additional vehicular capacity to growth areas in north Kanata	Completed
Mer Bleue Road	- Widen/realign from two to four lanes from Innes Road to Navan Road	- Provides capacity for the development areas south of Innes Road in Orleans	Completed
Navan Road	- Widen from two to four lanes from the Blackburn Hamlet Bypass Extension to Mer Bleue Road	- Services growth in Orleans South along existing Navan Road	Not started
New Fallowfield Extension	- New four-lane collector from Strandherd Drive to McKenna Casey Road	- Services Barrhaven Industrial Park development	Not started
Ottawa Road 174	- Widen from four/five lanes to six lanes from Highway 417 to Jeanne d'Arc Boulevard	- Required to address local capacity, operational and safety issues	Not started
Palladium Drive Realignment	- Realign from Huntmar Road to new Kanata West North-South Arterial	- Accommodates Kanata West Development	Completed
Portobello Boulevard	- Widen to four lanes from Charest Way to the Blackburn Hamlet Bypass Extension	- Services growth in south Orléans	N/A
Prince of Wales Drive	- Widen from two to four lanes from Fisher Avenue to Woodroffe Avenue	- Addresses capacity deficiency at CNR West Screenline	Underway
Richmond Road	- Widen to four lanes from Carling Avenue to Golden Avenue	- Address as capacity deficiency at Western Parkway/Woodroffe Screenline	Not started

Project	General Description	Rationale	EA Status
Riverside Drive	- Widen from two to six lanes from Hunt Club Road to Limebank Road	- Addresses capacity deficiencies and operational needs at the Leitrim Screenline, in conjunction with Limebank Road and Bank Street widenings	Completed
Second New Rideau River Bridge	- Additional crossing of Rideau River (likely at Fallowfield/Leitrim)	- Addresses capacity deficiency at the Rideau River South Manotick / Screenline towards the end of the planning period	Not Started
Spratt Road	- New two-lane extension from Limebank Road to Bowesville Road	- Services growth in Riverside South	N/A
St. Joseph Blvd	- Widen from two to four lanes from Tenth Line Road to Dairy Road	- Provides capacity for additional traffic generated by Orléans urban growth including Orléans Town Centre (OTC) and Commercial Highway Special lands north of St. Joseph between Tenth Line Road and Taylor Creek	Completed
Strandherd Drive	- Widen from two to four lanes from Fallowfield Road to Jockvale Road - Widen from four to six lanes from Jockvale Road to Woodroffe Avenue - New four-lane road from Woodroffe Avenue to Prince of Wales Drive	- Addresses capacity deficiencies at the Rideau River South and Manotick Screenlines, in conjunction with a Strandherd-Armstrong Rideau River Bridge, Earl Armstrong Road widening	Completed
Strandherd-Armstrong Rideau River Bridge	- New six-lane bridge crossing of Rideau River linking Prince of Wales Drive and Earl Armstrong Road - (Initially to operate with four general purpose and two transit lanes)	- Addresses capacity deficiencies at the Rideau River South/Manotick Screenlines, in conjunction with Strandherd Drive and Earl Armstrong Road widening - Provides capacity for Barrhaven Town Centre development along Strandherd Drive	Completed
Tenth Line Road	- Widen from two to four lanes from Vanguard Drive to south of Blackburn Hamlet Bypass Extension	- Provides capacity for traffic generated by Orleans Urban Growth south of Innes Road	Not Started

Project	General Description	Rationale	EA Status
Terry Fox Drive	- New two-lane road from Goulbourn Forced Road to south of Richardson Side Road	- Provides access to adjacent developments in North Kanata	Completed
	- Widen from two to four lanes from March Road to south of Richardson Side Road	- Accommodates the vehicular capacity needs for growth areas in Kanata	Completed (addendum in progress)
	- Widen from four lanes to six lanes from Campeau Drive to Palladium Drive	- Accommodates Kanata and Kanata West Development	Not Started
	- Widen from two to four lanes from south of Winchester Drive to Eagleson Road at Hope Side Road	- Provides access to adjacent developments in Kanata South and Fernbank	Completed
Trim Road/Frank Kenny Road Extension	- Widen from two to four lanes from North Service Road north of OR174 to realigned Trim Road - New four-lane road from realigned Trim Road to Frank Kenny Road south of Innes Road	- Provides network continuity and capacity for additional traffic generated by development growth in Orléans	Completed
	- Widen Trim Road from two to four lanes from realigned Trim Road/Frank Kenny Extension to Blackburn Hamlet Bypass Extension	- Provides capacity for Orléans development	

7.1 Modifications to Road Projects Listed in 2003 TMP

As a result of the updated screenline analysis detailed in this report, and carried out in conjunction with the 2008 TMP/COP Update and which addresses future arterial capacity needs at the horizon year of the 2008 COP/CMP, the following Tables 7-2 and 7-3 list the deletions and additions respectively, that are being recommended to the list of road projects that were identified in Annex A – Required Infrastructure Projects, of the previous 2003 TMP.

As previously stated, it is important to note that the road network analysis needs assumes that all of the identified/required 2031 transit infrastructure will be implemented, and that the 30% City-wide peak hour transit modal share is achieved. If this does not occur, there could be further screenline capacity deficiencies that may require additional road widenings or new links not identified/recommended herein.

Table 7-2: Modified Arterial Needs: Recommended Deletions of 2008 TMP Compared to 2003 TMP

Project	Recommendation	Rationale
Albion Road (Lester Road to Earl Armstrong Road)	- Not recommended for four laning before 2031 - Protect four-laning for possible growth needs beyond 2031	- Reduced needs at the Leitrim Screenline due to increased transit share of travel and widening of adjacent north-south arterials
Bank Street (Conroy Road to Leitrim Road)	- Six-laning not recommended before 2031 - Protect right-of-way for six-laning beyond 2031	- Reduced needs at the Leitrim Screenline due to increased transit share of travel
Conroy Road (Hunt Club Road to Walkley Road)	- Six-laning before 2031 not recommended for general traffic (may be required for transit priority needs)	- Reduced needs at CNR East Screenline recommended to be addressed by four-laning Airport Parkway to better address needs of Riverside South/Leitrim and Airport growth
Conroy Road (Bank Street to Hunt Club Road)	- No four-laning before 2031 - Protect corridor for four-laning beyond 2031	- Reflects reduced needs at Leitrim and CNR East Screenlines
Cummings Avenue (Ogilvie Road to Cyrville Road)	- No four-laning before 2031 - Protect corridor for four-laning after 2031	- Recently completed Labelle Street extension has reduced the need
Cyrville Road (Cummings Avenue to Innes Road)	- No four-laning before 2031 - Model projects peak hour volumes of ±700 pcus per hour at 2031 - Protect corridor for four-laning beyond 2031	- Very expensive project due to bridge structures over both the Highway 417 and the East Transitway
Eagleson Road (Hope Side Road to Fallowfield Road)	- No four-laning before 2031 - Protect corridor for four-laning beyond 2031	- No need established by analysis of Flewellyn Screenline (#56)
Fernbank Realignment (Realigned intersection at Eagleson/Bridgestone)	- Not recommended	- Property not protected in plans of subdivisions (would impact existing water retention facilities)
Hazeldean Road (Iber Road to Terry Fox Drive)	- Six-laning not recommended before 2031 - Protect corridor for six-laning beyond 2031	- Eight lanes on Highway 417 by MTO along with other east-west capacity needs (such as four-laning Campeau Drive/Maple Grove Road) will help postpone six-laning this section of Hazeldean Road
Innes-Walkley-Hunt Club – Phase 1 (Hawthorne Road to Highway 417 East)	- Implement as two-lane link before 2031 - Protect corridor for four-laning beyond 2031	- Ties in with reduced needs in Innes Road Corridor

Project	Recommendation	Rationale
Innes-Walkley-Hunt Club – Phase 2	- Implement as two-lane link before 2031 - Protect corridor for four-laning beyond 2031	- Reduced needs at Greens Creek Screenline due to increased transit share of travel - Link already in place by way of Highway 417 between Innes Road and Walkley Road interchanges
Lester Road (Airport Parkway to Albion Road)	- Widening from two to four lanes not recommended before 2031 - Protect corridor for four-laning from Airport Parkway to Bank Street beyond 2031	- Ties in with above recommendation not to widen Albion Road
Maple Grove Road (Huntmar Drive to Kanata West North-South Arterial)	- Not required	- Superseded by major collector link form Stittsville Main Street Extension to Palladium Drive identified in the Kanata West Road Network
Merivale Road (Fallowfield Road to Prince of Wales Drive and Slack Road to Amberwood Crescent)	- No four-laning before 2031 - Protect corridor for four-laning after 2031	- Needs at the Fallowfield and CNR West Screenline reduced due to increasing share of travel by transit. Needs addressed by four-laning Prince of Wales Drive
New East-West Road (Location unidentified)	- Unidentified four-lane facility from Highway 416 to Highway 417 East)	- No current Provincial interest in the concept of an "Outer Ring Road"
Terry Fox Drive (Hazeldean Road to Palladium Drive)	- No six-laning before 2031 - Protect corridor for widening after 2031	- The recommended implementation of the Huntmar Drive Extension (completed in 2008 and the Kanata West North-South Arterial, linking Fernbank Road with the Palladium Interchange will provide ample north-south capacity before 2031)
Walkley Road (Heron Road to Highway 417)	- No six-laning recommended for general traffic - May occur for transit priority	- Reduced needs at CNR East Screenline - Possible widening for east-west transit needs in Heron-Walkley corridor

Table 7-3: Modified Arterial Needs: Recommended Additions of 2008 TMP Compared to 2003 TMP

Project	Recommendations	Rationale
Bank Street (Earl Armstrong Road to Pathway Road (Greely)	- Widen from two to four lanes	- Services growth in traffic in Bank Street corridor in general, and specifically in Greely
Barnsdale Road (Highway 416 to Prince of Wales Drive)	- Widen from two to four lanes	- If a second Highway 416 interchange is built at Barnsdale Road to serve Barrhaven, the widening of Barnsdale Road is likely to be needed by 2031
Cambrian Road (New Greenback Road to Jockvale Road)	- Widen from two to four lanes	- Required to service Barrhaven South development
Carp Road (Hazeldean Road to Highway 417)	- Widen from two to four lanes	- Services growth in Stittsville and identified development in the vicinity of the Carp/Hazeldean intersection
Highway 416 Interchange (at either Barnsdale Road or Cambrian Road)	- Second interchange required on Highway 416 to serve Barrhaven	- Relieves Fallowfield interchange congestions and serves planned development in Barrhaven South
Kanata West North-South Arterial (Hazeldean Road to Fernbank Road)	- New two/four lane arterial	- Services development of proposed Fernbank Community and provides easterly bypass of Stittsville Main Street
Leitrim Road (River Road to Bowesville Road)	- Widen existing Leitrim Road from River Road to east of Limebank Road and realign the existing road east of Limebank Road to Bowesville Drive	- Addresses Riverside South growth needs
Limebank Road (south of Earl Armstrong Road to Mitch Owens Road)	- Widen from two to four lanes	- Services Riverside South growth needs
Mer Bleue Road (Blackburn Hamlet Bypass Extension to Navan Road)	- Widen existing road from Blackburn Hamlet Bypass Extension to south of Renaud Road and – new four-lane realignment west of existing Mer Bleue Road from south of Renaud Road to Navan Road	- Services Orléans growth south of Innes Road

Project	Recommendations	Rationale
Navan Road (Blackburn Hamlet Bypass Extension to Mer Bleue Road)	- Widen from two to four lanes	- Services growth in Orléans South along existing Navan Road
Ottawa Road 174 (Highway 417 (split) to Jeanne d'Arc Boulevard)	- Widen from four to six lanes	- Widening required to address local capacity, operational and safety issues
Tenth Line Road (Vanguard Drive to south of Blackburn Hamlet Bypass Extension)	- Widen easterly from two to four lanes	- Addresses capacity needs for Orléans growth south of Innes Road
Trim Road (Innes Road to Blackburn Hamlet Bypass Extension)	- Widen existing from two to four lanes	- Provide capacity for Orléans growth south of Innes Road

8.0 ROAD AND BRIDGE PRIORITY LISTING AND PRELIMINARY COST ESTIMATES

8.1 Phases and Priorities

Having established the recommended list of new road and bridge infrastructure and required arterial road widenings to meet the likely long-term travel demands at the strategic screenlines and as a result of local urban growth, development and redevelopment needs, this section of the report establishes a recommended priority for implementation over the lifetime of the 2008 OP/TMP to the year 2031.

Three categories of priorities have been established, spanning the three periods 2009 to 2015, 2016 to 2022 and 2023 to 2031.

Over the lifetime of the 2008 TMP, the arterial road network will be expected to function in accordance with Council's operational policies and standards, and providing the delivery of transportation services to the existing and future population in an efficient and effective manner. To this end, the recommended roadway implementation priorities have been set with the following basic operational factors in mind:

- **Phase 1: 2009 to 2015 (Population approximately 965,000)**
  The fundamental objective is to minimize Council's road expenditures in the early years while investment in Rapid Transit is given a high priority to encourage the accelerated shift to transit. Road needs are generally limited to:
  - new road links without which imminent planned growth cannot occur, e.g., Blackburn Hamlet Bypass Extension;
  - existing arterial widenings which are already at capacity, e.g., Limebank Road widening from Hunt Club to Earl Armstrong Road; and
  - existing arterial widenings which are required to service known planned development proposals, e.g., Hazeldean Road widening from Iber Road to Terry Fox Drive.

  Phase 1 projects are depicted on Figure 8-1.

- **Phase 2: 2016 to 2022 (Population approximately 1,040,000)**
  Widening of existing arterial roads that are identified to reach capacity, along with the provision of new arterial links identified to service the anticipated planned development needs over the next eight to fourteen years.

Phase 2 projects are depicted on Figure 8-2.

- **Phase 3: 2023 to 2031 (Population approximately 1,136,000)**
  Widening of existing arterial roads and the provision of new arterial links that have been identified as likely requirements towards the end of the planning period subject to the achievement of the growth projections and rapid transit modal split targets, vehicle occupancy assumptions, etc.

  Phase 3 projects are depicted on Figure 8-3.

Table 8-1 details the recommended phasing and includes arterial and collector road projects for which City of Ottawa funding will be required.

Table 8-1: Recommended Phasing of Future Road Infrastructure Needs

PHASE 1: IMPLEMENTATION 2009 – 2015		
Project	**Limits**	**Rationale**
Alta Vista Transportation Corridor - New two-lane link	Riverside Drive to Hospital Ring Road	- Services development / redevelopment of Hospital Lands - Relieves congestion on Alta Vista Drive/Smyth Road - Relieves neighbourhood cut-through traffic north of Walkley Road
Belcourt Boulevard - Widen existing to four lanes	Innes Road to Renaud Road	- Required to service Orléans development south of Innes Road
Belcourt Boulevard/Mer Bleue Road connection - New four-lane collector road	Mer Bleue Road to Belcourt Boulevard	- Required to service Orléans development east of Innes Road
Blackburn Hamlet Bypass Extension - New two-lane link	Navan Road at Hydro Corridor to Tenth Line Road and Portobello Boulevard to Trim Road	- Services ongoing development in Orléans, south of Innes Road
Campeau Drive - Widen existing from two to four lanes - New four-lane link	Kanata Avenue to Didsbury Road Didsbury Road to Huntmar Drive	- Required to service development in Kanata and Kanata West, north of Highway 417
Chapman Mills Drive - New four-lane collector road	Strandherd Drive to Woodroffe Avenue	- Services Barrhaven Town Centre
Country Club/Jinkinson Road -New two-lane collector road	Jinkinson Road to Country Club subdivision	- Services development on south side of Highway 7 Freeway
Earl Armstrong Road - Widen existing from two-to four lanes	River Road to Limebank Road	- Required to service development in Riverside South - Provides capacity on links to new Strandherd-Armstrong Bridge

Project	Limits	Rationale
Greenbank Road - Widen existing from two to four lanes	Malvern Drive to Strandherd Drive	- Already at/near capacity - Services Barrhaven growth
Goulbourn Forced Road - New two-lane collector road	Kanata Avenue to Terry Fox Drive	- Services growth in north Kanata
Hazeldean Road - Widen existing from two to four lanes	Terry Fox Drive to Iber Road/Huntmar Drive	- Currently at/near capacity - Required to service development proposals of Kanata West and Fernbank
Hope Side Road Extension/ Crown Ridge Drive completion - New two-lane link	Richmond Road to Moodie Drive including completion of Crown Ridge Drive	- Relieves congestion at Eagleson South Screenline - Relieves congestion within Bridlewood
Hunt Club Road Extension - Two-lane extension and new interchange on Highway 417 east	Hawthorne Road to Highway 417 West	- Completes southern bypass connectivity of Hunt Club Road from Highway 417 East to Highway 416 - Relieves congestion at Walkley/Russell 417 and Walkley/Hawthorne intersections
Jockvale / Longfields Link - New four-lane link including twinning existing bridge over Jock River - New two-lane link	Strandherd Drive to Jock River	- Relieves intersection problems at Greenbank/Jockvale - Increases capacity at Jock River to service Barrhaven South growth - Postpones need for New Greenbank Road Bridge over Jock River
Kanata Avenue - Existing two-lanes upgrade	Goulbourn Forced Road to Old Richardson Side Road	- Services growth in Kanata North
Limebank Road - Widen existing from two to four lanes	Earl Armstrong Road to River Road	- Currently operating at/near capacity - Required to service Riverside South growth
Longfields Drive - New two-lane collector link	Woodroffe Avenue to Merivale Road	- Services South Pointe Business Park
Mer Bleue Road - Widen to four lanes	South of Innes Road to south of Renaud Road	- Services Orléans development south of Innes Road
Ottawa Road 174 - Widen from five to six lanes	Highway 417 (split) to Blair Road	- Relieves existing capacity, operational and safety issues
Portobello Boulevard - Widen existing collector to four lanes	Charest Way to Blackburn Hamlet Bypass Extension	- Services Orléans development south of Innes Road

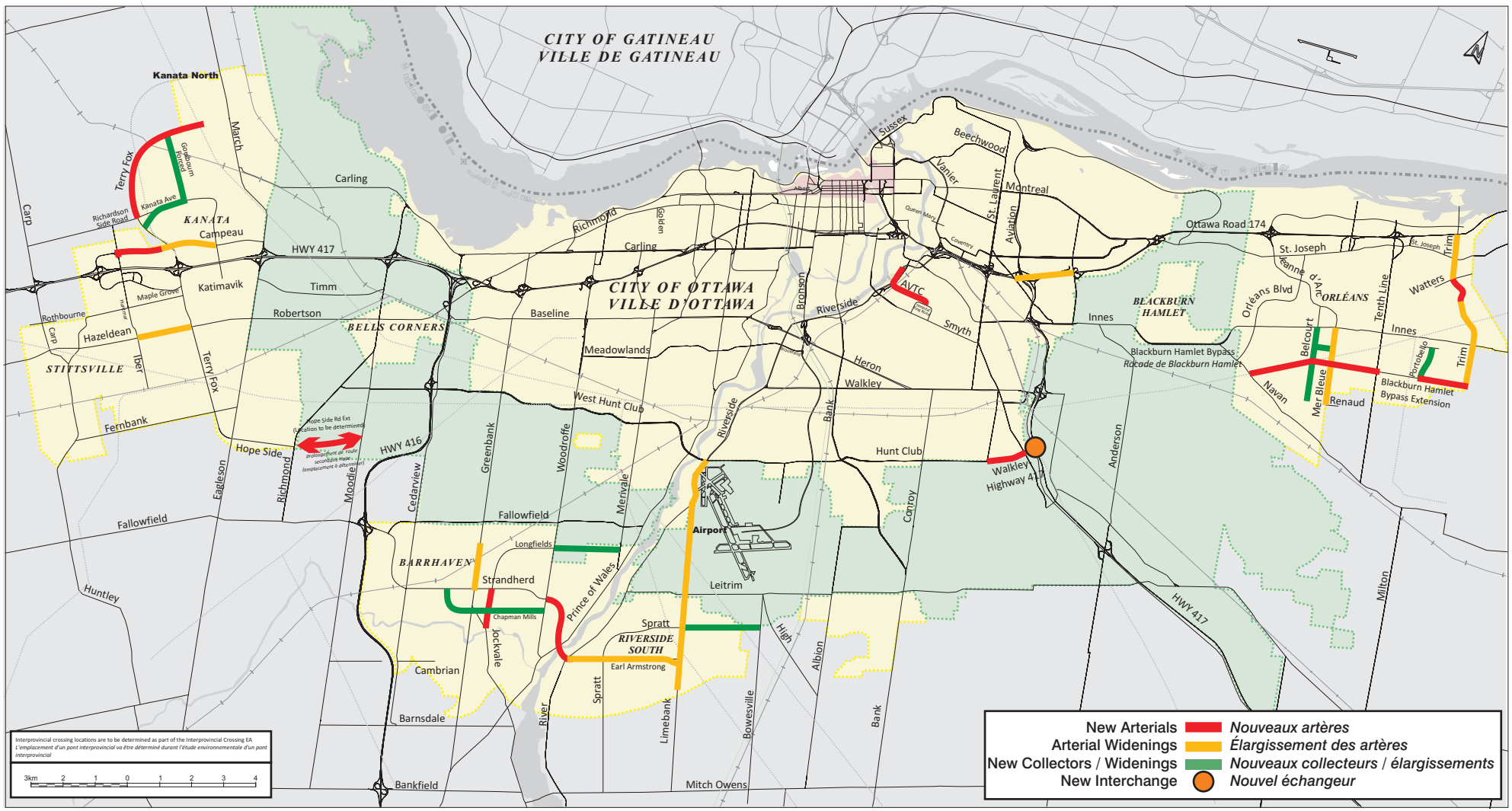


Figure 8-1: Phase 1 Roadway Infrastructure Needs 2009-2015

Project	Limits	Rationale
Strandherd-Armstrong Bridge over Rideau River - New six lane crossing (two transit lanes/four general traffic lanes)	River Road to Prince of Wales Drive	- Required to provide additional east-west capacity across Rideau River South/Manotick Screenline - Required to relieve congestion within Manotick Village - Required to service increased travel between Riverside South and Barrhaven due to planned growth
Riverside Drive – Phase 1 - Widen from two to four lanes	Hunt Club Road to Limebank Road	- Provides capacity of Riverside South/Leitrim development needs
Spratt Road - New two-lane collector road	Limebank Road to Bowesville Road	- Serves Riverside South growth
Strandherd Drive - New six-lane link	Woodroffe Avenue to Prince of Wales Drive	- Links to new Strandherd-Armstrong Bridge
Terry Fox Drive - New two-lane link	Goulbourn Forced Road to south of Richardson Side Road	- Required to service development in Kanata North
Trim Road - Widen to four lanes	North Service Road north of OR 174 to Blackburn Hamlet Bypass Extension	- Local capacity needs due to development in east Orleans
PHASE 2: IMPLEMENTATION 2016 – 2022		
Project	**Limits**	**Rationale**
Airport Parkway - Widen existing from two to four lanes	Brookfield Drive to Ottawa International Airport	- Caters to increased growth of Ottawa International Airport - Services growth in Riverside South/Leitrim
Albert Street - Widen from four to six lanes	Booth Street to Empress Street	- Local service and operational needs due to LeBreton development
Alta Vista Transportation Corridor - New two/four lane link	Riverside Drive to Highway 417	- Relieve congestion at Rideau River Central Screenline due to Southeast Sector growth - Provides additional access/capacity to accommodate Hospital Lands growth
Bank Street - Widen to four lanes	South of Leitrim Road to Findlay Creek	- Services Leitrim growth
Belcourt Boulevard - New four-lane collector road	Renaud Road to Navan Road	- Services Orleans development south of Innes Road
Blackburn Hamlet Bypass Extension - New four-lane road	Blackburn Hamlet Bypass to Navan Road at Hydro Corridor	- Services ongoing development in Orléans, south of Innes Road
Cambrian Road - Widen from two to four lanes	New Greenbank Road to Jockvale Road	- Services development in Barrhaven South

Project	Limits	Rationale
Campeau Drive - Widen existing from two to four lanes	Kanata Avenue to March Road	- Services development in Kanata, north of Highway 417
Carp Road - Widen from two to four lanes	Highway 417 to Hazeldean Road	- Services growth in Stittsville
Eagleson Road - Widen from two to four lanes	Cadence Gate to Hope Side Road	- Services growth in Kanata South/Fernbank
Earl Grey / Goulbourn Forced Road Underpass on Terry Fox Drive	Located at easterly Earl Grey/Goulbourn Forced Road intersection on Terry Fox Drive	- Relieves operational, safety and local development access to/from Kanata Centrum and Kanata West
Frank Kenny Road Extension - New four-lane road link	Realigned Trim Road to Innes Road	- Services Orléans growth
Greenbank Road (new Jock River bridge) - New four-lane road	Jockvale Road to Cambrian Road	- Services growth in Barrhaven South
Hazeldean Road - Widen from two to four lanes	Iber/Huntmar to Stittsville Main Street	- Services growth in Kanata West/Fernbank/Stittsville
Hope Side Road - Widen from two to four lanes - New two-lane road	Eagleson Road to Richmond Road Moodie Drive to Highway 416	- Relieves congestion at Eagleson South screenline - Services growth in South Kanata - Reduces congestion within Bridlewood
Huntmar Drive - Widen from two to four lanes	Campeau Drive to Cyclone Taylor Boulevard and Palladium Drive to Maple Grove Road	- Services growth in Kanata West of Highway 417
Innes-Walkley-Hunt Club (Phase 2) - New two-lane road	Innes Road to Highway 417 East	- Services growth in Orléans South
Jockvale Road - Widen from two to four lanes	Jock River to Prince of Wales Drive	- Services growth in Barrhaven South
Kanata West Main Street - New two-lane collector road	Maple Grove Road to Palladium Drive	- Services growth in Kanata West
Kanata West North-South Arterial New two-lane link	Hazeldean Road to Fernbank Road	- Required to service Fernbank Community - Provides relief of Stittsville Main Street
Mer Bleue Road - New four-lane road	South of Renaud Road to Navan Road	- Services Orleans development south of Innes Road
Navan Road	Blackburn Hamlet Bypass Extension to Mer Bleue Road	- Services growth in Orleans South along existing Navan Road

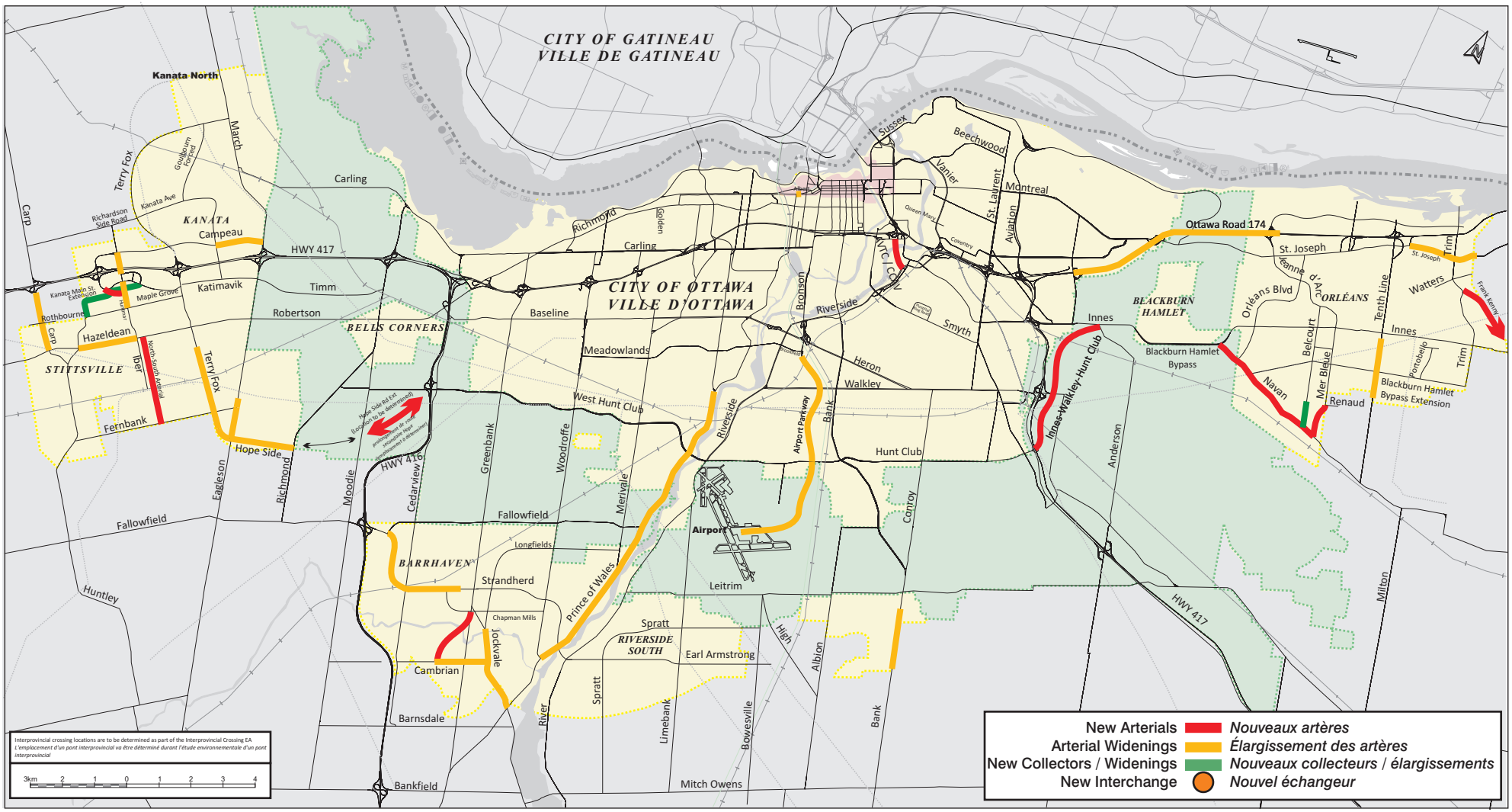


Figure 8-2: Phase 2 Roadway Infrastructure Needs 2016-2022

Project	Limits	Rationale
OR174 - Widen from four to six lanes	Blair Road to Jeanne d'Arc	- Relieves existing capacity, operational and safety issues
Palladium Drive Realignment	Huntmar Drive to North-South Arterial	- Services development in Kanata West
Prince of Wales Drive - Widen from two to four lanes	Fisher Avenue to Woodroffe Avenue	- Required to provide additional capacity at CNR West and Jock River Screenlines - Services Barrhaven and Manotick development - Required to provide link capacity to new Strandherd-Armstrong Bridge
St. Joseph Boulevard - Widen from two to four lanes	Tenth Line Road to Dairy Road	- Services Orléans growth and development needs between St. Joseph Boulevard and OR 174
Strandherd Drive - Widen from two to four lanes	Fallowfield Road to Jockvale Road	- Services Barrhaven development
Tenth Line Road - Widen to four lanes	Vanguard Drive to north of Urban Boundary	- Services Orleans development south of Innes Road
Terry Fox Drive - Widen from two to four lanes	South of Winchester Drive to Eagleson Road	- Services Kanata South and Fernbank development
PHASE 3: Implementation 2023-2031		
Project	**Limits**	**Rationale**
2nd Rideau River Bridge - New two/four lane bridge	Linking Fallowfield and Leitrim Roads	- Services needs at Rideau River South/Manotick Screenline
Alta Vista Transportation Corridor - New two-lane link	Walkley Road to Hospital Ring Road	- Reduces congestion due to Riverside South/Leitrim development - Reduces shortcutting through residential communities north of Walkley Road - Provides needed access and capacity to service Hospital Lands growth
Bank Street - Widen from two to four lanes	Findlay Creek to Greely	- Addresses capacity needs due to Riverside South, Leitrim and Greely developments
Barnsdale Road - Widen from two to four lanes	New Interchange on Highway 416 to Prince of Wales Drive	- Required in conjunction with recommended 2nd Interchange on Highway 416 at Barnsdale Road
Blackburn Hamlet By-Pass - Widen from four to six lanes	Innes Road west of Blackburn Hamlet to Navan Road	- Services Orléans South development needs
Blackburn Hamlet Bypass Extension - New two-lane road	Trim Road to Frank Kenny Road	- Services Orléans South development needs

Project	Limits	Rationale
Coventry Road - Widen from two to four lanes	Belfast Road to St. Laurent Boulevard	- Completes 4-laning to service development/redevelopment needs
Earl Armstrong Road - Widen from two to four lanes - New two-lane link	Limebank road to High Road High Road to Bank Street	- Completes link to major north-south arterial (Bank Street) - Services Leitrim development
Fallowfield Road - Widen from two to four lanes	Cedarview Road to Strandherd Drive and Woodroffe Avenue to Prince of Wales Drive	- Services development of Barrhaven Business Park and overall Barrhaven South
Hazeldean Road - Widen from two to four lanes	Carp Road to Stittsville Main Street	- Services growth in Stittsville development along Hazeldean Road
Hunt Club Road - Widen from four to six lanes	Riverside Drive to Bank Street	- Caters to ongoing development/redevelopment in corridor - Enables full capacity of Rideau River crossing to be utilized
Kanata West North-South Arterial - New four-lane road	Hazeldean Road to Palladium Drive	- Services Kanata West/Fernbank development
Katimavik Road - Widen existing from two to four lanes	Terry Fox Drive to Eagleson Road	- Provides capacity for Kanata growth
Leitrim Road - Widen to 4 lanes - New 4 lane road	River Road to east of Limebank Road East of Limebank Road to Bowesville Road	- Facilitates Leitrim/Riverside South development
Limebank Road - Widen from two to four lanes	Earl Armstrong to Mitch Owens Road	- Facilitates Riverside South development
Maple Grove Road - Widen from two to four lanes	Huntmar Drive to Terry Fox Drive	- Services Kanata West development
New interchange on Highway 416	Likely at Barnsdale Road	- Enables full capacity of Jock River screenline to be available to Barrhaven South development
Riverside Drive: Phase 2 - Widen from four to six lanes	Hunt Club Road to Limebank Road	- Provides capacity for Riverside South/Leitrim growth
Strandherd Drive - Widen from four to six lanes	Greenbank Road to Woodroffe Avenue	- Services Barrhaven development needs
Terry Fox Drive - Widen from two to four lanes - Widen from four to six lanes	March Road to south of Richardson Side Road Palladium Drive to Campeau Drive	- Services Kanata and Kanata West development needs

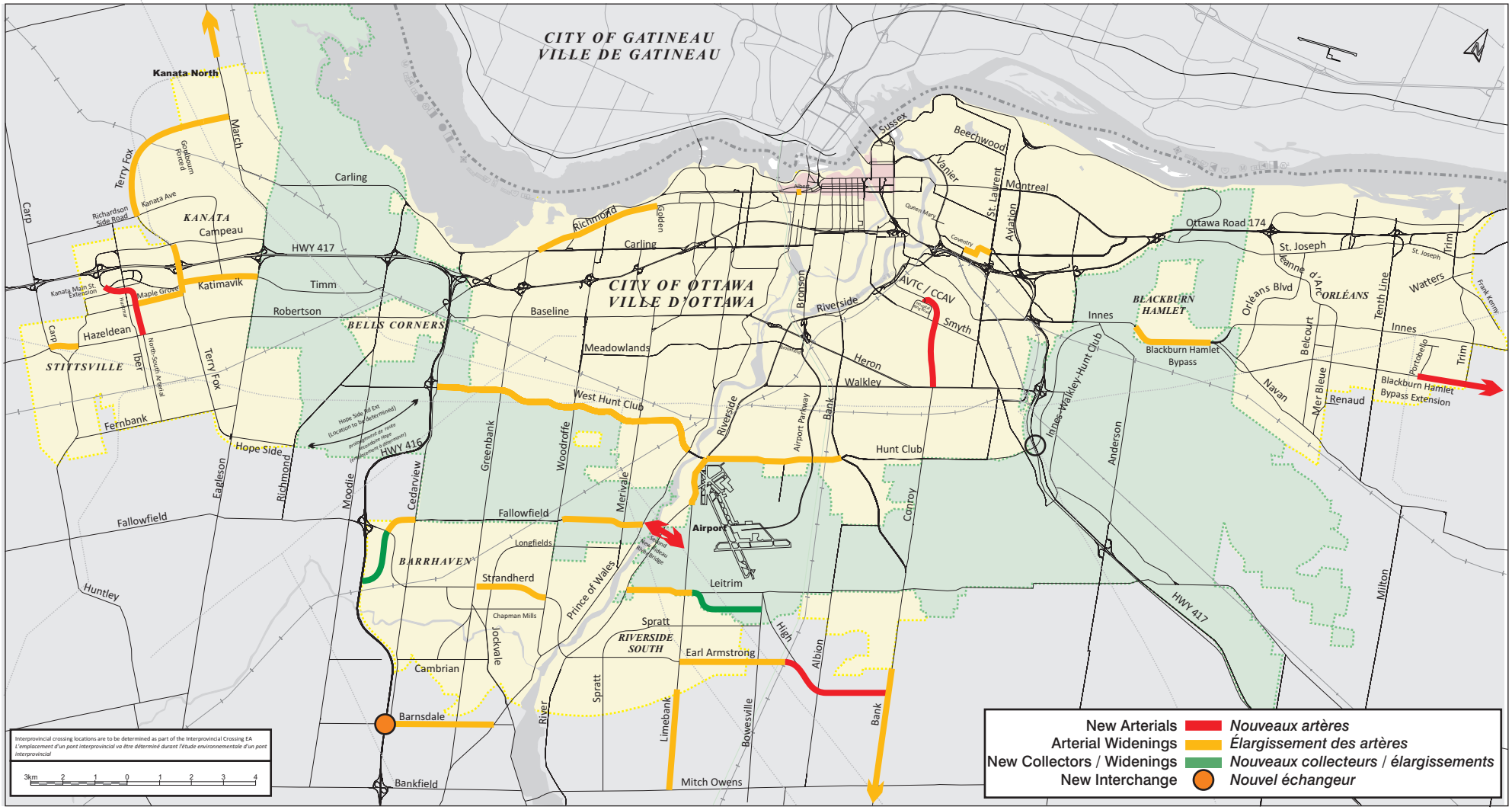


Figure 8-3: Phase 3 Roadway Infrastructure Needs 2023-2031

Project	Limits	Rationale
Trim Road - Widen to four lanes	Blackburn Hamlet Bypass Extension to Trim/Frank Kenny Extension intersection	- Provides local capacity for Orléans growth
West-Hunt Club road - Widen from four to six lanes	Highway 416 to Prince of Wales Drive	- Caters to ongoing development/redevelopment in corridor - Enables full capacity of Rideau River crossing to be utilized

8.2 Preliminary Road/Bridge Cost Estimates Listed Alphabetically

Table 8-2 includes a preliminary estimate of the cost of each of the recommended road/bridge projects detailed in Table 7-1 and listed alphabetically. Costs are in 2008$.

More detailed costing data is available in a separate, supporting document.

Table 8-2: Preliminary Cost Estimates of Recommended Road/Bridge Phases

Project	General Description	Cost ($ 2008)
Airport Parkway	- Widen from two to four lanes from Brookfield Drive to Lester Road	$37.1M
Albert Street	- Widen from four to six lanes from Booth Street to Empress Avenue	$2.5M
Alta Vista Transportation Corridor	- New four-lane arterial (two general purpose lanes+ two for transit) linking Conroy Road at Walkley Road with the Nicholas Street Interchange on Highway 417	$127.0M
Bank Street	- Widen from two to four lanes from south of Leitrim Road to Parkway Road (Greely)	$51.3M
Barnsdale Road	- Widen from two to four lanes Highway 416 to Prince of Wales Drive	$21.1M
Belcourt Boulevard / Mer Bleue Road Connection	- Widen existing south of Innes Road from two to four lanes and extend four lanes from Renaud Road to Navan Road - New four-lane collector link from Belcourt Blvd. to Mer Bleue Road	$38.7M
Blackburn Hamlet Bypass	- Widen from four to six lanes from Innes Road West Intersection to Innes Road East Intersection	$20.1M
Blackburn Hamlet Bypass Extension	- New four-lane road from Blackburn Hamlet Bypass/Innes Road east intersection to Navan Road south of Hydro Corridor - New two-lane road from Navan Road/Hydro Corridor to Frank Kenny Road - New two-lane road from Portobello Road to Frank Kenny Road - (Protect for four-lane arterial beyond 2031)	$61.9M

Project	General Description	Cost ($ 2008)
Campeau Drive	- Widen from two to four lanes from March Road to Didsbury Road - New four-lane arterial road from Didsbury Road to new North-South Arterial in Kanata West	$50.9M
Cambrian Road	- Widen from two to four lanes from Jockvale Road to new Greenbank Road	$16.3M
Carp Road	- Widen from two to four lanes from Hazeldean Road to Highway 417 interchange	$17.2M
Chapman Mills Drive	- New four-lane road from Strandherd Drive to Woodroffe Avenue	$30.5M
Country Club / Jinkinson Road	- New two-lane service road parallel to Highway 7 (Freeway) between existing Jinkinson Road and the Country Club subdivision near Dwyer Hill Road	$2.0M
Coventry Road	- Widen from two to four lanes from Belfast Road to St. Laurent Shopping Centre	$4.1M
Eagleson Road	- Widen from two to four lanes from Cadence Gate to Hope Side Road	$14.1M
Earl Armstrong Road	- Widen from two lanes to four lanes from River Road east to High Road - New two-lane arterial road from High Road east to Bank Street	$91.8M
Earl Grey Drive – Goulbourn Road underpass	- New underpass on Terry Fox Drive Interchange at the Earl Grey/Goulbourn Road intersection	$3.5M
Fallowfield Road	- Widen from two to four lanes from Woodroffe Avenue east to Prince of Wales Drive - Widen from two to four lanes from Cedarview Road to Strandherd Drive	$37.9M
Goulbourn Forced Road	- New two-lane collector road from Kanata Avenue to Terry Fox Drive	$12.6M
Greenbank Road	- Widen from two to four lanes from Malvern Drive to south of Jockvale Road - New four-lane road from south of Jockvale Road to Cambrian Road	$85.1M
Hazeldean Road	- Widen from two to four lanes from Terry Fox Drive to Carp Road	$53.4M
Hope Side Road / Crown Ridge Drive Completion	- Widen from two to four lanes between Eagleson Road and Richmond Road including completion of Crown Ridge Drive - New two-lane extension from Richmond Road to Highway 416	$47.6M
Highway 416 Interchange	- New interchange at Barnsdale Road	$25.5M
Hunt Club / West Hunt Club Widening	- Widen existing Hunt Club Road/West Hunt Club from four to six lanes between Bank Street and Highway 416	$77.8M

Project	General Description	Cost ($ 2008)
Huntmar Drive	- Widen from two to four lanes from Campeau Drive to Cyclone Taylor Boulevard - Widen from two to four lanes from Palladium drive to Maple Grove Road	$21.9M
Hunt Club Road Extension (Phase 1) and Innes-Walkley-Hunt Club Link (Phase 2)	- New two-lane link from Hawthorne Road to a new interchange on Highway 417 East - (Protect for four-lanes beyond 2031) - New two-lane roadway from Innes Road to the new Highway 417 interchange - (protect for four lanes beyond 2031)	$72.4M
Jockvale Road	- Widen existing road from two to four lanes south of Jock River to Prince of Wales Drive	$26.1M
Jockvale / Longfields Link	- New four-lane road from Strandherd Drive to Jock River including twinning of Jock River Bridge	$19.7M
Kanata Avenue	- Upgrade existing collector from Goulbourn Forced Road to Richardson Side Road	$4.5M
Kanata West Main Street	- New two-lane collector road from Maple Grove Road to Palladium Drive	$15.2M
Kanata West North-South Arterial	- New road in Kanata West/Fernbank Development from Palladium Drive to Fernbank Road	$40.0M
Katimavik Road	- Widen from two to four lanes from Terry Fox Road to Eagleson Road	$33.3M
Leitrim Road	- Widen to four lanes from River Road to east of Limebank Road and realign east of Limebank Road to Bowesville Road	$30.1M
Limebank Road	- Widen from two to four lanes from Riverside Drive to Mitch Owens Road	$92.1M
Longfields Drive (Extension)	- New two-lane collector road from Woodroffe Avenue to South Pointe Business Park	$14.0M
Maple Grove Road	- Widen from two to four lanes from Terry Fox Drive to Huntmar Drive	$18.5M
March Road	- Widen from two to four lanes from north of Morgan's Grant Way to Dunrobin Road	$38.2M
Mer Bleue Road	- Widen from two to four lanes from Innes Road to Navan Road	$41.0M
Navan Road	- Widen from two to four lanes from the Blackburn Hamlet Bypass Extension to Mer Bleue Road	$35.0M
New Fallowfield Extension	- New four-lane collector from Strandherd Drive to McKenna Casey Road	$15.1M
Ottawa Road 174	- Widen from four to six lanes from Highway 417 to Jeanne d'Arc	$35.9M
Palladium Drive Realignment	- Realign from Huntmar Road to new Kanata West North-South Arterial	$6.3M

Project	General Description	Cost ($ 2008)
Portobello Boulevard	- Widen to four lanes from Charest Way to the Blackburn Hamlet Bypass Extension	$14.5M
Prince of Wales Drive	- Widen from two to four lanes from Fisher Avenue to Woodroffe Avenue	$90.3M
Richmond Road	- Widen to four lanes from Carling Avenue to Golden Avenue	$51.8M
Riverside Drive	- Widen from two to six lanes from Hunt Club Road to Limebank Road	$23.0M
Second New Rideau River Bridge	- Additional crossing of Rideau River (likely at Fallowfield/Leitrim)	$50.8M
Spratt Road	- New two-lane collector from Limebank Road to Bowesville Road	$11.9M
St. Joseph Blvd	- Widen from two to four lanes from Tenth Line Road to Dairy Road	$12.5M
Strandherd Drive	- Widen from two to four lanes from Fallowfield Road to Jockvale Road - Widen from four to six lanes from Jockvale Road to Woodroffe Avenue - New six-lane road from Woodroffe Avenue to Prince of Wales Drive	$98.0M
Strandherd-Armstrong Rideau River Bridge	- New six-lane bridge crossing of Rideau River linking Prince of Wales Drive and Earl Armstrong Road - (Initially to operate with four general purpose and two transit lanes)	$48.0M
Tenth Line Road	- Widen from two to four lanes from Vanguard Drive to south of Blackburn Hamlet Bypass Extension	$19.0M
Terry Fox Drive	- New two-lane road from Goulbourn Forced Road to south of Richardson Side Road - Widen from two to four lanes from March Road to south of Richardson Side Road - Widen from four lanes to six lanes from Campeau Drive to Palladium Drive - Widen from two to four lanes from south of Winchester Drive to Eagleson Road at Hope Side Road	$127.7M
Trim Road/Frank Kenny Road Extension	- Widen from two to four lanes from North Service Road north of OR174 to realigned Trim Road - New four-lane road from realigned Trim Road to Frank Kenny Road south of Innes Road - Widen old Trim Road from two to four lanes from realigned Trim Road/Frank Kenny Road Extension to Blackburn Hamlet Bypass Extension	$74.9M
TOTAL COST ESTIMATE		**$2,111.7 M**

8.3 Road/Bridge Cost Estimates by Implementation Phase

Table 8-3 contains the estimated cost of the road/bridge projects included in each of the recommended three phases that are detailed in Table 8-1.

Within each of the three Phases projects have also been assembled to reflect the major sectors of the City served by the recommended infrastructure.

Table 8-3: Estimated Phase Costs of Recommended Road/Bridge Infrastructure

PHASE 1: IMPLEMENTATION 2009-2015			
Road/Bridge	**Project**	**Limits**	**Cost ($2008)**
East Sector			
Belcourt Boulevard and Mer Bleue Road Connection	- Widen to four lanes - New four-lane collector road	- Innes Road to Renaud Road - Belcourt Boulevard to Mer Bleue Road	$23.7M
Blackburn Hamlet Bypass Extension	- New two-lane road	- Navan Road at Hydro Corridor to Tenth Line Road - Portobello Boulevard to Trim Road	$36.3M
Mer Bleue Road	- Widen to four lanes	- South of Innes Road to south of Renaud Road	$24.1M
OR174	- Widen from five to six lanes	- Highway 417 to Blair road	$7.0 M
Portobello Boulevard	- Widen to four lane collector	- Charest Way to the Blackburn Hamlet Bypass Extension	$14.5 M
Trim Road	- Widen to four lanes	- North service road north of Ottawa Road 174 to Blackburn Hamlet Bypass Extension	$47.5M
Southeast Sector			
Alta Vista Transportation Corridor	- New two-lane road	- Riverside Drive to Hospital Ring Road	$65.0M
Earl Armstrong Road	- Widen to four lanes	- River Road to Limebank Road	$33.0M
Hunt Club Road Extension	- New two-lane road with Interchange	- Hawthorne Road to Highway 417 East	$58.4M
Limebank Road	- Widen to four lanes	- River Road to Earl Armstrong Road	$53.0M
Riverside Drive	- Widen to four lanes (Phase 1)	- Hunt Club Road to Limebank Road	$13.0M
Spratt Road Extension	- New two-lane collector road	- Limebank Road to Bowesville Road	$11.9M
Strandherd – Earl Armstrong Bridge	- New six lane bridge (four general purpose + two transit lanes)	- Prince of Wales Drive to River Road	$48.0M

Southwest Sector			
Chapman Mills Drive	- New four-lane collector road	- Strandherd Drive to Woodroffe Avenue	$30.5M
Greenbank Road	- Widen to four lanes	- Malvern Drive to Strandherd Drive	$14.0M
Jockvale / Longfields / River	- New four-lane road and Jock River Bridge Twinning	- Strandherd Drive to Jockvale Road, south of Jock River	$19.7M
Longfields Drive Extension	- New two-lane collector road	- Woodroffe Avenue to South Pointe Business Park	$14.0M
Strandherd Drive	- New six-lane road	- Woodroffe Avenue to Prince of Wales Drive	$23.5M
West Sector			
Campeau Drive	- Widen to four lanes - New four-lane road	- Kanata Avenue to Didsbury Road - Didsbury Road to Huntmar Drive	$34.0M
Country Club / Jinkinson Road	- New two-lane collector road	- Jinkinson Road to Country Club Subdivision	$2.0 M
Goulbourn Forced Road Realignment	- New two-lane collector road	- Kanata Avenue to Terry Fox Drive	$12.6M
Hazeldean Road	- Widen to four lanes	- Terry Fox Drive to Iber Road/Huntmar Drive	$21.6M
Hope Side Road / Crown Ridge Road	- New two-lane road including Crown Ridge Road completion	- Richmond Road to Moodie Drive (location to be determined)	$8.9M
Kanata Avenue	- Existing two lanes upgraded	- Goulbourn Forced Road to Old Richardson Side Road	$4.5M
Terry Fox Drive	- New two-lane road	- Richardson Side Road to Goulbourn Forced Road	$45.0M
TOTAL PHASE 1 PROJECTS			**$665.7M**

PHASE 2: Implementation 2016-2022			
Road/Bridge	**Project**	**Limits**	**Cost ($2008)**
East Sector			
Belcourt Boulevard	- New four-lane road	- Renaud Road to Navan Road	$15.0M
Blackburn Hamlet Bypass Extension	- New four-lane road	- Blackburn Hamlet Bypass to Navan Road at Hydro Corridor	$17.5M
Frank Kenny Road Extension	- New four-lane road	- Realigned Trim Road to Innes Road	$27.4M
Mer Bleue Road	- New four-lane road	- South of Renaud Road to Navan Road	$16.9M
Navan Road	- Widen to four lanes	- Blackburn Hamlet Bypass Extension to Mer Bleue Road	$35.0M
Ottawa Road 174	- Widen to six lanes	- Blair Road to Jeanne d'Arc Boulevard	$28.9M

East Sector (cont'd)			
St. Joseph Boulevard	- Widen to four lanes	- East of Tenth Line Road to Dairy Road	$12.5M
Tenth Line Road	- Widen to four lanes	- Vanguard Drive to north of Urban Boundary	$19.0M
Innes – Walkley – Hunt Club Link (Phase 2)	- New two-lane road	- Innes Road to Highway 417 East	$14.0M
Southeast Sector			
Airport Parkway	- Widen to four lanes	- Brookfield Drive to Airport	$37.1M
Alta Vista Transportation Corridor	- New two/four lane road	- Highway 417 to Riverside Drive	$45.0M
Bank Street	- Widen to four lanes	- South of Leitrim Road to Findlay Creek	$16.1M
Southwest Sector			
Cambrian Road	- Widen to four lanes	- New Greenbank Road to Jockvale Road	$16.3M
Greenbank Road (new Jock River Bridge)	- Relocated four-lane road and new Jock River Bridge	- Jockvale Road to Cambrian Road	$71.1M
Jockvale Road	- Widen to four lanes	- Jock River south to Prince of Wales Drive	$26.1M
Prince of Wales Drive	- Widen to four lanes	- Fisher Avenue to Woodroffe Avenue	$90.3M
Strandherd Drive	- Widen to four lanes	- Fallowfield Road to Jockvale Road	$60.3M
West Sector			
Campeau Drive	- Widen to four lanes	- March Road to Kanata Avenue	$16.9M
Carp Road	- Widen to four lanes	- Hazeldean Road to Highway 417	$17.2M
Eagleson Road	- Widen to four lanes	- Cadence Gate to Hope Side Road	$14.1M
Earl Grey/Goulbourn Forced Road Underpass (Terry Fox Drive)	- Underpass linking Goulbourn Forced Road and Earl Grey Drive	- At existing Kanata Centrum access	$3.5M
Hazeldean Road	- Widen to four lanes	- Iber Road/Huntmar Drive to Stittsville Main Street	$19.6M
Hope Side Road	- Widen to four lanes - New two-lane road	- Eagleson Road to Richmond Road - Moodie Drive to Highway 416 (location to be determined)	$38.7M
Huntmar Drive	- Widen to four lanes	- Campeau Drive Extension to Cyclone Taylor Boulevard - Palladium Drive to Maple Grove Road	$21.9M

West Sector (cont'd)			
Kanata West Main Street	- New two-lane road	- Maple Grove Road to Palladium Drive	$15.2M
Kanata West North-South Arterial	- New two-lane road	- Hazeldean Road to Fernbank Road	$18.0M
Palladium Drive Realignment	- Realign existing four-lane road	- Huntmar Drive to North-South Arterial	$6.3M
Terry Fox Drive	- Widen to four lanes	- South of Winchester Drive to Eagleson Road	$30.9M
Central Sector			
Albert Street	- Widen from four to six lanes	- Booth Street to Empress Avenue	$2.5M
TOTAL PHASE 2 PROJECTS			**$753.3M**

PHASE 3: Implementation 2023-2031			
Road/Bridge	**Project**	**Limits**	**Cost ($2008)**
East Sector			
Blackburn Hamlet Bypass	- Widen to six lanes	- Innes Road west of Blackburn Hamlet to Navan Road	$20.1M
Blackburn Hamlet Bypass Extension	- New two-lane road	- Trim Road to Frank Kenny Road	$8.1M
Coventry Road	- Widen to four lanes	- Belfast Road to St. Laurent Shopping Centre	$4.1M
Southeast Sector			
Alta Vista Transportation Corridor	- New two/four lane road	- Hospital Ring Road to Walkley Road	$17.0M
Bank Street	- Widen to four lanes	- Findlay Creek to Greely	$35.2M
Earl Armstrong Road	- Widen to four lanes - New two-lane road	- Limebank Road to High Road - High Road to Bank Street	$58.8M
Hunt Club Road	- Widen to six lanes	- Riverside Drive to Bank Street	$23.2M
Leitrim Road	- Widen to four lanes	- River Road to east of Limebank Road	$11.7M
Leitrim Road Realignment	- New four-lane road	- East of Limebank Road to Bowesville Road	$18.4M
Limebank Road	- Widen to four lanes	- Earl Armstrong Road to Mitch Owens Road	$39.1M
Riverside Drive: Phase 2	- Widen to six lanes	- Hunt Club Road to Limebank Road	$10.0M
Southwest Sector			
Barnsdale Road	- Widen to four lanes	- Highway 416 to Prince of Wales Drive	$21.1M
Fallowfield Road	- Widen to four lanes - Widen to four lanes	- Cedarview Road to Strandherd Drive - Woodroffe Avenue to Prince of Wales Drive	$37.9M

PHASE 3: Implementation 2023-2031			
Road/Bridge	**Project**	**Limits**	**Cost ($2008)**
Southwest Sector (cont'd)			
New Fallowfield Extension	- New four-lane collector	- Strandherd Drive to McKenna Casey Road	$15.1M
New Interchange on Highway 416	- 2nd Interchange at Barnsdale Road	- Highway 416 at Barnsdale Road	$25.5M
Second New Rideau River Bridge	- Four-lane crossing of Rideau River	- Fallowfield/Prince of Wales to Leitrim/Limebank	$50.8M
Strandherd Drive	- Widen to six lanes	- Greenbank Road to Woodroffe Avenue	$14.2M
West Hunt Club Road	- Widen to six lanes	- Highway 416 to Prince of Wales Drive	$54.6M
West Sector			
Kanata West North-South Arterial	- New four-lane road	- Hazeldean Road to Palladium Drive	$22.0M
Katimavik Road	- Widen to four lanes	- Terry Fox Drive to Eagleson Road	$33.3M
Hazeldean Road	- Widen to four lanes	- Carp Road to Stittsville Main Street	$12.2M
Maple Grove Road	- Widen to four lanes	- Huntmar Drive to Terry Fox Drive	$18.5M
March Road	- Widen to four lanes	- North of Morgan's Grant to Dunrobin Road	$38.2M
Richmond Road	- Widen to four lanes	- Carling Avenue to Golden Avenue	$51.8M
Terry Fox Drive	- Widen to four lanes - Widen to six lanes	- March Road to south of Richardson Side Road - Campeau Drive to Palladium Drive	$51.8M
TOTAL PHASE 3 PROJECTS			**$692.7.0M**

Table 8-4 summarizes the estimated total of each of the three phases for all the road/bridge projects recommended for implementation by the 2031 horizon ear of this OP/TMP Update.

Table 8-4: Phase Costs Summary

Phase	Estimated Road/Bridge Costs (%)
Phase 1: 2009-2015	$665.7M (31%)
Phase 2: 2016-2022	$753.3M (36%)
Phase 3: 2023-2031	$692.7M (33%)
TOTAL	**$2,111.7M (100%)**

Appendix A

Current Screenline Network Elements and
Directional Capacities (pcus)

Appendix A: Current Screenline Network Elements and Directional Capacities (pcus)

Table A-1: Current Screenline Network Elements and Directional Capacities (pcus)

Corridor	Interprovincial Screenline: #1-5		
	Bridge	**# of Lanes**	**Assumed Capacity (pcus)**
North	Champlain	1 + HOV	1500
	Chaudière	2	1575
	Portage	2 + HOV	2350
	Alexandria	1	1000
	MacDonald-Cartier	3	4725
	TOTAL	**9 + 2 HOV**	**11,150**

East	Rideau River North Screenline: #33			Greens Creek Screenline: #16		
	Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
	Sussex	2	1300	OR174	2	4620
	St. Patrick	2	2100	St. Joseph	2	2100
	Cummings Bridge*	2	1200	Innes	3	3360
	Minto Bridges	1 Collector	300	Rockcliffe Parkway	1	1000
	TOTALS	**7**	**4900**	**TOTALS**	**8**	**11,080**
	*Proposed transit lanes will reduce automobile capacity					
	Bilberry Creek Screenline: #45			**Frank Kenny Screenline: #46**		
	Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
	OR 174	2	4260	OR 174	1	1200
	St. Joseph	2	1680	St. Joseph	1	1050
	Innes	2	2100	Innes	1	1050
	Jeanne d'Arc	2	1160	Trim	1	1050
				Tenth Line	1	1050
	Des Epinettes	1	600	Mer Bleue	1	1050
				Navan	1	1050
	TOTAL	**9**	**9800**	**TOTAL**	**7**	**7500**

East	Innes Screenline: #47		
	Roads	**# Lanes**	**Assumed Capacity**
	Orléans	2	1500
	Navan	1	1050
	Pagé	1	300
	Mer Bleue	1	1050
	Tenth Line	1	1050
	Trim	1	1050
	TOTAL	**7**	**6000**

Appendix A: Current Screenline Network Elements and Directional Capacities (pcus)

South East

Rideau River Central/Queensway Screenline: #19/32			Smyth/Hydro Screenline: #54		
Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
Bronson / Dunbar	3	2730	Riverside	2	1900
Bank/Billings	2	1470	St. Laurent	2	1900
Smyth / McIlraith	2	1470	Alta Vista	1	600
Queensway / Hurdman	4	7350	Russell	1	300
TOTALS	**11**	**13,020**	**TOTALS**	**6**	**4700**

CNR East Screenline: #13			Leitrim Screenline: #8		
Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
Riverside	2	2100	River	1	1275
Airport Parkway	1	1700	Albion	1	1050
Bank	2	1900	Bank	2	1575
Conroy	2	2200	Hawthorne	1	1050
Hawthorne	2	1900			
McCarthy	1	600			
TOTALS	**10**	**10,400**	**TOTALS**	**5**	**4950**

Mitch Owens Screenline: #50			Ramsayville Screenline: #7		
Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
River	1	1050	Highway 417	2	4620
Dozois	1	1050	Russell	1	1050
Stagecoach	1	1050	Anderson	1	1050
Bank	1	1200	Ramsayville	1	1050
Manotick Station	1 collector	300			
Old Prescott	1 collector	300			
TOTALS	**6**	**4950**	**TOTALS**	**5**	**7770**

Highway 417/Walkley Screenline: #14			Bank/Hawthorne Screenline: #52/55		
Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
Walkley	1	1050	Leitrim	1	1050
Highway 417	2	4620	Lousize	1	300
			Rideau	1	300
			Whyte	1	300
			Russell	1	1050
			Mitch Owens	1	1050
TOTALS	**3**	**5670**	**TOTALS**	**6**	**4050**

Appendix A: Current Screenline Network Elements and Directional Capacities (pcus)

	CNR West Screenline: #12			**Fallowfield Screenline: #9**		
	Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
	Highway 416	2	4620	Moodie	1	735
	Cedarview	1	600	Highway 416	2	4620
	Greenbank	2	1995	Cedarview	1	600
	Woodroffe	2	1995	Greenbank	1	1365
	Merivale	2	1680	Woodroffe	2	2100
	Prince of Wales	1	1470	Merivale	1	1050
				Prince of Wales	1	1470
				Richmond	1	1050
	TOTALS	**10**	**12,360**	**TOTALS**	**10**	**12,990**
South West	**Jock River Screenline: #49: Capacity Available to Barrhaven**					
	Scenario 1: 2nd Highway 416 Interchange in Barrhaven South			**Scenario 2: No 2nd Highway 416 Interchange in Barrhaven South**		
	Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
	Moodie*	1	735	Moodie*	1	735
	Highway 416	2	4620	-	-	-
	Cedarview	1	600	Cedarview	1	600
	Greenbank	1	700	Greenbank	1	700
	Jockvale	1	800	Jockvale	1	800
	Prince of Wales	1	1470	Prince of Wales	1	1470
	TOTALS	**7**	**8925**	**TOTALS**	**5**	**4305**
	*Requires Cambrian Road overpass of Highway 416					
	CPR Line Screenline: #27/28/29			**Western Parkway Screenline: #24/25**		
West	**Roads**	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
	Ottawa River Parkway	2	2500	Richmond	1	945
	Scott	2	1680	Carling*	3	1900
	Carling*	3	1680	Highway 417	3	6930
	Somerset	2	940	Hunt Club	2	2100
	Colonel By	1	600	Iris	1	600
	Highway 417	4	8400	Tallwood	1	600
	Prince of Wales	1	1000	Knoxdale	1	600
	Gladstone	1	600	Baseline	3	2625
	TOTALS	**16**	**17,400**	**TOTALS**	**15**	**16,300**
	*Proposed transit needs will reduce automobile capacity					
	Acres Screenline: #11			**Eagleson Screenline: #10**		
	Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
	Carling	2	1900	Carling	1	1050
	Corkstown	1	1050	Corkstown	1	600
	Highway 417	3	6650	Highway 417	2	4620
	Richmond	2	1900	Timm	1	600
				Robertson	2	2000
				Hope Side	1	630
				Stonehaven	1	600
	TOTALS	**8**	**11,500**	**TOTAL**	**9**	**10,100**

Appendix A: Current Screenline Network Elements and Directional Capacities (pcus)

	Terry Fox Screenline: #44			**Eagleson North Screenline: #10a**		
West	**Roads**	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
	Highway 417	2	4620	Carling	1	1050
	Palladium	2	2000	Corkstown	1	600
	Maple Grove	1	900	Highway 417	2	4620
	Hazeldean	1	1365			
	Fernbank	1	900			
	Richardson Side	1 collector	300			
	Flewellyn	1 collector	300			
	TOTALS	**9**	**10,385**	**TOTALS**	**4**	**6270**
	Eagleson South Screenline: #10b			**Campeau Screenline: #53**		
	Roads	**# Lanes**	**Assumed Capacity**	**Roads**	**# Lanes**	**Assumed Capacity**
	Timm	1	600	Huntmar	1	600
	Robertson	2	2000	Terry Fox	2	2000
	Hope Side	1	630	Kanata Avenue	1	800
	Stonehaven	1	600	March	3	2700
				Campeau	1	1050
	TOTALS	**5**	**3830**	**TOTALS**	**8**	**7150**
	Fallowfield West Screenline: #56					
	Roads	**# Lanes**	**Assumed Capacity**			
	Huntley	1	1050			
	Shea	1	600			
	Eagleson	1	1050			
	TOTALS	**3**	**2700**			
	Rideau River South/Manotick Screenline: #20/42					
East/West Outside Greenbelt Rideau River South	**Roads**	**# Lanes**	**Assumed Capacity**			
	Heron*	3	1975			
	Hog's Back	1	900			
	Hunt Club	3	2625			
	Bankfield / Bridge	1	850			
	TOTALS	**8**	**6350**			
*Proposed bus lanes will reduce automobile capacity						

Appendix B

Private Vehicle Occupancy Rate Rationale

Appendix B: Private Vehicle Occupancy Rate Rationale

The following details the rationale for the recommended adoption of a 1.20 person per private vehicle (ppv) occupancy rate during peak hours for the City of Ottawa at 2031.

This recommended private vehicle occupancy rate has been used in the determination of the projected directional capacity deficiencies at the strategic screenlines within the City of Ottawa by 2031 based on the projected output from the TRANS Model of peak hour person trips by private vehicles crossing selected screenlines at that time.

There are two fundamental underpinnings to the adoption of a 1.20 ppv occupancy rate by 2031:

a. Historical trends in private vehicle occupancy rates.
b. Future potential for occupancy rate changes.

a. Depicted on Figure B.1 are the morning and afternoon private vehicle occupancy rates that have been determined at Rideau River and Greenbelt screenlines within the City of Ottawa between the years 1995 and 2007, as well as person trip and vehicle trip totals for the same time period.

   As indicated, there has been a steady increase in both person trip and vehicle trip totals over that time period with a corresponding decline in private vehicle occupancy rates. Over the historic period 1995-2007 the average automobile occupancy rate has declined from 1.25 ppv to 1.16 ppv during the morning peak hour and from 1.30 ppv to 1.19 ppv during the afternoon peak hour.

   It is noteworthy that both morning and afternoon automobile occupancy rates are now less than 1.20 ppv.

   During the same period, there has been a steady increase in transit ridership within the City of Ottawa where the annual ridership has now reached approximately 100 million passengers.

   The relationship between annual transit ridership and declining private vehicle occupancy rates is easy to comprehend as it is the market segment occupied by the travelling public with a "choice" of travel by transit or private vehicle that, coupled with the "captive" transit riders (those whose only other travel alternative is to walk/cycle) that provides the basis for increasing transit market share. Logically the segment of the potential "choice" transit rider occupied by the private vehicle "passenger" as opposed to the private vehicle "driver" will be the easier of the two to attract to a high quality transit service.

b. The transportation strategy of the City of Ottawa is to maximize the amount of travel by the more sustainable modes of travel with the minimized travel residual carried by private vehicles.

   To this end, the achievement of a 30% transit split target has been established for the horizon year of the OP. This overall transit modal split target translates into individual transit targets at each screenline, some of which exceed 50% of peak hour travel, and all of which are assumed to have been achieved in the final analysis of arterial network needs within all growth corridors.

   The achievement of the 30% modal split target by 2031, compared to the current 23% in the morning peak, and the concurrent reduction in the share of travel by private automobiles from 77% to 70% means that a dramatic continuing penetration of the available transit market must be achieved by 2031.

   As alluded to above, the transit market has two rider categories "captive" and "choice".

   The "captives" are always available to the transit network and on any one day 90-100% of these riders are likely to use the transit system, regardless of its quality.

The "choice" riders, on the other hand, who are either automobile or transit friendly are a more difficult target. The "choice" automobile riders are composed of automobile drivers who either have a need to drive their vehicles or are reluctant to use transit no matter how attractive it may be, and are difficult to dislodge from this practice.

The other component of the "choice" market are people who travel as passengers in private vehicles, having made arrangements that suit their needs.

As the achievement of the horizon year transit targets requires a sizeable component of "car users" to change to being "transit users" in order to achieve the overall transit goal the private vehicle passenger is the easier component to be attracted to an enhanced transit system. Thus it is concluded that a reduction in the number of private vehicle passengers is a logical result of a successful penetration of the available market that is hoped to be achieved by the City of Ottawa's transportation strategy in general and Rapid Transit strategy in particular.

The trend in private vehicle occupancy over the past several years as the transit share of the travel market has steadily increased in the City of Ottawa suggests that a direct consequence of a successful penetration of the available market along the lines required to achieve the 30% transit modal split target of the Official Plan will be a continuing steady reduction in the average private vehicle occupancy rate as it is largely within the 'automobile passenger' component that the required increased transit modal share can be found.

Conclusion

Although an average automobile occupancy rate of less than 1.20 ppv has already been achieved across the Greenbelt screenlines within the City of Ottawa it is recommended that although a continued decline is a likely consequence of the rapid transit implementation strategy over the next 25 years that the analysis of future road network needs at screenlines be based on a conservative 1.20 ppv average occupancy by 2031.

Appendix B: Private Vehicle Occupancy Rate Rationale

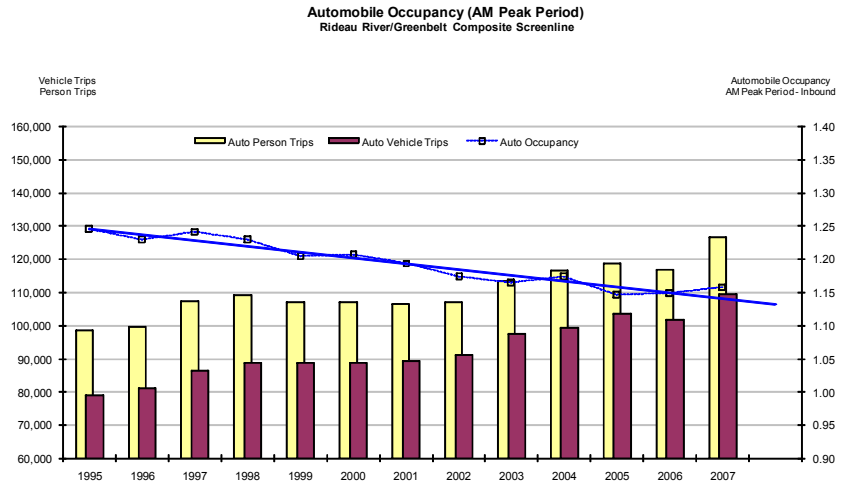
Figure B1: River and Greenbelt Corridor Data

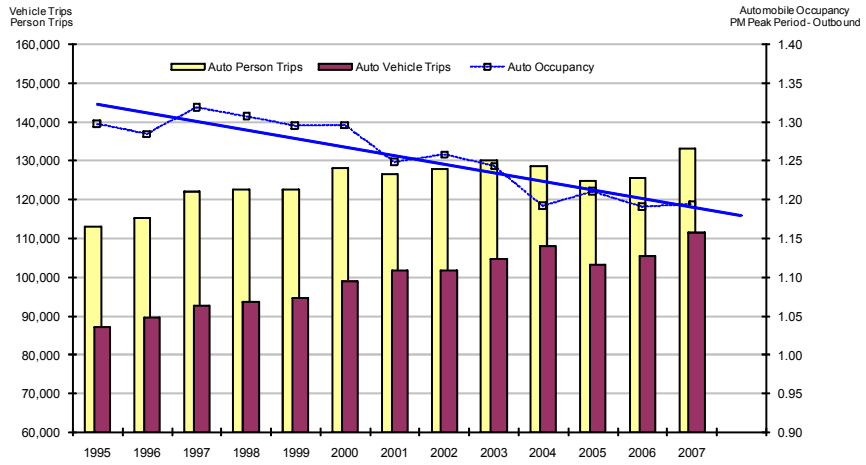
Input Data
Imports Data from other sheet

Note: This analysis is done for River (6) and Greenbelt (15) Cordons/Sets (Greenbelt_River (19))

Year	Auto Person Trips (AM Peak Period)	1 -2	Auto Vehicle Trips (AM Peak Period)	1 -2	Auto Occupancy (AM)
1995	98,540	98,500	79,073	79,100	1.25
1996	99,715	99,700	81,069	81,100	1.23
1997	107,364	107,400	86,494	86,500	1.24
1998	109,128	109,100	88,847	88,800	1.23
1999	107,046	107,000	88,894	88,900	1.20
2000	107,011	107,000	88,694	88,700	1.21
2001	106,642	106,600	89,337	89,300	1.19
2002	106,963	107,000	91,155	91,200	1.17
2003	113,481	113,500	97,458	97,500	1.16
2004	116,569	116,600	99,436	99,400	1.17
2005	118,707	118,700	103,620	103,600	1.15
2006	116,812	116,800	101,680	101,700	1.15
2007	126,580	126,600	109,310	109,300	1.16

Year	Auto Person Trips (PMPKPR)	1 -2	Auto Vehicle Trips (PMPKPR)	1 -2	Auto Occupancy (PM)
1995	112,854	112,900	87,100	87,100	1.30
1996	115,065	115,100	89,623	89,600	1.28
1997	121,891	121,900	92,546	92,500	1.32
1998	122,398	122,400	93,710	93,700	1.31
1999	122,355	122,400	94,596	94,600	1.29
2000	127,994	128,000	98,812	98,800	1.30
2001	126,558	126,600	101,500	101,500	1.25
2002	127,665	127,700	101,475	101,500	1.26
2003	129,966	130,000	104,597	104,600	1.24
2004	128,552	128,600	107,994	108,000	1.19
2005	124,653	124,700	103,110	103,100	1.21
2006	125,530	125,500	105,500	105,500	1.19
2007	132,950	133,000	111,410	111,400	1.19





Appendix C

Projected Screenline Deficiency Analysis 2031

Appendix C: Projected Screenline Deficiency Analysis 2031

The detailed analysis of projected screenline deficiencies by 2031, the horizon year of the Official Plan, follows.

Corridor: North	
Screenline Name and #	**Interprovincial: #1-5**
Element	**Quantity (a.m./p.m.)**
• Total peak hour person trips peak direction (model) a.m./p.m.	27,600 / 26,600
• Peak hour transit modal split (model)	43% / 42%
• Peak hour auto person trips (model)	15,800 / 15,500
• Assumed auto occupancy factor	1.2 / 1.2
• Projected PCUs / hour/ peak direction	13,170 / 12,920
• Assumed commercial vehicle factor	1.16 / 1.16
• Projected total PCUs / hour / peak direction	15,280 / 14,990
• Current screenline capacity LoS 'E': PCUs	11,150
• Current screenline capacity LoS 'D': PCUs	n/a
• Projected screenline deficiencies by 2031: PCUs / direction	4130 / 3840

Appendix C: Projected Screenline Deficiency Analysis 2031

Corridor: East					
Screenline Name and #	**Rideau River North #33**	**Greens Creek #16**	**Bilberry Creek #45**	**Frank Kenny #46**	**Innes #47**
Element	**Quantity (a.m./p.m.)**	**Quantity (a.m./p.m.)**	**Quantity (a.m./p.m.)**	**Quantity (a.m./p.m.)**	**Quantity (a.m./p.m.)**
• Total peak hour person trips peak direction (model) a.m./p.m.	8600 / 7200	19,500 / 18,000	12,900 / 13,500	3800 / 3600	7800 / 8700
• Peak hour transit modal split (model)	43% / 43%	43% / 43%	40% / 39%	9% / 0%	40% / 38%
• Peak hour auto person trips (model)	4950 / 4150	11,100 / 10,200	7800 / 8300	3500 / 3600	4700 / 5400
• Assumed auto occupancy factor	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20
• Projected PCUs / hour/ peak direction	4125 / 3460	9250 / 8500	6500 / 6920	2920 / 3000	3920 / 4500
• Assumed commercial vehicle factor	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16
• Projected total PCUs / hour / peak direction	4800 / 4010	10,730 / 9860	7540 / 8030	3390 / 3480	4550 / 5220
• Current screenline capacity LoS 'E': PCUs	4900	N/A	N/A	N/A	N/A
• Current screenline capacity LoS 'D': PCUs	N/A	9770	8820	6750	5400 / 5400
• Projected screenline deficiencies by 2031: PCUs / direction	None / None	760 / None	None / None	None / None	None / None

Appendix C: Projected Screenline Deficiency Analysis 2031

Corridor: Southeast								
Screenline Name and #	**Rideau River Central / Queensway #19/32**	**Smyth / Hydro #54**	**CNR East #13**	**Leitrim #8**	**Bank / Hawthorne #52/55**	**Mitch Owens #50**	**Highway 417 / Walkley #14**	**Ramsayville #7**
Element	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**
• Total peak hour person trips peak direction (model) a.m./p.m.	31, 100 / 30,900	10, 300 / 10, 200	16,100 / 15, 250	9100 / 8400	2800 / 2900	3700 / 3600	4900 / 4700	5900 / 5650
• Peak hour transit modal split (model)	52% / 51%	55% / 52%	37% / 38%	25% / 24%	0% / 0%	0% / 0%	0% / 0%	0% / 0%
• Peak hour auto person trips (model)	14,900 / 15,100	4600 / 4900	10,100 / 9400	6800 / 6400	2800 / 2900	3700 / 3600	4900 / 4700	5900 / 5650
• Assumed auto occupancy factor	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20
• Projected PCUs / hour/ peak direction	12,420 / 12,590	3840 / 4090	8420 / 7840	5670 / 5340	2340 / 2420	300 / 3000	4090 / 3920	4920 / 4710
• Assumed commercial vehicle factor	1.1.6 / 1.16	1.1.6 / 1.16	1.1.6 / 1.16	1.1.6 / 1.16	1.1.6 / 1.16	1.1.6 / 1.16	1.1.6 / 1.16	1.1.6 / 1.16
• Projected total PCUs / hour / peak direction	14,410 / 14,610	4460 / 4750	9770 / 9100	6580 / 6200	2720 / 2810	3590 / 3480	4750 / 4550	5710 / 5470
• Current screenline capacity LoS 'E': PCUs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
• Current screenline capacity LoS 'D': PCUs	11,720	4230	9360	4460	3650	4450	5100	7000
• Projected screenline deficiencies by 2031: PCUs / direction	2690 / 2990	230 / 520	410 / None	2120 / 1740	None / None	None / None	None / None	None / None

Corridor: Southwest				
Screenline Name and #	**CNR West #12**	**Fallowfield #9**	**Jock River (no interchange) #49**	**Jock River (2nd Interchange at Barnsdale) #49**
Element	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**
• Total peak hour person trips peak direction (model) a.m./p.m.	18,000 / 17,200	16,400 / 15,200	6450 / 6300	8800 / 8600
• Peak hour transit modal split (model)	33% / 34%	29% / 32%	23% / 23%	17% / 17%
• Peak hour auto person trips (model)	12,100 / 11,400	11,600 / 10,400	4950 / 4900	7300 / 7150
• Assumed auto occupancy factor	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20
• Projected PCUs / hour/ peak direction	10.090 / 9500	9670 / 8670	4130 / 4090	6080 / 5960
• Assumed commercial vehicle factor	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16
• Projected total PCUs / hour / peak direction	11,710 / 11,020	11,220 / 10,060	4790 / 4750	7060 / 6920
• Current screenline capacity LoS 'E': PCUs	N/A	N/A	N/A	N/A
• Current screenline capacity LoS 'D': PCUs	11,130	11,690	3880 / 3220*	8030 / 7370**
• Projected screenline deficiencies by 2031: PCUs / direction	580 / None	None / None	910 / 870 1570 / 1530*	None / None
*Without Cambrian Road link over Highway 416 to Moodie Drive **Full Highway 416 capacity assumed. Actual useful capacity may be less				

Appendix C: Projected Screenline Deficiency Analysis 2031

Corridor: West									
Screenline Name and #	**CPR Line # 27-29**	**Western Parkway/ Woodroffe #24/25**	**Acres #11**	**Eagleson #10**	**Eagleson North #10a**	**Eagleson South #10b**	**Terry Fox #44**	**Campeau #53**	**Fallowfield West #56**
Element	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**	**Quantity (a.m. / p.m.)**
• Total peak hour person trips peak direction (model) a.m./p.m.	34,200 / 33,200	28,800 / 28,800	18,600 / 18,200	19,700 / 19,400	15,250 / 15,100	4450 / 4300	11,700 / 12,200	10,700 / 12,400	1600 / 1600
• Peak hour transit modal split (model)	51% / 52%	34% / 38%	38% / 42%	34% / 38%	42% / 46%	4% / 7%	21% / 25%	32% / 35%	0% / 0%
• Peak hour auto person trips (model)	16,700 / 16,100	19,000 / 17,900	11,600 / 10,400	13,100 / 12,100	8850 / 8150	4250 / 4000	9300 / 9200	7300 / 8000	1600 / 1600
• Assumed auto occupancy factor	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20	1.20 / 1.20
• Projected PCUs / hour/ peak direction	13,920 / 13,420	15,840 / 14,920	9670 / 8670	10,920 / 10.090	7380 / 6750	3550 / 3340	7750 / 7670	6090 / 6670	1340 / 1340
• Assumed commercial vehicle factor	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16	1.16 / 1.16
• Projected total PCUs / hour / peak direction	16,930 / 15,570	18,380 / 17,310	11,200 / 10,060	12,670 / 11,710	8560 / 7830	4120 / 3880	8990 / 8900	7070 / 7740	1560 / 1560
• Current screenline capacity LoS 'E': PCUs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
• Current screenline capacity LoS 'D': PCUs	15,660	14,670	10,350	9090	5650	3450	9350	6440	2430
• Projected screenline deficiencies by 2031: PCUs / direction	1270 / None	3710 / 2640	850 / None	3580 / 2620	2910 / 2180	670 / 430	None / None	630 / 1300	None / None

Corridor: East/West Outside Greenbelt	
Screenline Name and #	**Rideau River South / Manotick #20/42**
Element	**Quantity (a.m./p.m.)**
• Total peak hour person trips peak direction (model) a.m./p.m.	11,900 / 12,300
• Peak hour transit modal split (model)	23% / 22%
• Peak hour auto person trips (model)	9200 / 9400
• Assumed auto occupancy factor	1.20 / 1.20
• Projected PCUs / hour/ peak direction	7670 / 7840
• Assumed commercial vehicle factor	1.16 / 1.16
• Projected total PCUs / hour / peak direction	8900 / 9100
• Current screenline capacity LoS 'E': PCUs	N/A
• Current screenline capacity LoS 'D': PCUs	5720
• Projected screenline deficiencies by 2031: PCUs / direction	3180 / 3380