Airport Parkway Widening &
Lester Road Widening

Project Need and Justification Report

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1.0 INTRODUCTION

Within the context of the Airport Parkway and Lester Road Widening Environmental Assessment (EA), this analysis is intended to provide existing and projected traffic conditions along the Airport Parkway corridor, between the Macdonald-Cartier International Airport and Brookfield Avenue, and Lester Road between Bank Street and the Airport Parkway. The information contained herein is intended to aid in the discussion regarding the capacity requirements identified in the City's 2013 Transportation Master Plan (TMP) and to inform a preferred solution for the subject project (i.e. Project Need and Justification).

1.1 The Planned Transportation Function of the Airport Parkway and Lester Road

The Airport Parkway is designated in the City's TMP as an arterial roadway. It is a north-south link between the Ottawa Macdonald-Cartier International Airport (OMCIA) and Bronson Avenue with interchanges provided at Lester Road/Uplands Drive, Hunt Club Road, Walkley Road, Brookfield Road and Riverside Drive/Heron Road. The Airport Parkway performs multiple transportation roles within the arterial road network, as follows:

- gateway to the City, providing a convenient link for air travel passengers between the Airport, the City's downtown core and major east-west links (i.e. HWY 417, Riverside Drive, Hunt Club Road, etc.);
- major access route to/from employment land uses located at/near the Airport;
- commuter route linking Hunt Club Road, Walkley Road (partial interchange only) and Brookfield Road, serving adjacent communities south of Heron Road;
- commuter route serving the south Ottawa growth communities (i.e. Riverside South, Findlay Creek, Greely, rural areas, etc.); and
- Spine cycling route.

Supplemental north-south links serving Ottawa south, within the vicinity of the Airport Parkway, include Bank Street, Albion Road, and Riverside Drive.

Lester Road is also designated in the City's TMP as an arterial roadway. It is an east-west link between the Airport Parkway and Bank Street. Given Lester Road is the first access point (in the northbound direction) to the Airport Parkway and given development is restricted along its length (being located within the Greenbelt), Lester Road is a desirable route for south Ottawa commuters to access the Airport Parkway. Beyond the Airport Parkway and Bank Street, Lester Road continues as Uplands Drive and Davidson Road, respectively. Lester Road performs multiple transportation roles within the arterial road network, as follows:

- "back door" access route for air travel passengers between the Airport, Bank Street, and areas to the east (i.e., Clarence-Rockland, Orleans, etc. via Davidson Road);
- minor access route to/from employment land uses located near the Airport;
- commuter route linking Bank Street and Albion Road to the Airport Parkway and Hunt Club Road, serving south Ottawa growth communities (i.e. Riverside South, Findlay Creek, Greely, rural areas, etc.);
- truck route linking the Airport and Uplands Drive to Bank Street; and
- Spine cycling route.

In addition, the Airport Parkway is designated as a Scenic Entry Route in the City of Ottawa Official Plan (OP). It is also a similar designation as a Capital Arrival in the National Capital Commission's Plan for Canada's Capital. These designations carry with them expectations for an enhanced design treatment and visual environment.

Figure 1 illustrates these transportation links within the context of the City's existing and planned Arterial Road Network. Figure 2 illustrates the link within the context of the existing and planned urban growth areas, including the OMCIA.

Figure 1: Arterial Road Network

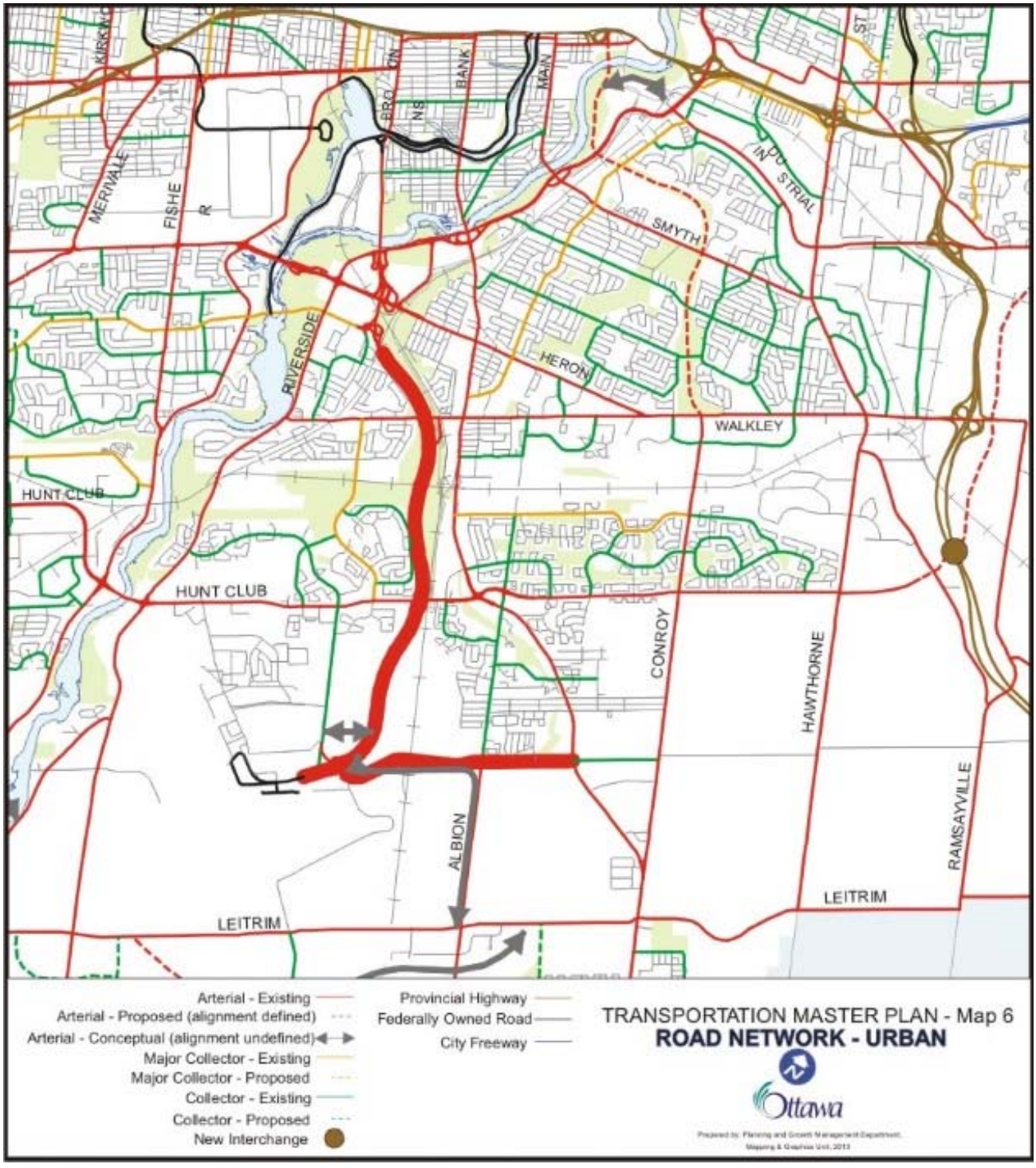
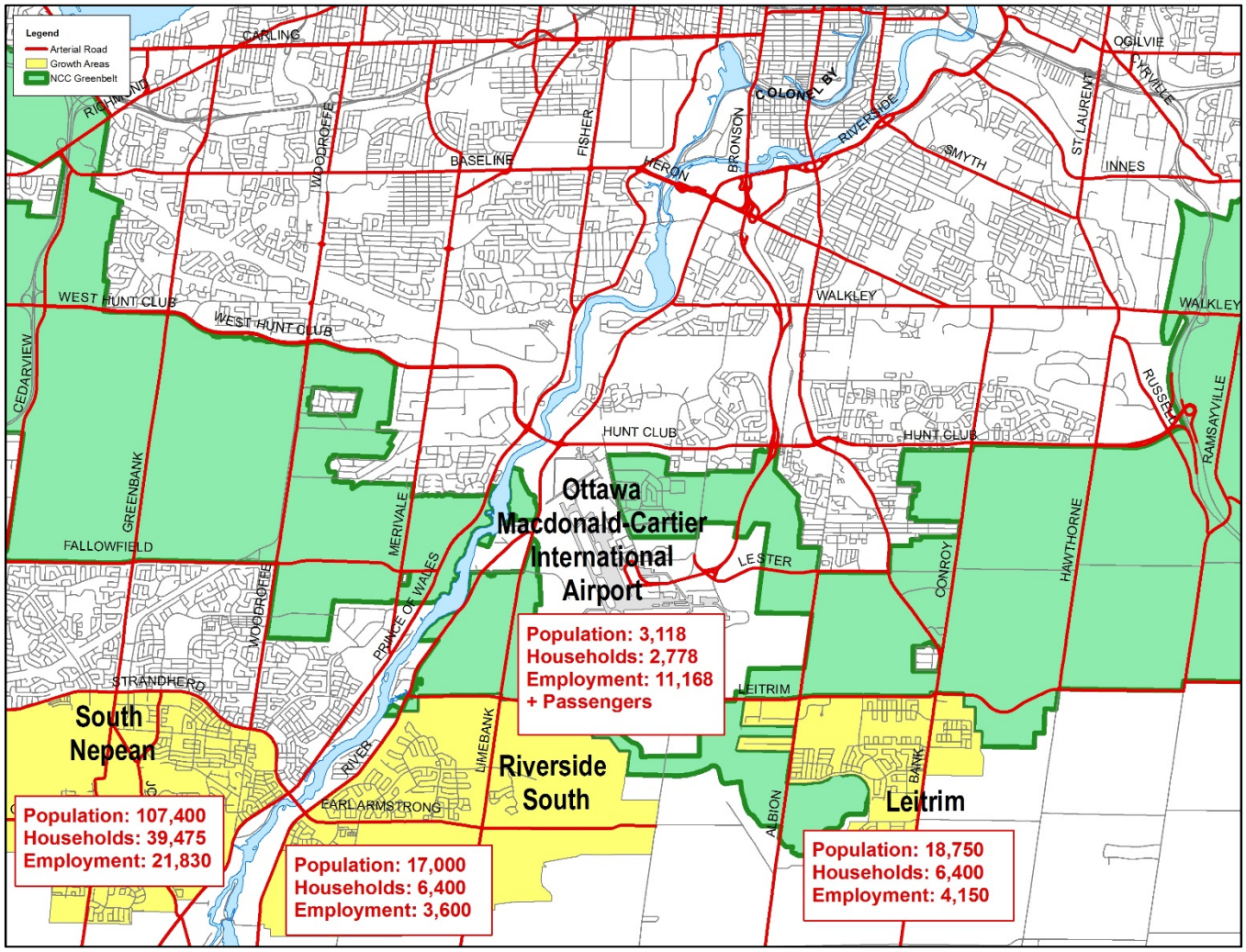


Figure 2: Urban Growth Forecast 2011 - 2031



2.0 EXISTING CONDITIONS

2.1 Traffic Volumes

The City of Ottawa provided their most recent weekday turning movement counts for the following study area intersections:

- Bronson/Brewer;
- Bronson/Riverside East;
- Bronson/Heron;
- Brookfield/Flannery;
- Airport Pkwy/Walkley E;
- Airport Pkwy/Walkley W;
- Airport Pkwy/Hunt Club;
- Uplands/Hunt Club;
- Uplands/EY Centre; and
- Lester/Bank.

Peak hour turning movement counts were collected by Parsons at the following study area intersections to supplement the data available through the City of Ottawa:

- Uplands/Airport SB Off Ramp;
- Airport Pkwy/Alert/Lester;
- Lester/Albion; and
- Airport Parkway South of Lester.

Noticeably absent from the available traffic data are multiple count stations on the grade-separated Airport Parkway itself. The City of Ottawa typically monitors turning movement data at signalized intersections only.

Current peak hour traffic volumes are illustrated in Figure 3 and are included as Appendix A. Peak hour directional volumes on the Airport Parkway range between less than **400 veh/h** south of Lester to approximately **1,800 veh/h** between Walkley Road and Hunt Club Road.

The highest observed Average Annual Daily Traffic (AADT), illustrated in Figure 4, is noted as approximately **35,500** two-way vehicles along the Airport Parkway (between Walkley Road and Hunt Club Road). AADT volumes on the Airport Parkway are lower by approximately one third between Hunt Club and Lester, and by one half south of Lester Road. On Lester Road, the highest observed AADT is **14,200** two-way vehicles (between Airport Parkway and Albion Road).

Classification and occupancy data for Screenline 13 (CNR East) and Screenline 19 (Rideau River), obtained from the City of Ottawa, are also included in Figures 3 and 4 for those stations along the Airport Parkway. As noted previously, traffic count data on the Airport Parkway itself north of Walkley Road, south of Hunt Club Road, and south of Lester Road are not readily available, and these volumes were *derived* using the SL 13 count, the Airport Parkway count south of the Uplands SB on-ramp, and peak hour counts at on/off ramps along the Airport Parkway. These derived counts are included in Figures 3 and 4 and are identified by grey "clouds".

The peak hour directional volumes with respect to the AADT are generally considered to be approximately 10% of the AADT according to an industry standard rule-of-thumb. This relationship was found to be valid for the existing volumes within the study area with the notable exception of the volumes along Lester Road between the Airport Parkway and Albion Road. At this location the morning and afternoon traffic volumes combined represent approximately 20% of the AADT.

2.1.1 Ernst & Young Centre

The existing peak hour traffic volumes outlined in Figures 3 and 4 do not incorporate the traffic volumes associated with an event at the Ernst & Young Centre (EY Centre), which is a 220,000 ft^2 trade/consumer show facility located at 4899 Uplands Drive. There are approximately 1,800 parking spaces on-site.

Typical parking lot utilization data were obtained from the EY Centre for a wide range of events ranging from small, medium and the largest events such as Comicon and the Home & Garden Show. The parking lot data reveals that traffic to/from an event at the EY Centre during the weekday morning and afternoon commuter peak hours is generally less than traffic to/from the EY Centre during a weekend event. Typical hourly volumes associated with events at the EY Centre are summarized in Table 1.

Table 1: Ernst & Young Centre Event Traffic Volumes

Time	Small Event[1] (veh/h)		Medium Event[2] (veh/h)		Large Event[3] (veh/h)	
	IN	OUT	IN	OUT	IN	OUT
Weekday AM Peak Hour	60	30	20	20	300	60
Weekday PM Peak Hour	30	60	120	120	180	300
Weekend Peak Hour	200	200	350	350	600	600

1 Young Presidents, Law Exams, Outdoor Adventure;
2 Zoomer/Train Expo, Home Design;
3 Sanko Toy/Shoe Sale/Pet Expo, Comicon, Home & Garden

Figure 3: Existing Weekday Morning and Afternoon Peak Hour Traffic Volumes

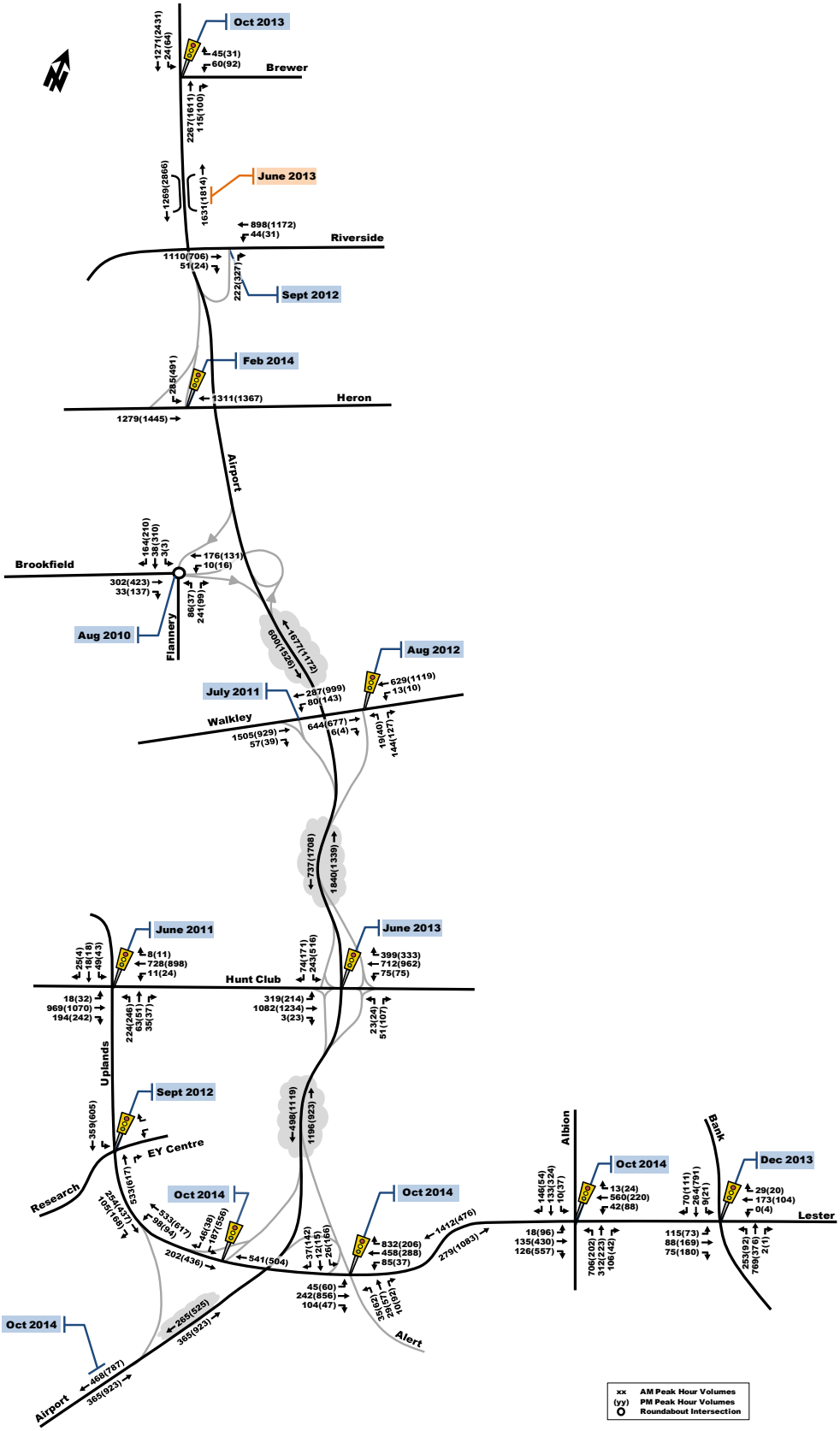
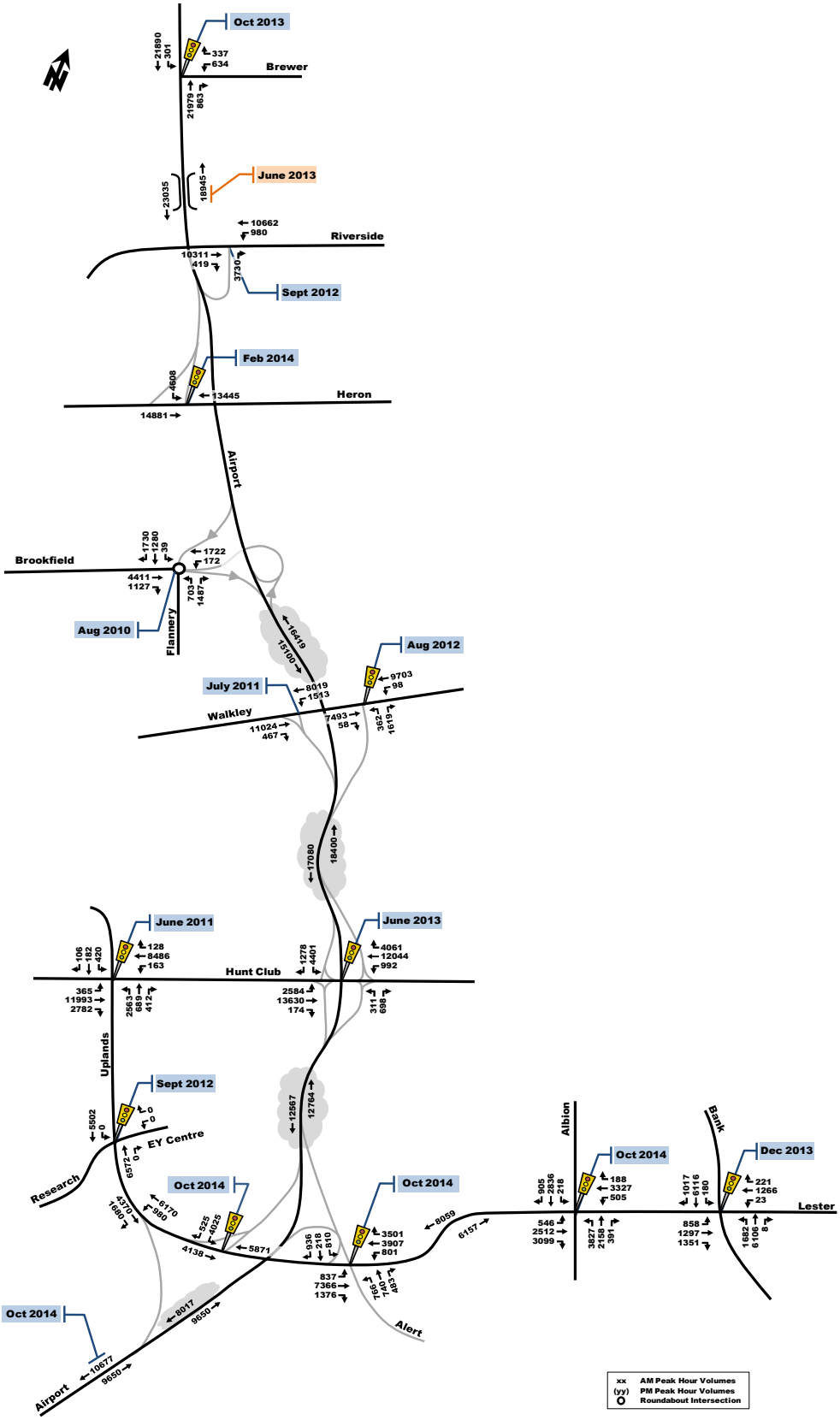


Figure 4: Existing Average Annual Daily Traffic Volumes



As shown in Table 1, approximately 1,200 veh/h can be expected to travel to/from the EY Centre during a large event on the weekend in comparison to approximately 500 veh/h travelling to/from an event at the EY Centre during the weekday afternoon peak hour.

EY Centre event traffic has been known to cause southbound queueing and back-ups along the Airport Parkway and Uplands Drive during some large events. This congestion is a result of a large volume of vehicles accessing the controlled parking lot area over a short period of time, and not considered an issue with the available road capacity per se on the Airport Parkway. For the purposes of this analysis, the weekday peak hour existing traffic volumes combined with the event traffic during the weekday peak hours represents the 'worst-case' scenario.

2.1.2 Transit Operations

Transit service along Airport Parkway is currently provided south of Hunt Club Road by OC Transpo Routes #97, 99, 147, and 204. North of Hunt Club Road, buses travel along the Transitway, parallel to the Airport Parkway. Regular Routes #97, 98, 99, and 147 provide frequent all-day service. Rural Route #204 provides Thursday morning and afternoon peak hour service only (free service).

Bus stops for these routes are located at the following locations within the study area:

- Airport/Uplands
- Uplands/Research
- Uplands/Alert
- Lester/Uplands
- Lester/Albion
- Hilton Gardens Inn (along Airport Parkway)
- Ottawa International Airport
- Transitway/Hunt Club

During the weekday peak hours, an estimated 10 buses travel within the study area along the Airport Parkway and/or Lester Road.

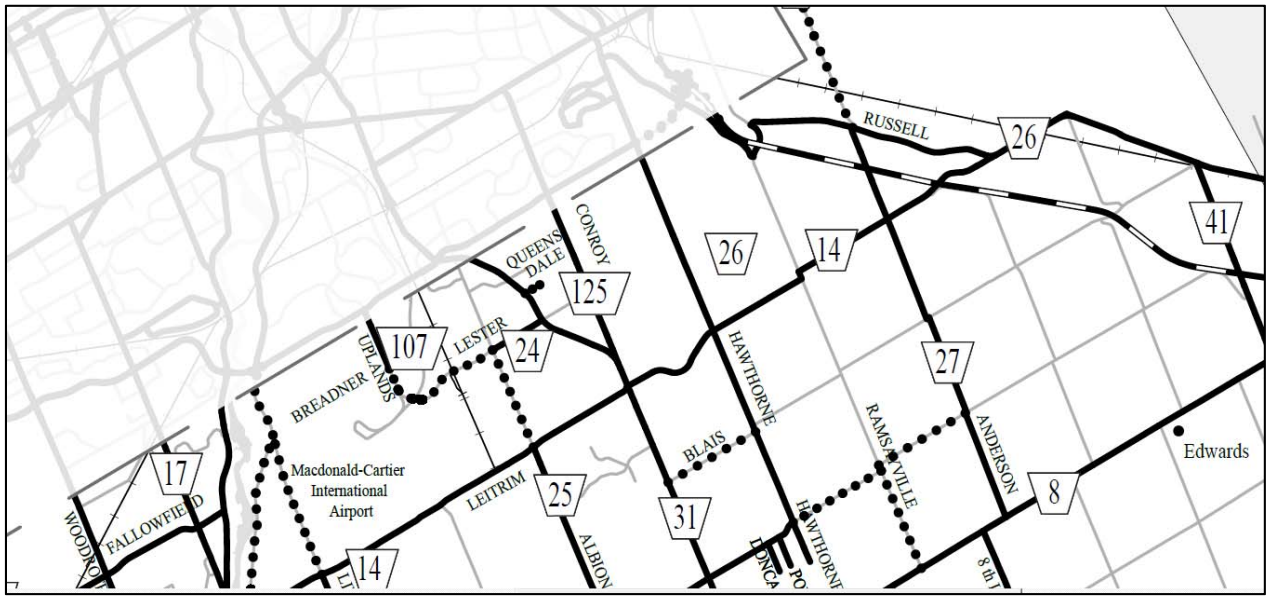
Regarding future plans for the study area, the 2013 TMP identifies the Airport Parkways south of Hunt Club Road as a Transit Priority corridor (bus/HOV lanes), and the LRT is expected to extend south past Leitrim Road parallel to the Airport Parkway with stations at Hunt Club Road and Leitrim Road.

2.1.3 Truck Traffic

Figure 5 is the City's Rural Truck Route Map, which indicates that the Airport Parkway does not form part of the designated truck route. There are numerous designated truck corridors in the vicinity, however, including Albion Road, Lester Road and Uplands Drive, Hunt Club Road, Leitrim Road, Bank Street, etc.

As truck traffic is prohibited along the Airport Parkway, the amount of truck traffic is assumed to be negligible. The Screenline 13 data confirms that approximately 1% of traffic is categorized as 'heavy trucks'.

Figure 5: City of Ottawa Rural Truck Route (excerpt only)



2.2 Travel Patterns

Based on the existing traffic volumes, Select Link analyses from the TRANS regional model (included as Appendix B), and our knowledge of the surrounding area, an initial assessment was completed of the origin-destination travel patterns of vehicles currently using the Airport Parkway and Lester Road.

Particular attention was given to conditions in the vicinity of the Airport (to help understand the nature of the road users on this part of the network) and north of the Study Area on Bronson Avenue (to help understand the overall network connectivity role of the Corridor and potential downstream impacts).

It is important to recognize that a comprehensive assessment of the origin-destination patterns throughout the corridor would require an extensive data collection effort to track individual vehicle “on” and “off” movements throughout the corridor, and such data are currently not available.

2.2.1 Near the Airport

The nature of the road layout in the vicinity of the Airport enables the existing intersection turning movement counts to be used as the basis to estimate the origin-destination patterns in the area. These estimates are illustrated in the following Figures 6 to 11. Each figure represents a directional link volume as 100% (in red) and the distribution of that volume throughout the road network as a percentage. It is noteworthy that these percentages do not include event traffic to/from the EY Centre.

This series of figures provide an indication of the relative importance of the Airport Parkway and Lester Road in serving the commuter versus Airport access role during the peak hours. In some cases, the role is predominantly a commuter one, and in other cases the role is more balanced between commuter and Airport access. Note that the percentages would be influenced should there be an event at the EY Centre layered into the analysis.

Figure 6: Destination of Vehicles along Airport Parkway SB - North of Lester Road

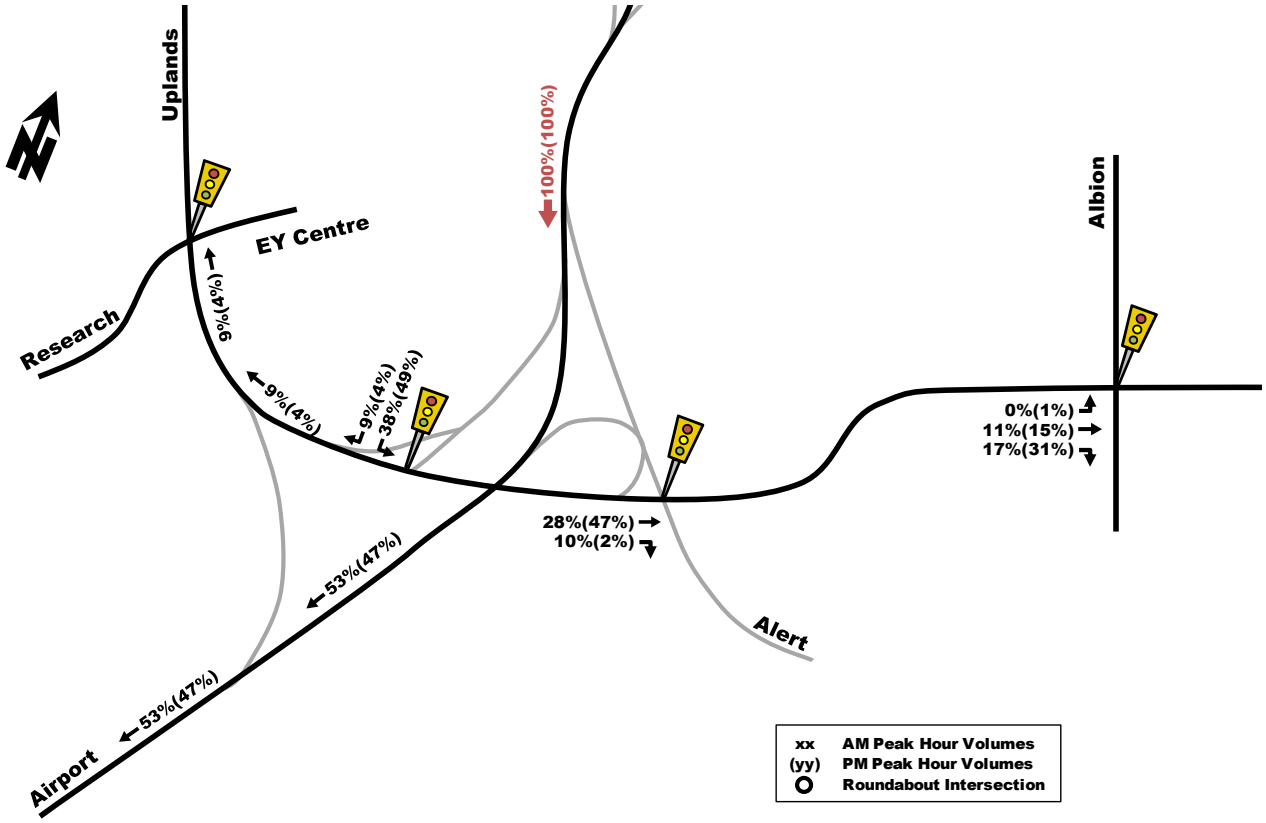


Figure 7: Origin of Vehicles along Airport Parkway NB – North of Lester Road

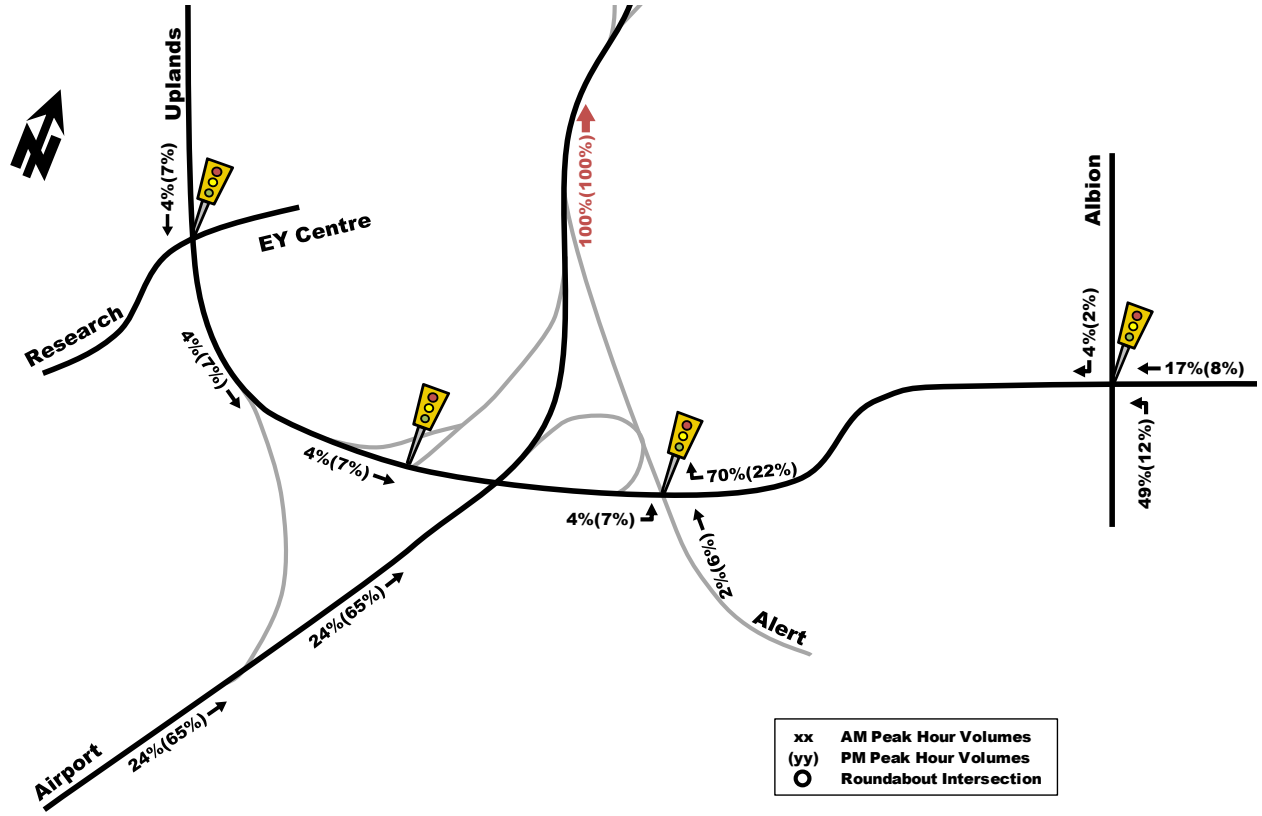


Figure 8: Origin of Vehicles along Airport Parkway SB – South of Lester Road

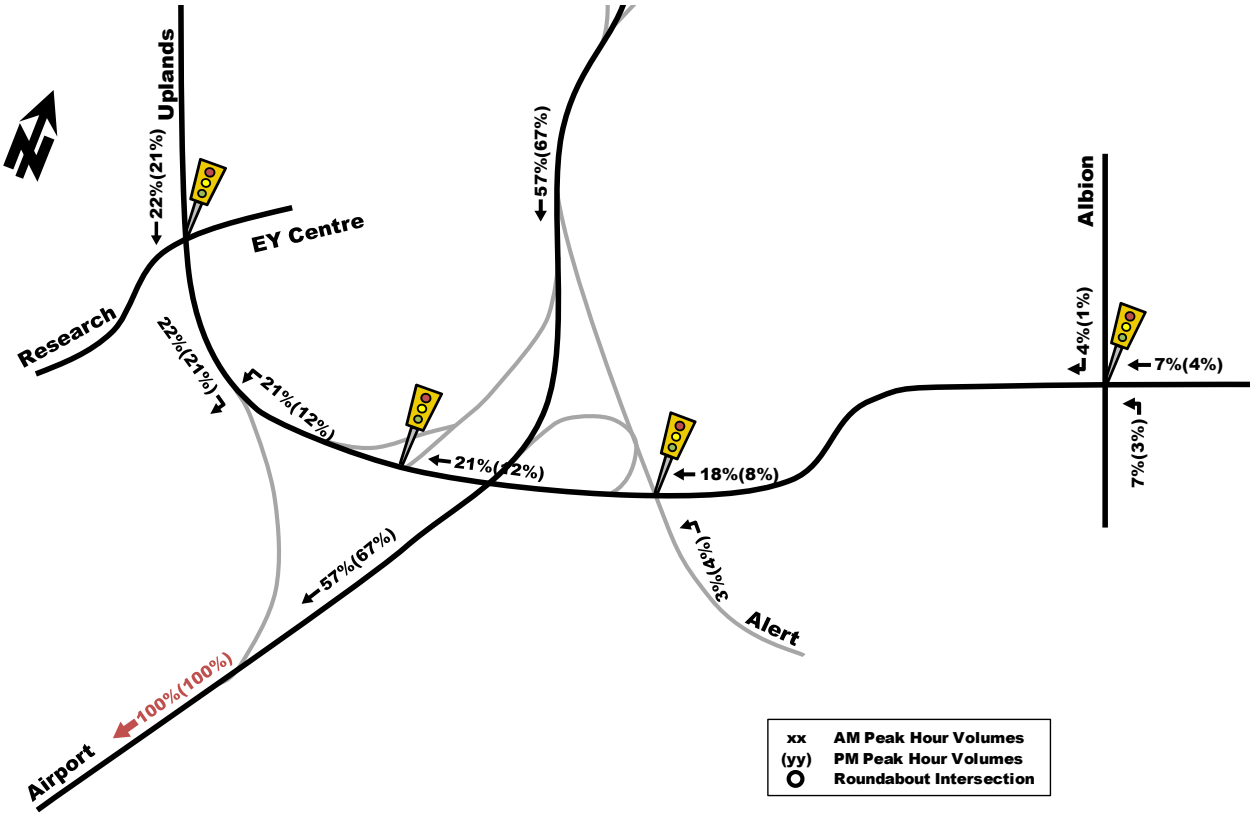


Figure 9: Destination of Vehicles along Airport Parkway NB – South of Lester Road

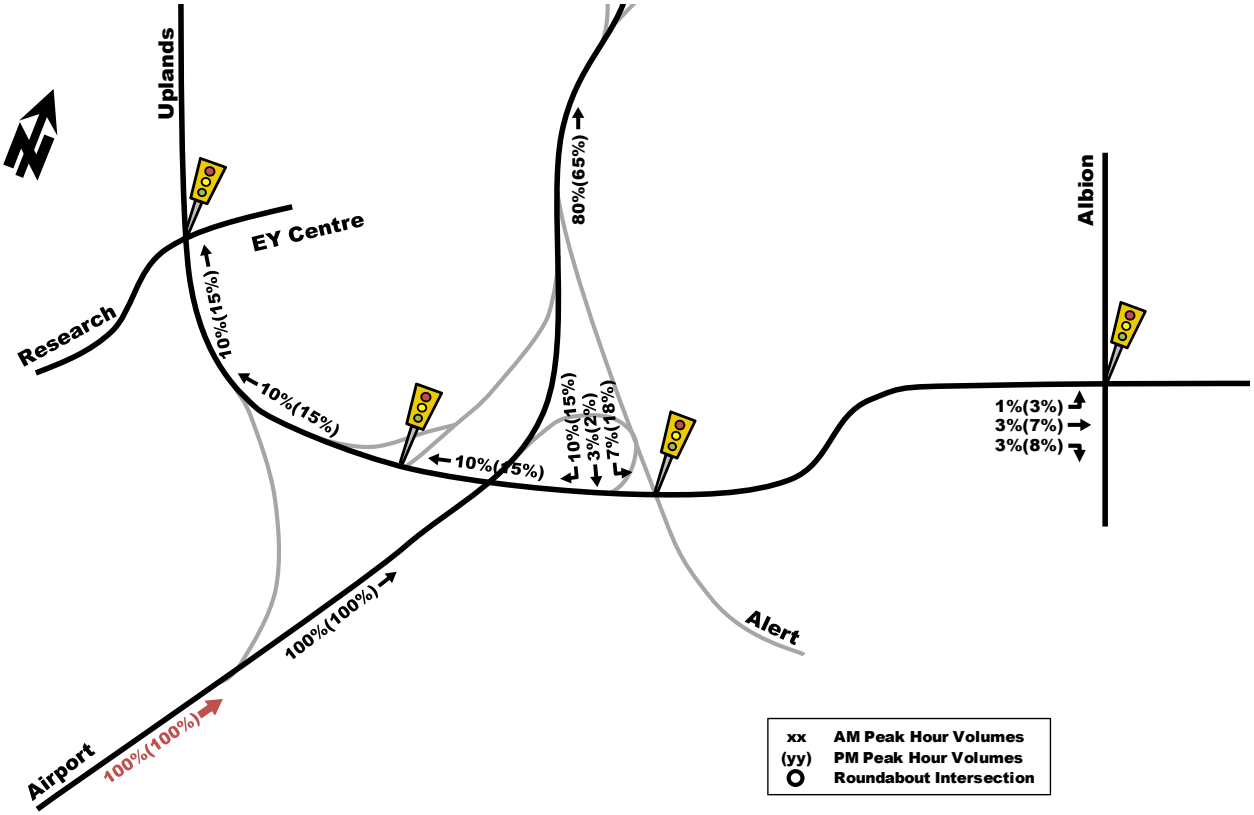


Figure 10: Origin/Destination of Vehicles along Lester Road WB – East of Albion Road

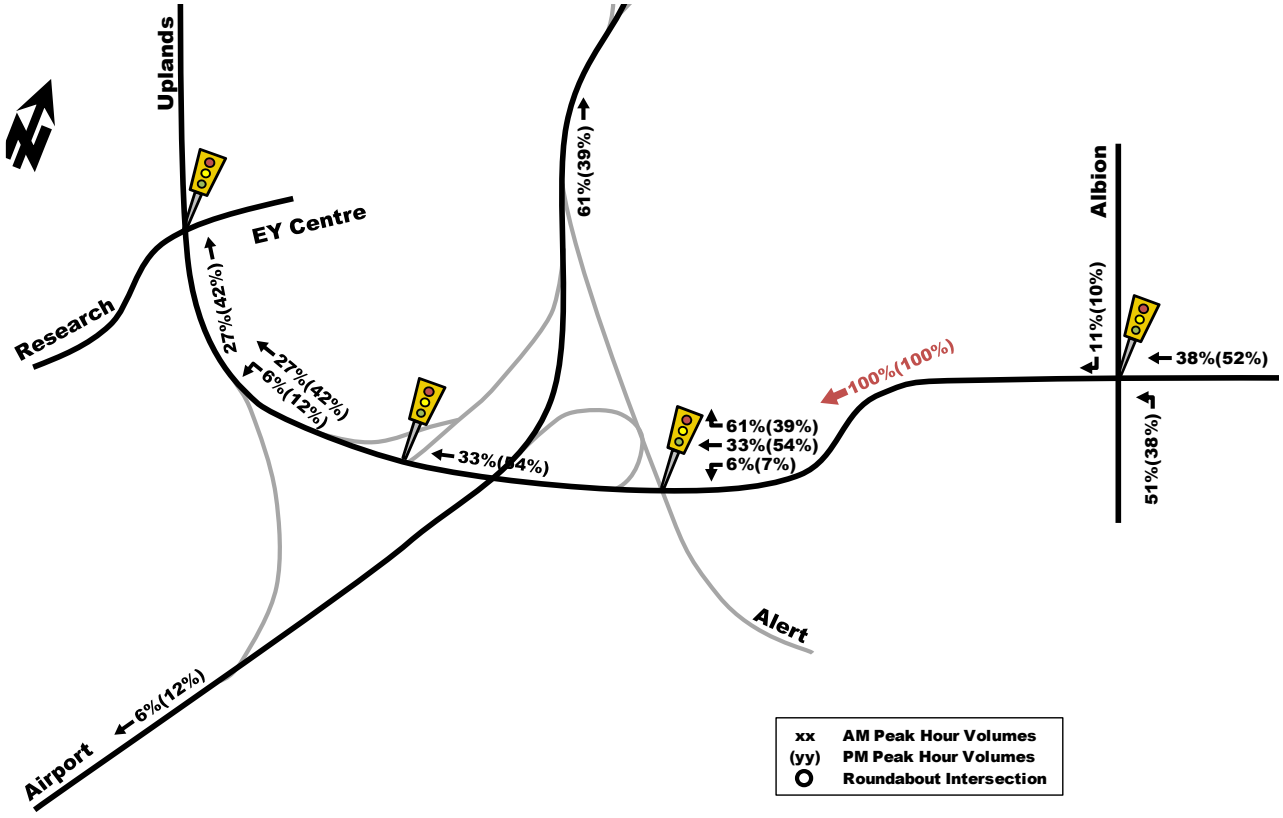
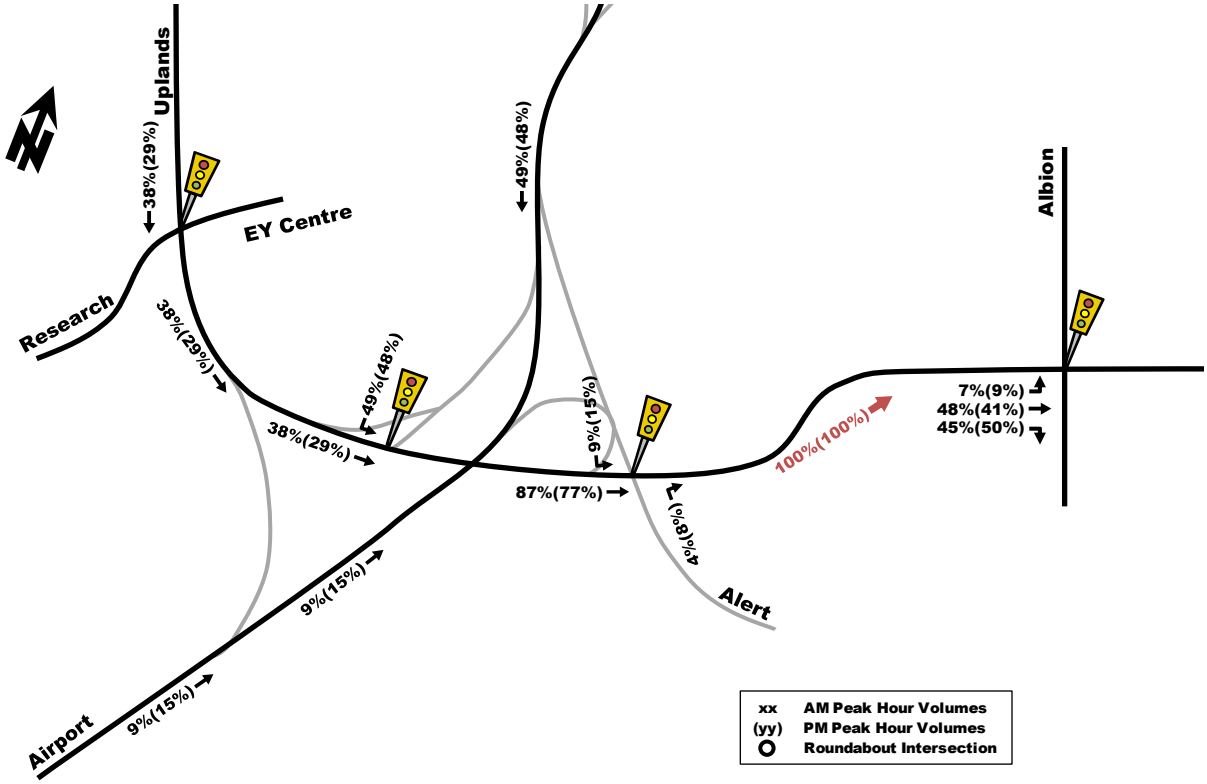


Figure 11: Origin/Destination of Vehicles along Lester Road EB – East of Albion Road



2.2.2 Downstream (Bronson Avenue)

Although outside of the formal study area, traffic conditions on Bronson Avenue (north of the Airport Parkway) is an important consideration as some traffic travelling on the Airport Parkway will be destined to, or originate from, Bronson Avenue.

Bronson Avenue south of Highway 417 has notable intersecting roads as potential traffic sources/sinks, including: Heron Road, Riverside Drive, Sunnyside Avenue (and Carleton U), Colonel By Drive and Carling Avenue. Figure 12 summarizes the existing northbound traffic patterns within the Airport Parkway-Bronson Corridor during the AM peak hour. The volumes in some instances were estimated based on existing intersection turning movement obtained from other studies/documents (as the City's inventory of traffic counts in the area is not comprehensive). These data suggest that the amount of exiting traffic (between Walkley and south of Carling) to area employment/institutional nodes (i.e., Carleton U, Confederation Heights, etc.) and intersecting Arterial, Collector and Driveway routes is roughly equivalent to the amount of entering traffic. This suggests that the majority of traffic that originates south from the Airport and growth communities is not destined to Downtown, and reinforces the network connectivity role of the Corridor.

As shown, Bronson Avenue approaching Carling Avenue is currently exhibiting traffic volumes of approximately 1,800 veh/h, which is consistent with the operational capacity of this urban arterial road segment. Note that once the capacity of a road corridor is reached, the expectation is that travelers will contemplate changing travel modes, completing the trip at another time (i.e., peak spreading), or diverting to an alternative route with a more competitive travel time.

As documented in the City's TMP (see Figure 13 below), vehicle traffic to/from Ottawa's downtown areas has been diminishing in recent years due to various reasons including: no new road capacity through/to the downtown areas is being provided; investments in rapid transit have been successful; and employment, retail, and service destinations are being more and more relocated/distributed across the City over time (not focussed downtown). This trend is expected to continue throughout the planning horizon (2031) and is an assumption made in the context of the environmental assessment for the widening of the Airport Parkway. In this north-south corridor, of those travellers originating at the airport area and in the growth areas south of the airport and destined for the downtown area, a relatively lower percentage is anticipated to be driving to the downtown area in the future compared to those using rapid transit. This is because the proposed rail rapid transit is planned to be implemented in this corridor linking Riverside South directly to the downtown during the planning horizon. Travel time from the south growth areas to the downtown area will be shorter using rapid transit, likely less expensive and more stress free, which are attractive to commuters.

Figure 12: Northbound Traffic Patterns within the Airport Parkway-Bronson Corridor (AM Peak)

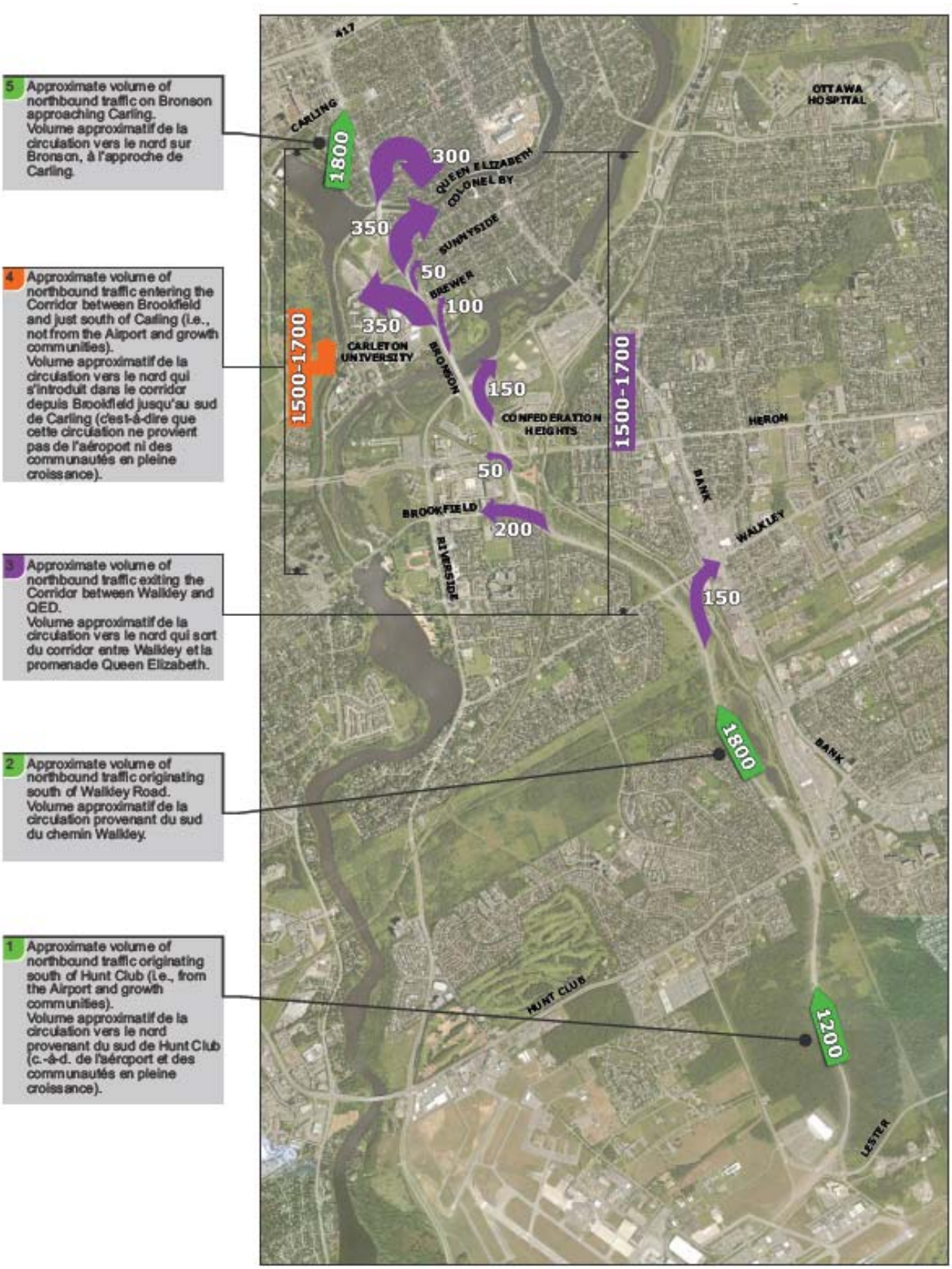
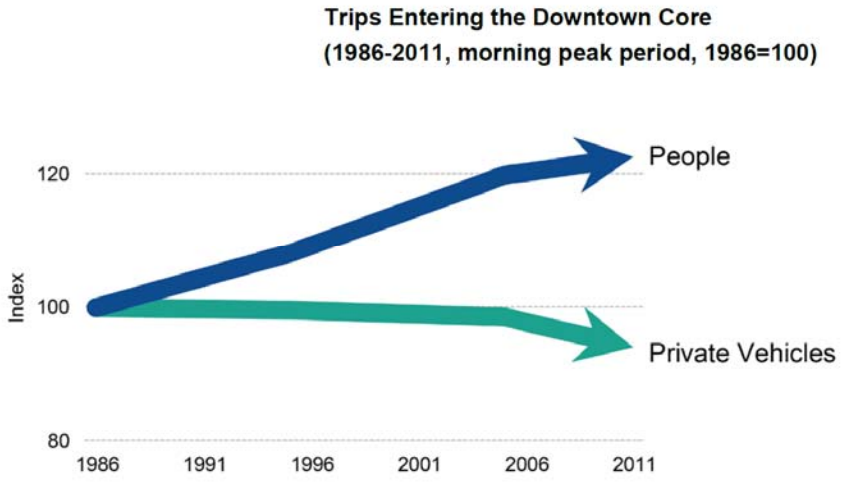


Figure 13: Historical Trend of Trips Entering Ottawa's Downtown Core



Source: City of Ottawa 2013 TMP

2.3 Road Safety Assessment

2.3.1 Travel Speeds

Speed survey data gathered by the City for the Airport Parkway and Lester Road is summarized in the following Figures 14 and 15, respectively. The posted speed limit is 80 km/h along the entire length of the Airport Parkway, from the Macdonald-Cartier International Airport to Heron Road. The average compliance level is approximately 38% with 85th percentile travel speeds of approximately 13 km/h +/- 2 km/h greater than the posted speed limit.

The posted speed limit along Lester Road is 80 km/h from the NRC driveway (east of the Airport Parkway) to Bank Street (where the 80 km/h speed limit continues along Davidson Road). The average compliance level is approximately 55% with 85th percentile travel speeds of approximately 10 km/h +/- 2 km/h greater than the posted speed limit.

Based on the available data, there does not appear to be any significant safety issues with respect to observed travel speeds. Typically, concerns over travel speeds are raised when the 85th percentile speed is 15 km/h +/- 2 km/h greater than the posted speed limit.

Figure 14: Speed Survey along the Airport Parkway

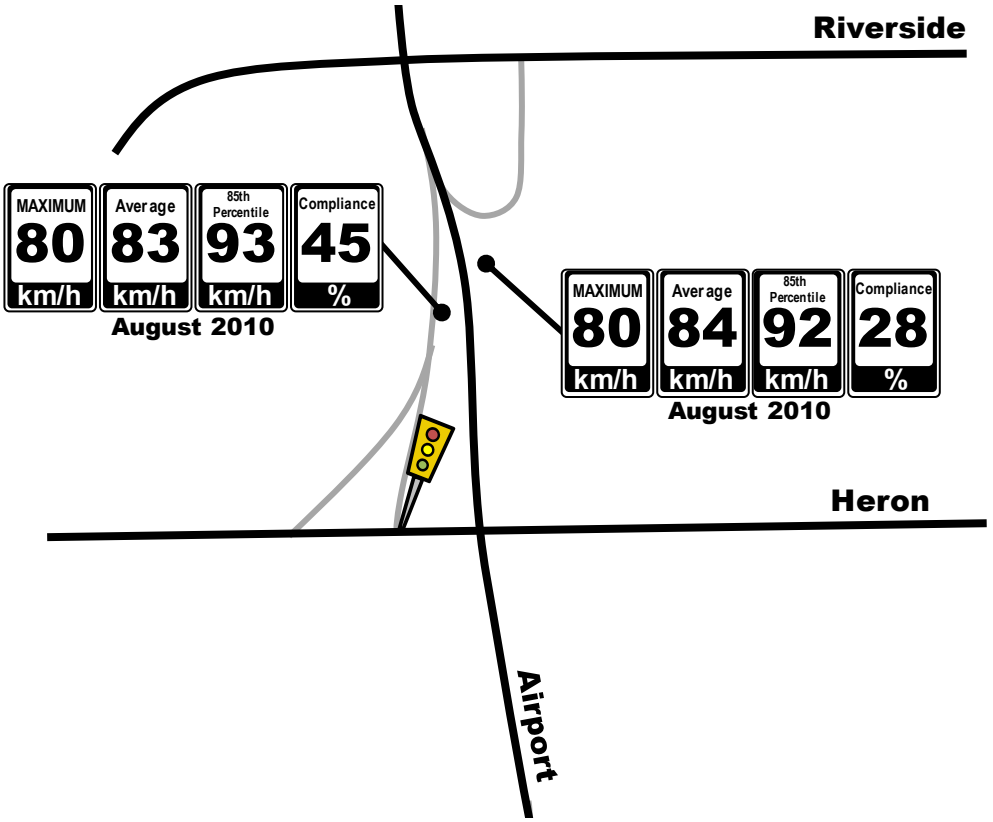
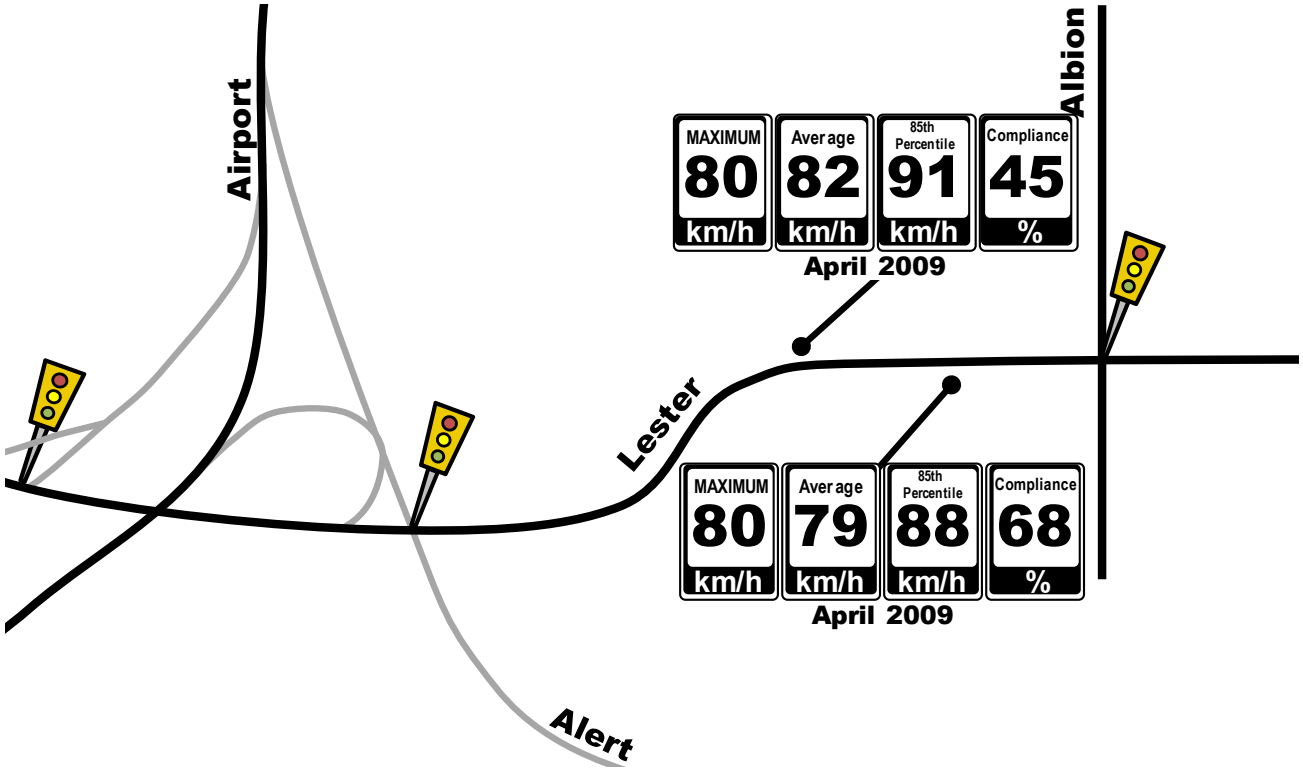


Figure 15: Speed Survey along Lester Road



2.3.2 Existing Queue Observations

Noticeable queueing/back-ups currently occur along the Airport Parkway at the following times and locations:

- During the morning peak hour:
  - queues develop northbound along the Airport Parkway approaching Hunt Club Road as a result of heavy Hunt Club Road on-ramp traffic (400 veh/h from the east and 300 veh/h from the west) merging with high northbound through volumes along the Parkway (1,200 veh/h);
- During the afternoon peak hour:
  - southbound queues develop along the Airport Parkway south of the Brookfield on/off ramps as the parkway is narrowed from 4 lanes to 2 lanes (1,700 veh/h);
  - the congestion typically continues through to Hunt Club Road where a high volume of vehicles exit the Airport Parkway (700 veh/h); and
- During large events at the EY Centre (i.e. Comicon), queuing can occur in the vicinity of the EY Centre. Operational issues are considered unrelated to capacity along Lester Road/Uplands Drive, rather constraints at the parking lot of the EY Centre.

2.3.3 Collision History

Collision history for the Airport Parkway from Brookfield Road to Uplands Drive and for Lester Road from the Airport Parkway to Bank Street (years 2011 to 2013, inclusive) was obtained from the City of Ottawa. A total of **184** and **78** collisions were reported along the Airport Parkway and Lester Road, respectively. Most collisions (76%) involved property damage only, indicating low impact speeds and 24% were reported as "non-fatal". The remaining 1% was identified as "non-reportable", indicating the total damage to a vehicle was less than $1,000.

The primary causes of collisions cited by police along the Airport Parkway include rear-end (37%), single vehicle (18%), sideswipe (17%) and turning movement (13%) type collisions. Along Lester Road, the primary causes of collisions cited by police include single vehicle (27%), rear-end (23%), angle (21%) and turning movement (18%) type collisions.

At notable intersections or mid-block sections of roadway (i.e. where more than 10 collisions were reported) within the study area, a standard rate of Collisions/MEV (Collisions per Million Entering Vehicles) was calculated, which are as follows:

- 0.65/MEV at the Brookfield/Flannery intersection;
- 0.43/MEV at the Walkley/Airport Pkwy E intersection;
- 1.07/MEV at the Hunt Club/Airport Pkwy intersection;
- 0.50/MEV at the Uplands/Airport Pkwy W intersection;
- 0.76/MEV at the Lester/Airport Pkwy E intersection;
- 0.76/MEV at the Lester/Albion intersection;
- 0.64/MEV at the Lester/Bank intersection;

- 0.87/MEV along Airport Parkway from Brookfield Road to Walkley Road;
- 0.74/MEV along Airport Parkway from Walkley Road to Hunt Club Road;
- 1.54/MEV along Airport Parkway from Hunt Club Road to Lester Road;
- 1.48/MEV along Lester Road from Airport Parkway to Albion Road; and
- 0.77/MEV along Lester Road from Albion Road to Bank Street.

In previous consultation with the City's Traffic, Safety and Mobility Unit of the Traffic Management and Operational Support Branch, an intersection or mid-block section of roadway exhibiting a standard Collisions/MEV approaching or exceeding 2.0 is considered to be problematic and will require further investigation. On this basis alone, there are no specific intersections or segments of roadway that should be of particular concern.

Of the total collisions reported within the study area in the past three years:

- There were no fatal accidents;
- 3 accidents along the Airport Parkway and 2 accidents along Lester Road involved cyclists;
- 1 accident involved a pedestrian, which occurred at the Walkley/Airport Pkwy E intersection;
- A total of 8 accidents along the Airport Parkway and 1 accident along Lester Road involved animals/wildlife; and
- A total of 25 accidents along the Airport Parkway and 1 accident along Lester Road involved vehicles making a U-turn.

The high number of accidents related to U-turns (25 of 184, or 14%) is notable, and may provide an indication that a suitable median treatment is required. It is not clear for the reason for the U-turn manoeuvers (i.e., avoid congestion, access off-ramps, etc.), however, the majority of accidents involving U-turns occurred in the northbound direction near the Hunt-Club interchange (9 just north of Hunt Club Road and 9 south of Hunt Club Road). This indicates that drivers may be electing to U-turn to avoid traffic congestion on the Airport Parkway in the vicinity of Hunt Club Road. The remaining 7 collisions involving U-turns occurred in the vicinity of the Lester Road interchange.

The source collision data as provided by the City of Ottawa and related analysis is provided as Appendix C.

2.4 In-Service Road Safety Review

In 2006, the Airport Parkway was identified by the City of Ottawa as having a number of ongoing safety and operational concerns relating to its unique design and the growing demands placed on this roadway. This prompted the City to undertake an In-Service Road Safety Review of the Airport Parkway between Dunbar Bridge and Ottawa International Airport. The In-Service Road Safety Review (ISRSR) was completed in May 2007.

Some of the recommendations identified in the ISRSR Report were included in the City of Ottawa TMP, including the subject widening of the Airport Parkway between Brookfield and the Airport. Short-term recommendations (within 1-year) included: rationalization of directional and warning signage; sight line improvements through removal of vegetation; conduct public awareness campaign; implement fully fenced right-of-way between Brookfield and Hunt Club; elimination of edge drop offs; and increase speed change lanes and tapers to minimum standards. The over-arching medium-term recommendation (within 5-years) was to widen the Airport Parkway between Brookfield and Hunt Club to a four-lane divided cross section, which involved operational improvements such as extending the northbound through lane from Hunt Club to Brookfield, carrying two southbound lanes from Brookfield to Hunt Club. Other recommendations included provision of a paved shoulder along the Airport Parkway between Uplands and Hunt Club, an alternative design for cyclists, and an assessment of allowing truck activity. The list of long-term recommendations (beyond 5-years) included reconstruction of the Walkley interchange (to allow for a 28m clearance), and full movement of the Walkley Road interchange.

A summary memo indicating additional detail on the foregoing and providing the status of the various recommendations is also included within Appendix D.

2.5 Screenline Operations

The following Figure 16 depicts the existing relevant study area screenlines where the City currently collects annual classification and occupancy data.

As shown in Figure 16, the relevant screenlines intersecting the Airport Parkway are:

- SL 13 – CNR East with stations at Riverside Drive, Airport Parkway, Bank Street, Conroy Road, Hawthorne Road, and McCarthy Road; and
- SL 19 – Rideau River with stations at Billings Bridge (Bank Street), George Dunbar Bridge (Bronson Avenue), and George McIlwraith Bridge (Smyth Road).

There are no screenlines that intersect Lester Road.

The 2013 Screenline count data was obtained from the City of Ottawa and is included in Appendix A. The existing performance of the relevant study area screenlines depicted in Figure 16, is summarized below in Table 2.

Figure 16: Existing Study Area Screenlines

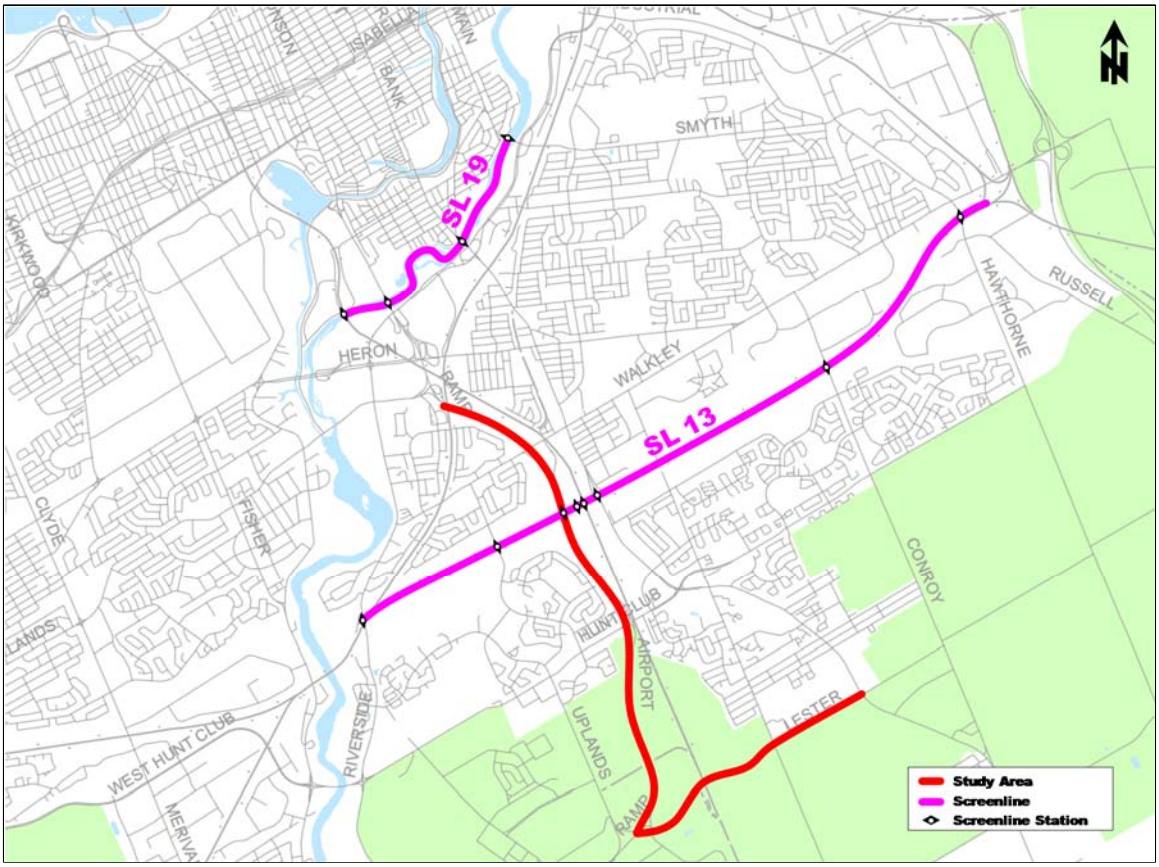


Table 2: Existing Screenline Performance

Screenline	Peak Directional Demand[1] (PCU)[2]		Directional Capacity[3] (PCU)	v/c	
	AM Peak	PM Peak		AM Peak	PM Peak
CNR East (SL #13)	8,472	10,405	10,400	0.81	1.00
Rideau River (SL#19)	3,852	4,875	5,670	0.68	0.86

Screenline	Peak Directional Demand[1] (PCU)[2]		Directional Capacity[3] (PCU)	v/c	
	AM Peak	PM Peak		AM Peak	PM Peak

1. 2013 volumes obtained from the City of Ottawa
2. PCU (Passenger Car Units) were assumed to be the sum of autos and 2 x heavy vehicles
3. Directional capacities were obtained from the City's 2008 Transportation Master Plan – Road Infrastructure Needs Study

As shown in Table 2, SL 13 is currently operating at capacity (v/c = 1.00) and SL 19 is operating at an acceptable LoS 'D' (v/c = 0.86) during the afternoon peak hour. It can be seen that there is limited available spare capacity across these two screenlines.

Based on the CNR East Screenline 12-hour analysis, the classification and occupancy of vehicles travelling along the Airport Parkway is summarized in Table 3. The composition of traffic is noted to be predominantly passenger vehicles (85%) and taxis (10%), with very small contributions from any other vehicle classifications including trucks and buses. The occupancy rate of the passenger vehicles is noted to average less than 1.10, which implies 9 of 10 vehicles are single occupant.

Table 3: Classification and Occupancy for Airport Parkway Station along SL 13 (12-hour)

Vehicle Type	Direction	Number	Percent of Total Vehicles	Occupancy	Occupancy Rate
Passenger Veh	Inbound	10,197	85%	11,129	1.09
	Outbound	10,793		11,781	
Taxis	Inbound	1,172	10%	1,513	1.25
	Outbound	1,452		1,768	
Light Trucks	Inbound	317	2%	347	1.09
	Outbound	315		344	
Heavy Trucks	Inbound	64	1%	73	1.10
	Outbound	87		94	
Buses	Inbound	44	1%	330	7.20
	Outbound	50		347	
Other	Inbound	79	1%	79	1.00
	Outbound	70		70	
Total Vehicles	**Inbound**	**11,873**	**100%**	**13,471**	**1.13**
	Outbound	**12,767**		**14,404**	
Cyclists	Inbound	49	-	52	-
	Outbound	75		79	
Pedestrians	Inbound	1	-	-	-
	Outbound	22		-	

2.6 Intersection/Interchange Operations

The following Table 4 provides a summary of existing traffic operations at study area intersections, based on the SYNCHRO (V8) traffic analysis software. Signalized study area intersections were assessed in terms of the volume-to-capacity (v/c) ratio and the corresponding Level of Service (LoS) for 'critical movements'. Signalized intersections were also assessed 'as a whole' based on a weighted v/c ratio and corresponding LoS. With respect to the Brookfield/Airport Parkway/Flannery roundabout, it was assessed in terms of delay and the corresponding LoS using the SIDRA capacity analysis software. The SYNCHRO and SIDRA model output of existing conditions is provided within Appendix E.

As shown in Figure 3, the existing traffic count at the Brookfield/Airport Parkway/Flannery intersection, as provided by the City of Ottawa, assumes a four-legged intersection. For the purposes of this assessment, this intersection was analyzed as a five-legged roundabout intersection, in which the volumes destined to the Airport Parkway were distributed 60% northbound/40% southbound during the morning peak hour and 40% northbound/60% southbound during the afternoon peak hour.

Table 4: Existing Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'as a whole'		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Bronson/Brewer	C(B)	0.74(0.69)	NBT(SBT)	14.5(11.5)	C(B)	0.72(0.68)
Brookfield/Flannery	A(B)	0.37(0.58)	NBR(SBT)	6.5(10.0)	A(A)	-
Airport Parkway/Walkley	A(A)	0.51(0.50)	NBR(WBT)	6.8(8.9)	A(A)	0.31(0.48)
Airport Parkway/Hunt Club	D(D)	0.84(0.88)	WBT(EBL)	32.4(36.7)	C(D)	0.79(0.85)
Uplands/Airport	A(B)	0.48(0.66)	WBT(SBL)	9.4(14.1)	A(A)	0.45(0.59)
Albion/Lester	F(D)	1.20(0.84)	NBL(SBT)	73.6(30.2)	F(C)	1.07(0.75)
Bank/Lester/Davidson	B(D)	0.61(0.81)	WBT(EBT)	13.6(15.7)	A(A)	0.40(0.52)
Alert/Airport/Uplands	B(B)	0.64(0.62)	WBR(SBL)	5.9(11.6)	A(A)	0.60(0.48)

Notes:
- Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.
- Brookfield/Flannery Roundabout intersection 'as a whole' analysis is based on delay.

As shown in Table 4, study area intersections 'as a whole' are currently operating at an acceptable LoS 'D' or better during both peak hours, with the exception of the **Albion/Lester** intersection during the morning peak hour, which is failing (LoS 'F'). Similarly, the 'critical movements' at study area intersection are currently operating at an acceptable LoS 'D' or better during both peak hours, with the exception of the northbound left-turn movement at the Albion/Lester intersection.

Between 2004 to 2007 a northbound through movement restriction was in place at the Albion/Lester intersection to restrict traffic from travelling through the Blossom Park Community (located north of Lester Road). Traffic data at this location was collected in 2014, which is long after the northbound through movement restriction was lifted.

3.0 TRANSPORTATION POLICIES AND GUIDELINES

The following sections summarize the transportation policies direction of the federal and municipal planning authorities including the National Capital Commission and the City of Ottawa.

3.1 Federal Land Use Policy (National Capital Commission)

Planning in the study area is guided by three (3) federal land use policies issued by the National Capital Commission: the Plan for Canada's Capital, 1999, the Greenbelt Master Plan., 2013, and Joint Study to Assess Cumulative Effects of Transportation Infrastructure on the National Capital Greenbelt (2012).

3.1.1 NCC Plan for Canada's Capital (1999)

The Plan for Canada's Capital (PCC) is the federal government's overarching statement on the planning and development of the National Capital Region. The Airport Parkway is designated in the PCC as a Capital Arrival and Scenic Entry Route. A Capital Arrival is a major route to and from the Capital and in this case the OMCIA. A Scenic Entry Route is a complementary route, usually in a built-up area, that overs scenic and/or alternative access route to the City's centre. While now owned by the City, the arrival role of the Parkway shall be maintained based on the following design considerations:

- Provision of high quality signage, protection of scenic views and natural elements and the enhancement of landscape quality and sensitive lightning should be employed on Capital Arrivals on and adjacent to federal lands;
- Collaboration with other jurisdictions to enhance the visitor's "Capital experience" at high-profile and high-volume arrivals, including the Airport, should be undertaken; and
- Consistent and high-quality design standards should be employed at Capital Arrivals.

3.1.2 NCC Greenbelt Master Plan (2013)

The Greenbelt Master Plan is one of several coordinating policy and development documents prepared by the NCC to guide both planning and the use of Federal Lands within the Greenbelt. One of the goals outlined in the Master Plan with respect to sustainable transportation and infrastructure involves ensuring that "environmental best management practices are applied in the design, operation and maintenance of existing infrastructure." Furthermore, the Plan highlights that new infrastructure within the Greenbelt should not be permitted "unless there is demonstration that there are no alternatives outside of the Greenbelt and no net loss will result to ecological or overall Greenbelt integrity."

The NCC emphasizes that preference will be given to sustainable, safe, and active transportation infrastructure that are in line with the vision, roles, and goals of the Greenbelt. Proponents of transportation structures should work closely with the NCC to ensure that arrivals to the Greenbelt provide both a symbolic and a distinctive sense of place. Moreover, the continuity of recreational pathways and natural links should be maintained or enhanced within the planning, design, and function of transportation infrastructure.

3.1.3 Joint Study to Assess Cumulative Effects of Transportation Infrastructure on the National Capital Greenbelt (2012)

The NCC and the City of Ottawa jointly undertook a study to assess the cumulative effects of transportation infrastructure on the Greenbelt. The study developed and implemented a cumulative effects framework and made recommendations for the study of future transportation projects.

Both the widening of the Airport Parkway and Lester Road are identified as projects to be included or allowed to proceed to implementation as part of the Greenbelt Master Plan and the City's Transportation Master Plan. The Airport Parkway was to be included on the basis that the "design would be subject to standard design, review and review processes and mitigation determined necessary by the Environmental Assessment Process". Lester Road was to be included subject to "measures that minimize, compensate or

offset contributions to cumulative effects on the Greenbelt, with the possibility of designation to "Not Include" in cases where specific mitigative measures cannot be implemented satisfactorily".

3.2 Municipal Planning Documents

Guidance for transportation planning in the City of Ottawa is provided in the City of Ottawa Official Plan (2013) and the Transportation Master Plan (2013) as well as the Cycling and Pedestrian Plans (2013).

3.2.1 City of Ottawa Official Plan

The City Official Plan provides a vision for the future growth of the city and policy framework to guide its physical development within the planning horizon (to 2031). The Airport Parkway and Lester Road fall under a number of transportation related designations as noted in Table 5.

Table 5: Planning Designations for the Airport Parkway and Lester Road

Schedule	Designation	Location of Overlap or Intersection with Airport Parkway	Location of Overlap or Intersection with Lester Road
C – Primary Urban Cycling Network	On-road cycling routes	Along entirety of Parkway	Along entirety of Lester Road
	Off-road cycling route / multi-use pathways	Intersects with Parkway at east-west rail corridor	Intersects with Lester Road at north-south rail corridor
E – Urban Road Network	Existing Arterial	Along entirety of Parkway	Along entirety of Lester Road
I – Multi-Use Pathways and Scenic-Entry Routes (Urban)	Scenic Entry Route	Along entirety of Parkway	n/a
	Off-Road Multi-Use Pathway (Community Route)	Along entirety of Parkway	Intersects with Lester Road at Airport Parkway, north-south rail corridor and Sawmill Creek
	Off-Road Multi-Use Pathway (City-wide Route)	Intersects with Airport Parkway at east-west rail corridor	Intersects with Lester Road at north-south rail corridor

As described in Annex 1 of the Official Plan: Road Classification and Right-of-Way Protection, the Official Plan describes Arterial Roads as *"the major roads in the City that carry the largest traffic volumes over the longest distances"*. Vehicular access to adjacent properties is to be controlled and provide a high degree of connectivity between land uses and places along and across the route. The OP notes that for roadways such as the Airport Parkway, the City may apply different design standards with regard to access and setbacks to development.

Scenic Entry Routes are networks that link major tourist, recreation, heritage, and natural environment destinations in and beyond Ottawa. This system is under the jurisdiction of the federal plus provincial and municipal governments. Multi-Use Pathways provide a primarily off-road network for pedestrians and cyclists in green and open space corridors. The pathways are part of a green space network and provide connections among communities and major tourism, cultural heritage and green space features. Many of pathways are owned and maintained by the National Capital Commission.

The OP identifies a right-of-way (ROW) protection policy width for the Airport Parkway as "ECP" (Existing Corridor Protection). Therefore, any adjacent lands necessary for road widenings to accommodate additional travel lanes (e.g. vehicle, bus, bike, etc.), medians and/or sidewalks will have to be acquired in consultation with the National Capital Commission. With regard to Lester Road, the OP identifies a ROW protection policy width of 37.5 m (between Albion Road and Bank Street) and "G" (between Uplands Drive and Albion Road). A "G" ROW width to be protected is similar to the previously mentioned "ECP" protection policy, in that the ROW width to be protected is determined by the acquisition of adjacent lands necessary to accommodate roadway/infrastructure requirements in consultation with the NCC. As noted in the OP, in

areas where the Greenbelt is only on one side (ie. between Albion and Bank), a 5.0m widening should be requested along the Greenbelt side to accommodate a rural cross-section.

3.3 Transportation Master Plan

The subject Airport Parkway (between Brookfield Road and Hunt Club Road), Lester Road (between the Airport Parkway and Bank Street) and the Airport Parkway (between Hunt Club Road and Lester Road), are identified for widening in the City's TMP as Phase 1 (2014-2019), Phase 2 (2020 - 2025) and Phase 3 (2026 - 2031) affordable City projects, respectively.

The project rationale and relevant details identified in the TMP include:

- Airport Parkway (between Brookfield Road and Hunt Club Road) - *Phase 1 project*; widen undivided two-lane rural arterial to a divided four-lane rural arterial; accommodates increasing traffic volume and improves access to and from the Airport;
- Lester Road (between the Airport Parkway and Bank Street) - *Phase 2 project;* widen undivided two-lane rural arterial to an undivided four-lane rural arterial; accommodates growth in Riverside South and Leitrim and diverts traffic from Albion Road away from Blossom Park;
- Airport Parkway (between Hunt Club Road and re-aligned Airport Parkway) - *Phase 3 project;* widen undivided two-lane rural arterial to a divided four-lane rural arterial; accommodates growth in Riverside South and Leitrim and improves access to the Airport;
- Airport Parkway (former Airport Parkway to Uplands Drive) - *Phase 3 project*; new divided four-lane rural road; accommodates growth in Riverside South and Leitrim and improves access to the Airport.

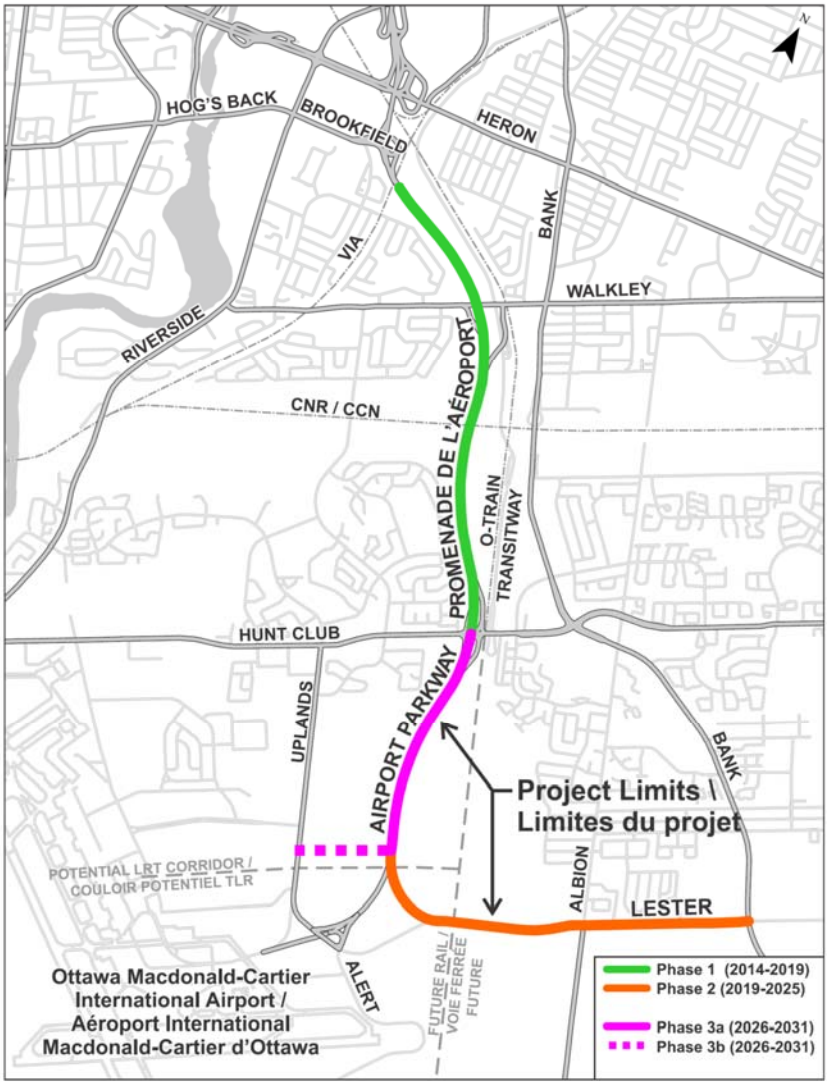
The project phasing as identified in the current TMP for the Airport Parkway and Lester Road projects are illustrated in Figure 17.

Other planned area roadway improvements identified as affordable City projects in the TMP include:

- Bank Street widening from Leitrim Road to Blais Road - *Phase 2 project; and*
- Bank Street widening from Blais Road to Rideau Road - *Phase 3 project.*

It is noteworthy that bus/high occupancy vehicle (HOV) lanes are proposed for the Airport Parkway (between Hunt Club Road and the OMCIA) as part of the affordable rapid transit/transit priority network (TMP Table A2). It is envisioned that with the planned widening to four lanes, and in lieu of rapid transit serving the Airport, the outside lanes will be used for transit, taxis and HOV's (during peak periods according to TMP Exhibit 6.2).

Figure 17: Project Phasing



These planned transportation network improvements (depicted in Figure 18) will provide additional north-south capacity, which will be necessary to accommodate the south Ottawa growth areas (i.e., Riverside South, Findlay Creek, Greely, etc.).

Other planned area roadway/capacity improvements identified in the City ultimate road network concept (beyond 2031) include:

- Hunt Club Road widening;
- Albion Road widening; and
- New east-west arterial, south of Leitrim Road.

Figure 19 depicts the City's ultimate road network concept plan in the vicinity of the Airport Parkway.

Figure 18: Transportation Master Plan – 2031 Affordable Road Network

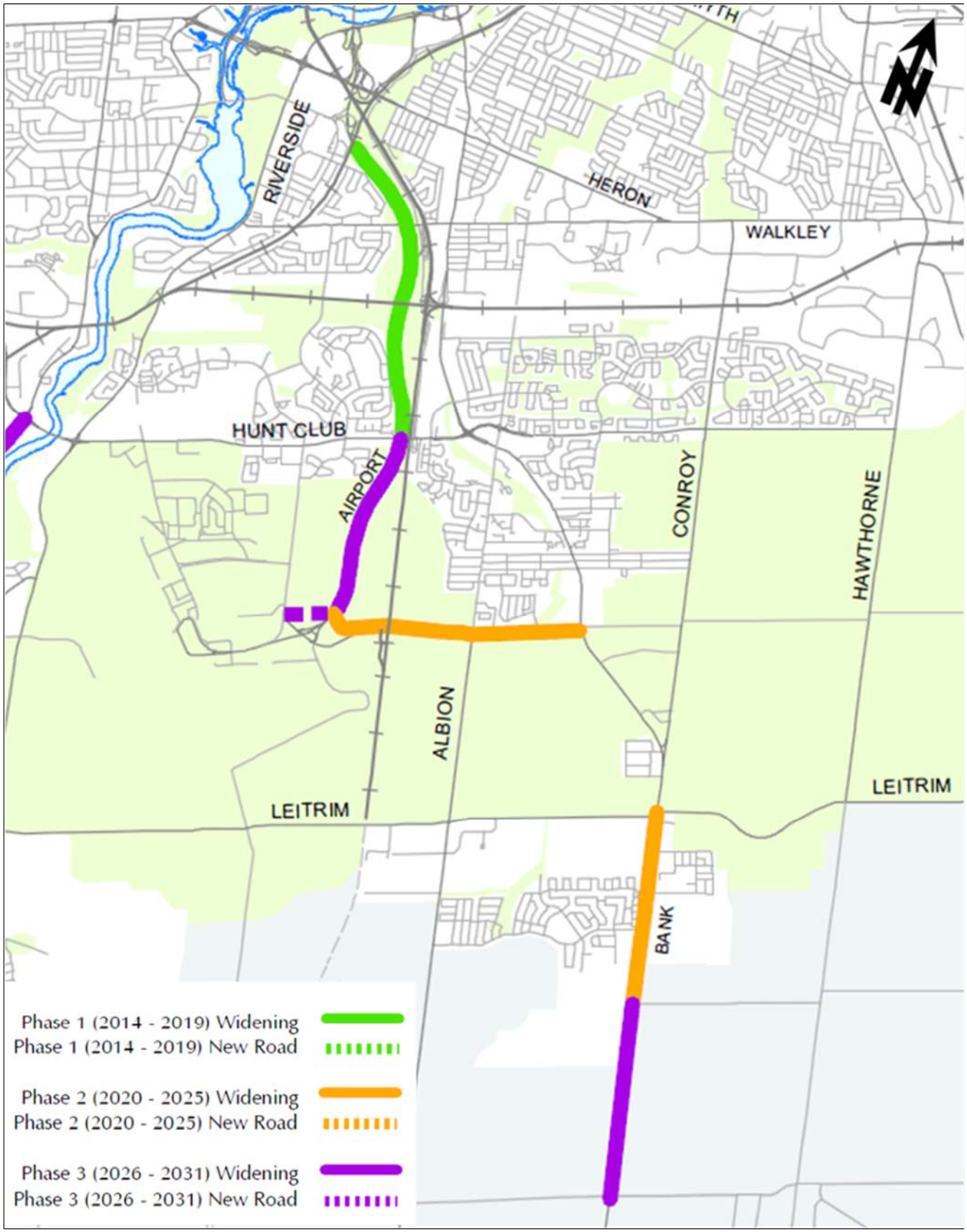
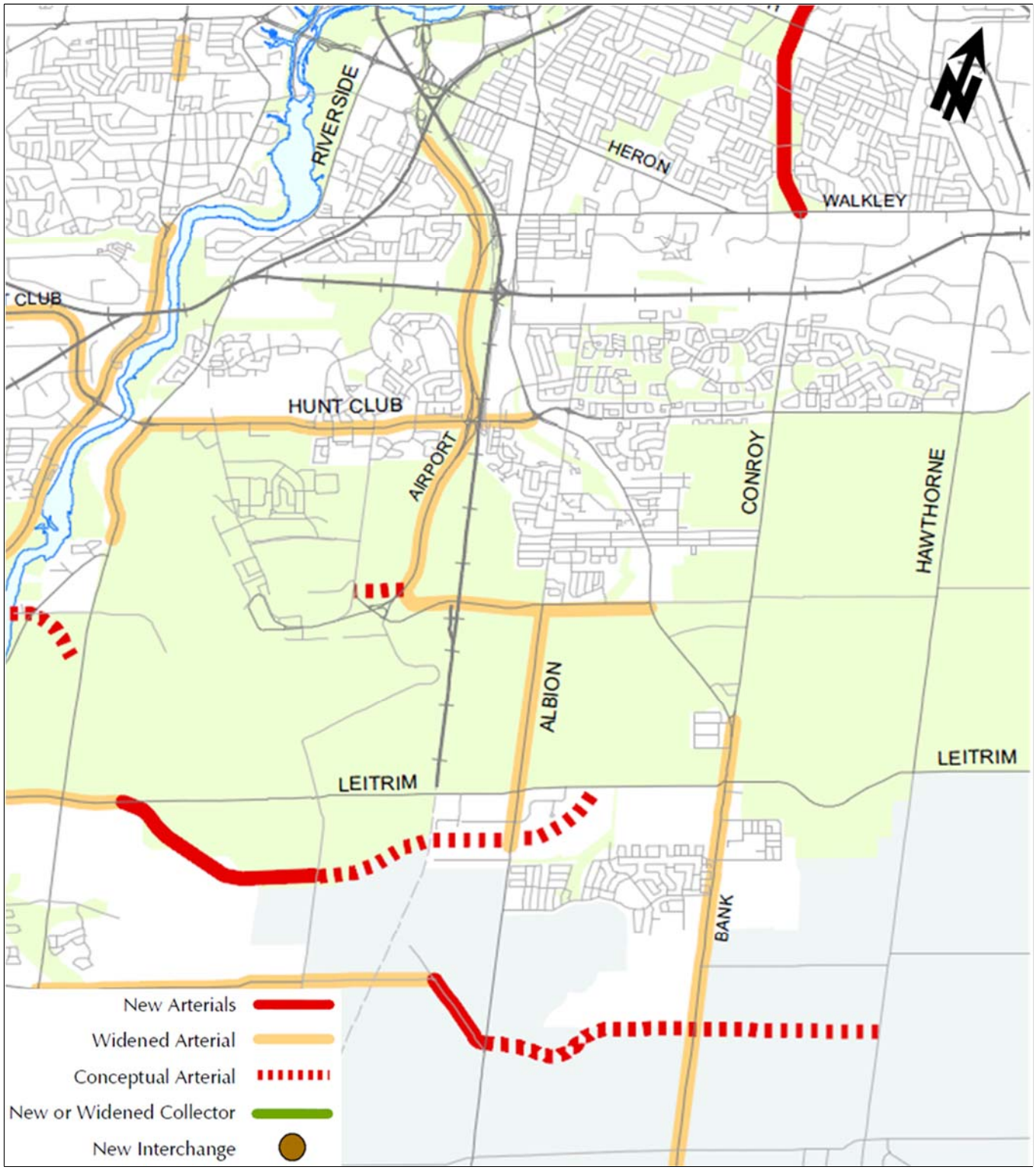


Figure 19: Transportation Master Plan – 2031 Ultimate Road Network

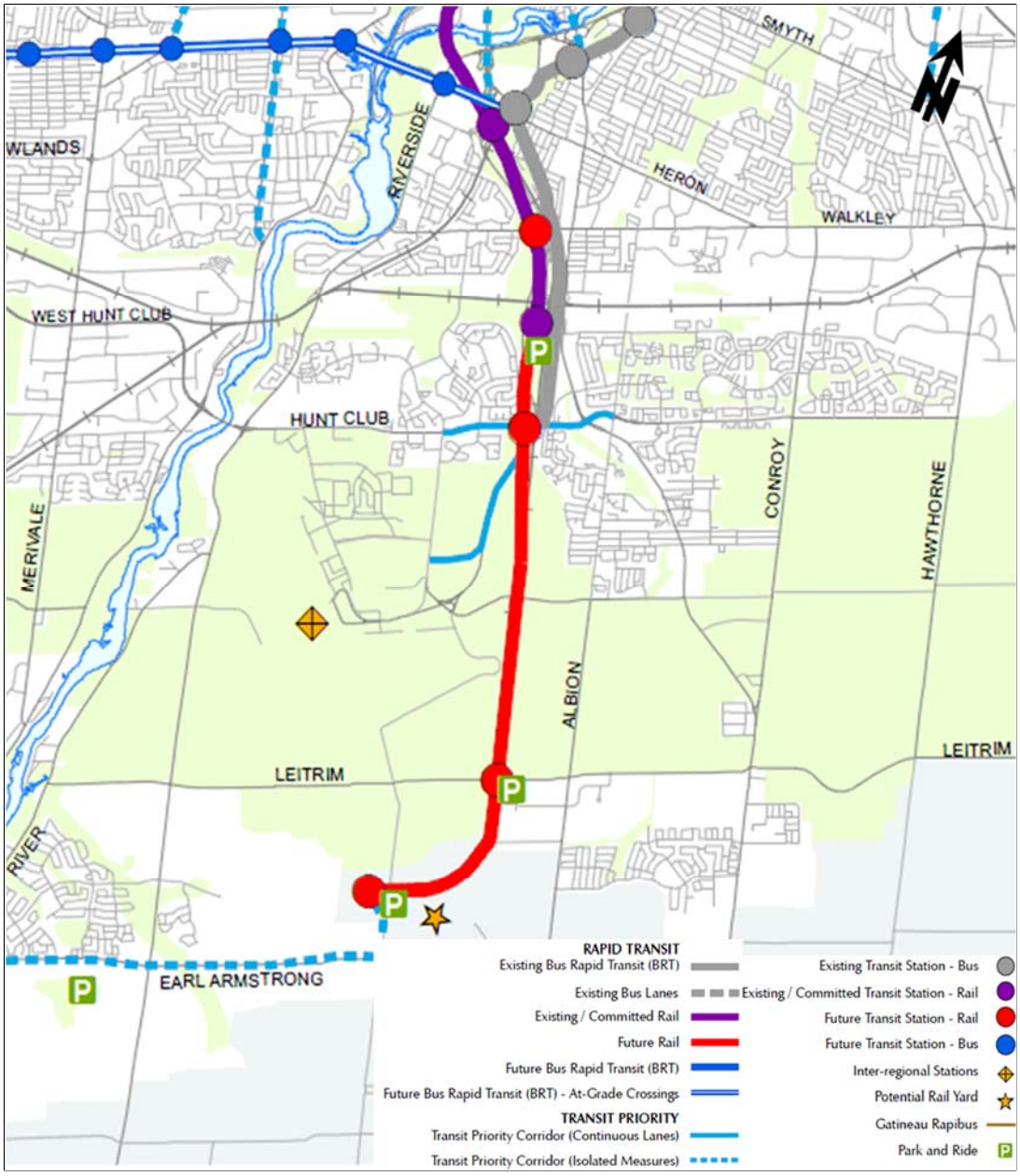


With regard to planned area transit improvements, the affordable rapid transit/transit priority network concept depicted in the City's TMP includes:

- An extension of the existing O-Train corridor to Riverside South, with a stations at Hunt Club Road/Airport Parkway, Leitrim Road and just north of Earl Armstrong Road;
- Transit priority along the Airport Parkway south of Hunt Club Road to the Airport (peak period bus/high occupancy vehicle (HOV) lanes as part of the widening to 4 lanes, with the outside lanes used of transit, taxis and HOV's);
- Transit priority along Hunt Club Road between Uplands Drive and Albion Road.

Figure 20 depicts the City's affordable rapid transit/transit priority network concept plan.

Figure 20: Transportation Master Plan – 2031 Affordable Rapid Transit & Transit Priority Network

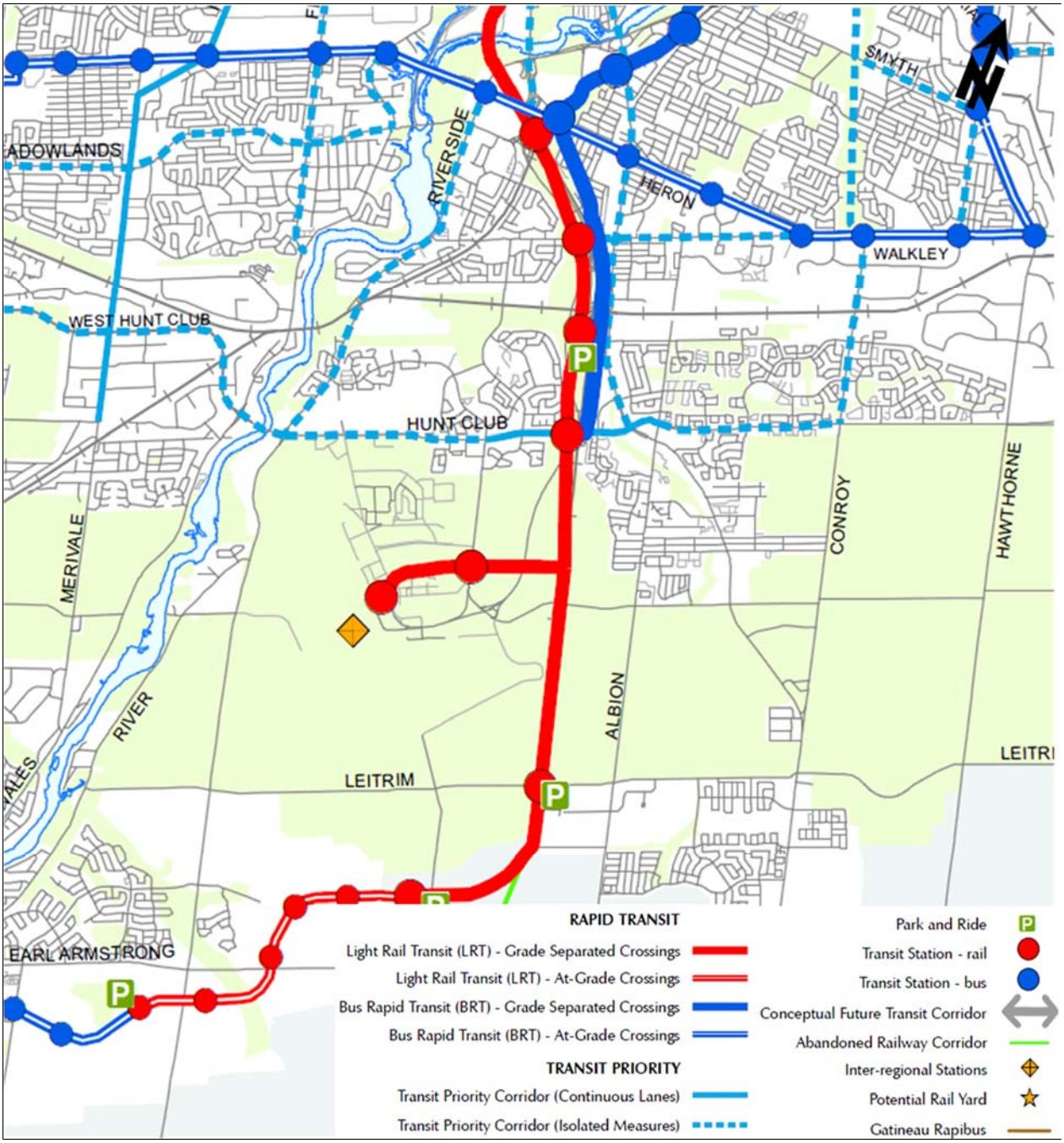


Other planned area transit improvements identified in the City ultimate network concept (beyond 2031) include:

- Transit priority along Hunt Club Road between Woodroffe Avenue and Conroy Road
- LRT extension, including two new stations serving the Macdonald-Cartier International Airport and the Ernst & Young Convention Centre; and
- LRT extension south, towards the Riverside South Community

Figure 21 depicts the City's ultimate rapid transit/transit priority concept plan.

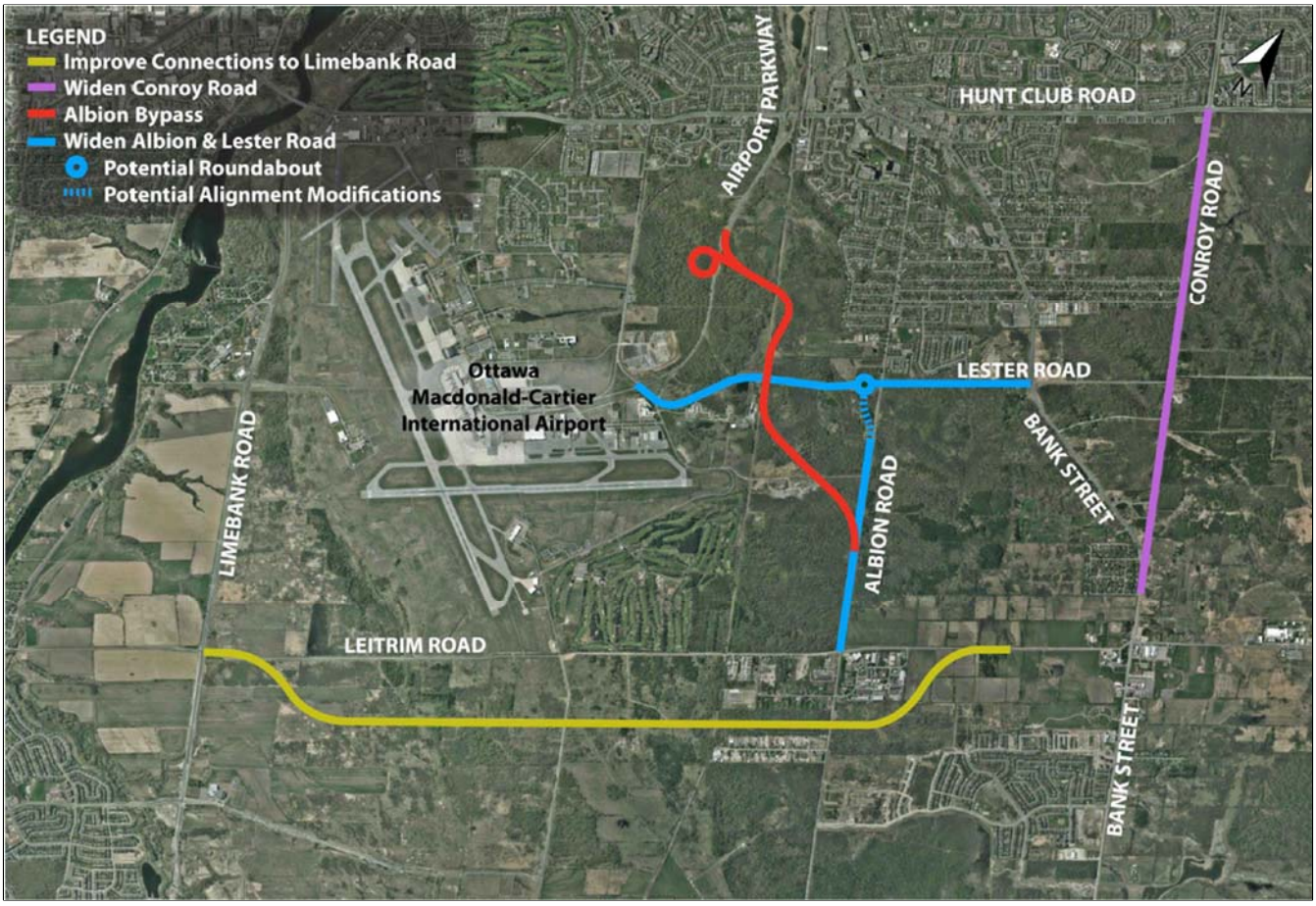
Figure 21: Transportation Master Plan – 2031 Ultimate Rapid Transit & Transit Priority Network



3.3.1 South Urban Community

According to the Road Network Development Report (by IBI Group - September 2013) prepared in support of the TMP, given the recommended 2008 TMP road network changes and the projected increase growth in the South Urban Community, Albion Road and Lester Road are projected to operate above capacity by 2031. These two roads represent the most direct access to the Airport Parkway and the forecasted congestions along these routes would "limit the usefulness of downstream capacity increases to the Airport Parkway." As such, five road improvement options were analyzed within the IBI Report and are illustrated in Figure 22.

Figure 22: Road Network Development Report - Alternative South Urban Road Improvements



According to the findings outlined in the Road Network Development Report, the most cost-effective solution that solved the forecasted capacity issues was the widening of Lester Road between the Airport Parkway and Bank Street (noted in blue, including a potential roundabout at Albion/Lester). This recommendation is included in the 2013 TMP update as shown herein in Figures 18 and 19. The Albion Road Bypass (noted in red) was not recommended as a solution in the Road Network Development Report as it represents considerable cost and potential environmental concerns, however, it is noted as being a beneficial solution to the transportation network.

As part of the recommended widening of Lester Road, a roundabout is identified at a re-aligned Lester/Albion intersection. It is understood that the rationale for the easterly realignment of Albion Road was to minimize the potential for north-south "cut-through" traffic impacting the Blossom Park Community, although it is uncertain how the north leg of Albion Road would accommodated as part of this roundabout concept. Roundabout control at this intersection could potentially be accommodated, however, more

analysis is required to assess the impact of the heavy northbound left-turn volume during the morning peak hour.

3.4 Cycling and Pedestrian Plan

The 2013 Ottawa Cycling Plan identifies Lester Road and the Airport Parkway as ultimate Spine routes and a future multi-use pathway is identified along the west side of the Airport Parkway between Uplands Drive and Hunt Club Road. The Airport Parkway provides access to/from a number of City-wide cycling routes (e.g. a number of multi-use pathways, Hunt Club Road, Walkley Road, Riverside Drive, Heron Road, etc.). Currently, existing area cycling facilities include paved shoulders along the Airport Parkway, a multi-use pathway system along the east side of the Airport Parkway between Walkley Road and Hunt Club Road, and on-road bike lanes, east of the Airport Parkway.

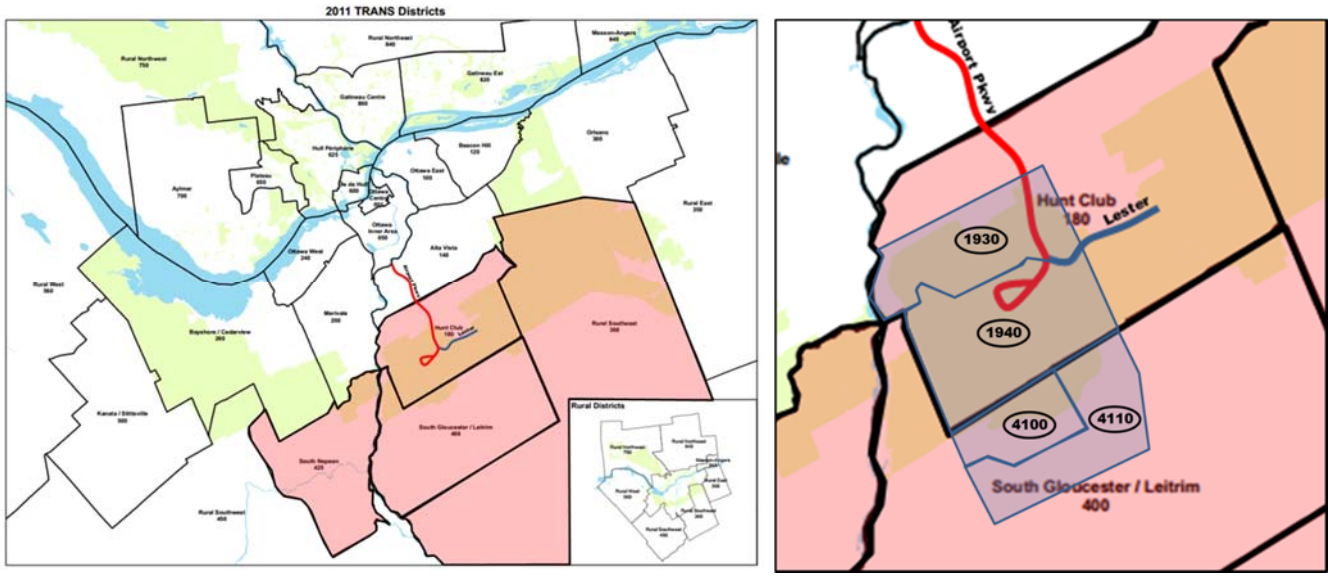
Connecting pedestrians and cyclists between the off-road pathway and the west of the Airport Parkway, a pedestrian/cyclist bridge was completed in November 2014 across the Airport Parkway just north of Hunt Club Road.

4.0 PROJECTED TRANSPORTATION CONDITIONS

4.1 TMP Land Use Assumptions

Population, household and employment data are used as the basis for the travel demand within the TRANS regional model, which helps to inform the infrastructure requirements identified in the TMP. The demographic data assumptions assumed as part of the TMP are summarized in Table 6 for the major Districts in close proximity to the Airport Parkway and Lester Road, including Hunt Club, South Gloucester/Leitrim, Rural Southeast, and South Nepean. These are shown in Figure 23.

Figure 23: TRANS Model Traffic Districts/Zones



As shown in Table 6, there are notable increases in population/households by year 2031 within the South Gloucester/Leitrim District, as well as significant increases in employment by 2031 within the Hunt Club and South Gloucester/Leitrim Districts. Note that the “Airport Lands” span these two Districts, and the Airport Parkway and Lester Road are integral components of the transportation network serving them. There is also considerable growth in population/households and employment within the South Nepean District, which is located adjacent to the Airports Lands but west of the Rideau River. Travel to/from this District is

considered to have increased relevance to the travel demand on the Airport Parkway with the recent opening of the Strandherd-Armstrong Bridge.

Table 6: TRANS Model Land Use Assumptions (Districts)

Characteristic	Traffic District	Time Horizon		Difference
		2011	2031	
Total Population	Hunt Club	54,104	56,291	2,187
	South Gloucester / Leitrim	17,601	37,784	20,182
	Rural Southeast	28,843	31,488	4,644
	South Nepean	72,748	108,443	35,695
Total Households	Hunt Club	21,136	21,736	600
	South Gloucester / Leitrim	6,236	13,547	7,311
	Rural Southeast	9,316	11,541	2,225
	South Nepean	26,263	39,871	13,608
Total Employment	Hunt Club	22,273	24,969	2,696
	South Gloucester / Leitrim	7,340	10,360	3,020
	Rural Southeast	5,242	4,827	-415
	South Nepean	11,946	22,280	10,334

A more detailed review of the assumed demographic data set was completed for the lands immediately adjacent to the south of the Airport Parkway, namely Traffic Zones 1930, 1940, 4100 and 4110 as shown in Figure 23 (blow-up). These lands are considered to form the Airport Employment Lands. The TRANS model analysis for the Airport Lands assumes the projected land use assumptions outlined in Table 7 for the year 2031.

Table 7: TRANS Model Land Use Assumptions (Airport Employment Lands)

Characteristic	Traffic Zone	Time Horizon		Difference
		2011	2031	
Total Population	1930	4,055	4,373	318
	1940	0	0	-
	4100	0	0	-
	4110	0	3,118	3,118
	TOTAL	**4,055**	**7,491**	**3,436**
Total Households	1930	1,731	1,731	-
	1940	0	0	-
	4100	0	0	-
	4110	0	1,047	1,047
	TOTAL	**1,731**	**2,778**	**1,047**
Total Employment	1930	3,066	5,416	2,350
	1940	5,153	3,462	-1,691
	4100	120	1,639	1,519
	4110	3	651	648
	TOTAL	**8,342**	**11,168**	**2,826**

It can be seen in Table 7 that the population immediately west/south of the Airport Parkway is projected to increase by approximately 3,500 persons, the amount of employment is projected to increase by approximately 2,800 jobs, and the housing units are projected to increase by approximately 1,000 units.

However, the 2031 TRANS model employment projections from Table 7 are noted as considerably less than the employment projections outlined in the OMCIAA Master Servicing and Transportation Strategy Report (by Delcan, a Parsons Company, 2011) for the same area. Within the report a "development test scenario" was developed (included as Appendix F) which forecasts a total of 17,765 jobs within the Airport lands by 2031. This yields a net increase of 9,423 jobs by 2031. Traffic generated by these additional jobs is outlined in Section 4.3 and included in the analysis herein.

4.2 TRANS Model Projections

The TRANS Model is a regional travel demand forecasting model maintained by the City of Ottawa to reflect existing trip patterns and travel choices, and to simulate the effects of future scenarios featuring varying growth, alternative transportation facilities, services and policies. The model is currently calibrated to the AM peak hour only. It is important to note that regional models are typically calibrated to the screenline level, and therefore using the model to simulate volumes on individual links (or individual turning movements) must be done so understanding the model's limitations/constraints. Relative changes in forecasted volumes can be used as good indicator of general trends, however.

The baseline (year 2011) and future (year 2031) traffic projections for the Airport Parkway (between Walkley Road and Lester Road) and Lester Road (between Airport Parkway and Bank Street), according to the TRANS model, are summarized in Table 8. These projections are based on the land use assumptions outlined in the previous section, and reflect the Affordable Transportation Network identified in the TMP (see Figures 18 and 19).

Table 8: TRANS Model Projections (AM Peak Hour)

Road	Link	2011		2031		Percent Increase (Per Annum)	
		NB	SB	NB	SB	NB	SB
Airport	Walkley - Hunt Club	1115	716	1307	715	0.80%	-
	Hunt Club - Lester	548	382	704	346	1.26%	-
		WB	EB	WB	EB	WB	EB
Lester	Airport - Albion	871	319	1277	315	1.93%	-
	Albion - Bank	440	379	682	179	2.22%	-

As shown in Table 8, traffic volumes along the Airport Parkway and Lester Road are projected to increase by approximately 1% to 2% per annum by 2031 in the peak direction (northbound/westbound). Volumes in the counter peak direction (southbound/eastbound) are projected to remain stagnant or decrease by 2031 according to the TRANS model projections. The projected volume increases on the Airport Parkway and Lester Road are considered to be very modest given the extent of forecasted development, and are assumed to be a reflection of the increased transit modal share resulting from the extension of the O-Train southerly prior to 2031.[1]

It is also important to note that the 2031 TRANS model projected traffic volumes along the Airport Parkway and Lester Road are less than the existing volumes outlined in Figure 3. As such, for the purpose of this analysis, the existing volumes along these roadways were increased by 1% per annum in the peak direction (northbound in the morning and southbound in the afternoon) for the year 2031. This traffic volume growth represents the TRANS model projected increases for 2031 based on the existing traffic counts.

[1] At the CNR East Screenline, the projected 2031 transit modal share in the AM peak is just over 30% (an increase from the existing of approximately 25%). At the Leitrim Screenline, the projected 2031 transit modal share in the AM peak of just over 20% (an increase from the existing of less than 10%).

4.2.1 Refinement of the TRANS Model Projections

As mentioned previously, according to the OMCIAA Master Servicing and Transportation Strategy Report approximately 17,765 jobs are projected for the Airport Lands by 2031. According to the Transportation Strategy Report, this increase in employment (approximately 9,423 additional jobs) will generate approximately 1,175 veh/h along the Airport Parkway and 350 veh/h along Lester Road during the afternoon peak hour. It is important to note that approximately 2,800 of these additional jobs are already accounted for in the TRANS model projections. As such, traffic projections for the additional 6,600 jobs, not included in the TRANS model, were calculated based on the projections from the Transportation Strategy Report to be approximately 660 and 200 veh/h along the Airport Parkway and Lester Road, respectively, during the afternoon peak hour. These vehicle projections assume a 35% to 50% non-auto modal share as outlined in the OMCIAA Transportation Strategy Report, which is considered generally consistent with the targets identified in the 2013 TMP Update.

The projected increase in traffic volumes within the study area generated by increased population and employment are illustrated as Figure 24. These volumes represent a 1% annual growth rate until 2031 and the projected traffic volumes associated with the additional anticipated employment outlined in the OMCIAA Transportation Strategy Report.

It is also important to recognize that the TRANS model data does not account for trips to/from the Airport related to air travel. According to the Airport Traffic Forecast and Demand–Capacity Assessment (by SNC Lavalin, 2014), passengers forecasts to/from the Ottawa Airport are projected to increase by approximately 2.9% per annum on average through to year 2030. The existing traffic volumes travelling to/from the Airport are estimated to be approximately 250 to 300 veh/h and 625 to 700 veh/h during the morning and afternoon peak hours respectively. At a rate of 2.9% per annum until 2031, the projected traffic volumes travelling to/from the Airport are expected to increase by approximately 150 to 200 veh/h and 375 to 425 veh/h during the morning and afternoon peak hours, respectively. This derivation assumes negligible change to the existing transit modal share to/from the Airport related to passenger travel of approximately 5%. This projected increase in traffic volume is illustrated in Figure 25. Should LRT be extended into the Airport Lands sooner than assumed within the TMP (currently forms part of the Ultimate RTTP Network, but not the Affordable), the transit modal share related to passenger activity to/from the Airport would be expected to increase).

The total 2031 projected volumes within the study area were derived by superimposing projected traffic volumes increases (Figures 24 and 25) onto existing traffic volumes (Figure 3). Total projected volumes are illustrated as Figure 26.

Figure 24: Projected Increase in Traffic Volumes to/from the Airport Lands

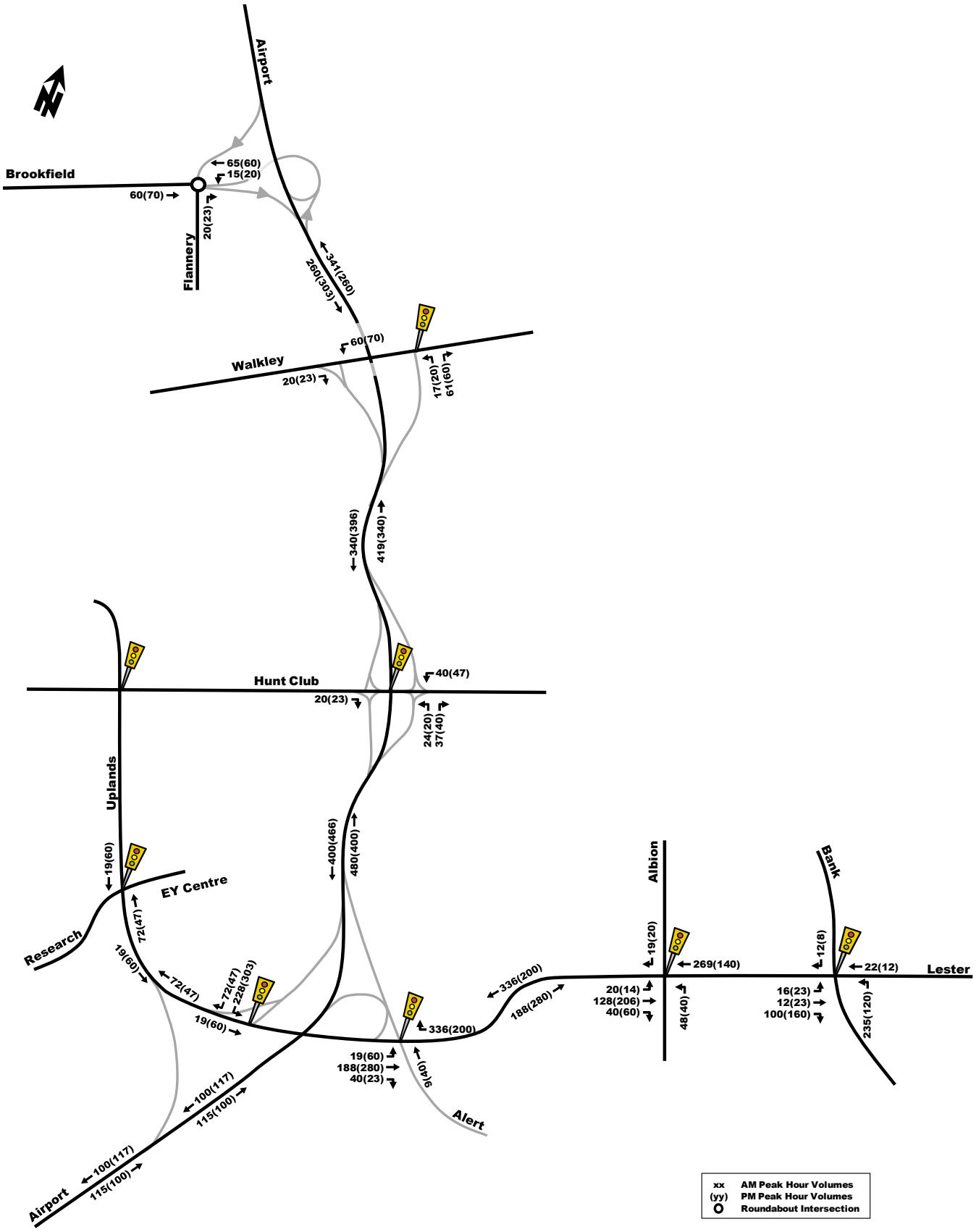


Figure 25: 2031 Projected Increase in Airport Passenger Traffic Volume

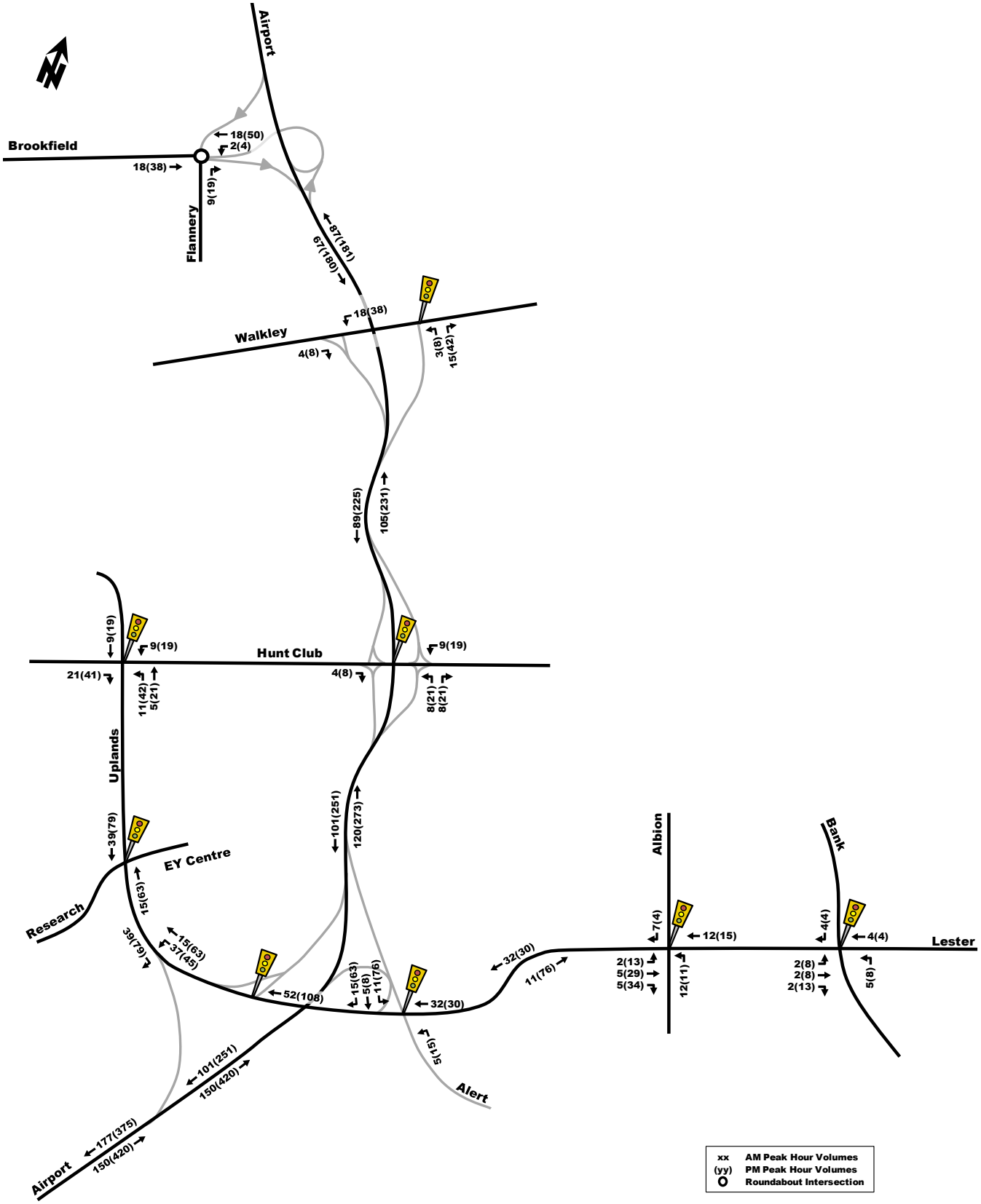
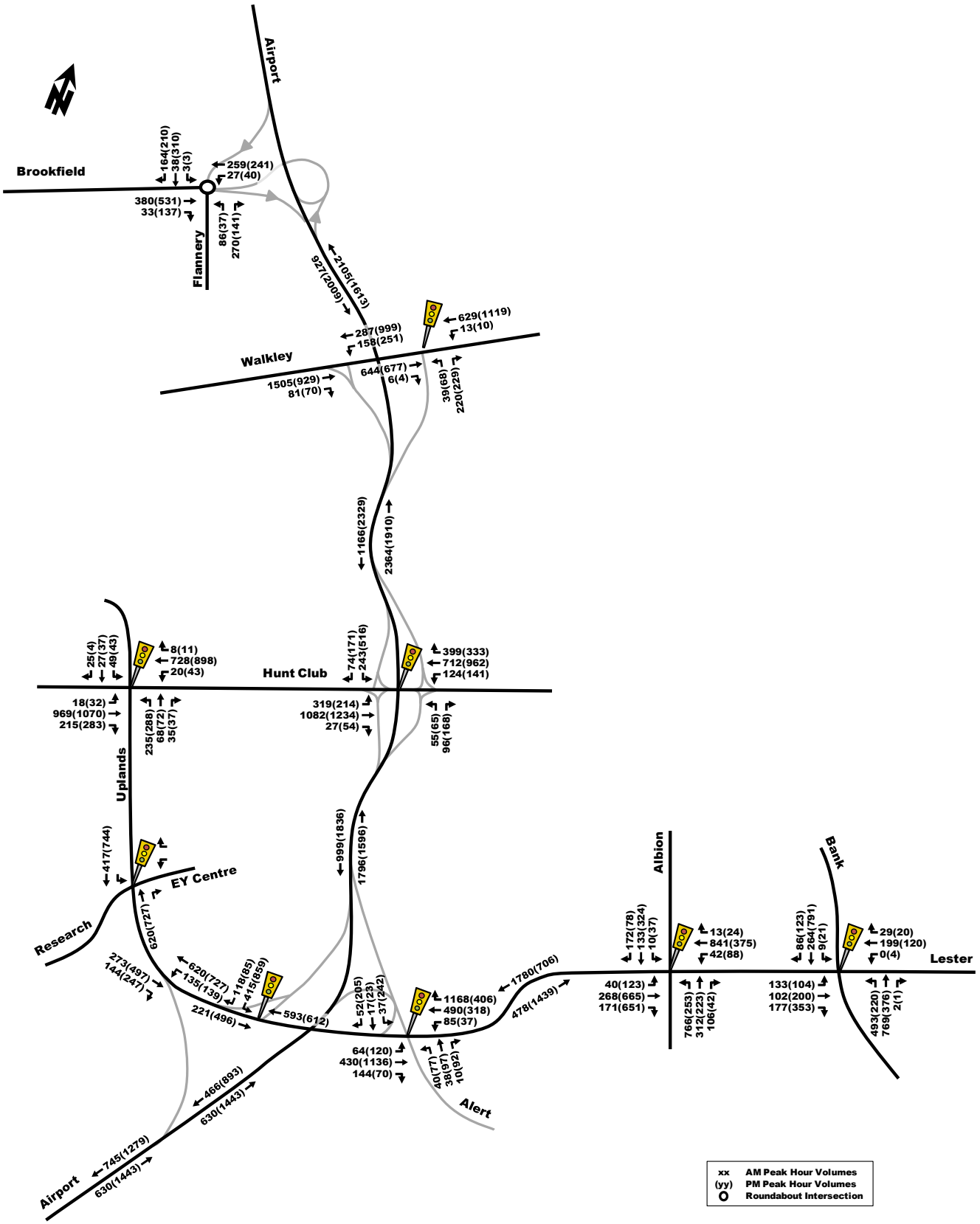


Figure 26: 2031 Total Projected Traffic Volumes



4.3 Projected Performance

4.3.1 Screenline Operations

The following Table 9 outlines the projected Screenline 13 performance based on the 2011 TRANS model, 2031 TRANS model, and the projected Airport Parkway volumes calculated herein.

Table 9: Projected Peak Hour Screenline 13 Performance

Scenario	Peak Directional Demand		Directional Capacity[1] (PCU)	v/c	
	AM Peak	PM Peak		AM Peak	PM Peak
Existing Ground Counts	8,472	10,405	10,400	0.81	1.00
2011 TRANS Model	7,834	-	10,400	0.75	-
2031 TRANS Model	8,418	-	10,400	0.81	-
2031 TRANS Model + Modified Projected Airport Pkwy Volumes	9,122	-	10,400	0.88	-

1. Directional capacities were obtained from the City's 2008 Transportation Master Plan – Road Infrastructure Needs Study. Assumes no Airport Parkway widening.

As shown in Table 9, the projected performance based on the 2011 and 2031 TRANS model ***morning peak*** hour projections in terms of v/c ratio is 0.75 and 0.81, respectively. The existing v/c ratio for Screenline 13 according to the existing ground counts is 0.81.

The projected Airport Parkway volumes derived herein were then added to the 2031 TRANS model volumes to reflect the additional traffic volumes generated by the forecasted employment within the Airport Lands and the growth in Airport passenger traffic. The resulting screenline performance reveals that SL 13 is projected to operate acceptably by 2031 with a v/c of 0.88 during the morning peak hour.

However, when assessing the existing ground counts during the ***afternoon peak hour***, the screenline is currently operating at capacity (v/c=1.00). As TRANS model projections exist only for the morning peak hour, the afternoon peak hour screenline performance must be estimated. Should the forecasted increase in travel demand of almost 1,300 vehicle in the morning peak hour be added to the existing ground counts during the afternoon peak hour, the resulting v/c at 2031 would be approximately 1.12 (LoS 'F'). Given the existing screenline is operating at capacity during the afternoon peak hour, it can be reasonably concluded that without widening, the screenline does not provide the necessary road capacity to satisfy the projected future travel demand.

4.3.2 Peak Period Traffic Volumes

The concept of peak period assessment has also been included in this analysis. This approach uses volume projections based on the average hour within the 2.5 hour peak period rather than the overall highest hour. It is understood that the concept is used to assess project priority rather than need, which is established on the previous peak hour analyses.

To roughly estimate average hourly volume over 2.5 peak period, the peak hour volume can be multiplied by a region-wide expansion factor of 2.1 and divided by 2.5 (resulting in a typical factor of 0.84, which represents the relationship between the average hour within the peak period and the busiest peak hour). Based on the existing volume count data at Airport Parkway station for SL 13, it can be seen that this factor is 0.93 and 0.98 during the morning and afternoon peak hours (peak direction), respectively. This implies that the average hour during the peak period is quite similar to the busiest peak hour, indicative of less peaking on the Airport Parkway Corridor than other road corridors within the City.

Applying these factors to the ultimate forecasted peak directional demands crossing the CNR East Screenline 13 of 9,122 and 11,693 vehicles at 2031,during the morning and afternoon peak hours, the resulting v/c ratio would be 0.82 (instead of 0.88) and 1.10 (instead of 1.12), respectively.

4.3.3 Volume Forecasts on Airport Parkway and Lester Road

The following Table 10 outlines the peak directional volume and AADT within the study area and the corresponding assumed capacity along each segment of roadway.

Table 10: 2031 Projected Traffic Volumes – Peak Hour and AADT

Road Segment	Peak Directional Volume (veh/h)	Assumed Capacity (veh/h per lane)	AADT (two-way)
Airport Parkway			
• North of Hunt Club Road	2,400	1,400-1,600	47,000
• Hunt Club Road to Lester Road	1,800	1,400-1,600	36,000
• South of Lester Road	1,450	1,100-1,200	27,000
Lester Road			
• Airport Pkwy to Albion Road	1,800	1100-1,200(1)	22,000
• Albion Road to Bank Street	900	700-800	13,000

Notes:
(1) The assumed lane capacity for Lester Road within the TRANS model is 800 veh/h and is considered too low given the existing observed volumes of close to 1,400 veh/h west of Albion Road. Other than the Centre for Surface Transportation Technologies, there are no driveway connections to Lester Road along this segment.

The assumed per lane capacity of the Airport Parkway of up to 1,600 veh/h per lane noted in Table 10 is generally consistent with the assumptions of the TRANS model. The 1,400 to 1,600 veh/h per lane capacity range of the Airport Parkway north of Lester reflects the parkway setting with controlled access, whereas the 1,100 to 1,200 veh/h per lane capacity range south of Lester reflects the introduction of traffic signal control and decrease in posted speed along this segment of roadway. For comparison, the existing volumes along the Airport Parkway were observed to be approximately 1,200 veh/h north of Lester Road and approximately 900 veh/h south of Lester Road.

For Lester Road, the assumed maximum per lane capacity of up to 1,200 veh/h, between the Airport Parkway and Albion, is consistent with the existing volumes experienced today along this section of Lester Road. This maximum value appropriately reflects the capacity of an arterial road in a rural setting with limited access driveways. At the low end, the TRANS model has an assumed capacity of 800 veh/h, which is considered appropriate for the segment between Albion and Bank where there are some residential driveways and parking on the shoulders approaching Albion Road. On this basis, the assumed capacity of Lester Road has been established as ranging from 1,100 to 1,200 veh/h (west of Albion), and 700 to 800 veh/h (east of Albion) for the purposes of this assessment.

It can be seen in Table 10 that the projected peak hour traffic volumes are expected to exceed the assumed roadway capacity on the Airport Parkway north of Lester Road, with the capacity deficit ranging between 200 and 800 veh/h. The segment of the Airport Parkway south of Lester Road that provides direct access to the Airport area is also expected to exceed the assumed existing roadway capacity.

On Lester Road, the projected peak hour traffic volumes between the Airport Parkway and Albion Road are expected to exceed the assumed roadway capacity, with a projected capacity deficit of approximately 600

veh/h. The segment of Lester Road east of Albion Road is expected to exceed capacity with a projected capacity deficit of approximately 100 veh/h.

Northbound travel demand accessing Lester Road may do so via either Albion Road or Bank Street. The existing northbound volume on Albion Road approaching Lester Road is currently operating near capacity (and specifically the left-turning movement at the Albion/Lester intersection as shown in Table 4). As such, the majority of any new development-related traffic was assigned to Bank Street where there is some spare roadway capacity. This is consistent with the Bank Street Widening EA that assumes a 37% increase of traffic along Bank Street compared to only a 3% increase along Albion Road.

Depending on their origin, however, drivers may desire to access Lester Road via Albion Road should there be capacity available through a future widening. This would likely decrease traffic volume along the segment of Lester Road between Bank Street and Albion Road. Based on the projected volumes outlined herein, the potential decrease in volumes along Lester Road east of Albion Road could be approximately 100 to 200 veh/h, during the peak hours, resulting in total traffic volumes on this segment of Lester Road of between 700 and 800 veh/h. This alternate volume balance is considered compatible with the assumed 700 to 800 veh/h capacity of Lester Road between Albion Road and Bank Street, and therefore a widening of this section may not be essential.

The two-way AADT included in Table 10 was calculated based on the assumption that the peak volume represents approximately 10% of the AADT or the combined morning and afternoon peak hour volumes represent approximately 20% of the AADT. These assumptions are obtained from the existing relationship between peak hour volumes and AADT outlined in Section 2.1.

4.4 Intersection/Interchange Operations

The following Table 11 provides a summary of projected performances of study area intersections at full site occupancy. The SYNCHRO and SIDRA model output of projected conditions is provided within Appendix G.

Table 11: Projected Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'as a whole'		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Brookfield/Flannery	A(C)	0.43(0.66)	NBR(SBT)	7.3(12.0)	A(B)	-
Airport Parkway/Walkley	B(A)	0.63(0.55)	NBR(WBT)	7.7(10.2)	A(A)	0.36(0.54)
Airport Parkway/Hunt Club	D(D)	0.84(0.89)	WBT(EBL)	34.2(39.2)	C(D)	0.79(0.85)
Uplands/Airport	B(C)	0.62(0.78)	SBL(WBT)	13.1(18.1)	A(C)	0.58(0.75)
Albion/Lester	F(F)	1.47(1.13)	WBT(NBL)	139.1(51.7)	F(E)	1.32(0.98)
Bank/Lester/Davidson	D(F)	0.83(1.05)	NBL(EBT)	18.9(30.8)	B(C)	0.61(0.71)
Alert/Airport/Uplands	E(C)	0.92(0.76)	WBR(EBT)	13.1(14.6)	D(B)	0.86(0.70)

Notes:
- Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.
- Brookfield/Flannery Roundabout intersection 'as a whole' analysis is based on delay.

As shown in Table 11, with no signal timing plan modifications, the signalized study area intersections, 'as a whole', are projected to operate at an acceptable LoS 'D' or better during both peak hours, with the exception of the **Albion/Lester** intersection during both peak hours, which is projected to operate at capacity/fail (LoS 'E'/LoS 'F').

With regards to the 'critical movements' at study area intersections, the westbound through movement and the northbound left-turn movement at the Albion/Lester intersection are projected to fail (LoS 'F') during the morning and afternoon peak hours, respectively. The eastbound through movement at the Bank/Lester intersection is projected to fail during the afternoon peak hour, while the northbound left-turn volume of almost 500 veh/h suggests that dual turning lanes may be appropriate. The westbound right-turn movement at the Uplands/Alert/Airport intersection is projected to operate at capacity (LoS 'E') during the morning peak hour.

As shown in Table 11, the Brookfield/Flannery roundabout is projected to continue to operate acceptably with a critical southbound movement of LoS 'C' during the afternoon peak. In addition, the Hunt Club Road interchange is projected to continue to operate similar to existing conditions with critical movements operating at LoS 'D'.

5.0 INITIAL ASSESSMENT OF TRANSPORTATION OPTIONS

Based on the projected capacity deficiencies between 200 and 800 veh/h along the Airport Parkway and Lester Road, it is necessary to assess transportation options along these roadways. The analysis of these options will inform the subsequent environmental assessment of "alternative solutions" that may meet the overall project's needs and opportunities. The following options were assessed.

5.1 Do Nothing

This option assumes the existing two-lane cross-section along the Airport Parkway and Lester Road. To achieve acceptable levels of service, the traffic volume along the Parkway would have to be in the 1,600 veh/h range. It is unreasonable to assume the full extent of the 200 to 800 veh/h surplus could change to active modes of walking or biking given the location of the study area outside the Greenbelt.

The TMP 2031 modal share targets for walking and cycling are 10% and 5% region-wide, respectively. However, it can be assumed that non-motorized modal share targets will be less outside the Greenbelt than the city-wide average. A full shift of the 800 veh/h demand to walking or biking would result in an estimated walking/cycling modal share of over 20% (assuming the baseline target of 15% modal share is achieved), which is not considered realistic in this context.

Regardless of a lower non-motorized modal share, pedestrian and cycling facilities of some form are recommended along the Airport Parkway and Lester Road as they are identified as Spine Routes.

5.2 Transit Solution

This option examines the possibility of increasing transit ridership along the Airport Parkway (in place of road widening).

The results of the TRANS model indicate that the transit modal share at the CNR East Screenline (which includes the Airport Parkway) is approximately 25% in the AM peak, whereas south of the Airport at Leitrim Road the transit modal share is less than 10%. The forecasted transit modal shares in the AM peak at 2031 are just over 33% and 22%, respectively, reflecting the extension of the O-Train to south of Leitrim Road prior to 2031. The TMP 2031 modal share targets for transit modal share is 26% region-wide.

Given the proposed O-Train extension will be located parallel to the Airport Parkway, it is unlikely that the full extent of the 800 veh/h surplus demand (≈900 persons) would change to transit within the Airport Parkway Corridor as it would be providing a redundant (and competing) service to the O-Train. A full shift of the 800 veh/h demand would result in an estimated transit modal share of approximately 40% across the CNR

Screenline (assuming the baseline target of 30% modal share is achieved with the O-Train extension), which is considered quite aggressive in this context.

Should the target transit split of 30% not be met in this area of the City and there was no change to the existing transit modal share, an additional vehicle demand of approximately 1,000 veh/h is estimated to occur crossing the CNR Screenline.

In the segment of the Airport Parkway between Hunt Club Road and Lester Road, where the capacity deficit is only 200 veh/h, the introduction of a transit solution may help to address a portion of the surplus demand.

The foregoing results demonstrate that the transit only solution is not capable of addressing the long-term travel demand within the Corridor.

5.3 Additional Roadway Capacity

5.3.1 General Purpose Lane

This option examines the possibility of widening the Airport Parkway and Lester Road from two-lanes to four-lanes.

An additional travel lane along the Airport Parkway would increase directional capacity from the current 1,600 veh/h to an estimated 2,800 to 3,200 veh/h, which would address the projected vehicle demand and result in reasonable performance.

An additional travel lane along Lester Road would increase directional capacity from the current 1,200 veh/h to an estimated 2,000 to 2,400 veh/h, which would address the projected vehicle demand and result in reasonable performance.

5.3.2 High Occupancy Vehicle (HOV) Lane

This option examines the possibility of widening the Airport Parkway and Lester Road from two-lanes to four-lanes with the additional lane serving as a High Occupancy Vehicle (HOV) lane. As noted previously, the TMP indicates that consideration should be given to providing peak period bus/HOV on the Airport Parkway between Hunt Club and the Airport, with the rationale being to improve transit access to the Airport (in lieu of rapid transit).

In 2016, only OC Transpo Route #97 has a bus stop at the airport whereas Routes #99, 147, and 204 exit Airport Parkway either onto Lester Road or Uplands Drive. The following exhibit depicts bus route 97.

Figure 27 – OC Transpo Route #97 (Airport)

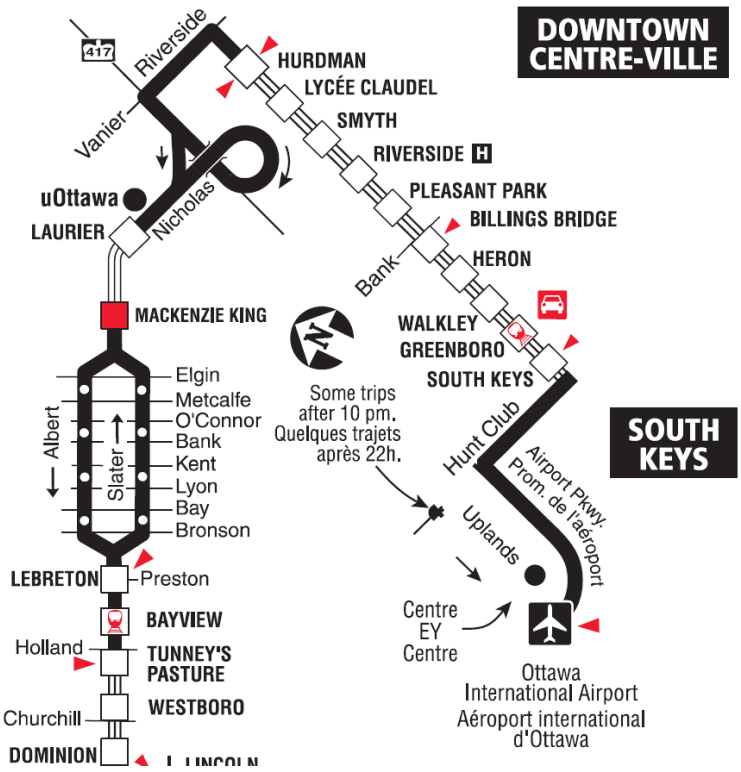
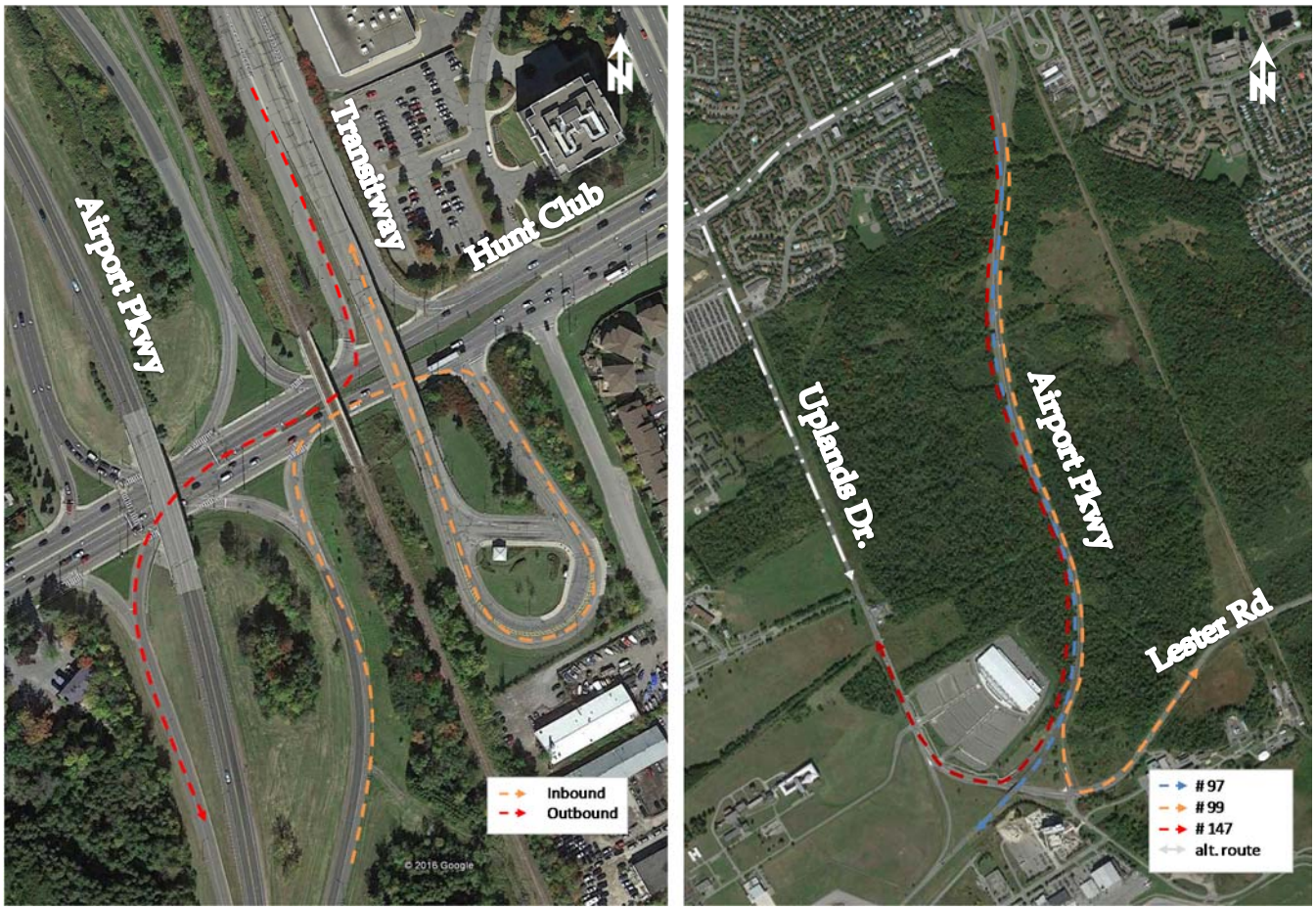


Figure 28 depicts the path taken by buses to transition between the Transitway and Airport Parkway (via Hunt Club Road), as well as current routings southbound on the Airport Parkway approaching Lester Road. Buses either continue to the Airport, turn left onto Lester Road, or turn right onto Uplands Drive. Note that Uplands Drive is used at certain times of the day as an alternative routing to the Airport Parkway for Route #97. In addition, during only Saturday and Sunday, Route #99 proceeds northbound on Uplands Drive as an alternative route to Airport Parkway.

Figure 28 - Bus Routes through Airport Parkway and Hunt Club Connection to Transitway



The implementation of an HOV lane is often a policy decision to promote sustainable transportation initiatives. Ideally an HOV lane would be part of an overall managed lane system, however, this is not the case for the Airport Parkway/Lester Road network as no other HOV facilities exist within close proximity. The dedicated Southeast Transitway does currently terminate at Hunt Club Road (South Keys), and any buses destined to the Airport use the Airport Parkway. The provision of an HOV lane on the Airport Parkway south of Hunt Club would conceptually benefit buses in that they are not in mixed-use traffic. An HOV lane would also benefit taxi activity to/from the Airport, but only for the short portion of the trip approaching the Airport.

Usual measures of successful implementation of an HOV lane include a meaningful travel time benefit and adequate lane utilization. Analysis suggests that these are unlikely to be achieved here given the relatively short distance of the road segment (2.4 km from Hunt Club to Lester) and assuming the existing low auto occupancy rated exhibited on the Airport Parkway of 1.13 as noted in Section 2.4. The TRANS model, however, projects that approximately 24% of vehicles travelling along the Airport Parkway in year 2031 will be HOV (2+ occupants per vehicle), which is noted to be approximately double the observed auto occupancy.

- Along Airport Parkway **south** of Hunt Club, the critical total projected vehicle demand is approximately 1,800 veh/h. Assuming the 24% HOV target, the projected volume in the HOV lane would be slightly more than 400 veh/h. The residual auto demand of approximately 1,400 veh/h would be accommodated, from a capacity perspective, in a single general purpose (GP) lane with an assumed capacity of 1,600 veh/h. An additional 250 to 300 veh/h would be projected for travel in the

GP lane if only the existing occupancy rate of around 1.10 was achieved. Moreover, the HOV lane would be underused with an average of 165 veh/h.

- Along Airport Parkway **north** of Hunt Club, the critical total projected vehicle demand is 2,400 veh/h. Assuming the 24% HOV target, the projected volume in the HOV lane would be approaching 600 veh/h. The residual auto demand of just over 1,800 veh/h could not be reasonably accommodated, from a capacity perspective, in a single general purpose (GP) lane with an assumed capacity of 1,600 veh/h. Should the target occupancy rate of 24% not be met along this corridor, an additional 300 to 400 veh/h are projected given the existing occupancy rate of between 1.10 and 1.15. This would result in approximately 2,100 to 2,200 veh/h in the GP lane along the Airport Parkway in the peak direction during the afternoon peak hour.

Along Lester Road, approximately 21% of vehicles are noted as HOV between Airport Parkway and Albion Road and approximately 15% between Albion Road and Bank Street. The detailed analytical assessment of expected HOV lane utilization on the Airport Parkway is provided within Appendix H.

The Ontario Ministry of Transportation (MTO) has developed guidelines for assessing the feasibility of HOV lanes. Relief of congestion, travel time savings, and cost effectiveness are examples of applicable criteria stated by MTO. Our assessment, based on these guidelines, is also included within Appendix H. The basic findings of this assessment are that many of the conditions identified for a successful HOV facility would not be satisfied, although decision to implement HOV lanes from a policy perspective may ultimately dictate. In sum, the analysis indicates that an HOV lane on the Airport Parkway south of Hunt Club would generally satisfy volume considerations (i.e., sufficient capacity provided in a single GP lane and single HOV to satisfy demand), but the lack of forecasted congestion as a result of the widening implies there would be no travel time benefit.

Longer term, the possibility of implementing a High Occupancy Toll (HOT) lane could be explored as a means to manage vehicle demand within the competing lanes. There are, however, likely to be notable costs associated with providing electronic tolling infrastructure that would limit the feasibility of HOT lanes for such a short section of roadway.

5.3.3 Reversible lane

This option explores the possibility of providing a three-lane cross section with the centre lane serving as a reversible lane.

This solution is often applied on bridges and tunnels where widening is infeasible and over along very short distances where access can be reasonably controlled. This solution also requires tidal flow, which is not the case for the projected conditions along the Airport Parkway where afternoon peak hour volumes are projected to be 2,330 veh/h in the southbound direction and 1,910 veh/h in the northbound direction (between Hunt Club Road and Walkley Road). This counter peak directional volume of 1,800 veh/h would be above the assumed capacity for a single lane of 1,600 veh/h. Further south along the Parkway the volumes of 1,835 veh/h and 1,595 veh/h would just meet the capacity requirements for a reversible lane configuration.

Along the Lester Road corridor (west of Albion), the projected volumes are more agreeable for a reversible centre lane with morning peak hour volumes of 1,780 veh/h in the westbound direction and only 478 veh/h in the eastbound direction. However, there is little benefit to provide a reversible centre lane along Lester Road if it is not continued along the Airport Parkway.

It is important to maintain the parkway nature of the corridor and as the infrastructure needed to manage a reversible lane would not be visually appealing, it is not recommended for this type of roadway.

5.4 Initial Roundabout Assessment

The existing and projected traffic volumes reveal that the predominant flow of traffic travels from Lester Road to the Airport Parkway. As such it is desirable to provide a more fluid link to/from these two roadways. A possible solution of providing a three-legged roundabout distributing traffic to/from the Airport Parkway, Lester Road, and the Airport was assessed.

The Airport Parkway/Lester roundabout assumed Lester Road and the Airport Parkway North as the main north-south roadways and the third leg as the Airport Parkway South. Based on the projected volumes and the origin-destination assumptions outlined in Section 2.2, the resulting multi-lane roundabout would experience an AADT of approximately 35,000 to 44,000 vehicles. According to the Federal Highway Administration (FHWA), the total AADT through a three-legged roundabout should not exceed 30,000 to 40,000 vehicles. As such, the initial assessment of a potential two-lane roundabout at the Lester/Airport Parkway interchange suggests that it is not feasible.

A possible roundabout solution was also assessed at the Albion/Lester intersection. The projected AADT at the Albion/Lester intersection is approximately 28,000 vehicles. As such, a four-legged roundabout at this location could potentially be accommodated; however, more analysis is required to assess the impact of the heavy northbound left-turn volume during the morning peak hour.

5.5 Downstream Impacts

The Airport Parkway continues as Bronson Avenue north of Brookfield Road. Bronson Avenue is a four/six-lane arterial roadway that provides access not only to the downtown core, but also numerous employment/intuitional nodes (i.e., Confederation Heights, Carleton University, etc.) and intersecting Arterial, Collector and Driveway routes (i.e., Heron Road, Riverside Drive, Queen Elizabeth Drive, Colonel By Drive, Carling Avenue, etc.).

Based on the analyses of projected travel demand at 2031, the additional two-way traffic projected north of Brookfield Avenue is approximately 550 to 650 veh/h during the weekday peak hours. Based on the estimation that approximately 15% of this additional traffic will access/egress the Parkway via Heron Road and 15% with access/egress the Parkway via Riverside Drive, the resulting 70% additional traffic volume destined to, or originating from Bronson Avenue (north of Riverside) is approximately 400 and 450 veh/h during the weekday peak hours. In the morning for example, some of the northbound traffic would be destined for Carleton University/Sunnyside Avenue, and some will access Colonel By Drive or Queen Elizabeth Drive to travel towards the Downtown Core.

Forecasting the extent of traffic that proceeds on Bronson into the downtown core is challenging. The observed trend is that vehicular traffic to/from Ottawa's downtown area has been diminishing in recent years (see Figure 13), which can be explained by the fact that no new road capacity is being provided directly into downtown, there have been successful investments in rapid transit, and employment, retail and service destinations are more decentralized. A series of Airport Parkway road widening and rapid transit expansion scenarios were simulated using the TRANS model, and the findings were as follows: there will be increased travel as a result of growth between now and 2031; the downstream auto impacts on Bronson Avenue (over the Rideau Canal) as a result of the Airport Parkway widening will be negligible, and the proposed widening of the Airport Parkway will reduce the traffic congestion that currently exists. The negligible downstream auto impact is due in part to the fact that Bronson Avenue through the Glebe is essentially operating at capacity today, but also reflects increased transit ridership as travel time for longer many trips is expected to be shorter and less expensive/stressful using rapid transit. Additional data regarding downstream impacts

can be found in the 'Focussed Stakeholder Meeting' presentation held on April 30, 2015, and is provided in Appendix I.

At the south end of the study area, Albion Road and Bank Street continue south providing access to the communities of Findlay Creek, Greely, etc. The additional two-way traffic projected along Albion Road is approximately 100 to 145 veh/h and approximately 300 to 350 veh/h along Bank Street. As mentioned previously, this traffic may be redistributed should one of the Albion/Lester or Bank/Lester intersections become less desirable/more congested. The total projected volumes along Albion Road are approximately 1,200 veh/h in the peak direction, which would be considered to be at capacity (assuming the capacity ranges between 800 and 1,200 veh/h). The total projected volumes along Bank Street are approximately 1,250 veh/h in the peak direction, which would be considered below the assumed available capacity of 1,600 veh/h. Recall that Albion Road widening does not currently form part of the Affordable Road Network at 2031, although it is identified in the Ultimate Road Network.

5.6 Walkley Road Community Connection

Previous transportation planning work dating back to the mid 1990's identified the need to provide full access to the Airport Parkway at Walkley Road and Hunt Club Road, with the rationale being to make use of the residual capacity of the Airport Parkway north of the ramps. These full connections were formally identified in the 1997 Region of Ottawa-Carleton TMP. In June 2000, the Airport Parkway Extended Traffic Impact Study (APETIS) report was received and Regional Council approved the Walkley Road southbound off-ramp. Regional Council reconsidered the approval of the off-ramp in July 2000; however, the construction of the off-ramp was reaffirmed. The Terms of Reference for the subject Airport Parkway and Lester Road Widening EA identified the need to re-evaluate the need and implications of providing the southbound off-ramp.

The connection linking the southbound Airport Parkway to Walkley Road is expected to reduce traffic in the afternoon peak period that currently runs along Flannery Drive and Springland Drive, cutting through the residential neighbourhood located between Brookfield Avenue and Walkley Road. It is noted that the planned function of Flannery Drive and Springland Drive is that of a Collector Roads (i.e., they are not intended to provide a connecting link for traffic travelling over long distances). The connection would improve access to the Arterial Road network for the residential neighbourhoods immediately north and south of Walkley Road.

Whereas travel patterns on Walkley Road (between Riverside and Bank) may change, as motorists may access McCarthy Road from a different route, on balance the future traffic pattern is expected to be in keeping with the road's designation as an Arterial Road. Based on the TRANS model, the new connection is forecasted to attract 400-500 veh during the afternoon peak hour, with approximately half of the traffic turning left (towards Bank Street) and half turning right (towards Riverside). Volume reductions of approximately 100-150 veh/h are forecasted on southbound Flannery and Springland, and eastbound Walkley (between Springland and McCarthy) during the afternoon peak hour. Volume increases of approximately 100-150 veh/h are forecasted on westbound Walkley (between Airport Parkway and McCarthy during the afternoon peak hour. Traffic management measures should be considered to minimize cut-through traffic on the local/neighbourhood road network.

Included as Appendix J is a presentation made to the Riverside Park Community and Recreation Association (RPCRA) in October 2015. The presentation described the background, rationale, analytical process, as well as potential impacts and mitigation measures.

6.0 CONCLUSION FOR NEED AND OPPORTUNITY FOR THE AIRPORT PARKWAY AND LESTER ROAD

Based on the foregoing analysis, the following transportation related conclusions are provided:

- Shifts towards travel using rapid transit (i.e., Trillium Line) have been built into the analytical assumptions, and notwithstanding, a widening of the Airport Parkway will still be necessary;
- Based on the existing operational issues and 2031 projected traffic volumes, the widening of the Airport Parkway from Lester Road to Brookfield Drive (two lanes per direction) is recommended:
    - Operational issues currently exist at the Hunt Club on/off ramps and south of the Brookfield on/off ramps as the southbound Airport Parkway is narrowed from 4 lanes to 2 lanes;
    - Collision data reveals a high number of collisions related to U-turns along the Airport Parkway;
    - The 2031 peak directional projected traffic volumes travelling along the Airport Parkway north of Lester Road range from 1,800 to 2,400 veh/h during the peak hours. The assumed capacity at this location is approximately 1,600 veh/h per lane, as such, the projected peak hour volumes are greater than the available capacity and there is a 200 to 800 veh/h shortfall.; and
    - South of Hunt Club Road to the Airport, consideration could be given to the widening of the Airport Parkway being in the form of an HOV lane (in lieu of rapid transit serving the Airport). However, an HOV lane is not forecasted to provide any travel time benefit as the widening is expected to alieve any congestion.
- The continuation of a widened Airport Parkway south of Lester Road to the Airport will also be needed in the fullness of time (depending on the configuration of ultimate road network serving the Airport);
- The widening of the Airport Parkway between Brookfield and the Airport, as a divided cross-section, is also recommended to from a safety perspective. This is in keeping with the findings of the City's In-Service Road Safety Review (2007), which is understood to be a major rationale for the inclusion of the Airport Parkway Widening (Brookfield to Airport) within the 2013 Transportation Master Plan;
- A widened Airport Parkway provides additional capacity to improve travel time reliability for all users, but particularly air travellers to/from the MacDonald Cartier International Airport. With just a single travel lane in each direction, a single lane blockage would result in restricting access to the Airport via the primary route until the blockage is removed;
- A southbound connection from the Airport Parkway to Walkley Road is recommended on the basis that it represents an opportunity to connect two arterial roadways and implement their planned function (as per the Official Plan):
    - The connection would improve community access and choice, address existing neighbourhood cut-through traffic issues on Springland and Flannery, improve resiliency within the Airport Parkway, improve emergency vehicle response times, etc.

  - The forecasted traffic impact is a shift in the direction of traffic on Walkley Road approaching McCarthy Road, but volume increases that are consistent with the Walkley Road's function as an arterial road;
  - There is an increased potential for cut-through volumes within the community south of Walkley Road (east of McCarthy), and an effective traffic monitoring program and potential traffic management measures will need to be identified.

- Based on 2031 projected traffic volumes, the widening of Lester Road from Albion Road to the Airport Parkway (two general purpose lanes per direction) is recommended:

  - The 2031 peak directional projected traffic volume along Lester Road from Albion Road to the Airport Parkway is approximately 1,800 veh/h. The assumed capacity along this link is approximately 1,200 veh/h, as such, the projected peak hour volumes are greater than the available capacity;

- Based on the 2031 projected traffic volumes, the widening of Lester Road between Bank Street and Albion Road is also recommended:

  - The 2031 projected peak directional traffic volume along Lester Road between Bank Street and Albion Road is approximately 900 veh/h. If drivers opt to use Albion Road as a means to access Lester Road instead of Bank Street these projected volumes may decrease to approximately 700 to 800 veh/h. As the assumed capacity along this link is 800 veh/h per lane, there is potential that the projected volumes could be at or below the existing capacity;

  - Intersection modifications may be necessary at the Bank/Lester intersection depending on route choices;

- Intersection and roadway connection improvements are recommended at the Albion/Lester and Lester/Airport Parkway intersections;

  - Possible roundabout solutions linking Lester Road and the Airport Parkway as the main roadway require more analysis, however, an initial assessment at the Lester/Airport Parkway intersection reveal that a roundabout would not be feasible. Possible roundabout solutions exists at the Albion/Lester intersection, however, further analysis is required.

- There is an opportunity to improve the cycling and pedestrian environments within the Study Area in accordance with Official Plan and TMP directions;

- There is an opportunity to improve/enhance Scenic Entry Routes to/from the City;

- There is an opportunity to improve/enhance natural heritage features and function; and

- There is an opportunity to coordinate the planning and design of transportation infrastructure in the Airport Parkway and Lester Road corridors with other planned infrastructure including the Trillium Line Extension project.