
APPENDIX H

EXISTING TRAFFIC CONDITIONS ANALYSIS

Table 1: Southern Study Area Intersection Control

<i>Intersection</i>	<i>Control Type</i>
Lester Road @ Albion Road	Signal
Leitrim Road @ Albion Road	Signal
Leitrim Road @ Limebank Road	Signal
Leitrim Road @ Bowesville Road	Stop
Earl Armstrong Road @ Bowesville Road	Stop
Earl Armstrong Road @ Limebank Road	Signal
High Road @ Albion Road	Stop
Rideau Road @ Albion Road	Stop

As part of the City's ongoing traffic data collection program, turning movement traffic counts are undertaken on regular basis, with major signalised intersections being counted on a more frequent basis. At the request of MMM Group, the City of Ottawa has provided the available traffic count data at area intersections and the location and date of the recent traffic counts are summarised in the Table 2.

Table 2: City Traffic Counts

<i>Intersection</i>	<i>Traffic Counts</i>				
	2009	2010	2011	2012	2013
Hunt Club Road @ Airport Parkway		May 31		Aug 24	June 26
Hunt Club Road @ Bridle Path	Nov 5	June 21			June 21
Hunt Club Road @ Uplands Drive	Nov 5	July 12	June 22		
Hunt Club Road @ Bank Street		May 21		June 19	June 26
Lester Road @ Albion Road			May 30	June 1	July 4
Leitrim Road @ Albion Road			July 25	Aug 17	
Leitrim Road @ Limebank Road			May 27		
Leitrim Road @ Bowesville Road		Dec 22			
Earl Armstrong Road @ Bowesville Road				July 25	
Earl Armstrong Road @ Limebank Road				Aug 10	
High Road @ Albion Road			June 01		
Rideau Road @ Albion Road	June 18		July 08		July 3

Existing Traffic Conditions

In carrying out the existing traffic conditions analysis, the observed traffic volumes were reviewed to identify the annual variation and overall growth in traffic volumes in recent years. The traffic counts provide daily (8 hr) and peak hour volumes (AM, midday, and PM) for vehicles, pedestrians and cyclists. In light of the recent opening of the Strandherd-Armstrong Bridge and the Hunt Club Road/Highway 417 interchange, historic peak hour traffic patterns may not be representative of actual 2014 conditions. The new bridge provides an additional alternative for vehicles to cross the Rideau River, particularly for residents of emerging development areas in Barrhaven and Riverside South. The Hunt Club corridor was previously very congested as it accommodated much of the demand crossing the Rideau River. The following observations are noted from the review of the historic data:

- Peak hour traffic volumes on Hunt Club Road were lowest in 2013 when compared with historical traffic counts. This may be explained due to the fact that Hunt Club Road has become over-congested limiting the vehicle flow that could be accommodated in the corridor. It is anticipated that with the introduction of the Strandherd-Armstrong Bridge, vehicles will be diverted to this new crossing reducing the demand on Hunt Club Road. This however may be

offset by the new Hunt Club connection to Highway 417 which strengthens this roadway as a major connection between Highway 417 and Highway 416 allowing vehicles to avoid travelling through the central area.

- Albion Road north of Lester has not experienced growth as it is an already developed neighbourhood and much of the growth in North-South traffic is accommodate via the airport Parkway.
- Peak hour traffic volumes on Lester Road have remained consistent between from 2009 to 2013.
- Peak hour traffic volumes on Leitrim Road have experienced considerable growth (approximately 20%) between 2011 and 2012. This is explained due to the amount of recent development that has been experienced in this area.
- The intersections of Earl Armstrong Road with Limebank Road and with Bowesville Road were each counted for a single year (2012) and consequently growth has not been identified.

In general, north-south travel has increased in recent years due to the emerging residential development in the south. East-west travel has been maintained relatively constant as the primary travel patterns have been between the residential development in the south and core areas north of the greenbelt. Growth in east-west travel will likely be evident across the new Strandherd-Armstrong Bridge as trips will no longer need to travel north to Hunt Club for crossing the Rideau River. While the new bridge minimizes north-south trips between Barrhaven and Riverside South, it allows for north-south traffic to be distributed on both sides of the river. It is therefore expected that roadways east of the Rideau River will experience traffic growth due to limited available roadway capacity on the west side of the river and the significant development growth.

The following figure presents the most recent roadway link volumes for the AM and PM peak hours based on the traffic data provided. The existing traffic data was reviewed in terms of balanced vehicle flows and the most representative link volume is presented in the figure. The volumes therefore represent existing 2012/2013 condition and have been rounded (nearest 50).

Figure 1: Existing AM (PM) Peak Hour Traffic Volumes


Synchro, a macroscopic traffic analysis tool based on the methodology of the Highway Capacity Manual was used to assess the existing levels of service of select intersections in the southern study area. The results of the analysis carried out area for the AM and PM peak hours are as follows:

Table 3: Existing AM (PM) Peak Hour Traffic Operations

<i>Intersection</i>	<i>Critical Approach</i>			
	Intersection movement	V/C	Delay	LOS
Lester Road @ Albion Road	NBL (SBT)	0.98 (0.87)	59.1 (53.7)	E (D)
Leitrim Road @ Albion Road	EBT (SBT)	0.99 (1.02)	92.4 (70.6)	E (F)
Leitrim Road @ Limebank Road	NBT (SBL)	0.74 (0.40)	23.3 (28.0)	C (A)
Leitrim Road @ Bowesville Road	N/A (WBT)	- (0.81)	- (24.2)	- (D)
Earl Armstrong Road @ Bowesville Road	EB (EB)	0.08 (0.16)	23.7 (32.8)	A (A)
Earl Armstrong Road @ Limebank Road	EBL (SBT)	0.16 (0.13)	20.0 (12.7)	A (A)
High Road @ Albion Road	EB (EB)	0.08 (0.16)	23.7 (32.8)	A (A)

LOS is based on the V/C ratio as per the Ottawa Traffic Impact Assessment Guidelines

The City's traffic impact assessment guidelines identifies that for intersections outside of the core area the intersection LOS should be a LOS D or better during the peak periods. Two of the intersections being assessed (Leitrim @ Albion, Lester @ Albion) result in LOS E and F therefore measures should be considered immediately for increasing the roadway capacity. This could be done through changes to the existing signal timing configuration or through the addition of travel lanes and/or turn lanes. Increases in traffic volumes in the future will undoubtedly result in the intersections operating with higher levels of congestion and growing vehicle queues and delays if the existing roadway geometry is maintained. The remainder of the intersections within the southern study area operate with satisfactory LOS and have the ability to accommodate growth in traffic volumes. The vehicle capacity for the intersections along Bowesville road (Leitrim @ Bowesville, Earl Armstrong @ Bowesville) could be improved in the future with the addition of traffic signals instead of the existing one and two-way stop control, particularly considering the planned growth due to the Riverside South development area.

North of Lester road, Albion road serves as a collector roadway through the existing residential community. This roadway has limited potential for growth in traffic volumes which would put pressure on the remaining north-south roadways that cross the Greenbelt. Limebank Road which has already been expanded to four lanes is the primary north-south arterial serving the heart of the Riverside South development area. While the roadway currently operates with good LOS south of River Road, the adjacent intersection at River Road and Hunt Club Road has limited ability for accommodating significant growth. The remaining north-south corridor that will need to accommodate much of the growth in travel demand is the Airport Parkway. This two lane limited access roadway has the ability to be expanded to four lanes providing the additional vehicle capacity north of Lester Road.

Existing Area Travel Demands

The City of Ottawa in collaboration with other regional planning agencies conducted an extensive travel survey in 2011. The survey targets a 10% sample of the regional households and collects and reports on regional transportation behaviour, trip origins and destinations, trip patterns and trip characteristics which are considered representative of a typical weekday travel demands. The previous O-D survey that was undertaken was in 2005 and is used to assess changes in growth and travel behaviours.

The 2011 survey data was reviewed in the context of the South Gloucester / Leitrim District which is representative of the study area established for the O-Train Extension EA. Key transportation metrics reported for the South Gloucester / Leitrim District are as follows:

Average Household Size

- 17,600 people age 5 and up in 2011 and 6,240 households (or approximately 2.8 people per household)
- In 2005 there were 3,920 households. The South Gloucester / Leitrim district has therefore experienced a 59% growth in households in the 6 years from 2005 to 2011.
- Note that growth in population has not been identified as the 2005 survey only included people age 11 and up which differs from the 2011 survey which includes people age 5 and up.

Auto Ownership/Drivers:

- 11,080 vehicles for the 6,240 households in the district (or approximately 1.78 vehicles per household)
- 7,130 licenced drivers in 2005 have grown to 11,730 licensed drivers in 2011. (64% growth)
- The 2005 survey identified 1.89 vehicles per household representing a decrease in vehicle ownership from 2005 to 2011. This is explained due to the increases in transit service provision for south development areas and less dependence on private automobile.

Transit Pass Holders

- 850 Transit Pass Holders in 2011; a 57% increase from the 540 reported transit pass holders in 2005

The overall reported transit usage presented as the proportion of all travel during the two commuter peak periods and on a daily 24h basis is summarized in Table 4. As would be expected, the transit shares are highest during each of commuter peak periods with approximately 13 % of all morning trips being reported as using transit leaving the district while 12% or a similar proportion are returning to the district in the afternoon peak period in 2011. On a daily basis less than 10% of all travel to and from the district is by transit. Transit usage has been significantly increased since 2005.

Table 4: Existing Transit Mode Split

	2005			2011		
	From District	To District	Within District	From District	To District	Within District
24 Hours	6%	6%	0%	8%	9%	2%
AM Peak Period	9%	9%	0%	13%	4%	2%
PM Peak Period	7%	10%	0%	4%	12%	2%

The proportion of people who travel by auto is often characterized in terms of an average vehicle occupancy rate which represents the total persons traveling in cars (passengers and drivers) by the overall number of vehicles which were reported as making trips. Overall vehicle occupancy rates as reported in the 2005 and 2011 O-D Survey for the District are summarized in Table 5. It is noted that vehicle occupancy has increased from 2005 to 2011 indicating that there is a likely lower share of single occupancy vehicles.

Table 5: Existing Average Vehicle Occupancy

	2005			2011		
	From District	To District	Within District	From District	To District	Within District
24 Hours	1.17	1.18	1.27	1.26	1.24	1.60
AM Peak Period	1.12	1.13	1.20	1.27	1.10	1.74
PM Peak Period	1.12	1.14	1.07	1.33	1.23	1.57

While there is an increase in the share of transit users and vehicle occupancy, there is still an increase in the total vehicle trips being produced from the district as presented in Table 6.

Table 6: Existing Vehicle Trips

	2005			2011		
	From District	To District	Within District	From District	To District	Within District
24 Hours	9,990	9,900	1,500	14,990	14,970	5,210
AM Peak Period	3,300	1,290	200	4,640	2,070	1,540
PM Peak Period	1,870	2,820	410	3,100	4,920	1,510

A review of area trip making in 2011 (person trips i.e. trips by all travel modes) revealed the following trip destinations reported for the morning peak period:

Table 7: Existing Trip Destinations from South Gloucester / Leirtrim during the AM Peak Period

2005	2011	Destination
7%	34%	of trips remained within the South Gloucester / Leirtrim District
22%	14%	of trips are destined to Ottawa Centre and Inner Areas (including downtown Ottawa)
17%	18%	of trips are destined to Alta Vista
10%	10%	of trips are destined to Hunt Club District
19%	12%	of trips are destined to Ottawa West, Merivale, Bayshore / Cedarview
4%	4%	of trips are destined to Ottawa East & Beacon Hill
7%	4%	of trips are destined to South Nepean, Orleans, Kanata
4%	1%	of trips are destined to Gatineau
10%	3%	of trips are destined to rural Ottawa

Conclusions

The analysis of existing conditions has included a review of existing infrastructure, travel demand, and roadway operations. In the past several years, development south of Hunt Club Road has resulted in a change in travel behaviour with higher shares of transit usage and higher vehicle occupancy rates for trips originating from the development area. The Leirtrim / South Gloucester district which was previously a mostly rural area, has evolved into a suburban community with many of the trips produced now remaining within the district. In concert with the development growth, there have been recent improvements to the roadway and intersection capacity to be able to accommodate the growth in North-South travel as planned. The analysis has indicated that while some intersections have the ability to accommodate significant future growth, others are already experiencing delays and future growth will require additional infrastructure to be provided. It is important to note that the City has aggressive targets for improving the share of transit usage and reducing the number of single occupancy vehicles, and the introduction of rapid transit for the area (O-Train extension) will help the city achieve its targets.