

28 October 2021
Project: 200038

Raed Al-Rawi, P.Eng.
General Manager, PFP
6850 Millcreek Drive
Mississauga, ON
L5N 4J9

Dear Mr. Al-Rawi:

**RE: UPDATED TRAFFIC IMPACT BRIEF – OPA, ZBA, AND DRAFT PLAN OF
SUBDIVISION, PROPOSED 16-UNIT RESIDENTIAL SUBDIVISION, 45 BISHOP
STREET, LAKEFIELD, ON**

The purpose of this letter is to provide an opinion as to whether the vehicular traffic that would be generated by the proposed residential development can be accommodated by the local road network. The letter was originally dated 11 March 2020 and submitted in support of the subject application. ***The updated Traffic Impact Brief addresses comments from Township of Selwyn staff by providing an edit to the footnotes of Table 1 to include trip rates. As well, comments regarding the sightline at the proposed access to the development have been added under a new heading “Sightlines”.***

Background

The subject site is a vacant property situated at the municipal address 45 Bishop Street, Lakefield, Township of Selwyn, Peterborough County. The proposed development would include a road connection between Bishop Street and the southern portion of this vacant property where eight residential townhouses and eight semi-detached residential dwellings would be developed around a cul-de-sac. It is understood that Township staff have requested this Traffic Impact Brief to confirm that the traffic generated by the proposed development could be accommodated on Bishop Street.

Existing Conditions

Bishop Street is an east-west, two-lane road located at the south end of the urban area of Lakefield. To the west, it terminates as a T-intersection with Concession Street, and approximately 360 metres to the east, it terminates at a dead end. The T-intersection at Concession Street is controlled by a stop sign on the Bishop Street westbound approach.

Bishop Street functions as a Local road providing access to the local residences. Based on a desktop review of available aerial photography, there are 30 single-family homes fronting on Bishop Street with 19 along the north side and 11 along the south side.

Traffic

The weekday AM peak hour, PM peak hour, and daily traffic that would be generated by the existing single-family homes and the proposed development has been estimated based on trip generation information contained in the current Institute of Transportation Engineers (ITE) Trip Generation Manual (10th edition). **Table 1** provides a summary of this information.

Table 1 Trip Generation						
Residential Development ¹	Weekday					
	AM		PM		Daily	
	In	Out	In	Out	In	Out
Existing 30 single-family	6	16	19	11	140	140
<i>Proposed 8 semi-detached</i>	2	4	5	3	40	40
<i>Proposed 8 townhouses</i>	1	3	3	2	30	30
Sub-Total Proposed	3	7	8	5	70	70
Grand Total	9	23	27	16	210	210
¹ Trip generation based on average trip rates for ITE Land Use Codes 210 "Single-Family Detached Housing" for single family and semi-detached homes and 220 "Multifamily Housing (Low-Rise)" for townhouses. Daily trip estimates are rounded to the nearest 5. Trip rates are as follows: - Single-Family and Semi-Detached Housing: AM peak hour 0.74 trips per unit with 25% entering and 75% exiting; PM peak hour 0.99 trips per unit with 63% entering and 37% exiting; and Daily 9.44 trips per unit with 50% entering and 50% exiting - Townhouses: AM peak hour 0.46 trips per unit with 23% entering and 77% exiting; PM peak hour 0.56 trips per unit with 63% entering and 37% exiting; and Daily 7.32 trips per unit with 50% entering and 50% exiting						

As shown above, the estimate of existing traffic represents a total of approximately 20 and 30 vehicle trips in the weekday AM or PM peak hours, respectively. This represents the traffic on Bishop Street just east of Concession Street where all trips are concentrated. This is a very low traffic volume with an average of approximately one vehicle every two or three minutes.

The proposed development would add a total of approximately 10 and 15 vehicle trips in the weekday AM and PM peak hours, respectively. The combination of existing and proposed development trips would be totals of approximately 30 vehicle trips in the AM peak hour (approximately one vehicle every two minutes on average) and 45 vehicle trips in the PM peak hour (approximately one vehicle every minute and 20 seconds on average). This also represents a very low volume at the busiest location on Bishop Street just east of Concession Street.



At the Bishop Street intersection, the proposed development would result in very small increases in the AM or PM peak hour turning movements (maximums of 3 to 8 per hour for any specific left or right turn movement to/from Concession Street). This nominal increase in turning movements would have a negligible impact on intersection traffic operations and would not be expected to require auxiliary turn lanes or a higher form of intersection traffic control than the existing stop sign.

Regarding the daily traffic volume, the estimate for existing conditions is 280 vehicle trips (two-way total) and for future conditions with the proposed development would be 420 vehicle trips (two-way total). Again, this would be at the west end of Bishop Street at Concession Street, with the volume decreasing between this location and the dead end to the east. This can be compared to daily traffic volume guidelines in the Transportation Association of Canada (TAC) manual, *“Geometric Design Guide for Canadian Roads (2017)”*, where the upper threshold for roads providing a Local function is 1,000 vehicles per day (two-way trips). Therefore, the estimated daily traffic volume on Bishop Street with the proposed development would be well within the guidelines for a Local road.

Sightlines

At the location of the proposed site access, the horizontal and vertical alignment of Bishop Street can be generally described as straight and flat for approximately 115 metres west of the access and 90 metres east of the access where Bishop Street terminates at a dead end. Within this section of Bishop Street, there are eight residential driveways to the west of the proposed access location, two residential driveways directly opposite the 45 Bishop Street property, and five residential driveways to the east of the proposed access location.

The point approximately 115 metres to the west of the proposed access location is at the crest of a hill. From that point westward to the Bishop Street intersection with Concession Street, there is a downgrade that flattens on the approach to Concession Street. The 115-metre sight distance to the west represents the only potential sightline limitation for the proposed access.

Since Bishop Street does not have a posted maximum speed limit, the statutory maximum speed limit of 50 km/h would apply. Given the characteristics of Bishop Street with a rural cross section and a narrow roadway (approximately five metres) within the road platform (approximately 7.5 metres including shoulders), it is likely that typical operating speeds along the subject section of road are less than 50 km/h especially in the vicinity of the dead end where the subject site is located. To be conservative in the assessment of sightlines, however, a 60 km/h design speed has been assumed for the section west of the proposed access. With reference to Table 9.9.6 of the TAC manual, the 115-metre sight distance exceeds the stopping sight distance criteria (85 metres) and the crossing distance criteria (110 metres) as related to a vehicle making a left turn exiting maneuver from the proposed access. The site access intersection on Bishop Street should be designed to meet Township daylight triangle requirements and that would include removing vegetation on the subject property that could obstruct sightlines.



Conclusions

The conclusions of the Traffic Impact Brief are as follows:

- ▶ The estimated AM and PM peak hour traffic volumes for Bishop Street under existing conditions are very low and the daily traffic volume is well within the TAC guidelines for Local roads;
- ▶ The estimated AM and PM peak hour traffic volumes for Bishop Street with the combination of existing and proposed residential development would also be very low and the daily traffic volume would remain well within the TAC guidelines for Local roads;
- ▶ The proposed development would have a negligible impact on traffic operations at the Concession Street/Bishop Street intersection, and therefore, would not be expected to require improvements such as auxiliary turn lanes or a higher form of traffic control than the existing stop sign on the Bishop Street approach;
- ▶ Given the horizontal and vertical alignment of Bishop Street, as well as its design characteristics not being conducive to higher operating speeds, there are no sightline deficiencies in the vicinity of the proposed access location; and
- ▶ From a traffic perspective, the planning applications for the proposed development should be approved.

If you have any questions or comments regarding the Traffic Impact Brief, please contact the undersigned.

Yours truly,

PARADIGM TRANSPORTATION SOLUTIONS LIMITED



Garry Pappin
LEL
Senior Project Manager

