

**PROPOSED RESIDENTIAL DEVELOPMENT
311 GEORGE STREET, ILBERTON
MUNICIPALITY OF MIDDLESEX CENTRE
TRAFFIC IMPACT ASSESSMENT**

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PROPOSED RESIDENTIAL DEVELOPMENT 311 GEORGE STREET, ILBERTON MUNICIPALITY OF MIDDLESEX CENTRE

TRAFFIC IMPACT ASSESSMENT

1. INTRODUCTION AND BACKGROUND

Gold Leaf Properties Inc. has proposed a 45 unit townhouse development at 311 George Street in Ilderton. The location of the site is shown in **Figure 1**. The primary access to and from the site will be via George Street and King Street to Ilderton Road (Middlesex County Road 16).

The purpose of this report is to estimate the potential vehicle trip generation of the development and to assess the impact of these trips on traffic operation and safety, in particular at the intersection of Ilderton Road and King Street.

2. EXISTING CONDITIONS

Ilderton Road is a two lane urban arterial street with a posted speed limit of 50km/h. It passes through the central business district of Ilderton and serves as the primary access to and from the community. There are sidewalks on both sides of the street in the vicinity of the site. Land uses fronting Ilderton Road are primarily residential to the west of King Street and commercial to the east

South of Ilderton Road, King Street and George Street are local residential streets. There are sidewalks on both sides of George Street and on King Street north of George Street. South of George Street, King Street has a sidewalk on the east side only. Until recently, King Street terminated in a turn-around at its south end. It has now been extended to provide a connection to a developing subdivision to the south. North of Ilderton Road, King Street provides access to an industrial area as well as some residences. It also provides an alternative access to the Ilderton Fairgrounds.

The intersection of Ilderton Road and King Street is controlled by stop signs on the King Street approaches. All approaches to the intersection have single shared lanes. There are no designated turning lanes. The intersection of King



Street and George Street is controlled by a stop sign on the northbound approach of King Street.

For the purposes of this assessment, a traffic count was made at the intersection of Ilderton Road and King Street on Thursday, March 12, 2020. Peak hour turning volumes derived from this count are shown in **Figure 2**. Count reports are contained in Appendix A.

3. PROPOSED DEVELOPMENT

The proposed development contains 45 townhouse units with a single access to George Street. The site plan is shown in **Figure 3**. It is understood that the development will be marketed to seniors and “empty nesters”.

Based on data contained in the Institute of Transportation Engineers (ITE) Trip Generation Manual, Tenth Edition, for ITE Land Use 220, Multifamily Housing, Low-Rise, the proposed development will generate 22 vehicle trips in the morning peak hour, 5 entering and 17 leaving, and 29 vehicle trips in the afternoon peak hour, 18 entering and 11 leaving. These rates are based on observations and counts at “conventional” townhouse developments.

As noted above, the anticipated market for this development is the retirement community. Typical rates for developments geared to this community are less than half those for conventional townhouse developments. However, for the purposes of this assessment, trip generations based on ITE Land Use 220 were used.

Figure 4 shows the assignment of site generated trips. All site generated trips were assumed to access Ilderton Road via King Street. The turning movement volumes shown in **Figure 2** show that the majority of trips entering and leaving King Street south have an origin or destination to the east. Site generated trips were assigned in proportion.

4. PROJECTED TRAFFIC

It is anticipated that the proposed development will be completed and occupied in 2021. Existing peak hour traffic volumes from **Figure 2** were projected to five year and ten year planning horizons, i.e. 2025 and 2030 as shown in **Figures 5** and **6**.



An annual traffic growth rate of two percent was assumed for these projections. This growth rate recognizes the on-going development of the residential subdivisions to the west and south of the site. No traffic projections were available for these developments. However, the progress of the development since construction began suggests that the two percent annual growth rate, with a ten year growth factor of 1.22, is reasonable.

The two percent growth rate was applied to traffic volumes on Ilderton Road and on King Street south of the intersection. It was not applied to traffic volumes on King Street north since there are no known planned developments in this area.

Figures 7 and 8 show projected total peak hour volumes. The turning movements shown in Figures 7 and 8 were obtained by adding site generated traffic from Figure 4 to background traffic from Figures 5 and 6.

5. ANALYSIS

5.1 Level of Service

Existing and projected peak hour volumes from Figures 4, 7 and 8 were analyzed for delays, volume to capacity (v/c) ratios and queue lengths using the Synchro 10 analysis program. The results of the analyses are summarized in Table 1. Analysis reports are contained in Appendix B.

Level of service is a measure of how well an intersection operates under prevailing traffic conditions. It is expressed on a scale of A to F, where A is the highest level of service and F indicates unacceptable congestion and delay. Level of service is measured in terms of average delay to all vehicles passing through the intersection in the peak hour.

Under existing peak hour conditions, the intersection of Ilderton Road and King Street operates at a good level of service with all approaches at level of service A or B in both peak hours. Queue lengths are less than one vehicle, indicating that, for 95 percent of the time during the peak hour, no more than one vehicle is waiting to make a turn on any of the approaches.

Under projected peak hour conditions, all approaches will continue to operate at a good level of service with the exception of the southbound approach on King Street. In the afternoon peak hour, this approach will have increasing delays, to an average of 16.5 seconds per vehicle (level of service C) by 2030. Since this approach has the lowest volume of traffic and will have a v/c ratio of less than 0.1



in the 2030 afternoon peak hour, the average delay should not be considered significant. 95th percentile queue lengths on all approaches will remain less than one vehicle.

5.2 Left Turn Lane Requirements

Despite the high levels of service on the Ilderton Road approaches to the intersection, the peak hour left turn volumes from Ilderton Road westbound to King Street indicated a potential need for a left turn lane. Peak hour volumes for 2025 and 2030 were analyzed for a left turn lane justification using the methodology described in the Ministry of Transportation Geometric Design Manual. The analysis is summarized in Appendix C.

The left turn lane analysis shows that a left turn lane on Ilderton Road would not be justified in either peak hour in 2025 or in the morning peak hour in 2030. However, in the afternoon peak hour in 2030, the projected traffic volumes suggest that the warrant for a left turn lane is just met. While left turn volumes from Ilderton Road westbound to King Street would operate at a good level of service and would not significantly impede through traffic, the increase in eastbound and westbound through volumes results in fewer gaps being available for turning movements.

The projections indicate that a left turn lane may not be justified for some time. It is recommended that traffic volumes at the intersection of Ilderton Road and King Street be monitored to confirm growth rates and future turning movement demand.

6. SUMMARY AND CONCLUSIONS

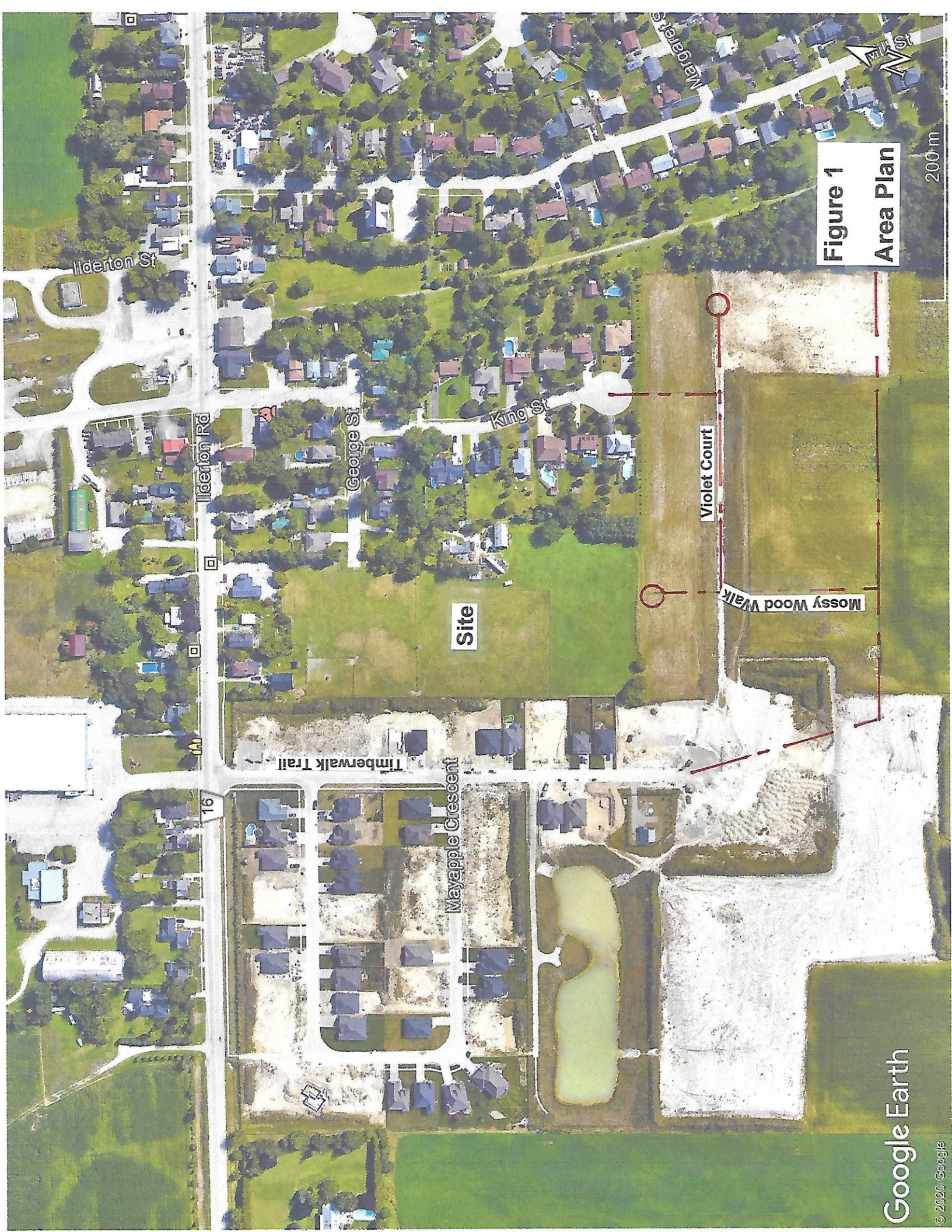
Based on rates for conventional townhouse developments, the proposed development will generate 22 vehicle trips in the morning peak hour and 29 vehicle trips in the afternoon peak hour. Since the development is intended for seniors and retirees, actual trip generation could be less.

All site generated trips were assigned to the intersection of Ilderton Road and King Street. Level of service analyses were made for existing conditions and for five and ten year planning horizons. These indicate that the intersection will operate at a good level of service under projected peak hour conditions.



A left turn lane analysis using MTO guidelines suggests that a separate left turn lane on the westbound Ilderton Road approach may be justified by 2030. Traffic growth at the intersection should be monitored to determine an appropriate time for construction of a left turn lane.





Site

Timberwalk Trail

Mayapple Crescent

Mossy Wood Walk

Violet Court

George St

King St

Ilderton Rd

Ilderton St

Margaret St

Figure 1
Area Plan

200 m

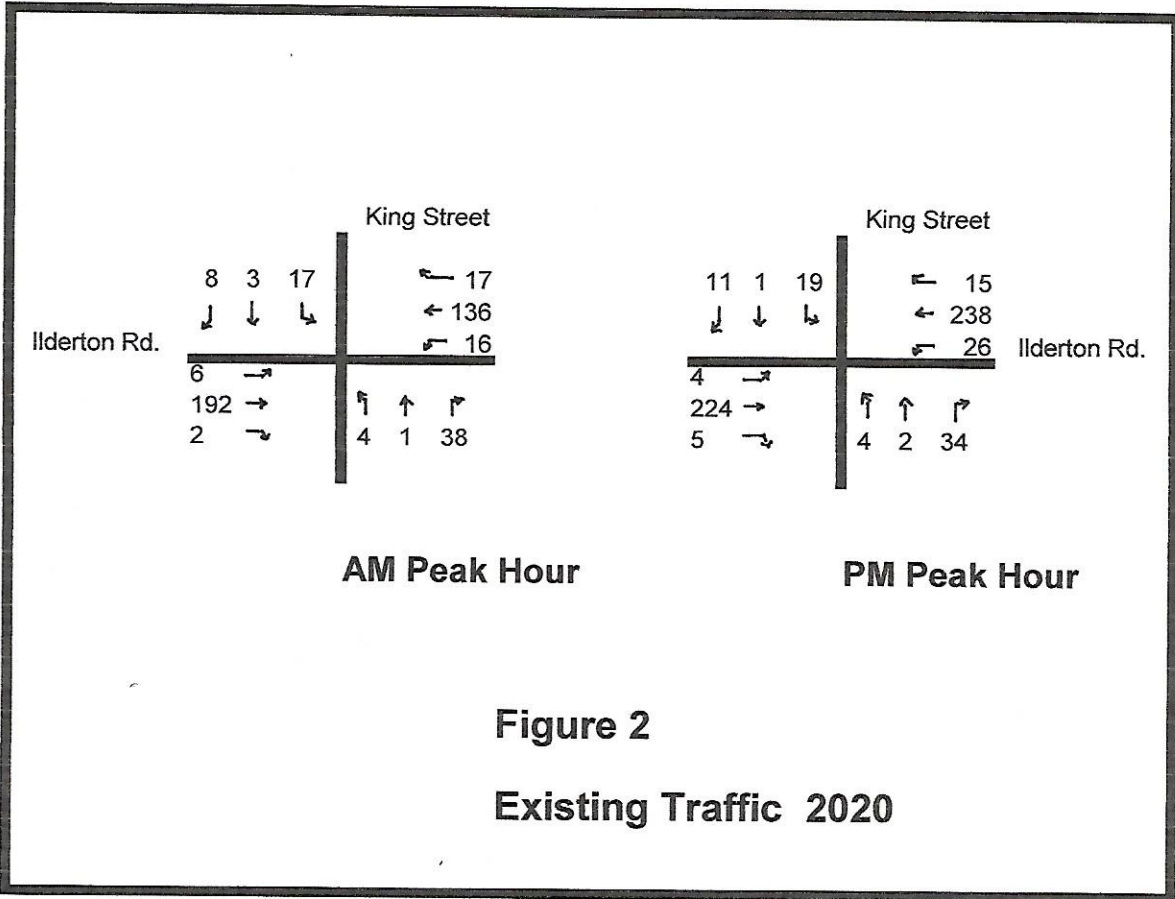


Figure 2
Existing Traffic 2020

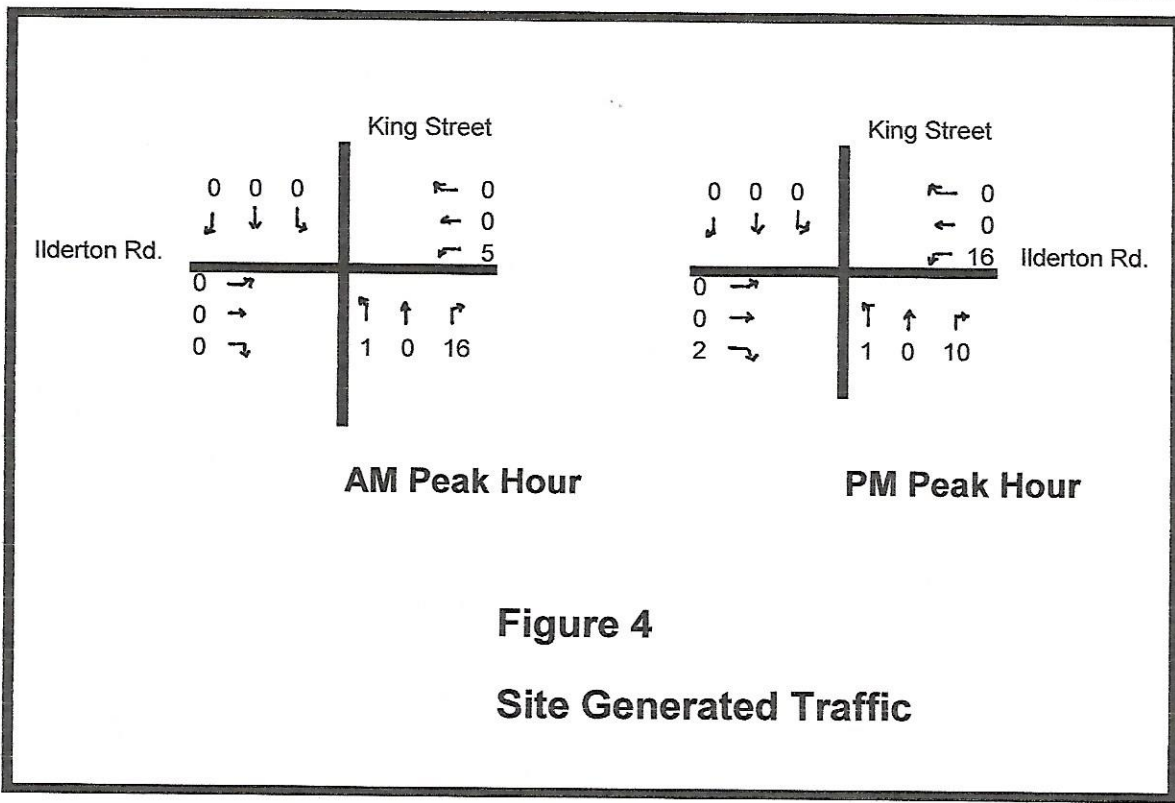
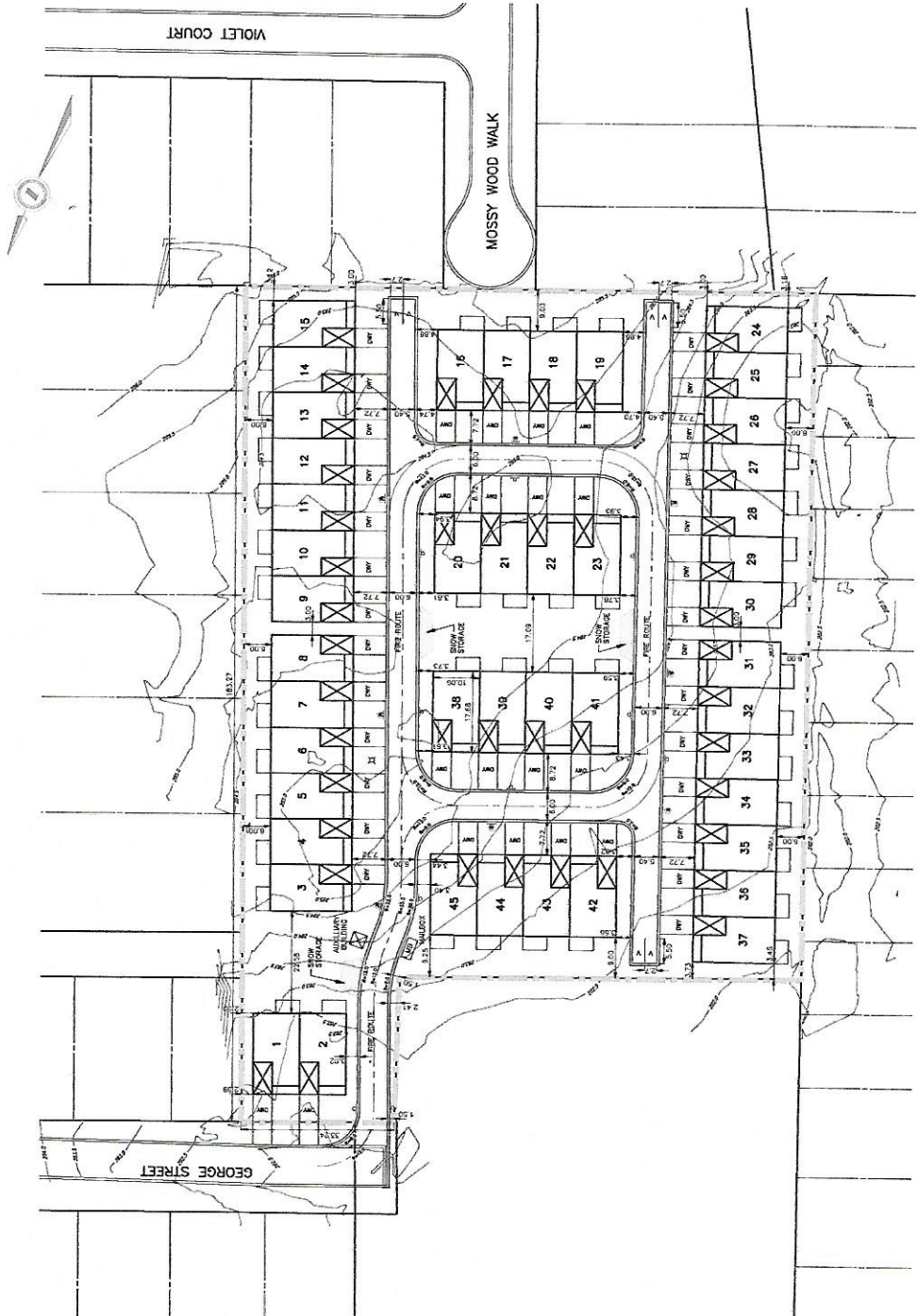


Figure 4
Site Generated Traffic



SITE DATA

PROPOSED USE:
TOWN HOUSE

ZONE:
UR3

REGULATION:
19546.4f/45 = 434.4 sq.m.

MINIMUM LOT AREA:
260 sq.m.

MINIMUM LOT FRONTAGE:
6.0 m

MINIMUM LOT DEPTH:
35.0 m

MINIMUM FRONT YARD:
6.0 m

MINIMUM EXTERIOR SIDE YARD:
6.0 m

MINIMUM REAR YARD:
8.0 m

MINIMUM INTERIOR SIDE YARD:
3.0 m

MINIMUM OUTDOOR AMENITY AREA:
45.0 sq.m./unit

MAXIMUM LOT COVERAGE:
38 %

MAXIMUM DENSITY:
30 units/ha

MINIMUM FLOOR AREA:
65.0 sq.m.

NUMBER OF UNITS:
--

PARKING SPACES:
--

PROPOSED:
19546.4f/45 = 434.4 sq.m.

33.24 m

183.37 m

6.00 m

N/A

3.0 m

2.5

144.66 sq.m./unit

44.5%

(BUILDINGS & REAR PATIOS)

23.02 units/ha

132.73 sq.m.

45

90 + 6 visitor

LEGEND

- 5 UNIT/LOT NUMBER
- DENOTES STREET LIGHT
- DENOTES FIRE ROUTE SIGN
- DENOTES FIRE HYDRANT
- DENOTES 3.0m WIDE FIRE ROUTE
- SITE BOUNDARY

					
REPORT YEAR:		PROJECT NAME:		PROJECT NO.:	
GEORGE STREET, ILBERTON GOLD LEAF PROPERTIES INC.		SITE PLAN		LD-00211 SP1	

Figure 3
Site Plan

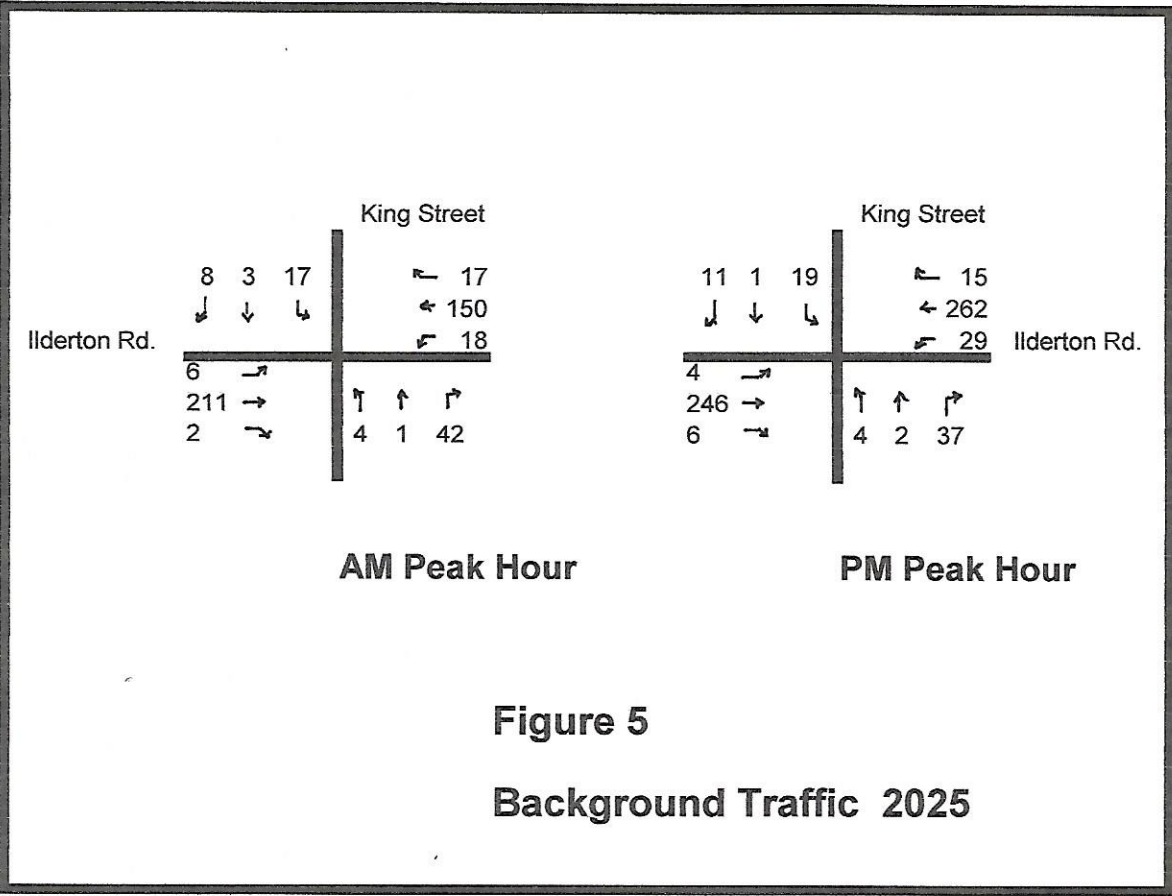


Figure 5
Background Traffic 2025

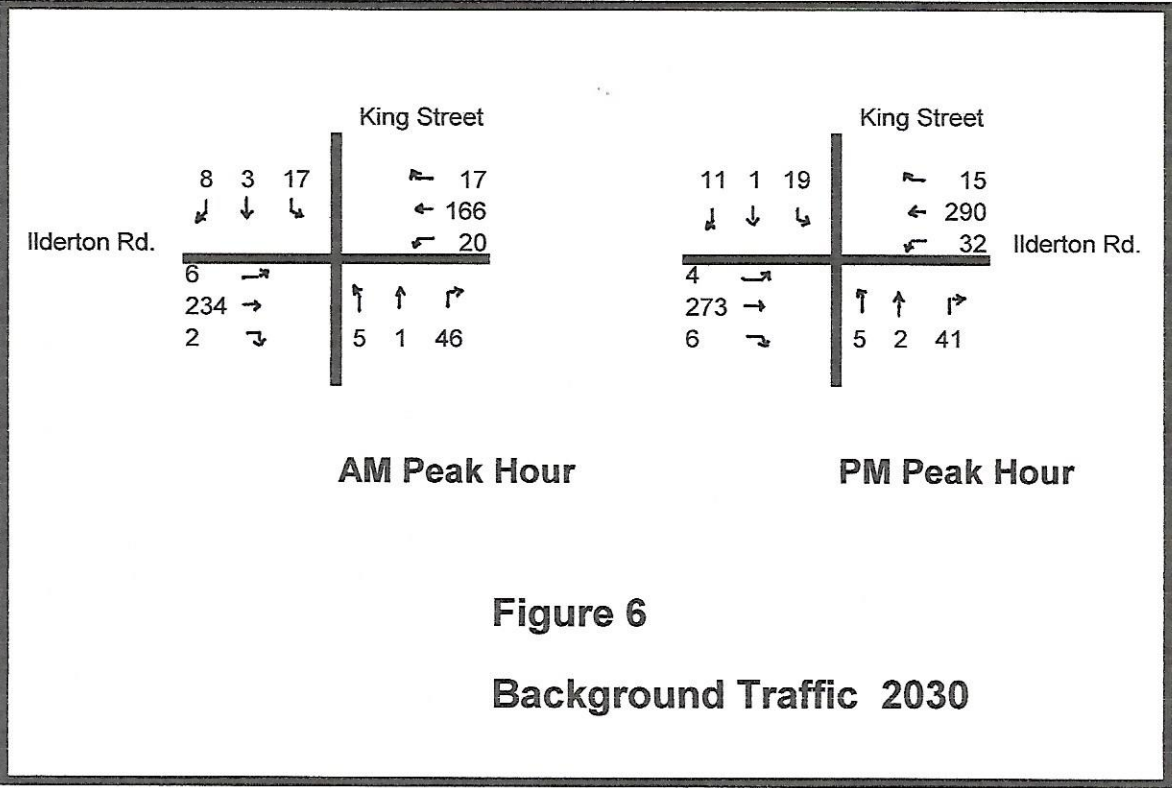


Figure 6
Background Traffic 2030

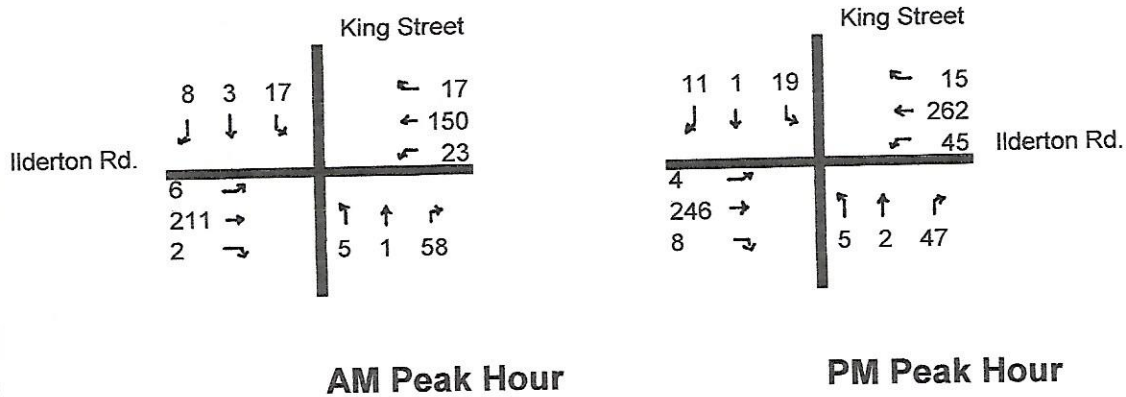


Figure 7
Total Traffic 2025

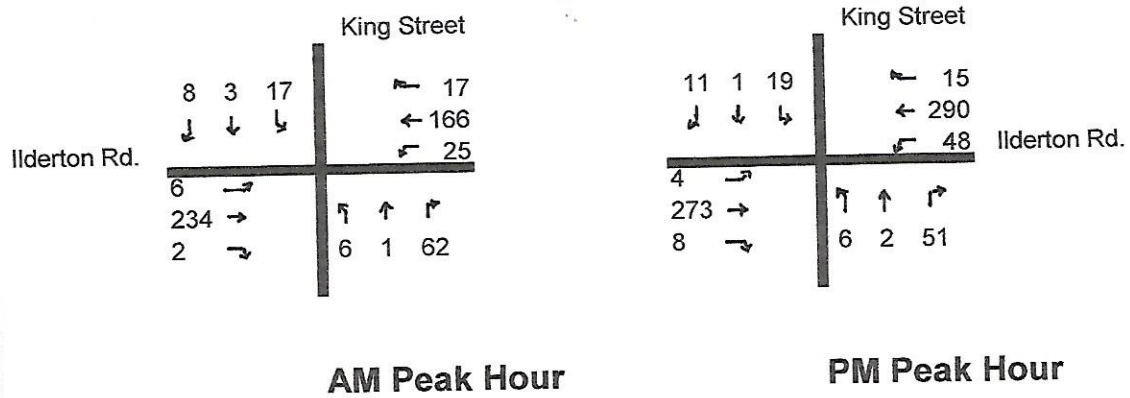


Figure 8
Total Traffic 2030

Intersection	AM Peak Hour				PM Peak Hour			
	v/c	Del.	LofS	Q	v/c	Del.	LofS	Q
Existing 2020								
Eastbound LTR	0.005	0.2	A	0.0	0.003	0.1	A	0.0
Westbound LTR	0.014	0.7	A	0.0	0.022	0.7	A	0.1
Northbound LTR	0.062	10.1	B	0.2	0.065	10.8	B	0.2
Southbound LTR	0.055	11.9	B	0.2	0.074	13.6	B	0.2
Ave. Intersec'n Delay	2.1				1.8			
LofS	A				A			
Total Traffic 2025								
Eastbound LTR	0.005	0.2	A	0.0	0.003	0.1	A	0.0
Westbound LTR	0.020	1.0	A	0.1	0.038	1.1	A	0.1
Northbound LTR	0.095	10.4	B	0.3	0.093	11.3	B	0.3
Southbound LTR	0.061	12.7	B	0.2	0.087	15.2	C	0.3
Ave. Intersec'n Delay	2.5				2.2			
LofS	A				A			
Total Traffic 2030								
Eastbound LTR	0.005	0.2	A	0.0	0.004	0.1	A	0.0
Westbound LTR	0.022	1.0	A	0.1	0.042	1.1	A	0.1
Northbound LTR	0.107	10.7	B	0.4	0.108	11.8	B	0.4
Southbound LTR	0.066	13.3	B	0.2	0.097	16.5	C	0.3
Ave. Intersec'n Delay	2.5				2.2			
LofS	A				A			

Note: Del. - ave. delay (secs.)

LofS - level of service

v/c - volume to capacity ratio

Average Intersection Delay (secs.)

Q - maximum queue length (vehicles)

(95th percentile)

Table 1

**Level of Service
Ilderton Road and
King Street**