

Our ref: 12674436

26 August 2025

1000989284 Ontario Inc.
c/o Ms. Jennifer Ailey
R.W. Tomlinson Limited
100 CitiGate Drive
Ottawa, ON
K2J 6K7

Traffic Impact Study – Elmwood Subdivision

Dear Ms. Ailey,

1. Introduction

The Elmwood Subdivision is a proposed residential development located in the southeast area of the Town of Gananoque, Ontario. The subdivision is proposed to connect to the existing road network via John Street to the west, Elmwood Drive to the north, and Arthur Street to the east, and would be bounded by the St. Lawrence River to the south. GHD was retained to prepare a Traffic Impact Study (TIS) for the Elmwood Subdivision, which is planned to include 77 single-detached homes. The TIS assesses potential impacts of the proposed development on the existing transportation network.

1.1 Study Area

The study area, illustrated in **Figure 1**, includes the signalized intersections of King Street East and Elizabeth Drive and King Street East and William Street South.

King Street East is an east/west arterial road extending from the King Street East bridge over the Gananoque River in the west to the Thousand Islands Parkway and Highway 401 in the east. In the study area, King Street East is a two-lane roadway with a continuous center two-way left turn lane (TWLTL) for its entire length. The posted speed limit on King Street East is 50 km/h while Elizabeth Drive and William Street South are both local roads with posted speed limits of 40 km/h.



Figure 1 Study Area – Elmwood Subdivision

2. 2025 Existing Traffic Conditions

Turning movement count traffic data was collected on Thursday July 10th, 2025, for the intersections of King Street East and Elizabeth Drive and King Street East and William Street South, around the high season of the Town of Gananoque. The observed AM peak hour is between 8:00 AM and 9:00 AM, and the PM peak hour was observed to be between 4:00 PM and 5:00 PM.

The turning movement count data is provided in **Appendix A**. The 2025 AM and PM peak hour turning movement volumes are shown in **Figure 2**.

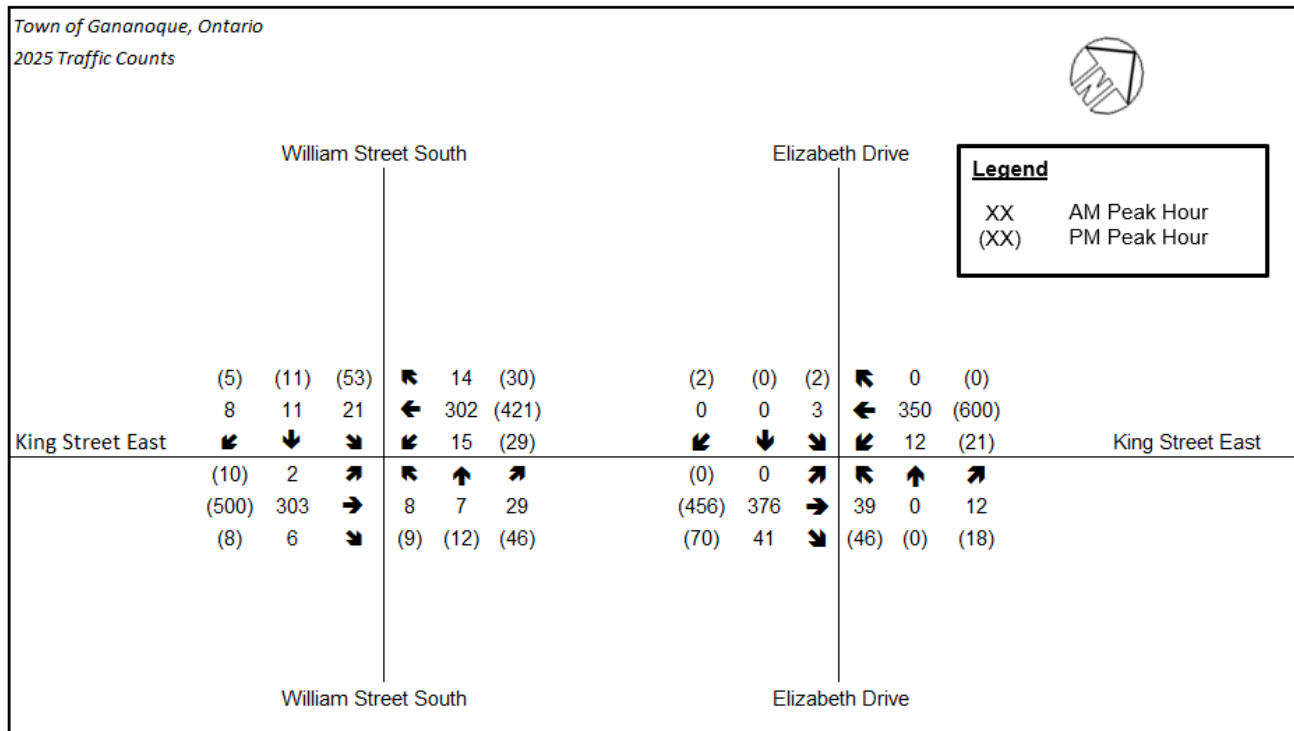


Figure 2 2025 Existing Turning Movement Counts

2.1 2025 Existing Traffic Operations

The study area intersections were analyzed using the traffic engineering software, Synchro Version 11, as well as the methodologies published in the Highway Capacity Manual (HCM). The preferred HCM 6th Edition manual was used for the intersection of King Street East and William Street South. However, since the intersection of King Street East and Elizabeth Drive could not be processed using this HCM 6th Edition manual due to the clustered nature of this intersection with the adjacent King Street East and Herbert Street intersection, the HCM 2000 manual was used instead for this intersection. For both intersections, measure of effectiveness Synchro outputs included level of service (LOS) and maximum volume-to-capacity (v/c) ratio of the intersection.

A summary of the 2025 existing conditions traffic operations for the study area intersections is presented in **Table 1**. The analysis indicates that the study area intersections operate with acceptable overall LOS and v/c ratios in current conditions. Detailed Synchro analysis output reports are provided in **Appendix B**.

Table 1 2025 Existing Conditions Traffic Operations

Intersection	Period	Level of Service	Delay (s)	Volume-to-capacity (v/c) Ratio
King Street East and Elizabeth Drive	AM Peak	B	13.9	0.41
	PM Peak	B	18.1	0.49
King Street East and William Street South ¹	AM Peak	B	11.4	0.36
	PM Peak	B	12.5	0.47

¹ HCM 6th Edition does not provide the overall intersection v/c ratio. Thus, the maximum individual movement v/c ratio has been selected to represent the whole intersection for the King Street East and William Street South intersection.

3. Proposed Development

The proposed development is a subdivision located in the southeast area of the Town of Gananoque and consists of 77 single detached homes. It is connected to the town's road network through two main access points: John Street and Elmwood Drive, as shown in the subdivision plan provided in **Appendix C**. An additional emergency route connection is also proposed between the subdivision's "Street One" and Arthur Street.

3.1 Trip Generation

The projected subdivision trips were estimated based on trip generation rates contained in the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11th Edition. The fitted curved equations for Single Family Housing (Land Use Code 210) were used to provide the number of trips generated by the proposed subdivision.

The results of the trip generation analysis are presented in **Table 2**. It should be noted that the results in this table and the estimated 2030 traffic volumes and operations outlined in **Section 4** are based on an older version of the subdivision plan which included only 74 single detached homes instead of 77. The additional three single detached homes are expected to only have a marginal impact on the number of trips generated, with a difference of one trip in the AM peak hour and two trips in the PM peak hour. Therefore, minimal impact to future traffic operations is expected due to the change in the number of residential units.

Table 2 Trip Generation Analysis – AM & PM Peak Hour

Land Use	Land Use Code	Total Units	Fitted Curve Equation	%Enter	%Exit	Total	Enter	Exit
AM Peak Hour								
Single-Family Detached Housing	LU 210	74	$\text{Ln}(T) = 0.91 \text{ Ln}(X) + 0.12$	25%	75%	58	15	43
PM Peak Hour								
Single-Family Detached Housing	LU 210	74	$\text{Ln}(T) = 0.94 \text{ Ln}(X) + 0.27$	63%	37%	76	48	28

As shown in **Table 2**, the development is forecasted to generate a total of 58 additional trips in the AM peak hour and 76 trips in the PM peak hour.

3.2 Trip Distribution and Assignment

The additional trips generated by the proposed Elmwood Subdivision development were distributed and assigned across the study area intersections based on existing vehicular patterns, shortest route available, and expected destinations. The anticipated trip distribution is presented in **Table 3**.

Table 3 Elmwood Subdivision Trip Distribution

Street (Source)	AM IN	AM OUT	PM IN	PM OUT
To/from East	54%	55%	55%	52%
To/from West	46%	45%	45%	48%

Based on the trip distribution from **Table 3**, the subdivision-generated trips were subsequently assigned to the study area intersections as shown in **Figure 3**.

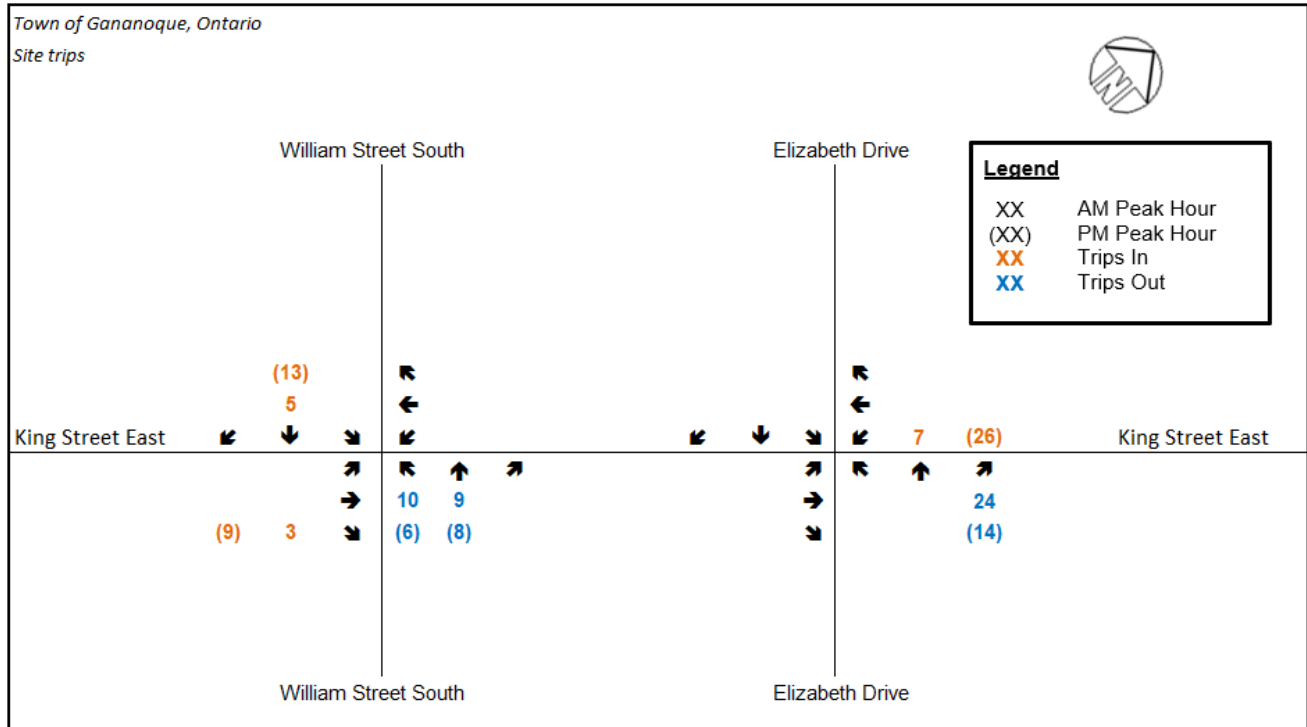


Figure 3 Elmwood Subdivision – Subdivision-Generated Trips

4. 2030 Future Traffic Conditions

To assess future traffic conditions which include implementation of the subdivision-generated traffic volumes, the 2030 year (existing 2025 year plus 5 years) was selected as the future horizon year for this study. The 2030 future traffic volumes analyzed in this report consist of the sum of the grown 2025 existing traffic counts and the trips generated by the Elmwood Subdivision.

4.1 Growth Rate

An annual growth rate of 1% was used to estimate the background growth in the study area. This growth rate, which was accepted by the Town of Gananoque, is the same one that was selected in the previously approved 2021 TIS report for the adjacent Castle Grove development, and was derived from the Town of Gananoque's 2020 Development Charges Background Study's residential growth forecast summary table, presented in Appendix D.

The 1% annual growth rate was assumed to account for all background growth expected to occur within the study area between 2025 and 2030. Upon growth of the 2025 existing traffic volumes to 2030 and addition of the subdivision-generated traffic volumes from Figure 3, the resulting 2030 future total traffic volumes are as illustrated in Figure 4.

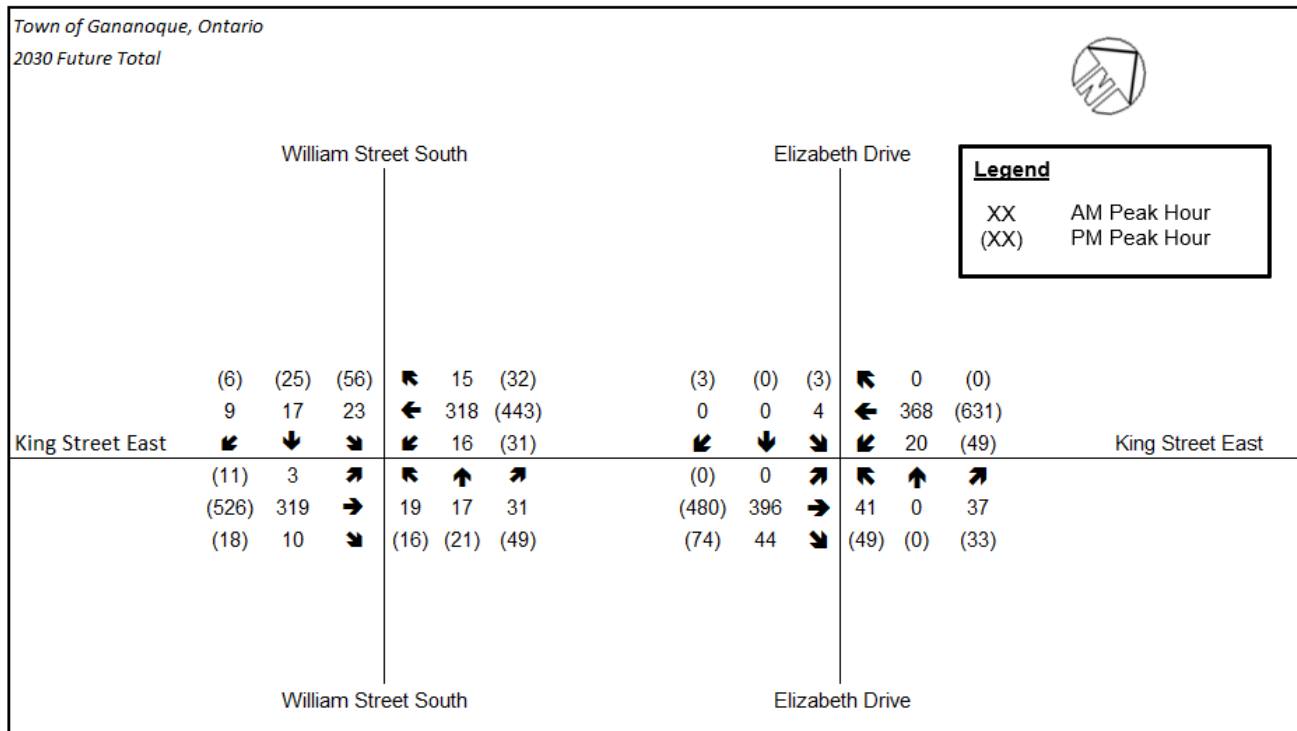


Figure 4 2030 Future Total Traffic Volumes

4.2 2030 Future Traffic Operations

The traffic operations for the 2030 future horizon year were analyzed, and the results are as presented in **Table 4**. The detailed Synchro analysis output reports are provided in **Appendix B**.

As shown in **Table 4**, the study area intersections are forecasted to operate in 2030 future conditions with acceptable overall LOS and v/c ratios in both the AM and PM peak hours.

Table 4 2030 Future Total Conditions Traffic Operations

Intersection	Period	Level of Service	Delay (s)	Volume-to-capacity (v/c) Ratio
King Street East and Elizabeth Drive	AM Peak	B	17.7	0.43
	PM Peak	B	18.6	0.52
King Street East and William Street South ²	AM Peak	B	11.8	0.35
	PM Peak	B	13.7	0.51

² HCM 6th Edition does not provide the overall intersection v/c ratio. Thus, the maximum individual movement v/c ratio has been selected to represent the whole intersection for the King Street East and William Street South intersection.

5. Conclusion

The proposed Elmwood Subdivision which is located in the southeast area of the Town of Gananoque is planned to include 77 single-detached homes. Based on an older version of the subdivision plan which included only 74 single detached homes instead of 77, the subdivision is expected to generate a total of 58 vehicles during the AM peak hour and 76 vehicles during the PM peak hour. The additional three single detached homes are expected to only have a marginal impact on the number of trips generated and on future traffic operations.

During both 2025 existing traffic conditions and 2030 future traffic conditions (while accounting for background growth and the traffic generated by the proposed subdivision), it was found that critical conditions are not expected at the study area intersections of King Street East and Elizabeth Drive and King Street East and William Street South. These two intersections are expected to operate below capacity in both AM and PM peak hours for both 2025 and 2030. It was therefore determined that the existing roadway network can accommodate as-is the anticipated subdivision-generated traffic, and the proposed Elmwood Subdivision can proceed from a traffic planning perspective.

Should you have any questions with regards to the content of this report, please do not hesitate to contact us.

Sincerely,

GHD



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Copy to: Vanessa Skelton, P.Eng.

Appendices

Appendix A

2025 Turning Movement Counts

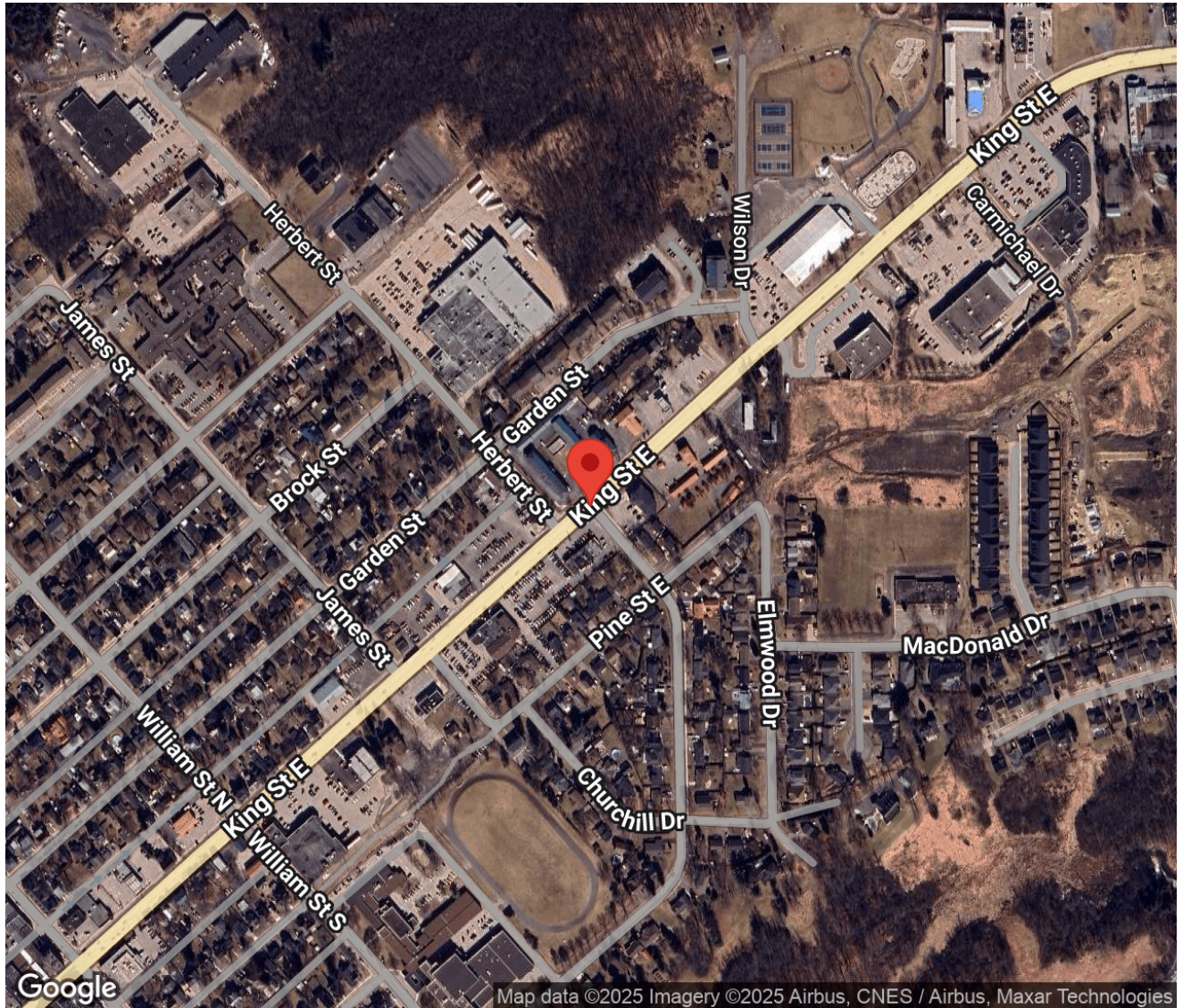
Project #25-231 - GHD

Intersection Count Report

Intersection: Elizabeth Dr & King St E
Municipality: Gananoque
Count Date: Thursday, Jul 10, 2025
Site Code: 2523100001
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:30-09:00, 16:00-17:30
Weather: Clear
Comments:

Traffic Count Map

Intersection:	Elizabeth Dr & King St E
Site Code:	2523100001
Municipality:	Gananoque
Count Date:	Jul 10, 2025



Traffic Count Summary

Intersection: Elizabeth Dr & King St E
 Site Code: 2523100001
 Municipality: Gananoque
 Count Date: Jul 10, 2025

Elizabeth Dr - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:30 - 08:00	0	0	0	0	0	1	26	0	4	0	30	2	30
08:00 - 09:00	3	0	0	0	3	5	39	0	12	1	52	0	55
BREAK													
16:00 - 17:00	2	0	2	0	4	3	46	0	18	0	64	6	68
17:00 - 17:30	2	0	1	0	3	5	19	0	13	0	32	4	35
GRAND TOTAL	7	0	3	0	10	14	130	0	47	1	178	12	188

Traffic Count Summary

Intersection: Elizabeth Dr & King St E
 Site Code: 2523100001
 Municipality: Gananoque
 Count Date: Jul 10, 2025

King St E - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:30 - 08:00	10	148	0	0	158	0	0	167	9	0	176	0	334
08:00 - 09:00	12	350	0	0	362	0	0	376	41	0	417	3	779
BREAK													
16:00 - 17:00	21	600	0	0	621	0	0	456	70	0	526	3	1147
17:00 - 17:30	5	241	0	0	246	1	0	242	22	0	264	2	510
GRAND TOTAL	48	1339	0	0	1387	1	0	1241	142	0	1383	8	2770

	Cars						Trucks						Bicycles							
Start Time					Total						Total						Total	Total Peds		
07:30	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	1		
07:45	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		
08:00	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	1		
08:15	2	0	0	0	2		0	0	0	0	0		0	0	0	0	0	1		
08:30	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	2		
08:45	1	0	0	0	1		0	0	0	0	0		0	0	0	0	0	1		
SUBTOTAL	3	0	0	0	3		0	0	0	0	0		0	0	0	0	0	6		

Traffic Count Data

Intersection: Elizabeth Dr & King St E
 Site Code: 2523100001
 Municipality: Gananoque
 Count Date: Jul 10, 2025

North Approach - Elizabeth Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1
16:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17:15	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	3
SUBTOTAL	4	0	2	0	6	0	0	0	0	0	0	0	1	0	1	8
GRAND TOTAL	7	0	2	0	9	0	0	0	0	0	0	0	1	0	1	14

Traffic Count Data

Intersection: Elizabeth Dr & King St E
 Site Code: 2523100001
 Municipality: Gananoque
 Count Date: Jul 10, 2025

South Approach - Elizabeth Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:30	10	0	4	0	14	0	0	0	0	0	1	0	0	0	1	2
07:45	13	0	0	0	13	0	0	0	0	0	2	0	0	0	2	0
08:00	10	0	2	0	12	0	0	0	0	0	0	0	0	0	0	0
08:15	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0
08:30	13	0	5	0	18	1	0	0	0	1	0	0	0	1	1	0
08:45	8	0	4	0	12	2	0	0	0	2	0	0	0	0	0	0
SUBTOTAL	59	0	16	0	75	3	0	0	0	3	3	0	0	1	4	2

Traffic Count Data

Intersection: Elizabeth Dr & King St E
Site Code: 2523100001
Municipality: Gananoque
Count Date: Jul 10, 2025

South Approach - Elizabeth Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	14	0	4	0	18	0	0	1	0	1	0	0	0	0	0	3
16:15	8	0	3	0	11	0	0	0	0	0	0	0	0	0	0	1
16:30	14	0	5	0	19	0	0	0	0	0	0	0	0	0	0	0
16:45	10	0	5	0	15	0	0	0	0	0	0	0	0	0	0	2
17:00	14	0	6	0	20	0	0	0	0	0	0	0	1	0	1	1
17:15	5	0	5	0	10	0	0	1	0	1	0	0	0	0	0	3
SUBTOTAL	65	0	28	0	93	0	0	2	0	2	0	0	1	0	1	10
GRAND TOTAL	124	0	44	0	168	3	0	2	0	5	3	0	1	1	5	12

Traffic Count Data

Intersection: Elizabeth Dr & King St E
 Site Code: 2523100001
 Municipality: Gananoque
 Count Date: Jul 10, 2025

East Approach - King St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:30	5	67	0	0	72	1	2	0	0	3	0	0	0	0	0	0
07:45	3	73	0	0	76	1	6	0	0	7	0	0	0	0	0	0
08:00	1	74	0	0	75	0	4	0	0	4	0	0	0	0	0	0
08:15	2	71	0	0	73	1	10	0	0	11	0	0	0	0	0	0
08:30	1	73	0	0	74	1	11	0	0	12	0	0	0	0	0	0
08:45	4	99	0	0	103	2	8	0	0	10	0	0	0	0	0	0
SUBTOTAL	16	457	0	0	473	6	41	0	0	47	0	0	0	0	0	0

Traffic Count Data

Intersection: Elizabeth Dr & King St E
 Site Code: 2523100001
 Municipality: Gananoque
 Count Date: Jul 10, 2025

East Approach - King St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	4	163	0	0	167	0	0	0	0	0	0	3	0	0	3	0
16:15	1	154	0	0	155	0	2	0	0	2	0	6	0	0	6	0
16:30	6	130	0	0	136	0	1	0	0	1	0	0	0	0	0	0
16:45	10	140	0	0	150	0	0	0	0	0	0	1	0	0	1	0
17:00	4	112	0	0	116	0	0	0	0	0	0	8	0	0	8	0
17:15	1	118	0	0	119	0	3	0	0	3	0	0	0	0	0	1
SUBTOTAL	26	817	0	0	843	0	6	0	0	6	0	18	0	0	18	1
GRAND TOTAL	42	1274	0	0	1316	6	47	0	0	53	0	18	0	0	18	1

Traffic Count Data

Intersection: Elizabeth Dr & King St E
 Site Code: 2523100001
 Municipality: Gananoque
 Count Date: Jul 10, 2025

West Approach - King St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:30	0	93	4	0	97	0	0	0	0	0	0	1	0	0	1	0
07:45	0	70	5	0	75	0	2	0	0	2	0	1	0	0	1	0
08:00	0	86	10	0	96	0	0	0	0	0	0	0	0	0	0	0
08:15	0	79	9	0	88	0	7	0	0	7	0	0	0	0	0	0
08:30	0	87	8	0	95	0	2	0	0	2	0	2	0	0	2	2
08:45	0	110	14	0	124	0	2	0	0	2	0	1	0	0	1	1
SUBTOTAL	0	525	50	0	575	0	13	0	0	13	0	5	0	0	5	3

Traffic Count Data

Intersection: Elizabeth Dr & King St E
Site Code: 2523100001
Municipality: Gananoque
Count Date: Jul 10, 2025

West Approach - King St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	116	16	0	132	0	1	0	0	1	0	1	0	0	1	1
16:15	0	122	21	0	143	0	1	0	0	1	0	4	0	0	4	2
16:30	0	107	22	0	129	0	0	0	0	0	0	2	0	0	2	0
16:45	0	101	10	0	111	0	0	0	0	0	0	1	1	0	2	0
17:00	0	127	10	0	137	0	1	0	0	1	0	0	0	0	0	2
17:15	0	110	12	0	122	0	0	0	0	0	0	4	0	0	4	0
SUBTOTAL	0	683	91	0	774	0	3	0	0	3	0	12	1	0	13	5
GRAND TOTAL	0	1208	141	0	1349	0	16	0	0	16	0	17	1	0	18	8

Peak Hour Diagram

Specified Period

From: 07:30:00
To: 09:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Elizabeth Dr & King St E
Site Code: 2523100001
Count Date: Jul 10, 2025

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: King St E runs E/W

North Approach

	Out	In	Total
	3	0	3
	0	0	0
	0	0	0
Totals	3	0	3

Elizabeth Dr

	0	0	0	0
	0	0	0	0
	0	0	3	0
Totals	0	0	3	0






East Approach

	Out	In	Total
	325	377	702
	37	11	48
	0	3	3
Totals	362	391	753

King St E

				Totals
	0	0	0	0
	0	0	0	0
	3	11	362	376
	0	0	41	41

Peds: 5

Peds: 3



Peds: 0

Peds: 0

King St E

Totals			
	0	0	0
	0	0	0
	350	317	33
	12	8	4

West Approach

	Out	In	Total
	403	353	756
	11	36	47
	3	0	3
Totals	417	389	806

Totals				
	39	0	12	1
	36	0	12	0
	3	0	0	0
	0	0	0	1

Elizabeth Dr

South Approach

	Out	In	Total
	48	49	97
	3	4	7
	1	1	2
Totals	52	54	106

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Elizabeth Dr & King St E
Site Code: 2523100001
Count Date: Jul 10, 2025
Period: 07:30 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Elizabeth Dr						South Approach Elizabeth Dr						East Approach King St E						West Approach King St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0	0	0	0	1	0	10	0	2	0	0	12	1	78	0	0	0	79	0	86	10	0	0	96	187
08:15	2	0	0	0	1	2	5	0	1	0	0	6	3	81	0	0	0	84	0	86	9	0	0	95	187
08:30	0	0	0	0	2	0	14	0	5	1	0	20	2	84	0	0	0	86	0	91	8	0	2	99	205
08:45	1	0	0	0	1	1	10	0	4	0	0	14	6	107	0	0	0	113	0	113	14	0	1	127	255
Grand Total	3	0	0	0	5	3	39	0	12	1	0	52	12	350	0	0	0	362	0	376	41	0	3	417	834
Approach %	100	0	0	0	-	-	75	0	23.1	1.9	-	-	3.3	96.7	0	0	-	-	0	90.2	9.8	0	-	-	-
Totals %	0.4	0	0	0	0.4	0.4	4.7	0	1.4	0.1	6.2	6.2	1.4	42	0	0	43.4	43.4	0	45.1	4.9	0	50	50	50
PHF	0.38	0	0	0	0.38	0.38	0.7	0	0.6	0.25	0.65	0.65	0.5	0.82	0	0	0.8	0.8	0	0.83	0.73	0	0.82	0.82	0.82
Cars	3	0	0	0	3	3	36	0	12	0	0	48	8	317	0	0	325	325	0	362	41	0	0	403	779
% Cars	100	0	0	0	100	100	92.3	0	100	0	0	92.3	66.7	90.6	0	0	89.8	89.8	0	96.3	100	0	0	96.6	93.4
Trucks	0	0	0	0	0	0	3	0	0	0	0	3	4	33	0	0	37	37	0	11	0	0	0	11	51
% Trucks	0	0	0	0	0	0	7.7	0	0	0	0	5.8	33.3	9.4	0	0	10.2	10.2	0	2.9	0	0	0	2.6	6.1
Bicycles	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3	0	0	0	3	4
% Bicycles	0	0	0	0	0	0	0	0	0	100	0	1.9	0	0	0	0	0	0	0	0.8	0	0	0	0.7	0.5
Peds					5	-					0	-					0	-					3	-	8
% Peds					62.5	-					0	-					0	-					37.5	-	-

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 17:30:00

One Hour Peak

From: 16:00:00
To: 17:00:00

Intersection: Elizabeth Dr & King St E
Site Code: 2523100001
Count Date: Jul 10, 2025

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: King St E runs E/W

North Approach

	Out	In	Total
	3	0	3
	0	0	0
	1	0	1
Totals	4	0	4

Elizabeth Dr

	1	0	0	0
	0	0	0	0
	1	0	2	0
Totals	2	0	2	0






East Approach

	Out	In	Total
	608	465	1073
	3	3	6
	10	8	18
Totals	621	476	1097

King St E

				Totals
	0	0	0	0
	0	0	0	0
	8	2	446	456
	1	0	69	70

Peds: 3

Peds: 3



Peds: 0

Peds: 6

King St E

Totals			
	0	0	0
	0	0	0
	600	587	3
	21	21	0

West Approach

	Out	In	Total
	515	634	1149
	2	3	5
	9	11	20
Totals	526	648	1174

Totals				
	46	0	17	0
	0	0	1	0
	0	0	0	0

Elizabeth Dr

South Approach

	Out	In	Total
	63	90	153
	1	0	1
	0	1	1
Totals	64	91	155

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Elizabeth Dr & King St E
Site Code: 2523100001
Count Date: Jul 10, 2025
Period: 16:00 - 17:30

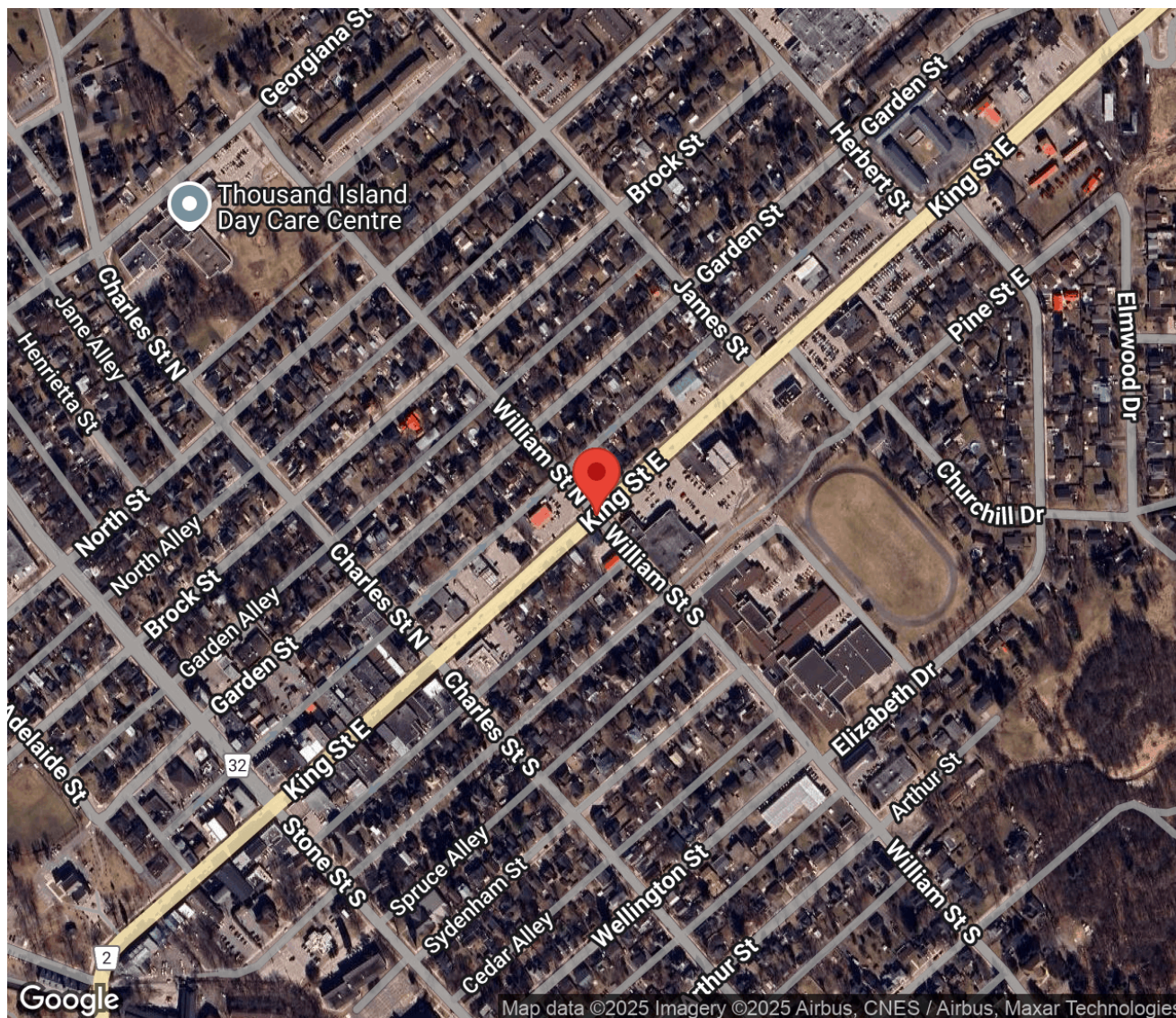
Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Elizabeth Dr						South Approach Elizabeth Dr						East Approach King St E						West Approach King St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	1	0	1	0	1	2	14	0	5	0	3	19	4	166	0	0	0	170	0	118	16	0	1	134	325
16:15	0	0	1	0	1	1	8	0	3	0	1	11	1	162	0	0	0	163	0	127	21	0	2	148	323
16:30	0	0	0	0	0	0	14	0	5	0	0	19	6	131	0	0	0	137	0	109	22	0	0	131	287
16:45	1	0	0	0	1	1	10	0	5	0	2	15	10	141	0	0	0	151	0	102	11	0	0	113	280
Grand Total	2	0	2	0	3	4	46	0	18	0	6	64	21	600	0	0	0	621	0	456	70	0	3	526	1215
Approach %	50	0	50	0	-	-	71.9	0	28.1	0	-	-	3.4	96.6	0	0	-	-	0	86.7	13.3	0	-	-	-
Totals %	0.2	0	0.2	0	0.3	0.3	3.8	0	1.5	0	5.3	5.3	1.7	49.4	0	0	51.1	51.1	0	37.5	5.8	0	43.3	43.3	43.3
PHF	0.5	0	0.5	0	0.5	0.5	0.82	0	0.9	0	0.84	0.84	0.53	0.9	0	0	0.91	0.91	0	0.9	0.8	0	0.89	0.89	0.93
Cars	2	0	1	0	3	3	46	0	17	0	63	63	21	587	0	0	608	608	0	446	69	0	515	515	1189
% Cars	100	0	50	0	75	75	100	0	94.4	0	98.4	98.4	100	97.8	0	0	97.9	97.9	0	97.8	98.6	0	97.9	97.9	97.9
Trucks	0	0	0	0	0	0	0	0	1	0	1	1	0	3	0	0	3	3	0	2	0	0	2	2	6
% Trucks	0	0	0	0	0	0	0	0	5.6	0	1.6	1.6	0	0.5	0	0	0.5	0.5	0	0.4	0	0	0.4	0.4	0.5
Bicycles	0	0	1	0	1	1	0	0	0	0	0	0	0	10	0	0	10	10	0	8	1	0	9	9	20
% Bicycles	0	0	50	0	25	25	0	0	0	0	0	0	0	1.7	0	0	1.6	1.6	0	1.8	1.4	0	1.7	1.7	1.6
Peds					3	-					6	-					0	-					3	-	12
% Peds					25	-					50	-					0	-					25	-	-

Project #25-231 - GHD

Intersection Count Report

Intersection:	William St & King St E
Municipality:	Gananoque
Count Date:	Thursday, Jul 10, 2025
Site Code:	2523100002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:30-09:00, 16:00-17:30
Weather:	Clear
Comments:	



Traffic Count Summary

Intersection: William St & King St E
 Site Code: 2523100002
 Municipality: Gananoque
 Count Date: Jul 10, 2025

William St - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:30 - 08:00	16	0	3	0	19	1	5	2	10	0	17	3	36
08:00 - 09:00	21	11	8	0	40	8	8	7	29	0	44	4	84
BREAK													
16:00 - 17:00	53	11	5	0	69	8	9	12	46	0	67	7	136
17:00 - 17:30	16	5	3	0	24	6	2	3	19	0	24	7	48
GRAND TOTAL	106	27	19	0	152	23	24	24	104	0	152	21	304

Traffic Count Summary

Intersection: William St & King St E
 Site Code: 2523100002
 Municipality: Gananoque
 Count Date: Jul 10, 2025

King St E - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:30 - 08:00	8	146	4	0	158	1	2	118	5	0	125	0	283
08:00 - 09:00	15	302	14	0	331	9	2	303	6	0	311	0	642
BREAK													
16:00 - 17:00	29	421	30	0	480	9	10	500	8	0	518	4	998
17:00 - 17:30	12	228	16	0	256	4	3	214	11	0	228	0	484
GRAND TOTAL	64	1097	64	0	1225	23	17	1135	30	0	1182	4	2407

Traffic Count Data

Intersection: William St & King St E
 Site Code: 2523100002
 Municipality: Gananoque
 Count Date: Jul 10, 2025

North Approach - William St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:30	6	0	2	0	8	0	0	0	0	0	0	0	0	0	0	1
07:45	9	0	1	0	10	1	0	0	0	1	0	0	0	0	0	0
08:00	4	1	3	0	8	0	0	0	0	0	0	0	0	0	0	0
08:15	4	2	1	0	7	0	0	0	0	0	0	0	0	0	0	4
08:30	6	5	2	0	13	0	0	0	0	0	0	0	0	0	0	2
08:45	7	3	2	0	12	0	0	0	0	0	0	0	0	0	0	2
SUBTOTAL	36	11	11	0	58	1	0	0	0	1	0	0	0	0	0	9

Traffic Count Data

Intersection: William St & King St E
 Site Code: 2523100002
 Municipality: Gananoque
 Count Date: Jul 10, 2025

North Approach - William St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	13	1	1	0	15	0	0	0	0	0	0	1	0	0	1	3
16:15	13	5	1	0	19	0	0	0	0	0	1	0	0	0	1	1
16:30	14	1	1	0	16	0	0	0	0	0	0	0	0	0	0	1
16:45	12	3	2	0	17	0	0	0	0	0	0	0	0	0	0	3
17:00	10	1	0	0	11	1	0	0	0	1	0	0	0	0	0	0
17:15	5	3	3	0	11	0	0	0	0	0	0	1	0	0	1	6
SUBTOTAL	67	14	8	0	89	1	0	0	0	1	1	2	0	0	3	14
GRAND TOTAL	103	25	19	0	147	2	0	0	0	2	1	2	0	0	3	23

Traffic Count Data

Intersection: William St & King St E
 Site Code: 2523100002
 Municipality: Gananoque
 Count Date: Jul 10, 2025

South Approach - William St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:30	1	1	8	0	10	1	0	0	0	1	0	0	0	0	0	2
07:45	3	1	2	0	6	0	0	0	0	0	0	0	0	0	0	1
08:00	2	0	5	0	7	0	0	0	0	0	1	0	0	0	1	3
08:15	1	0	6	0	7	0	0	0	0	0	0	0	0	0	0	0
08:30	1	5	6	0	12	0	0	1	0	1	0	0	0	0	0	0
08:45	3	2	8	0	13	0	0	3	0	3	0	0	0	0	0	1
SUBTOTAL	11	9	35	0	55	1	0	4	0	5	1	0	0	0	1	7

Traffic Count Data

Intersection: William St & King St E
Site Code: 2523100002
Municipality: Gananoque
Count Date: Jul 10, 2025

South Approach - William St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	3	1	14	0	18	0	0	0	0	0	0	0	1	0	1	1
16:15	2	6	9	0	17	1	0	0	0	1	0	0	1	0	1	1
16:30	0	1	14	0	15	0	0	0	0	0	0	0	0	0	0	3
16:45	3	3	7	0	13	0	0	0	0	0	0	1	0	0	1	2
17:00	0	2	7	0	9	0	0	1	0	1	0	0	0	0	0	7
17:15	2	1	11	0	14	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	10	14	62	0	86	1	0	1	0	2	0	1	2	0	3	14
GRAND TOTAL	21	23	97	0	141	2	0	5	0	7	1	1	2	0	4	21

Traffic Count Data

Intersection: William St & King St E
 Site Code: 2523100002
 Municipality: Gananoque
 Count Date: Jul 10, 2025

East Approach - King St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:30	4	74	3	0	81	0	1	0	0	1	0	1	0	0	1	1
07:45	4	68	1	0	73	0	1	0	0	1	0	1	0	0	1	0
08:00	3	63	3	0	69	0	1	0	0	1	0	0	0	0	0	5
08:15	2	67	4	0	73	1	2	0	0	3	1	0	0	0	1	0
08:30	4	63	3	0	70	0	1	0	0	1	0	0	0	0	0	1
08:45	4	100	4	0	108	0	2	0	0	2	0	3	0	0	3	3
SUBTOTAL	21	435	18	0	474	1	8	0	0	9	1	5	0	0	6	10

Traffic Count Data

Intersection: William St & King St E
 Site Code: 2523100002
 Municipality: Gananoque
 Count Date: Jul 10, 2025

East Approach - King St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	6	104	9	0	119	0	4	0	0	4	0	1	1	0	2	3
16:15	4	101	11	0	116	0	4	0	0	4	1	3	0	0	4	2
16:30	8	98	4	0	110	0	3	0	0	3	1	1	0	0	2	1
16:45	9	98	5	0	112	0	1	0	0	1	0	3	0	0	3	3
17:00	8	119	9	0	136	0	1	0	0	1	0	1	0	0	1	0
17:15	4	105	7	0	116	0	0	0	0	0	0	2	0	0	2	4
SUBTOTAL	39	625	45	0	709	0	13	0	0	13	2	11	1	0	14	13
GRAND TOTAL	60	1060	63	0	1183	1	21	0	0	22	3	16	1	0	20	23

Traffic Count Data

Intersection: William St & King St E
 Site Code: 2523100002
 Municipality: Gananoque
 Count Date: Jul 10, 2025

West Approach - King St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:30	1	52	3	0	56	0	3	0	0	3	0	1	0	0	1	0
07:45	1	59	2	0	62	0	3	0	0	3	0	0	0	0	0	0
08:00	1	71	1	0	73	0	3	0	0	3	0	0	0	0	0	0
08:15	0	65	1	0	66	0	4	0	0	4	0	0	0	0	0	0
08:30	0	70	0	0	70	0	2	0	0	2	0	0	0	0	0	0
08:45	1	84	4	0	89	0	3	0	0	3	0	1	0	0	1	0
SUBTOTAL	4	401	11	0	416	0	18	0	0	18	0	2	0	0	2	0

Traffic Count Data

Intersection: William St & King St E
Site Code: 2523100002
Municipality: Gananoque
Count Date: Jul 10, 2025

West Approach - King St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	4	140	3	0	147	0	0	0	0	0	0	2	0	0	2	2
16:15	4	133	4	0	141	0	1	0	0	1	0	6	0	0	6	0
16:30	0	111	1	0	112	0	0	0	0	0	0	0	0	0	0	2
16:45	2	106	0	0	108	0	0	0	0	0	0	1	0	0	1	0
17:00	1	98	3	0	102	0	0	0	0	0	0	4	2	0	6	0
17:15	2	110	6	0	118	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	13	698	17	0	728	0	3	0	0	3	0	13	2	0	15	4
GRAND TOTAL	17	1099	28	0	1144	0	21	0	0	21	0	15	2	0	17	4

Peak Hour Diagram

Specified Period

From: 07:30:00
To: 09:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: William St & King St E
Site Code: 2523100002
Count Date: Jul 10, 2025

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: King St E runs E/W

North Approach

	Out	In	Total
	40	23	63
	0	0	0
	0	0	0
Totals	40	23	63

William St

	0	0	0	0
	0	0	0	0
	8	11	21	0
Totals	8	11	21	0






East Approach

	Out	In	Total
	320	336	656
	7	16	23
	4	1	5
Totals	331	353	684

King St E

				Totals
	0	0	0	0
	0	0	2	2
	1	12	290	303
	0	0	6	6






Peds: 8

Peds: 0



Peds: 9

Peds: 4

King St E

Totals			
0	0	0	0
14	14	0	0
302	293	6	3
15	13	1	1






West Approach

	Out	In	Total
	298	308	606
	12	6	18
	1	4	5
Totals	311	318	629

Totals				
8	7	7	29	0
	7	7	25	0
	0	0	4	0
	1	0	0	0

William St

South Approach

	Out	In	Total
	39	30	69
	4	1	5
	1	1	2
Totals	44	32	76

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: William St & King St E
Site Code: 2523100002
Count Date: Jul 10, 2025
Period: 07:30 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach William St						South Approach William St						East Approach King St E						West Approach King St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	4	1	3	0	0	8	3	0	5	0	3	8	3	64	3	0	5	70	1	74	1	0	0	76	162
08:15	4	2	1	0	4	7	1	0	6	0	0	7	4	69	4	0	0	77	0	69	1	0	0	70	161
08:30	6	5	2	0	2	13	1	5	7	0	0	13	4	64	3	0	1	71	0	72	0	0	0	72	169
08:45	7	3	2	0	2	12	3	2	11	0	1	16	4	105	4	0	3	113	1	88	4	0	0	93	234
Grand Total	21	11	8	0	8	40	8	7	29	0	4	44	15	302	14	0	9	331	2	303	6	0	0	311	726
Approach %	52.5	27.5	20	0	-	-	18.2	15.9	65.9	0	-	-	4.5	91.2	4.2	0	-	-	0.6	97.4	1.9	0	-	-	-
Totals %	2.9	1.5	1.1	0	-	5.5	1.1	1	4	0	-	6.1	2.1	41.6	1.9	0	-	45.6	0.3	41.7	0.8	0	-	42.8	-
PHF	0.75	0.55	0.67	0	-	0.77	0.67	0.35	0.66	0	-	0.69	0.94	0.72	0.88	0	-	0.73	0.5	0.86	0.38	0	-	0.84	0.78
Cars	21	11	8	0	-	40	7	7	25	0	-	39	13	293	14	0	-	320	2	290	6	0	-	298	697
% Cars	100	100	100	0	-	100	87.5	100	86.2	0	-	88.6	86.7	97	100	0	-	96.7	100	95.7	100	0	-	95.8	96
Trucks	0	0	0	0	-	0	0	0	4	0	-	4	1	6	0	0	-	7	0	12	0	0	-	12	23
% Trucks	0	0	0	0	-	0	0	0	13.8	0	-	9.1	6.7	2	0	0	-	2.1	0	4	0	0	-	3.9	3.2
Bicycles	0	0	0	0	-	0	1	0	0	0	-	1	1	3	0	0	-	4	0	1	0	0	-	1	6
% Bicycles	0	0	0	0	-	0	12.5	0	0	0	-	2.3	6.7	1	0	0	-	1.2	0	0.3	0	0	-	0.3	0.8
Peds	-	-	-	-	8	-	-	-	-	-	4	-	-	-	-	-	9	-	-	-	-	-	0	-	21
% Peds	-	-	-	-	38.1	-	-	-	-	-	19	-	-	-	-	-	42.9	-	-	-	-	-	0	-	-

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 17:30:00

One Hour Peak

From: 16:00:00
To: 17:00:00

Intersection: William St & King St E
Site Code: 2523100002
Count Date: Jul 10, 2025

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: King St E runs E/W

North Approach

	Out	In	Total
	67	50	117
	0	0	0
	2	2	4
Totals	69	52	121

William St

	0	1	1	0
	0	0	0	0
	5	10	52	0
Totals	5	11	53	0






East Approach

	Out	In	Total
	457	586	1043
	12	1	13
	11	12	23
Totals	480	599	1079

King St E

				Totals
0	0	0	0	0
0	0	10	0	10
9	1	490	0	500
0	0	8	0	8






Peds: 8



Peds: 4

Peds: 9

Peds: 7

King St E

Totals			
0	0	0	0
30	29	0	1
421	401	12	8
29	27	0	2






West Approach

	Out	In	Total
	508	414	922
	1	13	14
	9	8	17
Totals	518	435	953

Totals				
9	12	46	0	0
	8	11	44	0
	1	0	0	0
	0	1	2	0

William St

South Approach

	Out	In	Total
	63	45	108
	1	0	1
	3	3	6
Totals	67	48	115

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: William St & King St E
Site Code: 2523100002
Count Date: Jul 10, 2025
Period: 16:00 - 17:30

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach William St						South Approach William St						East Approach King St E						West Approach King St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	13	2	1	0	3	16	3	1	15	0	1	19	6	109	10	0	3	125	4	142	3	0	2	149	309
16:15	14	5	1	0	1	20	3	6	10	0	1	19	5	108	11	0	2	124	4	140	4	0	0	148	311
16:30	14	1	1	0	1	16	0	1	14	0	3	15	9	102	4	0	1	115	0	111	1	0	2	112	258
16:45	12	3	2	0	3	17	3	4	7	0	2	14	9	102	5	0	3	116	2	107	0	0	0	109	256
Grand Total	53	11	5	0	8	69	9	12	46	0	7	67	29	421	30	0	9	480	10	500	8	0	4	518	1134
Approach %	76.8	15.9	7.2	0	-	-	13.4	17.9	68.7	0	-	-	6	87.7	6.3	0	-	-	1.9	96.5	1.5	0	-	-	-
Totals %	4.7	1	0.4	0	-	6.1	0.8	1.1	4.1	0	-	5.9	2.6	37.1	2.6	0	-	42.3	0.9	44.1	0.7	0	-	45.7	-
PHF	0.95	0.55	0.63	0	-	0.86	0.75	0.5	0.77	0	-	0.88	0.81	0.97	0.68	0	-	0.96	0.63	0.88	0.5	0	-	0.87	0.91
Cars	52	10	5	0	-	67	8	11	44	0	-	63	27	401	29	0	-	457	10	490	8	0	-	508	1095
% Cars	98.1	90.9	100	0	-	97.1	88.9	91.7	95.7	0	-	94	93.1	95.2	96.7	0	-	95.2	100	98	100	0	-	98.1	96.6
Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	12	0	0	-	12	0	1	0	0	-	1	14
% Trucks	0	0	0	0	-	0	11.1	0	0	0	-	1.5	0	2.9	0	0	-	2.5	0	0.2	0	0	-	0.2	1.2
Bicycles	1	1	0	0	-	2	0	1	2	0	-	3	2	8	1	0	-	11	0	9	0	0	-	9	25
% Bicycles	1.9	9.1	0	0	-	2.9	0	8.3	4.3	0	-	4.5	6.9	1.9	3.3	0	-	2.3	0	1.8	0	0	-	1.7	2.2
Peds	-	-	-	-	8	-	-	-	-	-	7	-	-	-	-	-	9	-	-	-	-	-	4	-	28
% Peds	-	-	-	-	28.6	-	-	-	-	-	25	-	-	-	-	-	32.1	-	-	-	-	-	14.3	-	-

Appendix B

Synchro 11 Reports

HCM Signalized Intersection Capacity Analysis

6: Elizabeth St/Hotel Entrance & King Street East

Existing Conditions 2025

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	376	41	12	350	0	39	0	12	3	0	0
Future Volume (vph)	0	376	41	12	350	0	39	0	12	3	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.0		6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00		1.00		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		0.98		1.00		1.00	
Frt		0.98		1.00	1.00		1.00		0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.95	
Satd. Flow (prot)		1800		1342	1724		1625		1597		1785	
Flt Permitted		1.00		0.40	1.00		0.75		1.00		0.95	
Satd. Flow (perm)		1800		569	1724		1287		1597		1785	
Peak-hour factor, PHF	0.25	0.83	0.73	0.50	0.82	0.25	0.70	0.25	0.60	0.38	0.25	0.25
Adj. Flow (vph)	0	453	56	24	427	0	56	0	20	8	0	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	0	506	0	24	427	0	56	0	3	0	8	0
Confl. Peds. (#/hr)	5					5	3					3
Heavy Vehicles (%)	0%	3%	0%	33%	9%	0%	8%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm	NA	
Protected Phases		2			6						4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		60.0		60.0	60.0		15.2		15.2		3.8	
Effective Green, g (s)		61.0		61.0	61.0		16.2		16.2		4.8	
Actuated g/C Ratio		0.61		0.61	0.61		0.16		0.16		0.05	
Clearance Time (s)		7.0		7.0	7.0		7.0		7.0		7.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)		1098		347	1051		208		258		85	
v/s Ratio Prot		c0.28			0.25							
v/s Ratio Perm				0.04			c0.04		0.00		0.00	
v/c Ratio		0.46		0.07	0.41		0.27		0.01		0.09	
Uniform Delay, d1		10.6		7.9	10.1		36.7		35.2		45.5	
Progression Factor		1.04		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2		1.4		0.4	1.2		0.7		0.0		0.5	
Delay (s)		12.4		8.3	11.3		37.4		35.2		46.0	
Level of Service		B		A	B		D		D		D	
Approach Delay (s)		12.4			11.1			36.8			46.0	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			13.9			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			68.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Elizabeth St/Hotel Entrance & King Street East

Existing Conditions 2025

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	456	70	21	600	0	46	0	18	2	0	2
Future Volume (vph)	0	456	70	21	600	0	46	0	18	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.0		6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Frpb, ped/bikes		0.99		1.00	1.00		1.00		1.00		0.98	
Flpb, ped/bikes		1.00		1.00	1.00		0.98		1.00		1.00	
Frt		0.98		1.00	1.00		1.00		0.85		0.93	
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.98	
Satd. Flow (prot)		1828		1777	1860		1756		1507		1678	
Flt Permitted		1.00		0.34	1.00		0.75		1.00		0.98	
Satd. Flow (perm)		1828		644	1860		1390		1507		1678	
Peak-hour factor, PHF	0.25	0.90	0.80	0.53	0.90	0.25	0.82	0.25	0.90	0.50	0.25	0.50
Adj. Flow (vph)	0	507	88	40	667	0	56	0	20	4	0	4
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	17	0	8	0
Lane Group Flow (vph)	0	591	0	40	667	0	56	0	3	0	0	0
Confl. Peds. (#/hr)	3		6	6		3	3					3
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	6%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm	NA	
Protected Phases		2			6						4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		60.0		60.0	60.0		15.2		15.2		3.8	
Effective Green, g (s)		61.0		61.0	61.0		16.2		16.2		4.8	
Actuated g/C Ratio		0.61		0.61	0.61		0.16		0.16		0.05	
Clearance Time (s)		7.0		7.0	7.0		7.0		7.0		7.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)		1115		392	1134		225		244		80	
v/s Ratio Prot		0.32			c0.36							
v/s Ratio Perm				0.06			c0.04		0.00		0.00	
v/c Ratio		0.53		0.10	0.59		0.25		0.01		0.00	
Uniform Delay, d1		11.2		8.1	11.9		36.6		35.2		45.3	
Progression Factor		1.68		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2		1.7		0.5	2.2		0.6		0.0		0.0	
Delay (s)		20.6		8.6	14.1		37.2		35.2		45.3	
Level of Service		C		A	B		D		D		D	
Approach Delay (s)		20.6			13.8			36.7			45.3	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			18.1			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			75.0%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

1: William St S/William St N & King Street East

Existing Conditions 2025

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	303	6	15	302	14	8	7	29	21	11	8
Future Volume (veh/h)	2	303	6	15	302	14	8	7	29	21	11	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1900	1796	1870	1900	1900	1900	1693	1900	1900	1900
Adj Flow Rate, veh/h	4	352	16	16	419	16	12	20	44	28	20	12
Peak Hour Factor	0.50	0.86	0.38	0.94	0.72	0.88	0.67	0.35	0.66	0.75	0.55	0.67
Percent Heavy Veh, %	0	4	0	7	2	0	0	0	14	0	0	0
Cap, veh/h	609	1153	52	630	1181	45	79	129	229	210	146	76
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	967	1746	79	971	1789	68	156	538	954	656	608	316
Grp Volume(v), veh/h	4	0	368	16	0	435	76	0	0	60	0	0
Grp Sat Flow(s),veh/h/ln	967	0	1826	971	0	1858	1647	0	0	1580	0	0
Q Serve(g_s), s	0.2	0.0	8.6	0.7	0.0	10.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.6	0.0	8.6	9.3	0.0	10.4	3.6	0.0	0.0	2.6	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.04	0.16		0.58	0.47		0.20
Lane Grp Cap(c), veh/h	609	0	1205	630	0	1226	437	0	0	432	0	0
V/C Ratio(X)	0.01	0.00	0.31	0.03	0.00	0.35	0.17	0.00	0.00	0.14	0.00	0.00
Avail Cap(c_a), veh/h	609	0	1205	630	0	1226	437	0	0	432	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.9	0.0	7.2	9.2	0.0	7.5	30.2	0.0	0.0	29.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.1	0.0	0.8	0.9	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.0	0.2	0.0	5.0	1.7	0.0	0.0	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.9	0.0	7.9	9.3	0.0	8.4	31.1	0.0	0.0	30.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h	372			451			76			60		
Approach Delay, s/veh	7.9			8.4			31.1			30.5		
Approach LOS	A			A			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	29.0			71.0			29.0			71.0		
Change Period (Y+Rc), s	5.0			5.0			5.0			5.0		
Max Green Setting (Gmax), s	24.0			66.0			24.0			66.0		
Max Q Clear Time (g_c+I1), s	5.6			12.6			4.6			12.4		
Green Ext Time (p_c), s	0.4			3.1			0.3			3.9		
Intersection Summary												
HCM 6th Ctrl Delay	11.4											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

1: William St S/William St N & King Street East

Existing Conditions 2025

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	500	8	29	421	30	9	12	46	53	11	5
Future Volume (veh/h)	10	500	8	29	421	30	9	12	46	53	11	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1856	1900	1737	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	16	568	16	36	434	44	12	24	60	56	20	8
Peak Hour Factor	0.63	0.88	0.50	0.81	0.97	0.68	0.75	0.50	0.77	0.95	0.55	0.63
Percent Heavy Veh, %	0	0	0	0	3	0	11	0	0	0	0	0
Cap, veh/h	573	1213	34	500	1093	111	66	123	248	290	99	35
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	929	1839	52	843	1656	168	108	511	1032	960	413	145
Grp Volume(v), veh/h	16	0	584	36	0	478	96	0	0	84	0	0
Grp Sat Flow(s),veh/h/ln	929	0	1890	843	0	1824	1650	0	0	1518	0	0
Q Serve(g_s), s	0.8	0.0	15.2	2.2	0.0	12.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.9	0.0	15.2	17.4	0.0	12.1	4.6	0.0	0.0	3.7	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.09	0.12		0.62	0.67		0.10
Lane Grp Cap(c), veh/h	573	0	1248	500	0	1204	437	0	0	424	0	0
V/C Ratio(X)	0.03	0.00	0.47	0.07	0.00	0.40	0.22	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	573	0	1248	500	0	1204	437	0	0	424	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.8	0.0	8.4	12.6	0.0	7.8	30.6	0.0	0.0	30.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.3	0.3	0.0	1.0	1.2	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	7.4	0.5	0.0	5.7	2.2	0.0	0.0	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9	0.0	9.6	12.9	0.0	8.8	31.8	0.0	0.0	31.3	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		600			514			96			84	
Approach Delay, s/veh		9.7			9.1			31.8			31.3	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.0		71.0		29.0		71.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		24.0		66.0		24.0		66.0				
Max Q Clear Time (g_c+I1), s		6.6		17.2		5.7		19.4				
Green Ext Time (p_c), s		0.5		5.7		0.4		4.7				
Intersection Summary												
HCM 6th Ctrl Delay				12.5								
HCM 6th LOS				B								

HCM Signalized Intersection Capacity Analysis

6: Elizabeth St/Hotel Entrance & King Street East

Future Traffic Conditions 2030

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	396	44	20	368	0	41	0	37	4	0	0
Future Volume (vph)	0	396	44	20	368	0	41	0	37	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.0		6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00		1.00		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		0.98		1.00		1.00	
Frt		0.98		1.00	1.00		1.00		0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.95	
Satd. Flow (prot)		1799		1342	1724		1626		1597		1785	
Flt Permitted		1.00		0.38	1.00		0.75		1.00		0.95	
Satd. Flow (perm)		1799		542	1724		1284		1597		1785	
Peak-hour factor, PHF	0.25	0.83	0.73	0.50	0.82	0.25	0.70	0.25	0.60	0.38	0.25	0.25
Adj. Flow (vph)	0	477	60	40	449	0	59	0	62	11	0	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	52	0	0	0
Lane Group Flow (vph)	0	534	0	40	449	0	59	0	10	0	11	0
Confl. Peds. (#/hr)	5					5	3					3
Heavy Vehicles (%)	0%	3%	0%	33%	9%	0%	8%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm	NA	
Protected Phases		2			6						4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		60.0		60.0	60.0		15.2		15.2		3.8	
Effective Green, g (s)		61.0		61.0	61.0		16.2		16.2		4.8	
Actuated g/C Ratio		0.61		0.61	0.61		0.16		0.16		0.05	
Clearance Time (s)		7.0		7.0	7.0		7.0		7.0		7.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)		1097		330	1051		208		258		85	
v/s Ratio Prot		c0.30			0.26							
v/s Ratio Perm				0.07			c0.05		0.01		0.01	
v/c Ratio		0.49		0.12	0.43		0.28		0.04		0.13	
Uniform Delay, d1		10.8		8.2	10.3		36.8		35.3		45.6	
Progression Factor		1.59		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2		1.5		0.8	1.3		0.8		0.1		0.7	
Delay (s)		18.7		9.0	11.6		37.6		35.4		46.3	
Level of Service		B		A	B		D		D		D	
Approach Delay (s)		18.7			11.3			36.4			46.3	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			17.7			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			70.2%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Elizabeth St/Hotel Entrance & King Street East

Future Traffic Conditions 2030

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	480	74	49	631	0	49	0	33	3	0	3
Future Volume (vph)	0	480	74	49	631	0	49	0	33	3	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.0		6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Frpb, ped/bikes		0.99		1.00	1.00		1.00		1.00		0.98	
Flpb, ped/bikes		1.00		1.00	1.00		0.98		1.00		1.00	
Frt		0.98		1.00	1.00		1.00		0.85		0.93	
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.98	
Satd. Flow (prot)		1827		1778	1860		1756		1507		1678	
Flt Permitted		1.00		0.32	1.00		0.75		1.00		0.98	
Satd. Flow (perm)		1827		606	1860		1386		1507		1678	
Peak-hour factor, PHF	0.25	0.90	0.80	0.53	0.90	0.25	0.82	0.25	0.90	0.50	0.25	0.50
Adj. Flow (vph)	0	533	92	92	701	0	60	0	37	6	0	6
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	31	0	11	0
Lane Group Flow (vph)	0	622	0	92	701	0	60	0	6	0	1	0
Confl. Peds. (#/hr)	3		6	6		3	3					3
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	6%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm	NA	
Protected Phases		2			6							4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		60.0		60.0	60.0		15.2		15.2		3.8	
Effective Green, g (s)		61.0		61.0	61.0		16.2		16.2		4.8	
Actuated g/C Ratio		0.61		0.61	0.61		0.16		0.16		0.05	
Clearance Time (s)		7.0		7.0	7.0		7.0		7.0		7.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)		1114		369	1134		224		244		80	
v/s Ratio Prot		0.34			c0.38							
v/s Ratio Perm				0.15			c0.04		0.00		0.00	
v/c Ratio		0.56		0.25	0.62		0.27		0.02		0.01	
Uniform Delay, d1		11.5		9.0	12.2		36.7		35.3		45.3	
Progression Factor		1.64		1.00	1.00		1.00		1.00		1.00	
Incremental Delay, d2		1.8		1.6	2.5		0.6		0.0		0.0	
Delay (s)		20.7		10.6	14.7		37.4		35.3		45.4	
Level of Service		C		B	B		D		D		D	
Approach Delay (s)		20.7			14.3			36.6			45.4	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			18.6			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			76.5%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

1: William St S/William St N & King Street East

Future Traffic Conditions 2030

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	319	9	16	318	15	19	17	31	23	17	9
Future Volume (veh/h)	3	319	9	16	318	15	19	17	31	23	17	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1841	1900	1796	1870	1900	1900	1900	1693	1900	1900	1900
Adj Flow Rate, veh/h	6	371	24	17	442	17	28	49	47	31	31	13
Peak Hour Factor	0.50	0.86	0.38	0.94	0.72	0.88	0.67	0.35	0.66	0.75	0.55	0.67
Percent Heavy Veh, %	0	4	0	7	2	0	0	0	14	0	0	0
Cap, veh/h	591	1128	73	608	1181	45	108	184	152	190	182	67
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	946	1709	111	948	1789	69	268	767	632	580	760	281
Grp Volume(v), veh/h	6	0	395	17	0	459	124	0	0	75	0	0
Grp Sat Flow(s),veh/h/ln	946	0	1820	948	0	1857	1666	0	0	1621	0	0
Q Serve(g_s), s	0.3	0.0	9.4	0.8	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.4	0.0	9.4	10.2	0.0	11.2	5.7	0.0	0.0	3.2	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.04	0.23		0.38	0.41		0.17
Lane Grp Cap(c), veh/h	591	0	1201	608	0	1226	444	0	0	440	0	0
V/C Ratio(X)	0.01	0.00	0.33	0.03	0.00	0.37	0.28	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	591	0	1201	608	0	1226	444	0	0	440	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.3	0.0	7.4	9.6	0.0	7.7	31.1	0.0	0.0	30.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.1	0.0	0.9	1.6	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	4.4	0.2	0.0	5.3	2.9	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.3	0.0	8.1	9.7	0.0	8.6	32.6	0.0	0.0	30.9	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h	401			476			124			75		
Approach Delay, s/veh	8.1			8.6			32.6			30.9		
Approach LOS	A			A			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	29.0			71.0			29.0			71.0		
Change Period (Y+Rc), s	5.0			5.0			5.0			5.0		
Max Green Setting (Gmax), s	24.0			66.0			24.0			66.0		
Max Q Clear Time (g_c+I1), s	7.7			13.4			5.2			13.2		
Green Ext Time (p_c), s	0.6			3.4			0.3			4.2		
Intersection Summary												
HCM 6th Ctrl Delay	12.8											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

1: William St S/William St N & King Street East

Future Traffic Conditions 2030

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	526	18	31	443	32	16	21	49	56	25	6
Future Volume (veh/h)	11	526	18	31	443	32	16	21	49	56	25	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1856	1900	1737	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	17	598	36	38	457	47	21	42	64	59	45	10
Peak Hour Factor	0.63	0.88	0.50	0.81	0.97	0.68	0.75	0.50	0.77	0.95	0.55	0.63
Percent Heavy Veh, %	0	0	0	0	3	0	11	0	0	0	0	0
Cap, veh/h	553	1170	70	464	1091	112	82	157	201	232	167	33
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	907	1773	107	805	1654	170	169	656	837	741	697	138
Grp Volume(v), veh/h	17	0	634	38	0	504	127	0	0	114	0	0
Grp Sat Flow(s),veh/h/ln	907	0	1880	805	0	1824	1662	0	0	1577	0	0
Q Serve(g_s), s	0.9	0.0	17.3	2.5	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.9	0.0	17.3	19.8	0.0	13.0	6.0	0.0	0.0	5.2	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.09	0.17		0.50	0.52		0.09
Lane Grp Cap(c), veh/h	553	0	1241	464	0	1204	441	0	0	433	0	0
V/C Ratio(X)	0.03	0.00	0.51	0.08	0.00	0.42	0.29	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	553	0	1241	464	0	1204	441	0	0	433	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.2	0.0	8.7	13.8	0.0	8.0	31.2	0.0	0.0	30.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.5	0.3	0.0	1.1	1.6	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	8.4	0.6	0.0	6.1	2.9	0.0	0.0	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	0.0	10.2	14.2	0.0	9.1	32.8	0.0	0.0	32.3	0.0	0.0
LnGrp LOS	B	A	B	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h	651			542			127			114		
Approach Delay, s/veh	10.3			9.4			32.8			32.3		
Approach LOS	B			A			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	29.0			71.0			29.0			71.0		
Change Period (Y+Rc), s	5.0			5.0			5.0			5.0		
Max Green Setting (Gmax), s	24.0			66.0			24.0			66.0		
Max Q Clear Time (g_c+I1), s	8.0			19.3			7.2			21.8		
Green Ext Time (p_c), s	0.6			6.4			0.6			5.0		
Intersection Summary												
HCM 6th Ctrl Delay	13.7											
HCM 6th LOS	B											

Appendix C

Subdivision Plan

DRAFT PLAN OF SUBDIVISION

LEGAL DESCRIPTION

PART OF LOT 16, CONCESSION 1,
GEOGRAPHIC TOWNSHIP OF LEEDS
TOWN OF GANANOQUE
COUNTY OF LEEDS

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED
TO SUBMIT THIS PLAN FOR APPROVAL.

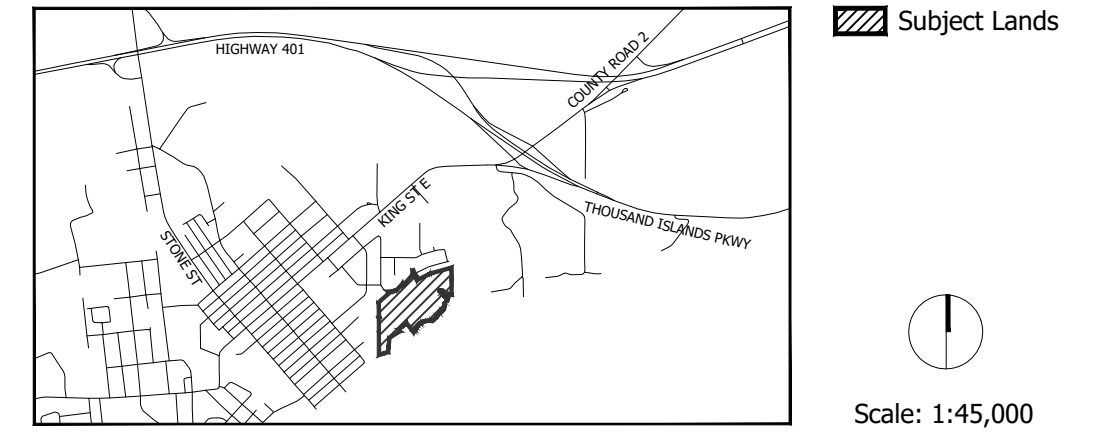
Date: _____
ROB PIERCE
1000989284 ONTARIO INC.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS
PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND
CORRECTLY SHOWN.

Date: _____
SHAWN LEROUX, O.L.S., O.L.I.P., A.L.S.
J.D BARNES LIMITED

KEY PLAN



ADDITIONAL INFORMATION

Required Under Section 51 (17) of the Planning Act, R.S.O., 1990, c.P.13 as Amended

(a) As Shown	(i) Unknown
(b) As Shown	(j) As Shown
(c) As Shown	(k) Services As Required
(d) Residential, Park, Open Space, Servicing, Future	(l) As Shown
(e) As Shown	(m) Municipal Water Supply

AREA SCHEDULE

DESCRIPTION	LOTS/BLOCKS	UNITS	AREA
Low Density Residential	1-77	77	5.608 ha
Residential Lot Addition	78		0.955 ha
Parks	79-80		0.596 ha
Open Space	81-85		2.038 ha
Servicing	86-87		0.274 ha
Servicing/Emergency Access	88		0.041 ha
Servicing/Trail Connection	89		0.039 ha
Future Development	90-93		0.270 ha
Roads			1.764 ha

Total 93 77 11.586 ha

NOTES

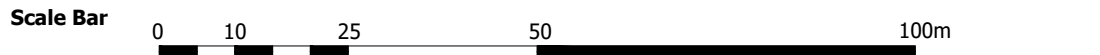
- All dimensions are in metres unless otherwise shown.
- Environmental features provided by WSP, 2025-05-23, & FFE, August 2025
- Survey prepared by Hopkins Chitty Land Surveyors Inc, 2022-03
- Contains information licensed under the Open Government Licence - Ontario.

Revision No.	Date	Issued / Revision	By

Stamp	Date	August 19, 2025
	File No.	9137BK
	Plan Scale	1:1000 (Arch D)
	Drawn By	JB/CT
Checked By	EE	

Project	205 Elmwood Drive, Gananoque R.W. Tomlinson Limited 100 CitiGate Drive, Ottawa ON
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File Name	DRAFT PLAN OF SUBDIVISION
Dwg No.	1 of 1



K:\9137BK - 205 Elmwood Drive, Gananoque\9137BK_19Aug2025.dwg

Appendix D

***2020 Development Charges Background
Study - Residential Growth Forecast
Summary Table***



Table 2-1
Town of Gananoque
Residential Growth Forecast Summary

	Year	Population (Including Census Undercount) ¹	Excluding Census Undercount			Housing Units					Person Per Unit (P.P.U.): Total Population/ Total Households
			Population	Institutional Population	Population Excluding Institutional Population	Singles & Semi- Detached	Multiple Dwellings ²	Apartments ³	Other	Total Households	
Historical	<i>Mid 2006</i>	5,410	5,285	160	5,125	1,500	195	615	5	2,315	2.283
	<i>Mid 2011</i>	5,320	5,194	164	5,030	1,509	196	631	10	2,346	2.214
	<i>Mid 2016</i>	5,280	5,159	164	4,995	1,535	200	655	10	2,400	2.150
Forecast	<i>Late 2020</i>	5,560	5,427	173	5,254	1,568	203	788	10	2,570	2.112
	<i>Late 2030</i>	6,010	5,865	186	5,679	1,660	225	968	10	2,862	2.049
	<i>Buildout</i>	6,816	6,655	225	6,430	1,823	266	1,259	10	3,358	1.982
Incremental	Mid 2006 - Mid 2011	-90	-91	4	-95	9	1	16	5	31	
	Mid 2011 - Mid 2016	-40	-35	0	-35	26	4	24	0	54	
	Mid 2016 - Late 2020	280	268	9	259	33	3	133	0	170	
	Late 2020 - Late 2030	450	438	13	425	91	22	179	0	293	
	Late 2020 - Buildout	1,256	1,228	52	1,176	255	63	471	0	789	

Source: Derived by Watson & Associates Economists Ltd., 2020.

Note: Buildout is based on wastewater capacity.

¹ Census undercount estimated at approximately 2.4%. Note: Population including the undercount has been rounded.

² Includes townhouses and apartments in duplexes.

³ Includes bachelor, 1-bedroom and 2-bedroom+ apartments.