13969 Kennedy Road Traffic Brief

Whitchurch-Stouffville, Ontario

Project Number: PTRAN2026046

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1.0 Introduction

TraffMobility Engineering Inc. (TraffMobility) was retained to prepare a Traffic Brief in support of the Zoning By-law Amendment (ZBA) application to permit a seasonal tent structure to host events at 13969 Kennedy Road in the Town of Whitchurch-Stouffville (Town), Ontario.

The proposal is to erect a seasonal tent, approximately 500 m^2 in size, to host 10 to 15 seasonal events per season on an existing farm generally between May and October. The site currently has a 'you-pick' corn event from late August/early September through October. Current and expected operating hours for the site are:

- **"You-Pick" Corn Event (existing use)**: weekdays between 11:00 AM and 7:00 PM with weekends the busiest between 11:00 AM and 3:00 PM
- **Seasonal Events (proposed use)**: primarily on weekends

There is an existing 2-storey dwelling unit on site. The seasonal tent and a washroom trailer are proposed as site alterations. A parking expansion with a total of 95 spaces is proposed to serve the development with site access via an existing driveway at Kennedy Road.

The main objective of this study is to assess the impacts of the traffic generated by the new development on the surrounding road network and to confirm that the parking supply provided is adequate for the proposed use. The analysis approach, results, and findings are documented in this traffic brief.

1.1 Study Area

The subject site is located on Kennedy Road north of Bloomington Road as shown in **Figure 1** and the study area for the traffic impact analysis comprises of the existing site access at Kennedy Road.

Figure 1: Study Area

1.2 Study Methodology

The study methodology was developed to address the Town's traffic and parking related comments. Analyses were conducted to identify transportation infrastructure required to support and connect the proposed development to the adjacent transportation network.

1.2.1 Traffic Operations Assessment

The study assessed traffic operations under existing (2026) conditions and the following future horizon years:

- Opening Year (2027) Background Conditions (without the proposed development site traffic)
- Opening Year (2027) Total Conditions (with the proposed development site traffic)

Based on the current and expected operating hours of the site, the critical peak periods where maximum site trips will be generated are the weekday PM and the weekend peaks; therefore, this analysis focused on the weekday PM and weekend peak hours.

Intersection operations were assessed using the Synchro 12 software which utilizes the Highway Capacity Manual (HCM) methodology published by the Transportation Research Board National Research Council. Synchro 12 can analyze both signalized and unsignalized intersections in a road corridor or network considering the spacing, interaction, queues, and operations between intersections.

Intersection operations performance metrics are reported in terms of Level of Service (LOS), volume to capacity (v/c) ratios, and 95th percentile queues. Level of Service is based on the average control delay per vehicle for a given movement. Delay is an indicator of how long a vehicle must wait to complete a movement and is represented by a letter between 'A' and 'F', with 'F' being the longest delay. **Table 1** summarizes the LOS criteria for unsignalized intersections.

Table 1: Intersection Level of Service Criteria

Level of Service	Average Control Delay per Vehicle (second / vehicle)
	Unsignalized Intersection
A	≤ 10
B	>10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

The following criteria were used to identify critical movements as outlined in the York Region's Transportation Mobility Plan Guidelines (2025):

- An individual movement volume-to-capacity ratio will exceed 0.85 in urban areas or 0.70 in rural areas
- Automobile LOS Target: D or better for urban areas and LOS C or better for rural areas.
- 95th percentile queue lengths for individual movements exceed available storage lengths.

1.3 Data Collection

Existing traffic volumes were obtained from the York Region. A 7-day automatic traffic recorder (ATR) count on Kennedy Road between Bloomington Road and Vandorf Sideroad was obtained. The ATR

counts were conducted from Wednesday, April 24, 2024, to Tuesday, April 30, 2024. A copy of the existing ATR counts is provided in **Appendix A**.

According to the 7-day ATR count, Sunday had a higher traffic volume compared to Saturday, as shown in **Figure 2**; therefore, traffic counts from Sunday were used for the weekend peak hour traffic analysis. Friday has the highest weekday PM peak hour traffic volumes which were used for the weekday PM peak hour traffic analysis.

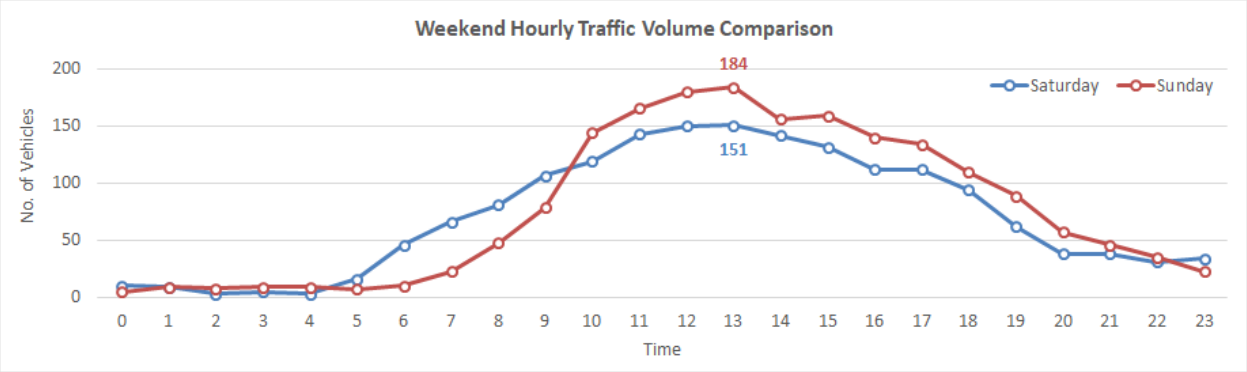


Figure 2: Weekend Hourly Traffic Volume on Kennedy Road

2.0 Existing Conditions

Traffic operations under existing (2026) conditions were analyzed for the peak hours during the weekday PM (4:00 p.m. to 6:00 p.m.) and weekend (Sunday 10:00 a.m. to 2:00 p.m.) periods using Synchro 12 software.

2.1 Existing Intersection Operations

There is an existing driveway on Kennedy Road providing access to the subject site. It is assumed that the current traffic volume entering and exiting the site is relatively low as there is only a dwelling unit on site. For operational purposes of the existing building on the subject site, it was estimated that not more than 5 vehicles enter, and 5 vehicles leave the site per peak hour, and these trips were distributed to the north and south of Kennedy Road based on existing travel patterns.

A compound annual growth rate (CAGR) of 2.0% per annum was assumed and applied to the 2024 ATR traffic volumes along Kennedy Road to estimate 2026 existing conditions traffic demand for the weekday PM and weekend peak hours.

Existing intersection operations were analyzed using the lane configurations illustrated in **Figure 3** and the existing (2026) traffic volumes shown in **Figure 4.** The analysis results are provided in **Table 2** and detailed calculations are provided in **Appendix B**.

The analysis results in **Table 2** indicate that all movements are operating with acceptable level of service and residual capacity during the weekday PM and weekend peak hours under existing conditions.

Moreover, the results in **Table 2** indicate that the 95th percentile queues can be accommodated within the available storage during the weekday PM and weekend peak hours under existing conditions.

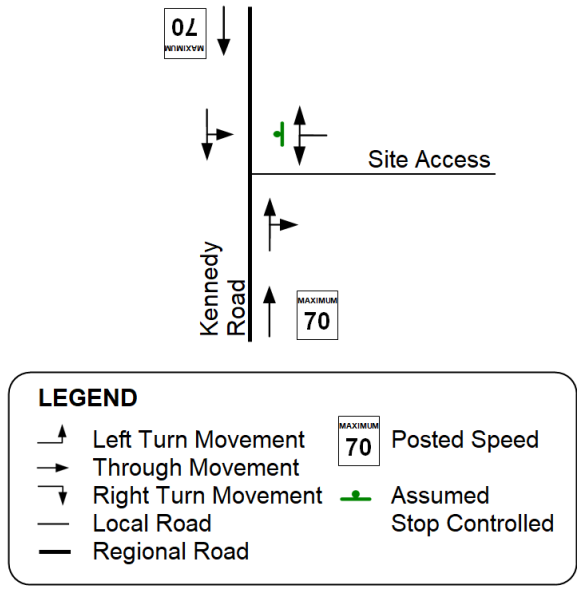


Figure 3: Existing Intersection Lane Configuration

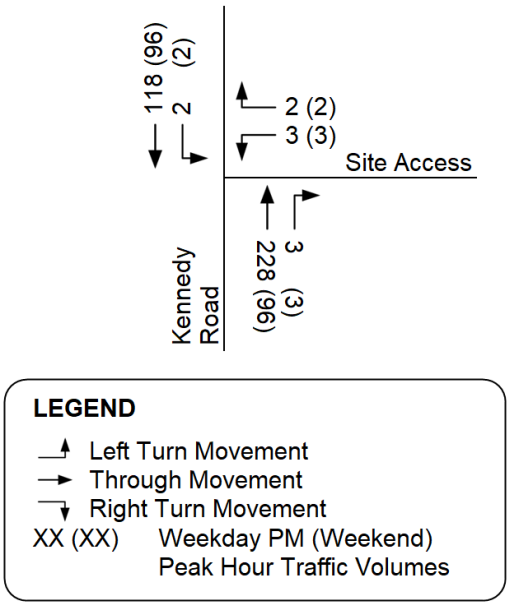


Figure 4: Existing (2026) Traffic Volumes

Table 2: Existing Conditions Intersection Operations

Intersection / Movement	Weekday PM Peak Hour				Weekend Peak Hour				Available Storage (m)
	LOS	Delay (s)	v/c ratio	95th Percentile Queue (m)	LOS	Delay (s)	v/c ratio	95th Percentile Queue (m)	
Kennedy Road / Site Access (unsignalized)									
WBLR	B	10	0.00	<7	A	9	0.00	<7	200
NBTR	A	0	0.15	<7	A	0	0.06	<7	>400
SBLT	A	0	0.00	<7	A	0	0.00	<7	>400

Note: LOS – level of service, v/c ratio – volume to capacity ratio

3.0 Opening Year (2027) Background Conditions

Traffic operations under opening year (2027) background conditions were analyzed for the weekday PM and weekend peak hours using Synchro 12 software.

Future background traffic for the study area consists of two components: traffic growth outside the study area and adjacent development site traffic within the study area. The future background conditions assessment is based on projected background traffic growth and transportation improvements planned for the study area corresponding to the horizon year.

3.1 Future Planned Transportation Improvements

A review of the York Region transportation master plan identified no confirmed future transportation improvements within the vicinity of the study area that should be incorporated into the opening year (2027) traffic analysis.

3.2 Future Traffic Growth

A compound annual growth rate (CAGR) of 2.0% per annum was assumed and applied to the 2026 existing conditions through movements along Kennedy Road to forecast opening year background traffic demand.

3.3 Future Background Developments

No adjacent background development was identified for consideration under opening year conditions.

3.4 Opening Year (2027) Background Intersection Operations

Opening year (2027) background traffic volumes were estimated by applying the growth rate to the existing traffic volumes (**Figure 4**) and the resulting opening year (2027) background traffic volumes are illustrated in **Figure 5**.

Opening year (2027) background intersection operations were analyzed using the existing lane configurations illustrated in **Figure 3** and the opening year (2027) background traffic volumes from **Figure 5**. The analysis results are summarized in **Table 3** and detailed calculations are provided in **Appendix C**.

The analysis results in **Table 3** indicate that all movements are expected to operate with acceptable level of service and residual capacity during the weekday PM and weekend peak hours under opening year (2027) background conditions.

Moreover, the results in **Table 3** indicate that the 95th percentile queues can be accommodated within the available storage during the weekday PM and weekend peak hours under opening year (2027) background conditions.

Based on the intersection operations analysis, no mitigation measures are required under opening year (2027) background conditions.

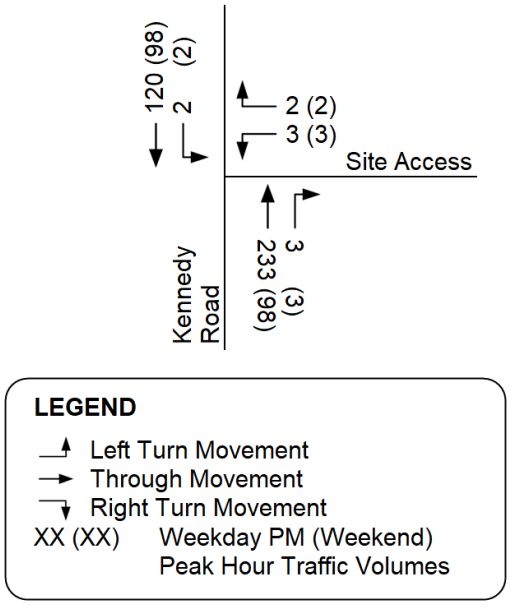


Figure 5: Opening Year (2027) Background Traffic Volumes

Table 3: Opening Year (2027) Background Conditions Intersection Operations

Intersection / Movement	Weekday PM Peak Hour				Weekend Peak Hour				Available Storage (m)
	LOS	Delay (s)	v/c ratio	95th Percentile Queue (m)	LOS	Delay (s)	v/c ratio	95th Percentile Queue (m)	
Kennedy Road / Site Access (unsignalized)									
WBLR	B	10	0.00	<7	A	9	0.00	<7	200
NBTR	A	0	0.15	<7	A	0	0.06	<7	>400
SBLT	A	0	0.00	<7	A	0	0.00	<7	>400

Note: LOS – level of service, v/c ratio – volume to capacity ratio

4.0 Proposed Development

4.1 Development Concept

The proposal is to erect a seasonal tent, approximately 500 m^2 in size, to host 10 to 15 seasonal events per season on an existing farm generally between May and October. The site currently has a 'you-pick' corn event from late August/early September through October. Current and expected operating hours for the site are:

- **"You-Pick" Corn Event (existing use)**: weekdays between 11:00 AM and 7:00 PM with weekends the busiest between 11:00 AM and 3:00 PM. Approximately 50 persons are on the property for this event during peak periods with customers arriving and leaving throughout the day.
- **Seasonal Events (proposed use)**: primarily on weekends with a maximum anticipated attendance of approximately 100 people. For a typical event, the main arrival period would be approximately 1 hour before the event begins, and the departure period would generally occur within approximately 30 to 60 minutes following the end of the event.

There is an existing 2-storey dwelling unit on site. The seasonal tent and a washroom trailer are proposed as site alterations. A parking expansion with a total of 95 spaces is proposed to serve the development with site access via an existing driveway at Kennedy Road.

The site plan is shown in **Appendix D**.

4.2 Trip Generation

The ITE Trip Generation Manual does not include a specific lane use code that directly represents the existing 'you-pick' corn event or the proposed seasonal events. Therefore, trip generation was estimated using a first-principles approach based on the anticipated number of attendees.

As described in **Section 4.1**, approximately 50 people are expected to be present at the subject site during the 'you-pick' corn event on both weekdays and weekends. For the proposed seasonal events, a maximum of 100 people is expected to be present on weekends. The trip generation during the weekday PM peak hour and weekend peak hour was derived based on those anticipated attendees and an average vehicle occupancy of 2 people per vehicle.

The projected trip generation for the proposed development during the weekday PM and weekend peak hours are summarized in **Table 4**. The proposed development is expected to generate 25 new vehicle

trips (12 trips in / 13 trips out) during the weekday PM peak hour and 75 new vehicle trips (52 trips in / 23 trips out) during the weekend peak hour.

Table 4: Trip Generation Summary

Land Use	Number of Attendants	Parameter	Weekday PM Peak Hour			Weekend Peak Hour		
			In	Out	Total	In	Out	Total
"You-Pick" Corn Event	50 people	Occupancy Rate	2 people per vehicle			2 people per vehicle		
		Gross Trips	12	13	25	12	13	25
		Net Vehicle Trips	12	13	25	12	13	25
Seasonal Events	100 people	Occupancy Rate	2 people per vehicle			2 people per vehicle		
		Gross Trips	-	-	-	40	10	50
		Net Vehicle Trips	-	-	-	40	10	50
Total Net Vehicle Trips			**12**	**13**	**25**	**52**	**23**	**75**

4.3 Trip Distribution

The trip distribution for the proposed development is based on the existing travel patterns summarized in **Table 5**. The site trips generated by the 'you-pick' corn event and seasonal events and assigned to the road network are illustrated in **Figure 6** and **Figure 7**, respectively. Total site trips assigned to the road network are illustrated in **Figure 8**.

Table 5: Trip Distribution Summary

From/To	Via	Inbound / Outbound	
		Weekday PM Peak Hour	Weekend Peak Hour
North	Kennedy Road	34%	50%
South	Kennedy Road	66%	50%
Total		**100%**	**100%**

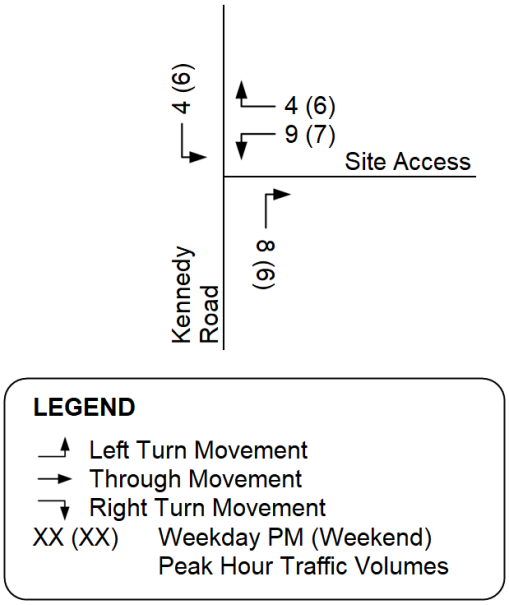


Figure 6:You-Pick Corn Site Traffic

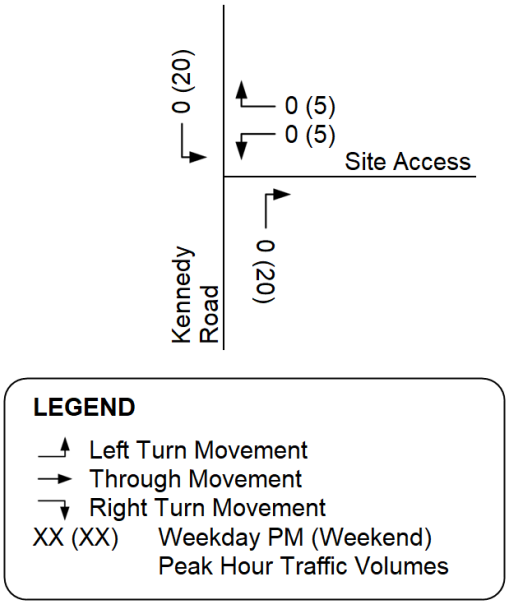


Figure 7: Seasonal Event Site Traffic

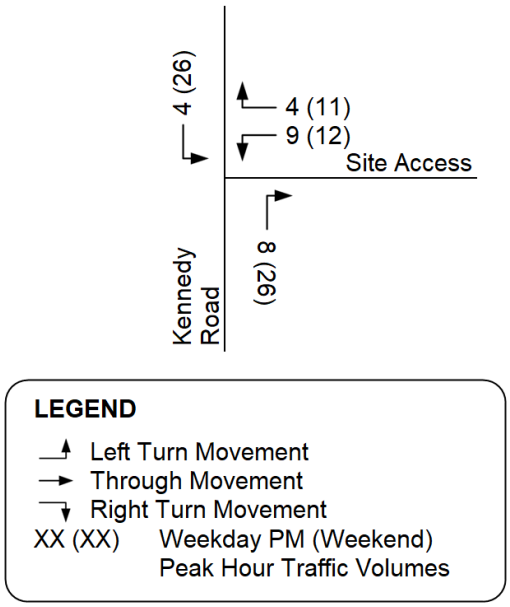


Figure 8: Total Site Traffic

5.0 Opening Year (2027) Total Conditions

Traffic operations under opening year (2027) total conditions were analyzed for the weekday PM and weekend peak hours using Synchro 12 software.

5.1 Opening Year (2027) Total Intersection Operations

Opening year (2027) total intersection operations were assessed using the future lane configuration illustrated in **Figure 9.** The opening year (2027) total traffic volumes were estimated by adding site

traffic generated by the proposed development (**Figure 6**) to the opening year (2027) background volumes (**Figure 5**). The resulting opening year (2027) total traffic volumes are illustrated in **Figure 10**.

The traffic analysis results are summarized in **Table 6** with detailed calculations provided in **Appendix E**.

The analysis results in **Table 6** indicate that all movements are expected to operate with acceptable level of service and residual capacity during the weekday PM and weekend peak hours under opening year (2027) total conditions.

Moreover, the results in **Table 6** indicate that the 95th percentile queues can be accommodated within the available storage during the weekday PM and weekend peak hours under opening year (2027) total conditions.

Based on the intersection operations analysis, no mitigation measures are required under opening year (2027) total conditions.

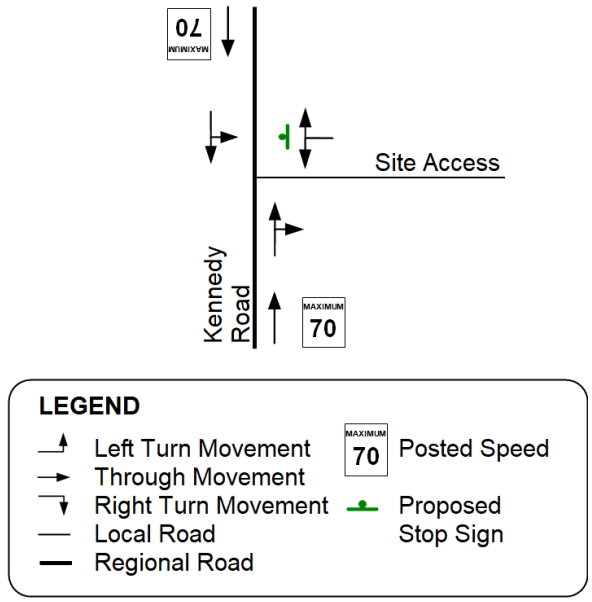


Figure 9: Future Intersection Lane Configuration

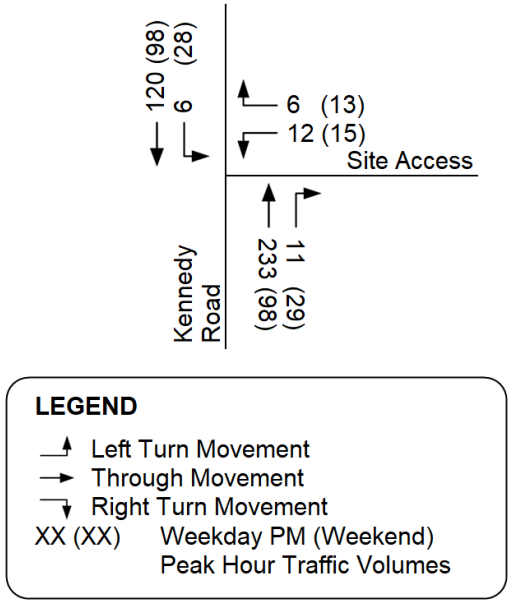


Figure 10: Opening Year (2027) Total Traffic Volumes

Table 6: Opening Year (2027) Total Conditions Intersection Operations

Intersection / Movement	Weekday PM Peak Hour				Weekend Peak Hour				Available Storage (m)
	LOS	Delay (s)	v/c ratio	95th Percentile Queue (m)	LOS	Delay (s)	v/c ratio	95th Percentile Queue (m)	
Kennedy Road / Site Access (unsignalized)									
WBLR	B	11	0.03	<7	A	10	0.04	<7	200
NBTR	A	0	0.16	<7	A	0	0.08	<7	>400
SBLT	A	0	0.00	<7	A	2	0.02	<7	>400

Note: LOS – level of service, v/c ratio – volume to capacity ratio

6.0 Parking Review

The site plan provides 95 parking spaces including 3 accessible parking spaces to serve the development. Parking requirements were reviewed against the Town's Comprehensive Zoning By-law 2010-001-ZO.

6.1 Zoning By-law Requirement

6.1.1 Vehicle Parking

The applicable By-law requirement for the proposed seasonal events land use as outlined in the Town's Zoning By-law Section 3.23.1 is:

- Assembly Hall/Space: where the minimum number of parking spaces requires is 4 spaces per 100 m^2 of gross floor area (GFA)

Applying the Zoning By-law for the proposed land use, the minimum parking requirement is 20 spaces as summarized in **Table 7**. The proposed parking supply of 95 spaces is more than the minimum requirement of 20 spaces; therefore, the proposed parking supply complies with the By-law. Relevant excerpts from the Town's Comprehensive Zoning By-law 2010-001-Z are included in **Appendix F**.

It is noted that the site has a surplus of 75 parking spaces which are expected to accommodate parking demand from the "you-pick" corn event as this event has less parking demand than the seasonal events.

Table 7: Zoning By-law Parking Requirement

Proposed Development	Type of Use	GFA (m^2)	By-law Requirement	Required Parking Supply	Proposed Parking Supply	Surplus (Deficiency)
Proposed Seasonal Event Structure	Assembly Hall / Space	500	4 spaces per 100 m^2	20	95	75

6.1.2 Accessible Parking

According to the Town's By-Law, 1 Type A accessible parking space is required where the total number of required parking spaces in the parking area is between 1 and 25. The site plan has 3 Type A accessible parking spaces as summarized in **Table 8**, which exceeds the Town's requirement for the site.

Table 8: Accessible Parking Requirement

Number of Required Parking Spaces	Accessible Parking Manual Requirements	Calculated Parking Supply per By-law	Proposed Parking Supply	Surplus (Deficiency)
20	1 Type A parking space	Type A: 1 Type B: 0	Type A: 3 Type B: 0	Type A: 2 Type B: 0

7.0 Conclusions

Based on the analysis results, the following conclusions can be made:

Existing Conditions

- The analysis results indicate that all movements at the study intersection are operating with acceptable level of service and residual capacity during the weekday PM and weekend peak hours under existing conditions.
- The analysis results indicate that queues can be accommodated within the available storage during the weekday PM and weekend peak hour under existing conditions.

Opening Year (2027) Background Conditions

- The analysis results indicate that all movements at the study intersection are expected to operate with acceptable level of service and residual capacity during the weekday PM and weekend peak hours under opening year (2027) background conditions.
- The analysis results indicate that queues can be accommodated within the available storage during the weekday PM and weekend peak hours under opening year (2027) background conditions.
- No mitigation measures are required under opening year (2027) background conditions.

Traffic Trip Generation

- The site is expected to generate 25 new vehicle trips during the weekday PM peak hour and 75 new vehicle trips during the weekend peak hour.

Opening Year (2027) Total Conditions

- The analysis results indicate that all movements at the study intersection are expected to operate with acceptable level of service and residual capacity during the weekday PM and weekend peak hours under opening year (2027) total conditions.
- The analysis results indicate that queues can be accommodated within the available storage during the weekday PM and weekend PM peak hours under opening year (2027) total conditions.
- No mitigation measures are required under opening year (2027) total conditions and the site traffic from the proposed development is not expected to have an adverse impact on traffic operations on the surrounding road network.

Parking Review

- The proposed parking supply of 95 parking spaces for the seasonal events and the ‘you-pick’ corn event is sufficient to serve the anticipated parking demand for the subject site.

Appendix A

Existing ATR Counts

Volume Hourly Summary Report (Subtotal included)

Location: Kennedy Road btwn Bloomington Road & Vandorf Sideroad **Start Date:** 2024-04-24

Municipality: Whitchurch-Stouffville **Geo ID:** Y1036Y1090 **End Date:** 2024-05-01

Date	Time	North Approach	South Approach	Grand Total
Wednesday, April 24, 2024	0	3		3
	1	1		1
	3	2		2
	4	2		2
	5	36	4	40
	6	166	19	185
	7	313	54	367
	8	283	91	374
	9	165	62	227
	10	52	30	82
	11	29	27	56
	12	33	34	67
	13	34	45	79
	14	45	66	111
	15	99	118	217
	16	100	188	288
	17	89	183	272
	18	74	119	193
	19	8	45	53
	20	13	22	35
	21	8	13	21
	22	4	9	13
	23	5	6	11
Wednesday, April 24, 2024 Total		1564	1135	2699
Thursday, April 25, 2024	0	2		2
	1	2		2
	2	2		2
	4	3		3
	5	36	1	37
	6	192	10	202
	7	292	74	366
	8	314	95	409
	9	163	55	218
	10	46	28	74
	11	41	29	70
	12	33	31	64
	13	38	33	71
	14	49	58	107
	15	103	160	263
	16	108	207	315
	17	116	215	331
	18	85	147	232
	19	24	52	76

	20	20	16	36
	21	11	10	21
	22	3	7	10
	23	8	7	15
Thursday, April 25, 2024 Total		1691	1235	2926
Friday, April 26, 2024	1	2		2
	3	1		1
	4	3		3
	5	42	1	43
	6	163	20	183
	7	321	69	390
	8	309	100	409
	9	150	77	227
	10	67	35	102
	11	37	45	82
	12	34	41	75
	13	35	59	94
	14	61	81	142
	15	102	145	247
	16	113	219	332
	17	101	205	306
	18	75	141	216
	19	22	68	90
	20	23	41	64
	21	18	16	34
	22	7	9	16
	23	9	9	18
Friday, April 26, 2024 Total		1695	1381	3076
Saturday, April 27, 2024	0	10		10
	1	8	1	9
	2	3		3
	3	4	1	5
	4	3		3
	5	15	1	16
	6	28	18	46
	7	35	31	66
	8	38	43	81
	9	49	58	107
	10	54	65	119
	11	75	68	143
	12	76	74	150
	13	73	78	151
	14	63	79	142
	15	61	71	132
	16	55	57	112
	17	51	61	112
	18	37	57	94
	19	28	34	62
	20	18	20	38
	21	23	15	38
	22	18	13	31
	23	21	13	34
Saturday, April 27, 2024 Total		846	858	1704
Sunday, April 28, 2024	0	5		5

	1	8	1	9
	2	6	2	8
	3	8	1	9
	4	9		9
	5	6	1	7
	6	10		10
	7	19	4	23
	8	34	14	48
	9	52	27	79
	10	68	76	144
	11	76	90	166
	12	84	96	180
	13	92	92	184
	14	73	83	156
	15	80	79	159
	16	67	73	140
	17	66	68	134
	18	50	60	110
	19	43	46	89
	20	32	25	57
	21	30	16	46
	22	23	12	35
	23	17	6	23
Sunday, April 28, 2024 Total		958	872	1830
Monday, April 29, 2024	0	1		1
	1	3		3
	2	2		2
	4	1		1
	5	32	1	33
	6	180	19	199
	7	318	75	393
	8	297	103	400
	9	146	75	221
	10	39	24	63
	11	36	31	67
	12	33	36	69
	13	27	40	67
	14	44	65	109
	15	108	137	245
	16	109	194	303
	17	103	203	306
	18	73	126	199
	19	19	41	60
	20	8	18	26
	21	6	14	20
	22	6	6	12
	23	5	5	10
Monday, April 29, 2024 Total		1596	1213	2809
Tuesday, April 30, 2024	0	3		3
	2	3		3
	3	2		2
	4	1		1
	5	23	2	25
	6	169	19	188

	7	306	69	375
	8	296	84	380
	9	167	71	238
	10	61	29	90
	11	32	30	62
	12	34	31	65
	13	32	31	63
	14	50	54	104
	15	109	153	262
	16	120	206	326
	17	124	203	327
	18	92	136	228
	19	19	43	62
	20	11	19	30
	21	6	12	18
	22	5	9	14
	23	4	4	8
Tuesday, April 30, 2024 Total		1669	1205	2874
Grand Total		10019	7899	17918

Appendix B

Existing (2026) Intersection Operation Calculations (Synchro)

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	2	228	3	2	118
Future Volume (Veh/h)	3	2	228	3	2	118
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	248	3	2	128
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	382	250			251	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382	250			251	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	624	794			1326	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	251	130
Volume Left	3	0	2
Volume Right	2	3	0
cSH	682	1700	1326
Volume to Capacity	0.00*	0.15	0.00*
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s/veh)	10.3	0.0	0.1
Lane LOS	B		A
Approach Delay (s/veh)	10.3	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		22.2%	ICU Level of Service
Analysis Period (min)		15	

* Value less than 0.01.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	2	96	3	2	96
Future Volume (Veh/h)	3	2	96	3	2	96
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	104	3	2	104
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	214	106			107	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	214	106			107	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	778	954			1497	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	107	106
Volume Left	3	0	2
Volume Right	2	3	0
cSH	840	1700	1497
Volume to Capacity	0.00*	0.06	0.00*
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	9.3	0.0	0.2
Lane LOS	A		A
Approach Delay (s/veh)	9.3	0.0	0.2
Approach LOS	A		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	16.7%	ICU Level of Service	A
Analysis Period (min)	15		

* Value less than 0.01.

Appendix C

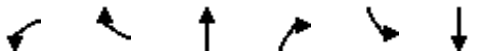
Opening Year (2027) Background Intersection Operation Calculations (Synchro)

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	2	233	3	2	120
Future Volume (Veh/h)	3	2	233	3	2	120
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	253	3	2	130
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	389	255			256	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	389	255			256	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	618	789			1321	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	256	132
Volume Left	3	0	2
Volume Right	2	3	0
cSH	677	1700	1321
Volume to Capacity	0.00*	0.15	0.00*
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s/veh)	10.4	0.0	0.1
Lane LOS	B		A
Approach Delay (s/veh)	10.4	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		22.4%	ICU Level of Service A
Analysis Period (min)		15	

* Value less than 0.01.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	2	98	3	2	98
Future Volume (Veh/h)	3	2	98	3	2	98
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	107	3	2	107
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	220	109			110	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	220	109			110	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	772	951			1493	

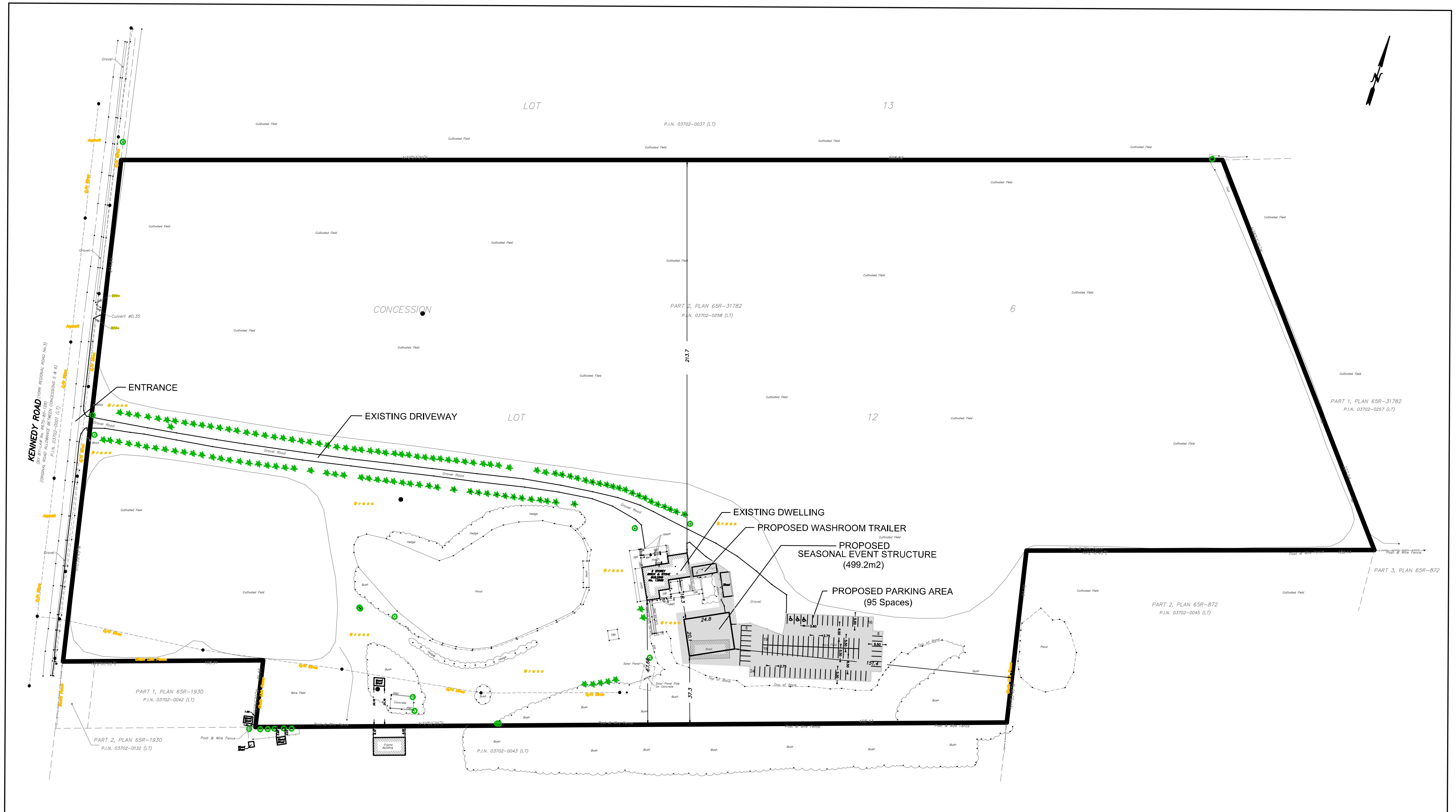
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	110	109
Volume Left	3	0	2
Volume Right	2	3	0
cSH	835	1700	1493
Volume to Capacity	0.00*	0.06	0.00*
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	9.3	0.0	0.1
Lane LOS	A		A
Approach Delay (s/veh)	9.3	0.0	0.1
Approach LOS	A		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

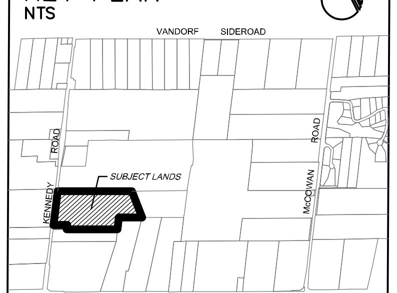
* Value less than 0.01.

Appendix D

Site Plan



KEY PLAN
NTS



(heavy line)	SUBJECT LANDS	
	LOT AREA	18.37 ha
	FRONTAGE	274.5 m
(shaded)	OFDU	3660 m2

SITE PLAN

13969 KENNEDY ROAD
PART OF LOT 12
CONCESSION 6
TOWN OF WHITCHURCH–STOUFFVILLE
TOWN OF AURORA
REGIONAL MUNICIPALITY OF YORK

0 5 10 25m

30 WEST BEAVER CREEK ROAD, UNIT 109
RICHMOND HILL, ONTARIO L4B 3K1
T: 905.597.8204 F: 905.597.8904
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DESIGN GP	DRAWN GP	SCALE
		PROJECT No.
APPROVED JF	DATE 6 AUG 26	DRAWING No. 01

Appendix E

Opening Year (2027) Total Intersection Operation Calculations (Synchro)

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	6	233	11	6	120
Future Volume (Veh/h)	12	6	233	11	6	120
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	7	253	12	7	130
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	403	259			265	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	403	259			265	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			99	
cM capacity (veh/h)	604	785			1311	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	20	265	137
Volume Left	13	0	7
Volume Right	7	12	0
cSH	657	1700	1311
Volume to Capacity	0.03	0.16	0.00*
Queue Length 95th (m)	0.7	0.0	0.1
Control Delay (s/veh)	10.7	0.0	0.4
Lane LOS	B		A
Approach Delay (s/veh)	10.7	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		22.9%	ICU Level of Service A
Analysis Period (min)		15	

* Value less than 0.01.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	13	98	29	28	98
Future Volume (Veh/h)	15	13	98	29	28	98
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	14	107	32	30	107
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	290	123			139	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	290	123			139	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			98	
cM capacity (veh/h)	690	933			1457	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	30	139	137
Volume Left	16	0	30
Volume Right	14	32	0
cSH	786	1700	1457
Volume to Capacity	0.04	0.08	0.02
Queue Length 95th (m)	0.9	0.0	0.5
Control Delay (s/veh)	9.8	0.0	1.8
Lane LOS	A		A
Approach Delay (s/veh)	9.8	0.0	1.8
Approach LOS	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix F

Zoning By-law Excerpts

Use of Building or Lot	Minimum Number of Parking Spaces
Assembly Hall/ Space	4 spaces per 100 sq.m.
Athletic Court (Tennis/Racquet/Pickleball/Basketball)	6 spaces per court
Automotive Sales and Service Uses	4 parking spaces for each repair bay, stationary car wash bay or detailing bay, plus 5 parking spaces for each 100m^2 of GFA, exclusive of repair bays
Bowling Alley	4 parking spaces for each lane, plus for a restaurant, 1 parking space for each 4 persons seating capacity or 11 parking spaces for each 100 m^2 of GFA, whichever is greater
Cannabis Processing	3000.0 m^2 or less GFA: 1.6 parking spaces for each 100m^2 of GFA Greater than 3000m^2 of GFA: 1.6 parking spaces for each 100m^2 of GFA for the first 3000 m^2 of GFA and 1 parking space for each 100 m^2 of GFA in excess of 3000 m^2
Car Wash	5 parking spaces
Commercial School	5 parking spaces for each 100m^2 GFA
Community Centre	Assembly Hall parking rates to apply to all uses except for athletic courts, which are to be supplied at 6 parking spaces per court and for sports fields or rinks at 2.0 parking spaces per 100 m2 of GFA. Parking for accessory office uses are to be provided at the same rate as for the main use. Parking for any other uses are to be provided at that use's rate where provided within this B -law. (2023-111-ZO)
Curling Rink	4 parking spaces for each ice sheet, plus for a restaurant, 1 parking space for each 4 persons seating capacity or 11 spaces for each 100 m^2 of GFA, whichever is greater
Day Care Centre	1.5 parking spaces for each classroom plus 1 parking space for each 5 person capacity as determined by the total occupant load
Elementary School	2 parking spaces per classroom
Farm Produce Sales Outlet	5 parking spaces for each 100 m^2 of sales area
Financial Institution	5 parking spaces for each 100 m^2 of GFA
Fitness and Recreational Facility	6 parking spaces per 100 m^2 of GFA plus 6 per racquet court
Funeral Home	7.5 parking spaces per 100 m^2 of GFA
Gas Bar	3 parking spaces for each 100m^2 of GFA of the convenience store or 5 parking spaces, whichever is greater
Golf Course	27 parking spaces for each 9 holes of the golf course and 3.75 parking spaces for each 100m^2 of GFA for the clubhouse, pro shop and public use areas
Grocery Store, Supermarket	5 parking spaces for each 100 m^2 GFA
High School	3 parking spaces for each classroom

Use of Building or Lot	Minimum Number of Parking Spaces
	Greater than 2,000 m² of GFA: 0.6 parking space for each 100 m² of GFA
All other Commercial Uses	3.5 parking spaces for each 100 m² of GFA

3.23.2 Barrier Free Parking Requirements (2016-143-ZO)

3.23.2.1 Minimum Barrier Free Parking Space Dimensions

Dimension	*Type A (large)*	*Type B (small)*
Minimum width	3.4 m	2.4 m
Minimum length	5.5 m	5.5 m
Minimum vertical clearance	2.75 m	2.75 m

3.23.2.2 The apportionment of barrier free parking spaces of the total parking spaces required is as follows:

Total Parking Space(s) Required	Barrier Free Parking Space(s) Required
1 to 25	1 *Type A* parking space
26 to 100	4% of total required parking
101 to 200	1 space + 3% of total required parking
201 to 1000	2 spaces + 2% of total required parking
1001+	11 spaces + 1% of total required parking

(All parking spaces shall be rounded up to the nearest whole number)

3.23.2.3 Where an even number of barrier free parking spaces are required, 50% of the required barrier free spaces must be *Type A* and 50% must be *Type B.*

Where an odd number of barrier free parking spaces are required, the additional parking space may be either a *Type A* or a *Type B.*

3.23.2.4 An access aisle must be provided for each barrier free parking space and shall meet the following requirements:

i) a minimum width of 1.5 m

ii) extends the full length of the parking space

iii) is marked with contrasting diagonal lines

iv) the required access aisle may be shared by two barrier free parking spaces