PARSONS

Transportation Demand and Traffic Impact Study

Former Oakville–Trafalgar Memorial Hospital Lands

Final Report

January 2018

Prepared for:

Corporation of the Town of Oakville

1225 Trafalgar Road

Oakville, ON L6H 0H3

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January 29, 2018

Our Ref: [476475]

Corporation of the Town of Oakville
1225 Trafalgar Road
Oakville, ON, L6H 0H3

Attention: Lin Rogers, P. Eng.
Transportation Engineer, Engineering & Construction

Re: Transportation Demand and Traffic Impact Study for the former Oakville–Trafalgar Memorial Hospital Lands, Draft Report

We are pleased to provide you a pdf copy of the Final Report completed Transportation Demand and Traffic Impact Study for the former Oakville-Trafalgar Memorial Hospital Lands.

If you would like any additional information or further clarifications on any aspect of our submission, please contact the undersigned at (905) 569-4122.

Yours truly,

Altaf Hussain P. Eng.
Project Manager

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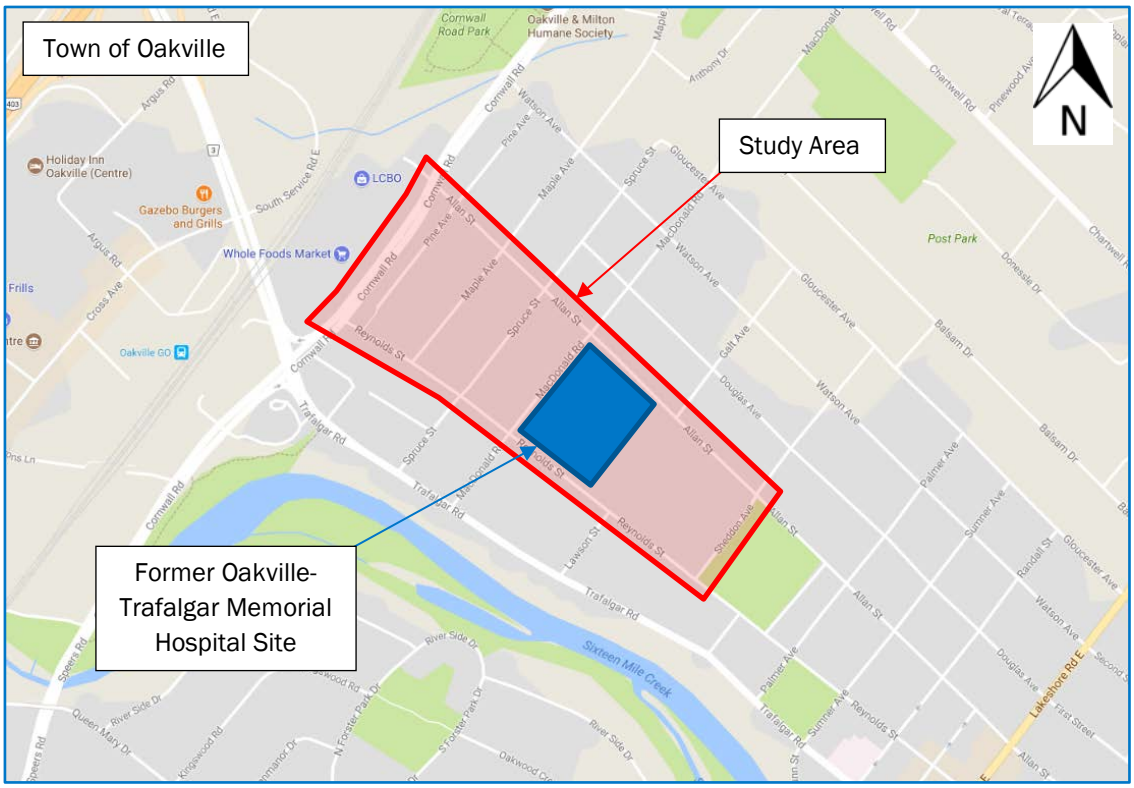
1. BACKGROUND

Parsons was retained by the Town of Oakville to complete a Transportation Demand and Traffic Impact Study for the proposed redevelopment of the former Oakville-Trafalgar Memorial Hospital lands located at 327 Reynolds Street. As outlined in the Town's Official Plan (Livable Oakville) with the overall Master Plan endorsed in June 2017, the approximately 5.6 hectares site is proposed to contain a new Community Centre, a neighbourhood Park and several other residential land uses including low to medium densities residential and seniors-oriented housing.

1.1 STUDY AREA AND ANALYSIS SCOPE OF WORK

The study area is bounded by MacDonald Road/Cornwall Road to the north, Allan Street to the east, Reynolds Street to the west and Sheddon Avenue to the south. The study area is illustrated in **Figure 1**.

Figure 1: Study Area and Study Intersections



In order to complete the Transportation Demand and Traffic Impact Study, the following tasks were completed:

- Conduct site visit to gather existing intersection lane configurations and roadway posted speeds;
- Collect and review traffic data collected for the study area intersections including pedestrian and cyclist volumes;
- Assess the existing traffic conditions for the morning and afternoon peak hours using the Synchro software. Summarize the analysis results including level of service, delays and volumes-to-capacity ratios for the study intersections and critical movements;

- Develop an appropriate traffic growth factor in consultation with the Town and estimate intersection volumes for the 5-year horizon following construction of the proposed Community Centre;
- Undertake traffic signal warrant/justification where required using the criteria set out in the Ontario Traffic Manual (OTM) Book 12 and future intersection peak hour volumes;
- Undertake the future traffic operations and summarize the analysis results including delay, level of service and volumes-to-capacity ratios for the study intersections and critical movements;
- Review the existing and future planed Active Transportation and Transit facilities within the study area;
- Identify pedestrian crossing locations within the study area and undertake warrants for the installation of pedestrian crossings if required;
- Address alternative transportation modes and transportation demand management options for the site with new land uses;
- Review the existing roadway ROW for MacDonald Road, Reynolds Street and Allen Street and identify any deficiencies;
- Meet with the Town staff to present the draft analysis results;
- Prepare Draft Study Report summarizing the findings; and
- Finalize the draft report by incorporating the review comments received from the Town.

2. EXISTING (2017) TRAFFIC CONDITIONS

2.1 ANALYSIS APPROACH AND TOOLS

The traffic analysis conducted for this study considers the capacity and level of service for intersections. Intersections were analyzed using the procedures of the Highway Capacity Manual (HCM) methodologies for signalized and unsignalized intersections, as implemented in the Synchro / SimTraffic 9.0 software developed by Trafficware.

Level of Service (LOS) can be characterized for the each intersection approach and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity (V/C) ratio are used to characterize LOS for a lane group. Delay quantifies the variations in travel time due to traffic signal control. It is also a surrogate measure of driver discomfort and fuel consumption. The volume-to-capacity (V/C) ratio quantifies the degree to which the capacity of each signal phase is utilized by a defined lane group. **Table 1** summarizes the characteristics of each level of service at signalized intersections.

Table 1: Signalized Intersection Level of Service Characteristics

LEVEL OF SERVICE	FEATURES	CONTROL DELAY (SEC/VEH)
A	Describes operations with very low control delay, up to 10 seconds/ vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all at this LOS. Short cycle lengths may also contribute to low delay.	≤ 10
B	Describes operations with control delay greater than 10 seconds and up to	> 10 to 20

LEVEL OF SERVICE	FEATURES	CONTROL DELAY (SEC/VEH)
	20 seconds/vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop at this level than at LOS A, causing longer average delays.	
C	Describes operations with control delay greater than 20 seconds and up to 35 seconds/vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.	> 20 to 35
D	Describes operations with control delay greater than 35 seconds and up to 55 seconds/vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavourable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures become noticeable.	> 35 to 55
E	Describes operations with control delay greater than 55 seconds and up to 80 seconds/vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	> 55 to 80
F	LOS F describes operations with control delay in excess of 80 seconds/vehicle. This *oversaturation*, considered to be unacceptable to most drivers, occurs when arrival flow rates exceed the design capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such high delay levels.	> 80

Source: Highway Capacity Manual (HCM) 2000

The LOS criteria for unsignalized intersections are somewhat different from the criteria for signalized intersections because perceptions of facility users differ. The expectation is that a signalized intersection is designed to carry higher traffic volumes and will present greater delay than an unsignalized intersection. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable than at signalized junctions. This uncertainty can reduce driver's delay tolerance. **Table 2** summarizes the characteristics of each level of service at unsignalized intersections.

Table 2: Unsignalized Intersection Level of Service Characteristics

LEVEL OF SERVICE	EXPECTED DELAY TO MINOR STREET TRAFFIC	AVERAGE CONTROL DELAY 'D' (SEC/VEH)
A	Little or no delays	0 < Delay ≤ 10
B	Short traffic delays	10 < Delay ≤ 15

LEVEL OF SERVICE	EXPECTED DELAY TO MINOR STREET TRAFFIC	AVERAGE CONTROL DELAY 'D' (SEC/VEH)
C	Average traffic delays	15 < Delay ≤ 25
D	Long traffic delays	25 < Delay ≤ 35
E	Very long traffic delays	35 < Delay ≤ 50
F	Extreme delays with queuing which may cause congestion affecting other traffic movements in the intersection	Delay > 50

Source: Highway Capacity Manual (HCM) 2000

2.2 EXISTING (2017) TRAFFIC AND PEDESTRIAN VOLUMES

Existing (2017) traffic and pedestrian volumes for the study area intersections were established using current turning movement data (TMC) collected by Pyramid Traffic Inc. during the month of September 2017. The raw traffic and pedestrian data collected can be found in **Appendix A**.

The existing (2017) traffic and pedestrian volumes recorded for the study area intersections during the weekday AM and PM peak hours are presented in **Figure 2** and **Figure 3**, placed following the report.

2.3 STUDY AREA INTERSECTION CONTROLS AND LANE CONFIGURATIONS

There are a total of thirteen (13) intersections included as part of the traffic analysis study area. Of the thirteen intersections, four (4) are currently under signalized control while the remaining nine (9) are unsignalized intersections. The existing intersection traffic controls and lane configurations for the study area intersections are presented in **Figure 4**, placed following the report.

2.4 EXISTING (2017) INTERSECTION OPERATIONS

Capacity analyses completed for the study area intersections for the existing (2017) weekday AM and PM peak hours were completed using the Synchro/SimTraffic software. It was noted that the signalized intersection of the MacDonald Road with Reynolds Street currently contains an advance southbound left turn phase that was included to provide priority to the former hospital employees and patrons. The results of this analysis are summarized in **Table 3** while the Synchro output sheets are provided in **Appendix B**.

Table 3: Summary of Existing (2017) Intersection Operations, AM and PM Peak Hours

Intersections	AM Peak Hour			PM Peak Hour		
	LOS [Delay (s)]	V/C	95th tile Queue (m)	LOS [Delay (s)]	V/C	95th tile Queue (m)
Trafalgar Rd. & Cornwall Rd. (Signalized)	**D [37]**	**0.66**	–	**D [38]**	**0.68**	–
EBLL	E [69]	0.80	66	E [68]	0.79	66
EBTT&R	D [47]	0.58	81	D [46]	0.47	64
WBL	E [64]	0.13	13	E [60]	0.24	26
WBTT	E [69]	0.67	71	E [73]	0.73	85
WBR	A [1]	0.39	11	A [1]	0.45	15
NBL	C [32]	0.18	13	C [31]	0.15	12
NBTT&R	D [40]	0.39	63	D [42]	0.52	83
SBLL	D [46]	0.62	92	D [50]	0.67	#105
SBT	C [25]	0.57	153	C [26]	0.56	154
SBR	B [19]	0.26	34	B [20]	0.23	31
Reynolds St. & Cornwall Rd. (Signalized)	**A [7]**	**0.35**	–	**A [9]**	**0.42**	–
EBL&TT	A [6]	0.34	72	A [6]	0.36	60
EBR	B [10]	0.04	6	B [10]	0.05	6
WBL	A [2]	0.09	4	A [3]	0.12	7
WBTT&R	A [3]	0.33	36	A [4]	0.41	56
NBL	E [63]	0.41	26	E [61]	0.52	38
NBT&R	E [59]	0.07	12	E [56]	0.10	17
SBL	E [59]	0.03	5	E [55]	0.06	8
SBT&R	E [59]	0.04	9	E [55]	0.08	15
Allan St. & Cornwall Rd. (Signalized)	**C [24]**	**0.40**	–	**C [24]**	**0.43**	–
EBL	C [20]	0.13	8	C [27]	0.31	14
EBTT&R	C [25]	0.62	87	C [24]	0.55	76
WBL	C [20]	0.15	9	C [21]	0.19	12
WBTT&R	C [25]	0.60	85	C [28]	0.71	106
NBL	B [16]	0.21	27	B [15]	0.14	18
NBT&R	B [14]	0.06	11	B [14]	0.06	10
SBL	B [15]	0.07	11	B [16]	0.18	23

Intersections	AM Peak Hour			PM Peak Hour		
	LOS [Delay (s)]	V/C	95th tile Queue (m)	LOS [Delay (s)]	V/C	95th tile Queue (m)
SBT&R	B [14]	0.02	6	B [14]	0.07	12
Reynolds St. & MacDonald Rd. (Signalized)	**B [13]**	**0.10**	-	**B [12]**	**0.10**	-
EBL&T&R	C [29]	0.23	12	C [30]	0.20	11
WBL&T&R	C [29]	0.24	11	C [31]	0.30	14
NBL&T&R	A [2]	0.05	4	A [3]	0.08	8
SBL&T&R	A [2]	0.07	7	A [2]	0.08	8
Trafalgar Rd. & MacDonald Rd. (Unsignalized)	**[1]**	**-**	-	**[1]**	**-**	-
WBL&R	B [15]	0.09	2	C [15]	0.14	4
NBT&R	A [0]	0.26	0	A [0]	0.34	0
SBL&T	A [1]	0.03	1	A [1]	0.03	1
Allan St. & MacDonald Rd. (Unsignalized)	**[1]**	**-**	-	**[8]**	**-**	-
EBL&T&R	A [8]	-	-	A [8]	-	-
WBL&T&R	A [8]	-	-	A [8]	-	-
NBL&T&R	A [8]	-	-	A [8]	-	-
SBL&T&R	A [8]	-	-	A [8]	-	-
Allan St. & Hospital/Galt Ave. (Unsignalized)	**[1]**	**-**	-	**[0]**	**-**	-
EBL&T&R	A [0]	0.00	0	A [0]	0.00	0
WBL&T&R	A [9]	0.01	0	A [9]	0.00	0
NBL&T&R	A [0]	0.00	0	A [0]	0.00	0
SBL&T&R	A [0]	0.00	0	A [0]	0.00	0
Allan St. & Sheddon Ave. (Unsignalized)	**[1]**	**-**	-	**[1]**	**-**	-
EBL&T&R	A [10]	0.01	0	A [10]	0.02	0
WBL&T&R	A [10]	0.01	0	B [10]	0.01	0
NBL&T&R	A [0]	0.00	0	A [0]	0.00	0
SBL&T&R	A [0]	0.00	0	A [0]	0.00	0

Intersections	AM Peak Hour			PM Peak Hour		
	LOS [Delay (s)]	V/C	95th tile Queue (m)	LOS [Delay (s)]	V/C	95th tile Queue (m)
Reynolds St. & Sheddon Ave. (Unsignalized)	**[1]**	**-**	-	**[1]**	**-**	-
WBL&R	A [9]	0.01	0	A [9]	0.00	0
NBT&R	A [0]	0.03	0	A [0]	0.07	0
SBL&T	A [1]	0.01	0	A [1]	0.01	0
Reynolds St. & Freestone Ln. (Unsignalized)	**[1]**	**-**	-	**[1]**	**-**	-
EBL&T&R	A [10]	0.01	0	A [9]	0.01	0
WBL&T&R	A [0]	0.00	0	A [9]	0.00	0
NBL&T&R	A [1]	0.00	0	A [0]	0.00	0
SBL&T&R	A [0]	0.00	0	A [0]	0.00	0
Trafalgar Rd. & Freestone Ln. (Unsignalized)	**[0]**	**-**	-	**[0]**	**-**	-
WBL&R	A [10]	0.00	0	B [12]	0.01	0
NBT&R	A [0]	0.16	0	A [0]	0.26	0
SBL&T	A [0]	0.00	0	A [0]	0.01	0
Trafalgar Rd. & Lawsons St. (Unsignalized)	**[0]**	**-**	-	**[0]**	**-**	-
WBL&R	B [10]	0.02	0	B [12]	0.04	1
NBT&R	A [0]	0.17	0	A [0]	0.27	0
SBL&T	A [0]	0.01	0	A [0]	0.01	0
Reynolds St. & Lawsons St. (Unsignalized)	**[1]**	**-**	-	**[2]**	**-**	-
EBL&T&R	A [9]	0.02	0	A [10]	0.02	0
WBL&T&R	B [10]	0.00	0	A [9]	0.02	0
NBL&T&R	A [1]	0.01	0	A [1]	0.01	0
SBL&T&R	A [0]	0.00	0	A [0]	0.00	0

As shown in **Table 3**, under existing (2017) traffic conditions, all of the study area intersections are operating satisfactorily with no issues that would require the need for intersection improvements.

3. TRAFFIC VOLUME VARIATION BEFORE AND AFTER RELOCATION OF HOSPITAL

As part of the study, a comparison of the study area intersection traffic volumes was completed to determine the variation between volumes during operations of the former Oakville-Trafalgar Memorial Hospital and the current conditions. The summaries of the historical intersection volumes collected in various years are presented in **Figure 5,** and the variation in the intersection volumes without and with the hospital are presented in **Figure 6**, both placed following the report.

A comparison between the historical and current traffic volumes indicates that overall traffic volumes within the study area have generally decreased. A quick summary of the average reductions in hourly volumes (volumes in brackets for PM peak hour) between the intersections which have occurred for each of the roadways surrounding the former hospital lands is as follows:

- MacDonald Road: 35 (36) trips in EB direction and 13 (20) in the WB direction
- Allan Street: 35 (70) trips in the NB direction and 60 (25) in SB direction
- Reynolds Street: 100 (170) in the NB direction and 225 (100) in SB direction
- Trafalgar Road: 20 (85) in the NB direction and 25(25) in SB direction
- Cornwall Road section between Reynolds and Allan Streets: 70 (0) in the EB direction and 40 (30) in the WB direction
- Cornwall Road section between Trafalgar Road and Reynolds Street: 350 (150) in the EB direction and 80 (180) in the WB direction

As noted above, significant traffic volumes have decreased along the Cornwall Road section between Trafalgar Road and Reynolds Street and along Reynolds Street and Allan Street. It is noted that an exclusive eastbound through lane on the Cornwall Road section east of Trafalgar Road that becomes a dedicated eastbound right turn lane at the Reynolds Street intersection. This lane has been provided to accommodate the former hospital associated traffic volumes and may not be required in the future. This should be reviewed in the future when improvements to the Cornwall Road corridor east of Trafalgar Road are planned.

4. PROPOSED FUTURE REDEVELOPMENT

The redevelopment of the former hospital lands will contain several land uses which have been endorsed by Town Council in June 2017 and are presented in a Master Plan for the site. **Figure 7** illustrates the locations of the proposed land uses[1] which includes the following:

- Neighbourhood Community Park – 0.65 ha
- Community Centre – 53,000 sq. ft.
- Single Family Dwelling (Low Density residential) – 16 units
- Townhomes/Condos – (19+19) = 38 units
- Senior Adult Housing (unassisted) – 50 units

Figure 7: Figure of Master Plan for Former Hospital Site

[1] It should be noted that the development proposal outlined in this report was based on a previous concept plan and are assumed to be higher than the current proposal. For the purpose of this report, the analysis was maintained using the land use statistics from the previous proposal and represents the conservative analysis results.

5. FUTURE REDEVLOPMENT SITE GENERATED TRAFFIC

5.1 FUTURE REDEVLOPMENT SITE GENERATED TRAFFIC VOLUMES

The site traffic volumes for the proposed land uses as part of the proposed redevelopment were estimated using trip generation rates documented in the Institute of Transportation Engineers' (ITE), Trip Generation 9th Edition. In particular, the following ITE Land Use Code was utilized:

- City Park (Code 411);
- Recreational Community Centre (Code 495);
- Single-Family Detached Housing (Code 210);
- Residential Condominium/Townhouse (Code 230); and
- Senior Adult Housing – Detached (Code 251).

The resulting trips forecasted to be generated by these land uses during the weekday AM and PM peak hours are presented in **Table 4**. It is estimated that the proposed land uses will generate approximately 156 total trips (86 inbound and 70 outbound) during the AM peak hour and 200 total trips (107 inbound and 93 outbound) during the PM peak hour.

5.2 TRIP DISTRIBUTION AND ASSIGNMENT

The forecasted traffic volumes for the proposed redevelopment land uses were distributed onto the study area intersections utilizing the existing travel patterns within the study area. **Figure 8** illustrates the proposed trip distribution, placed following the report.

Site traffic volumes for each of the land uses were assigned to the appropriate access based on the locations presented within the approved Master Plan. The resulting weekday AM and PM site traffic volumes for the proposed Oakville-Trafalgar Memorial Hospital Lands redevelopment are shown in **Figure 9**, placed following the report.

Table 4: Weekday AM and PM Peak Hour Site Generated Traffic Volumes

No.	Land Use	Trip Generation	Area/Units				AM Peak Hour						PM Peak Hour					
							Trip Rate			Trips			Trip Rate			Trips		
							In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
1	Neighbourhood Community Park	City Park (LUC 411)	0.650	hec	1.6	Acres	2.52	1.98	4.50	4	3	7	2.00	1.51	3.50	4	2	6
		Trip Adjustment (Transit trips reductions)								0	0	0				0	0	0
		Sub-Total								***4***	***3***	***7***				***4***	***2***	***6***
2	Community Centre	Recreational Community Centre (LUC 495)	4,921	m^2	53,000.0	ft^2	1.35	0.70	2.05	72	37	109	1.34	1.40	2.74	71	74	145
		Trip Adjustment (Transit trips reductions)								0	0	0				0	0	0
		Sub-Total								***72***	***37***	***109***				***71***	***74***	***145***
3	Single Family Dwelling (Low Density Residential)	Single-Family Detached Housing (LUC-210)	16	Units			0.19	0.56	0.75	3	9	12	0.64	0.37	1.01	10	6	16
		Trip Adjustment (Transit trips reductions)								0	0	0				0	0	0
		Sub-Total								***3***	***9***	***12***				***10***	***6***	16
4	Townhomes / Condos (Medium Density Residentials) - Northeast Corner of Site	Residential Condominium/Townhouse (LUC 230)	19	Units			0.07	0.37	0.44	1	7	8	0.35	0.17	0.52	7	3	10
		Trip Adjustment (Transit trips reductions)								0	0	0				0	0	0
		Sub-Total								***1***	***7***	***8***				***7***	***3***	***10***
5	Townhomes / Condos (Medium Density Residentials) - Southeast Corner of Site	Residential Condominium/Townhouse (LUC 230)	19	Units			0.07	0.37	0.44	1	7	8	0.35	0.17	0.52	7	3	10
		Trip Adjustment (Transit trips reductions)								0	0	0				0	0	0
		Sub-Total								***1***	***7***	***8***				***7***	***3***	***10***
6	Senior Adult-Detached	Senior Adult Housing - Detached (LUC 252)	50	Units			0.08	0.14	0.22	4	7	11	0.18	0.09	0.27	9	5	14
		Trip Adjustment (Transit trips reductions)								0	0	0				0	0	0
		Sub-Total								***4***	***7***	***11***				***9***	***5***	***14***
TOTAL TRIPS										**86**	**70**	**156**				**107**	**93**	**200**

6. FUTURE TOTAL (2025) TRAFFIC CONDITIONS

6.1 FUTURE TOTAL (2025) TRAFFIC VOLUMES

For the purpose of the future traffic analysis, an 8-year horizon year of 2025 was selected. No background developments were assumed within the study area to project the future total (2025) traffic volumes. However, the following assumptions were used to increase the existing (2017) traffic volumes to accounts for uncertain variation in the traffic volumes in addition to the site traffic volumes estimated to be generated by the proposed land uses outlined under Sections 4 and 5:

1. A growth rate of 2% per annum applied to through movements at the Cornwall Road intersections and 1% per annum applied to turning movements to/from these intersections; and
2. A growth rate of 1% per annum applied to all other study area intersection movements.

The estimated future (2025) volumes for the AM and PM peak hours are shown in **Figure 10**, placed following the report.

6.2 FUTURE TOTAL (2025) INTERSECTION OPERATIONS

Using the future forecasted (2025) traffic volumes, intersection operation analysis was performed for the study area intersections without any improvements to determine any capacity deficiencies that may arise.

Due to the removal of the former hospital, the existing advance left turn phase for the southbound right turn movement at the MacDonald Road and Reynolds Street intersection is not required and traffic operations were completed without this advance phase for this intersection and the existing cycle length of 100 seconds was reduced to 90 seconds in both the AM and PM peak hours.

Traffic operation analysis for the intersection of MacDonald Road and Reynolds Street assumed only two phases, north/south and east/west phases. Summaries of the future traffic analysis results are presented in **Table 5** and Synchro output sheets are provided in **Appendix C**.

Table 5: Summary of Future Total (2025) Intersection Operations

Intersections	AM Peak Hour			PM Peak Hour		
	LOS [Delay (s)]	V/C	95th tile Queue (m)	LOS [Delay (s)]	V/C	95th tile Queue (m)
Trafalgar Rd. & Cornwall Rd. (Signalized)	**D [41]**	**0.78**	–	**D [43]**	**0.82**	–
EBLL	E [72]	0.85	#81	E [77]	0.88	#85
EBTT&R	D [45]	0.62	93	D [46]	0.54	75
WBL	E [63]	0.15	14	E [58]	0.27	0
WBTT	E [70]	0.70	82	E [74]	0.79	100
WBR	A [1]	0.46	17	A [1]	0.53	26
NBL	C [35]	0.28	17	C [33]	0.24	16

Intersections	AM Peak Hour			PM Peak Hour		
	LOS [Delay (s)]	V/C	95th tile Queue (m)	LOS [Delay (s)]	V/C	95th tile Queue (m)
NBTT&R	D [46]	0.52	77	D [47]	0.65	106
SBLL	D [52]	0.77	#130	E [59]	0.85	#144
SBT	C [34]	0.74	#223	C [34]	0.72	#219
SBR	C [24]	0.35	56	C [23]	0.31	49
Reynolds St. & Cornwall Rd. (Signalized)	**A [8]**	**0.41**	–	**B [11]**	**0.50**	–
EBL&TT	A [7]	0.40	84	A [9]	0.43	73
EBR	A [8]	0.05	7	B [10]	0.07	8
WBL	A [3]	0.16	7	A [4]	0.21	11
WBTT&R	A [3]	0.39	49	A [5]	0.49	82
NBL	E [65]	0.53	32	E [64]	0.62	47
NBT&R	E [59]	0.09	14	E [55]	0.19	23
SBL	E [58]	0.04	5	D [54]	0.06	8
SBT&R	E [59]	0.06	10	D [55]	0.18	21
Allan St. & Cornwall Rd. (Signalized)	**C [26]**	**0.47**	–	**C [28]**	**0.51**	–
EBL	C [23]	0.21	10	D [49]	0.56	#23
EBTT&R	C [28]	0.73	109	C [26]	0.65	94
WBL	C [28]	0.33	14	C [28]	0.38	19
WBTT&R	C [28]	0.71	106	C [33]	0.84	135
NBL	B [17]	0.25	32	B [16]	0.18	23
NBT&R	B [15]	0.09	14	B [14]	0.08	12
SBL	B [15]	0.09	12	B [16]	0.22	27
SBT&R	B [14]	0.03	6	B [15]	0.09	15
Reynolds St. & MacDonald Rd. (Signalized)	**B [14]**	**0.13**	--	**B [12]**	**0.15**	--
EBL&T&R	C [30]	0.29	14	C [29]	0.26	14
WBL&T&R	C [30]	0.30	14	C [30]	0.36	17
NBL&T&R	A [3]	0.06	6	A [3]	0.11	10
SBL&T&R	A [3]	0.10	9	A [3]	0.12	11
Trafalgar Rd. & MacDonald Rd. (Unsignalized)	**[2]**	-	--	**[2]**	-	--

Intersections	AM Peak Hour			PM Peak Hour		
	LOS [Delay (s)]	V/C	95th tile Queue (m)	LOS [Delay (s)]	V/C	95th tile Queue (m)
WBL&R	C [19]	0.17	5	C [22]	0.27	8
NBT&R	A [0]	0.30	0	A [0]	0.41	0
SBL&T	A [1]	0.05	1	A [1]	0.06	1
Allan St. & MacDonald Rd. (Unsignalized)	**[8]**	-	-	**[9]**	-	-
EBL&T&R	A [8]	-	-	A [8]	-	-
WBL&T&R	A [8]	-	-	A [8]	-	-
NBL&T&R	A [9]	-	-	A [9]	-	-
SBL&T&R	A [8]	-	-	A [9]	-	-
Allan St. & Hospital/Galt Ave. (Unsignalized)	**[1]**	-	-	**[1]**	-	-
EBL&T&R	A [10]	0.03	1	B [10]	0.04	1
WBL&T&R	A [10]	0.01	0	A [9]	0.00	0
NBL&T&R	A [0]	0.00	0	A [0]	0.01	0
SBL&T&R	A [0]	0.00	0	A [0]	0.00	0
Allan St. & Sheddon Ave. (Unsignalized)	**[1]**	-	-	**[1]**	-	-
EBL&T&R	A [10]	0.01	0	A [10]	0.02	0
WBL&T&R	A [10]	0.01	0	B [10]	0.01	0
NBL&T&R	A [0]	0.00	0	A [0]	0.00	0
SBL&T&R	A [0]	0.00	0	A [0]	0.00	0
Reynolds St. & Sheddon Ave. (Unsignalized)	**[1]**	-	-	**[1]**	-	-
WBL&R	A [9]	0.02	0	A [10]	0.01	0
NBT&R	A [0]	0.04	0	A [0]	0.08	0
SBL&T	A [1]	0.01	0	A [1]	0.01	0
Reynolds St. & Freestone Ln. (Unsignalized)	**[1]**	-	-	**[1]**	-	-
EBL&T&R	A [10]	0.01	0	A [9]	0.01	0
WBL&T&R	A [0]	0.00	0	A [9]	0.00	0
NBL&T&R	A [1]	0.00	0	A [0]	0.00	0
SBL&T&R	A [0]	0.00	0	A [0]	0.00	0

Intersections	AM Peak Hour			PM Peak Hour		
	LOS [Delay (s)]	V/C	95th tile Queue (m)	LOS [Delay (s)]	V/C	95th tile Queue (m)
Trafalgar Rd. & Freestone Ln. (Unsignalized)	**[0]**	**-**	-	**[0]**	**-**	-
WBL&R	B [10]	0.00	0	B [13]	0.01	0
NBT&R	A [0]	0.19	0	A [0]	0.31	0
SBL&T	A [0]	0.00	0	A [0]	0.01	0
Trafalgar Rd. & Lawsons St. (Unsignalized)	**[1]**	**-**	-	**[1]**	**-**	-
WBL&R	B [11]	0.03	1	B [13]	0.06	1
NBT&R	A [0]	0.19	0	A [0]	0.31	0
SBL&T	A [0]	0.02	0	A [0]	0.02	0
Reynolds St. & Lawsons St. (Unsignalized)	**[3]**	**-**	-	**[3]**	**-**	-
EBL&T&R	A [10]	0.03	1	B [11]	0.04	1
WBL&T&R	A [10]	0.03	1	B [10]	0.06	1
NBL&T&R	A [1]	0.01	0	A [1]	0.01	0
SBL&T&R	A [1]	0.01	0	A [0]	0.02	0

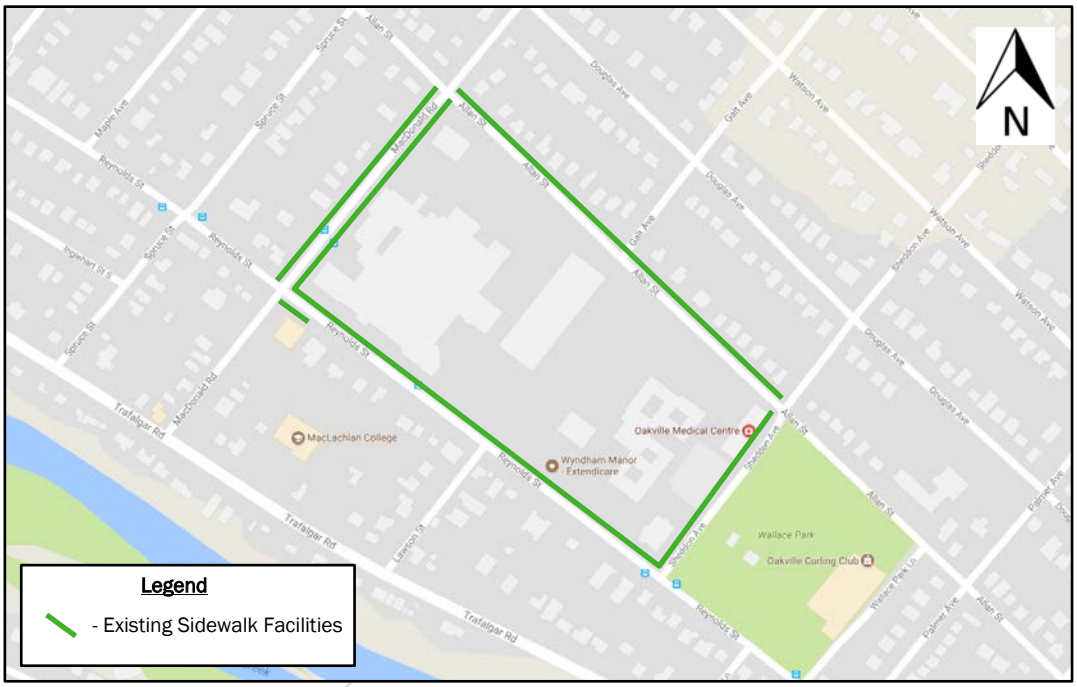
As presented in **Table 5**, all of the study area intersections are forecast to operate satisfactorily under future total (2025) traffic conditions with the addition of the site generated traffic volumes from the proposed Oakville-Trafalgar redevelopment land uses. Based on these results, there are no intersection improvements required within the study area.

7. ACTIVE TRANSPORTATION & TRANSIT

7.1 PEDESTRIAN FACILITIES

A review of active transportation facilities within the immediate area of the hospital lands found that sidewalks are currently present on at least one side of the surrounding study area roadways and in the case of MacDonald Road, sidewalks are on both sides. **Figure 11** presents the sidewalk infrastructure currently present within the study area and pedestrian volumes collected at the study intersection crossing are shown on a figure placed following the report.

Figure 11: Existing Sidewalk Facilities within Study Area

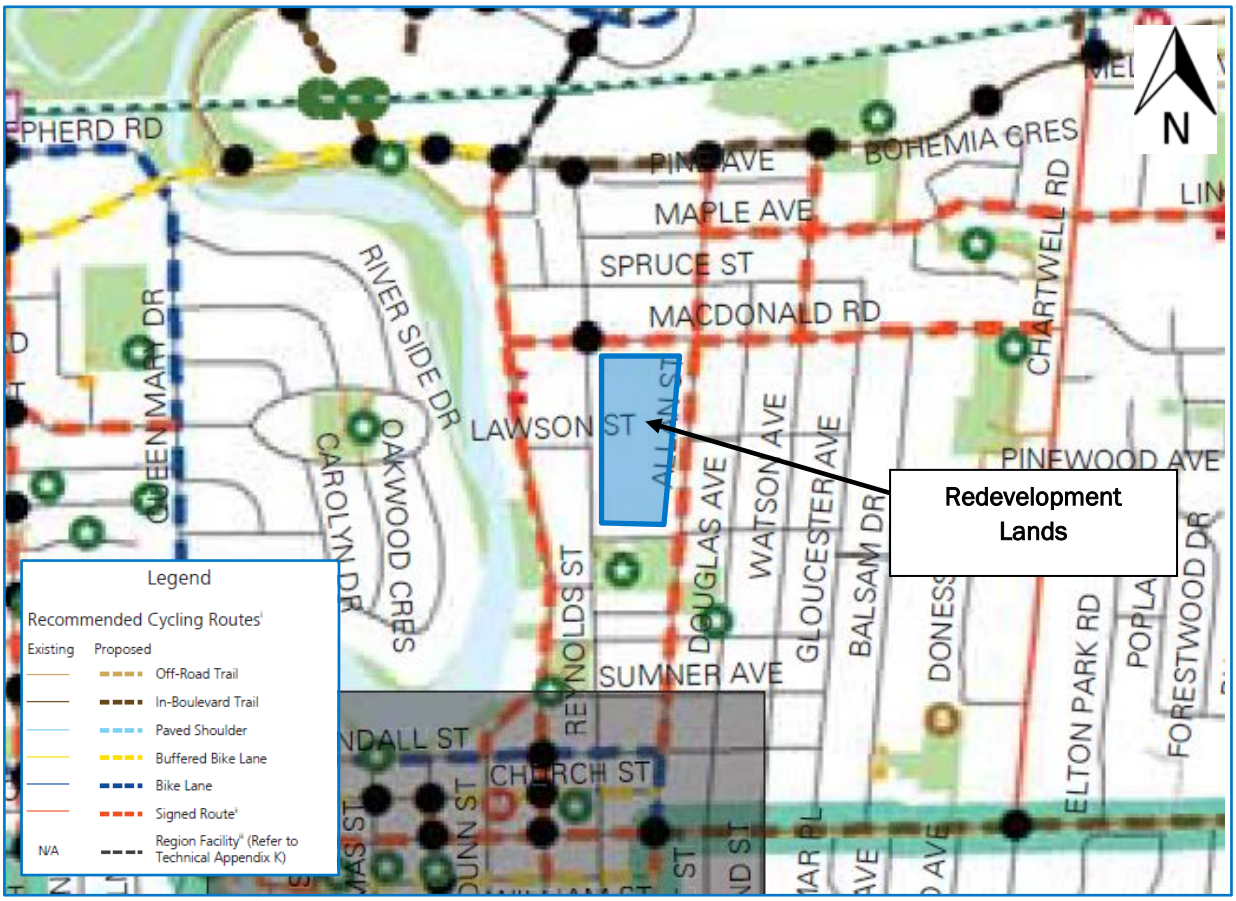


It is noted that the proposed redevelopment has access driveways from Reynolds Street, MacDonald Road and Allan Street. Sidewalks are currently available on east and south sides of Reynolds Street and MacDonald Road, respectively. It is recommended that a sidewalk be provided on west side of Allan Street to accommodate pedestrian traffic from Allan Street to access the proposed Community Centre and Park facilities.

7.2 CYCLING FACILITIES

A review of cycling facilities within the area immediately surrounding the hospital lands found that there currently is no cycling infrastructure provided. However, a review of the Town's Active Transportation Master Plan (Draft July 2017) indicates that both MacDonald Road and Allan Street have been identified for proposed signed bike routes. **Figure 12** taken from the Active Transportation Master Plan illustrates the proposed routes.

Figure 12: Proposed Cycling Facilities within the Study Area



7.3 TRANSIT

Based on Oakville Transit's Weekday Route Map, there are currently two transit routes which provide regular service on roadways within the study area. As presented in **Figure 13**, Route 11 currently operates along MacDonald Road and Route 14+ operates along Reynolds Street. A review of transit facilities along these roadways indicates there are currently four (4) transit stops within the study area, three (3) located along Reynolds Street and one (1) located on MacDonald Road. The approximate locations of these stops are presented in **Figure 14**.

Figure 13: Snapshot of Oakville Transit Weekday Route Map

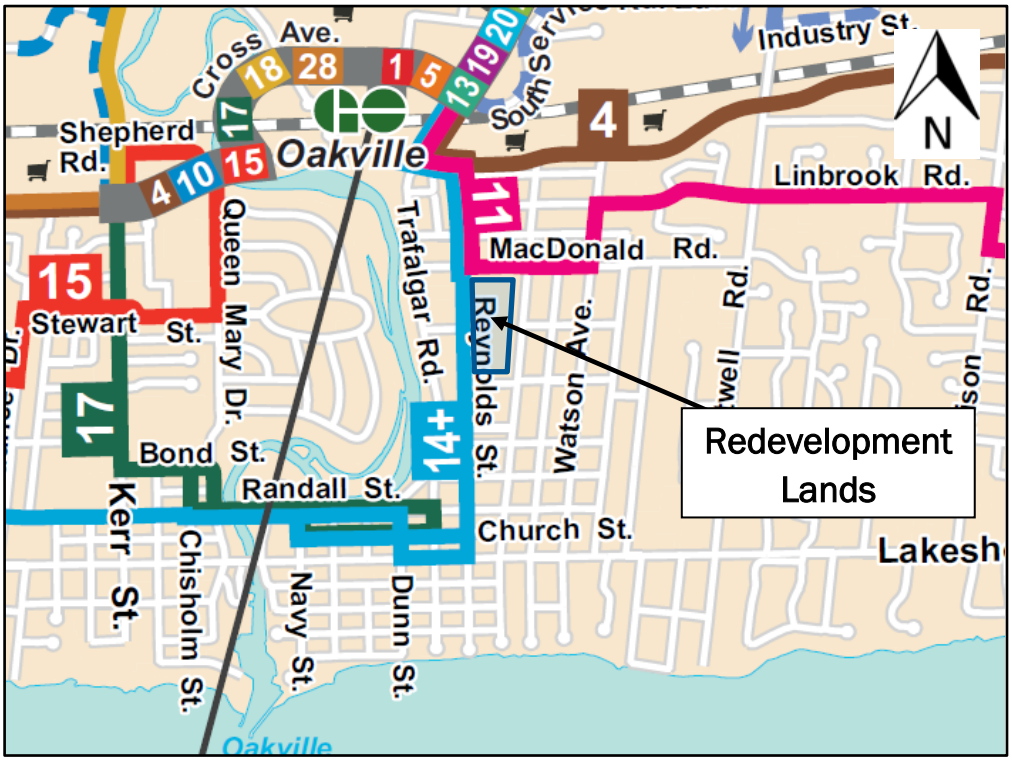


Figure 14: Approximate Locations of Existing Transit Stops

8. REVIEW OF EXISTING ROADWAYS RIGHT-OF-WAY

8.1 MACDONALD ROAD

The existing right-of-way (ROW) of MacDonald Road varies from approximately 17.5 to 18m. The roadway consists of two through lanes which consist of a combined width of 8m. Along the south side of the roadway there is currently 1.5m sidewalk with a grass boulevard which varies in width +/- 2m. The north side of MacDonald Road contains a sidewalk which varies in width +/- 1.8m and no boulevard.

No on-street parking is allowed along this roadway as Rb-51 'No parking' signs are present on the north side while the south side contains Rb-51 signs with an added tow-away symbol. Utilities are mainly accommodated on the north side of MacDonald Road while hydrants are present on both sides of the roadway. Curbs and gutter are provided on both sides of the roadway and catch basins are present for drainage.

8.2 REYNOLDS STREET

The existing ROW of Reynolds Street also varies in width from approximately 15 to 17.5m. The roadway consists of two through lanes which vary in width for a combined +/- 6.25m. Sidewalks are present along both sides of the roadway for approximately 30m on west side south of MacDonald Road however the sidewalk on the west side of the roadway ends while on the east side continues for the length of the roadway with a varying width of +/- 2m. There are small sections along the east side of the roadway near the former hospital entrance which contain a boulevard however for the majority of the east side there is no boulevard with a combined concrete sidewalk and curb.

Reynolds Street looking south near Old Hospital Access

No on-street parking is allowed along the roadway with Rb-51 'No parking' signs along the west side while the east side contains Rb-51 signs with the added tow-away symbol. On the section of roadway south of Lawson Street there are also Rb-62 'No Heavy Trucks' signs present on both sides of the roadway. Utilities are accommodated mainly on the east side of Reynolds Street however in some sections, utilities are accommodated on the west side well. Fire hydrants are provided along the east side of the roadway with curbs and gutter provided on both sides of the roadway and catch basins are present for drainage.

8.3 ALLAN STREET

The existing ROW of Allen Street varies in width from approximately 11.5 to 16m. There are two through lanes along the roadway which vary in width for a combined +/- 6.25m. Sidewalk is present only on the east side of the roadway which has a width +/- 1.5m and there is no boulevard present along this side and only a combined concrete sidewalk with curb.

Allan Street looking south near Old Hospital Access

Along both sides of Allan Street there are several Rb-55 'No Stopping' signs present. Utilities are primarily accommodated on the west side of Allan Street. Curbs and gutter are provided only on the east side of the roadway however catch basins are present for drainage on both sides.

A review of the report *On-Street Parking Study of Roadways Around Former Site of Oakville Trafalgar Memorial Hospital* dated September 2016 prepared by Hatch and a Staff Report prepared by Oakville reveals that the Recommended Parking Strategy # 2 suggested the implementation of 3 hours parking on east side of Allan Street following the completion of former hospital demolition which is expected in early 2018. Since the existing ROW of Allan Street from north of Sheddon Avenue to MacDonald Road is approximately 11.5m and the Town is considering widening the existing ROW to 18m along Allan Street and also widening the existing pavement width to 8m with a 4m wide lane in each direction. There will be significant construction activites occurring on west of side of Allan Street, it is recommended however that the implementation of the Recommended Parking Strategy # 2 along Allan Street be delayed beyond the redevelopment of the former hospital lands that is anticipated by 2020.

9. PROPOSED ROADWAYS RIGHT-OF-WAY

In determining the proposed right-of-way widths for MacDonald Road, Reynolds Street and Allan Street, the typical sections from the North Oakville Design Guidelines were reviewed and examined to account for transit and signed bike route provisions. In particular the Town's 20m ROW – Typical Section (STD. 7-2) and 19m ROW were reviewed and the following key points have been highlighted:

- Minimum pavement width of 8m thus providing a 4m wide lane in each direction. This lane width can accommodate both the transit and signed bike routes;
- Widening of boulevard from existing variable width to maximum 4.5m towards hospital lands; and
- Minimum impacts at the upstream and downstream intersections due to relocation of the road centreline.

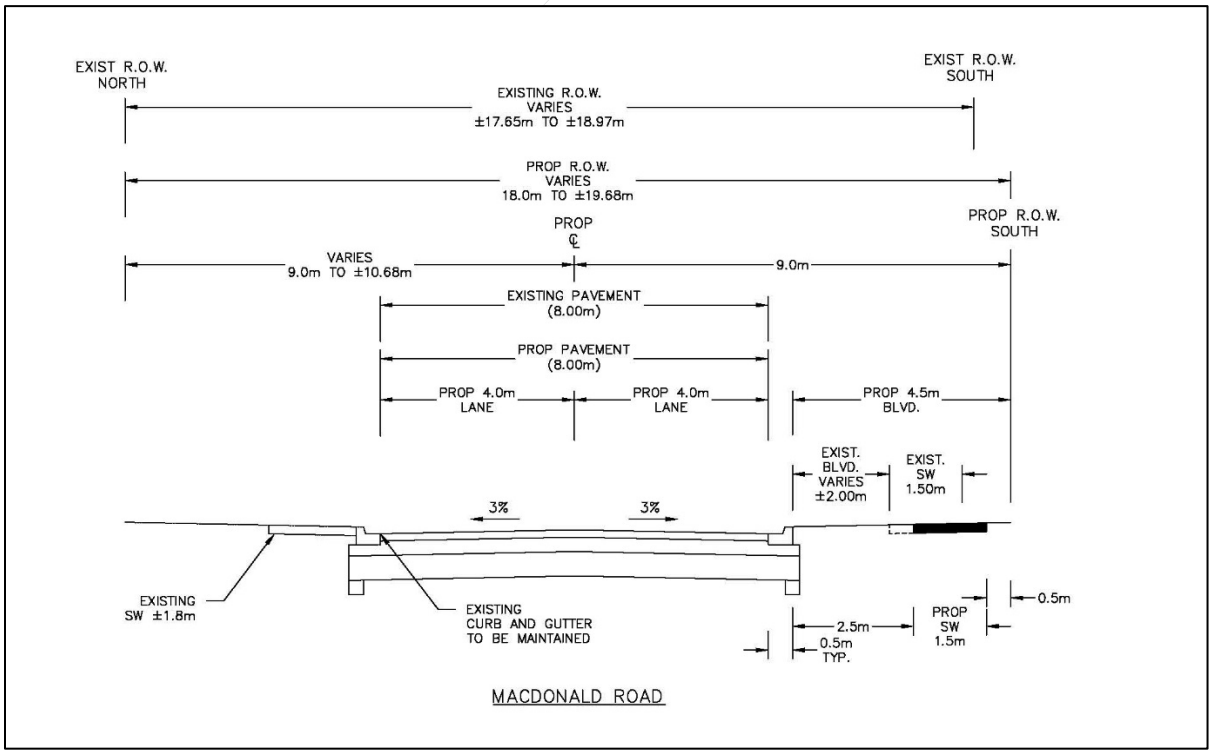
9.1 MACDONALD ROAD

In conjunction with the Town's Design Guidelines, the following right-of-way improvements are proposed for MacDonald Road:

- Proposed ROW widening to the south by 0.5m to extend the existing boulevard to approximately 2 to 2.5m;
- No need to widen the pavement as it is already 8m wide; and
- Currently a sidewalk is located on north side at the back of curb and there is a boulevard between the back of curb and sidewalk on south side.

A typical section for the proposed ROW of MacDonald Road is shown in **Figure 15**.

Figure 15: Typical Section - MacDonald Road



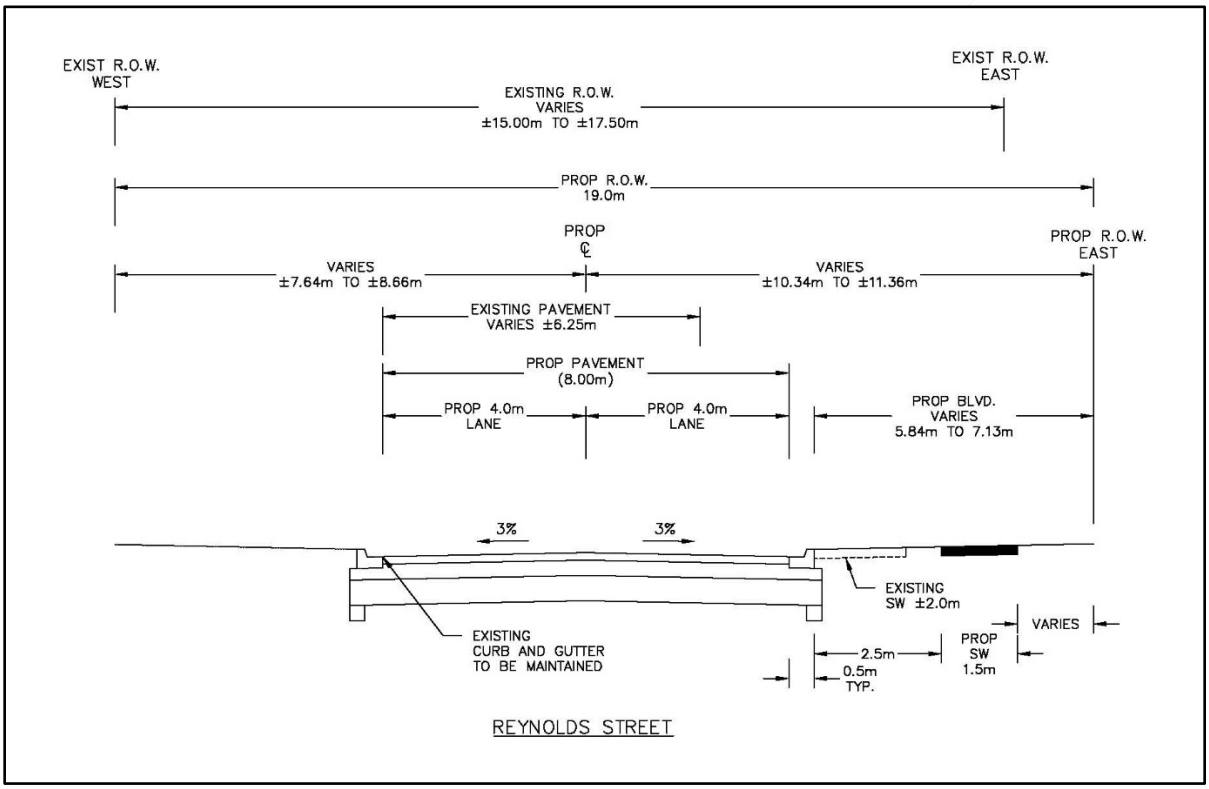
9.2 REYNOLDS STREET

In conjunction with the Town's Design Guidelines, the following right-of-way improvements are proposed for Reynolds Street:

- Proposed ROW widening to the east side varies from 2.5 to 4m;
- Maintain west curb and widen the existing pavement of 6.25m to 8m to the east along with a 4.5m wide boulevard. Currently a sidewalk is located at the back of curb with the exception of driveway locations where there is a boulevard between the sidewalk and back of curb; and
- Proposed relocation of road centreline of approximately 0.88m is to be transitioned back to the existing road centreline at the upstream and downstream intersections.

A typical section for the proposed ROW of Reynolds Street is shown in **Figure 16**.

Figure 16: Typical Section – Reynolds Street



9.3 ALLAN STREET

In conjunction with the Town's Design Guidelines, the following right-of-way improvements are proposed for Allan Street:

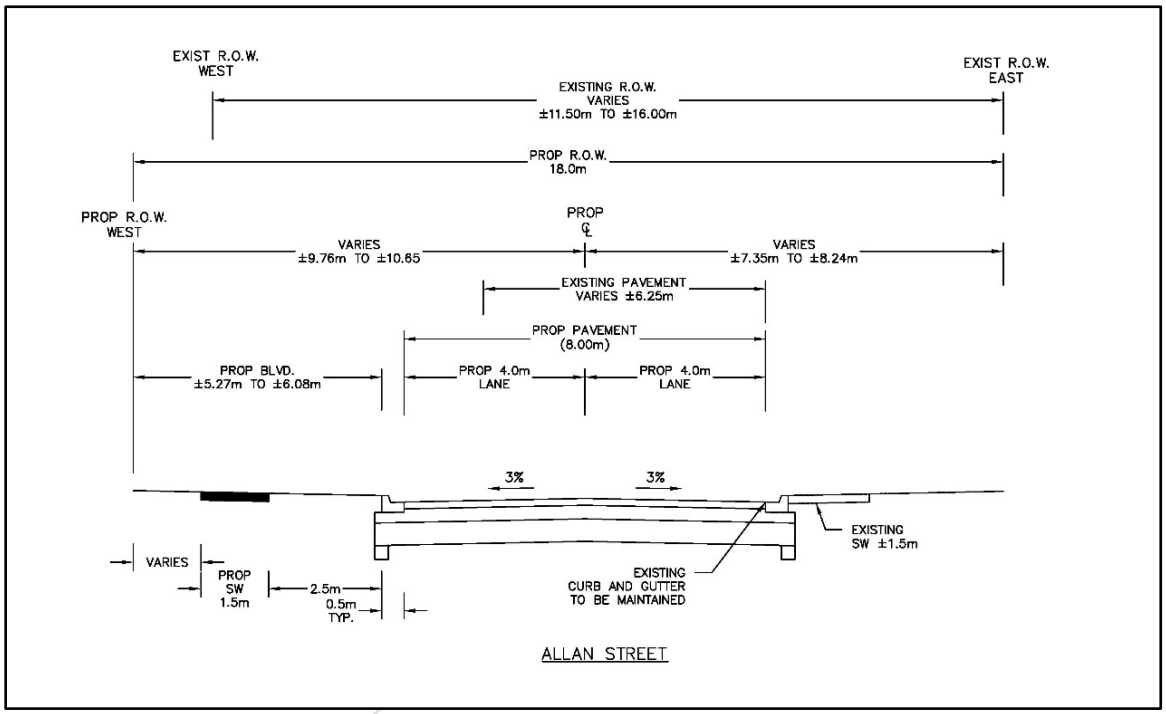
- Proposed ROW widening to the west varies from 2 to 6.5m;
- Maintain east curb and widen the existing pavement of 6.25m to 8m to the west along with a 4.5m wide boulevard. Currently a sidewalk is available only on east side that is located at the back of curb; and

1.5m sidewalk is proposed on west side to accommodate the proposed Park and Community Centre pedestrian traffic; and

- Proposed relocation of road centreline of approximately 0.88m is to be transitioned back to the existing road centreline at the upstream and downstream intersections.

A typical section for the proposed ROW of Allan Street is shown in **Figure 17**.

Figure 17: Typical Section – Allan Street



A functioanl plan was developed based on the proposed ROW to determine the potential impacts of the ROW extension at the approches of intersections located upstream and downstream in the study area. A copy of Functional Plan based on the recommended ROW for Reynolds Street, MacDonald Road and Allan Street along with typical sections are provided in **Appendix D**.

10.ANALYSIS CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the completed Transportation Demand and Traffic Impact Study completed for the proposed redevelopment of the former Oakville-Trafalgar Memorial Hospital Lands, the following are the conclusions and recommendations:

1. Under the existing (2017) traffic conditions, all of the study area intersections are operating satisfactorily and no intersection operational improvements are required.

2. An analysis undertaken to determine the variation in intersection volumes within the study area without and with the former hospital showed that significant volumes have decreased along the Cornwall Road section between Trafalgar Road and Reynolds Street, along Reynolds Street and Allan Street. It is noted that an exclusive eastbound through lane on the Cornwall Road section east of Trafalgar Road that becomes a dedicated eastbound right turn lane at the Reynolds Street intersection. This lane has been provided to accommodate the former hospital associated traffic volumes and may not be required in the future. This should be reviewed in the future when improvements to the Cornwall Road corridor east of Trafalgar Road are planned. This should be reviewed in the future when improvements to the Cornwall Road corridor east of Trafalgar Road are planned.

3. It is estimated that the proposed land uses as part of the hospital lands redevelopment will generate approximately 156 total trips (86 inbound and 70 outbound) during the AM peak hour and 200 total trips (107 inbound and 93 outbound) during the PM peak hour.

4. No background developments were assumed within the study area to forecast the future total (2025) traffic volumes. However, to accommodate the uncertain variation in traffic volumes, a growth rate of 2% per annum was applied to through movements along the Cornwall Road intersections and a growth rate of 1% per annum was applied to turning movements to/from these intersection movements and to all movements of the other study area intersections in addition to the site generated traffic volumes to develop the future (2025) traffic volumes.

5. Due to the removal of the former hospital, the existing advance left turn phase for the southbound right turn movement at the MacDonald Road and Reynolds Street intersection is not required and should be eliminated. Future (2025) traffic operations were completed without this advance phase for this intersection and the existing cycle length of 100 seconds was reduced to 90 seconds in both the AM and PM peak hours.

6. Under the future total (2025) traffic conditions all of the study area intersections are forecast to operate satisfactorily and no intersection operational improvements required.

7. A review of existing sidewalk facilities indicates that sidewalks are currently present on at least one side of the surrounding study area roadways and in the case of MacDonald Road, on both sides.

8. It is noted that the proposed redevelopment is proposing access driveways from Reynolds Street, MacDonald Road and Allan Street. Sidewalks are currently available on east and south sides of Reynolds Street and MacDondal Road, respectively. It is recommended that a sidewalk be provided on west side of Allan Street to accommodate pedestrian traffic from Allan Street to access the proposed the Community Centre and Park facilities.

9. A review of cycling facilities within the area immediately surrounding the hospital lands found that there currently is no cycling infrastructure provided. However, a review of the Town's Active Transportation Master Plan (Draft July 2017) indicates that both MacDonald Road and Allan Street have been identified for the proposed signed bike routes.

10. Based on Oakville Transit's Weekday Route Map, there are currently two transit routes which provide regular service on roadways within the study area. Route 11 currently operates along MacDonald Road and Route 14+ operates along Reynolds Street. A review of transit facilities along these roadways indicates there are currently four (4) transit stops within the study area, three (3) located along Reynolds Street and one (1) located on MacDonald Road.

11. Currenlty on-street parking is not permitted on Reynolds Street, MacDondal Road and Allan Street within the study area.

12. A review of the report *On-Street Parking Study of Roadways Around Former Site of Oakville Trafalgar Memorial Hospital* dated September 2016 prepared by Hatch and a Staff Report prepared by Oakville reveals that the Recommended Parking Strategy # 2 suggested implementation of 3 hours parking on east side of Allan Street following the completion of former hospital demolition which is expected in early 2018. Since the existing ROW of Allan Street from north of Sheddon Avenue to MacDonald Road is approximately 11.5m and the Town is considering widening of Allan Street the existing ROW to 18m along with widening of the existing pavement width to 8m with 4m wide lane in each direction. There will be significant construction activites occurring on west of side of Allan Street, it is recommended however that the implementation of the Recommended Parking Strategy # 2 along Allan Street be delayed beyond the redevelopment of the former hospital lands that is anticipated by 2020.

13. It is recommended that the existing ROW of Reynolds Street, MacDonald Road and Allan Street be widened to 19m, 18m, and 18m, respectively. The existing varying pavement width of 6.25m of Reynolds and Allan Streets be widened to 8m with the proposed widening towards hospital lands.

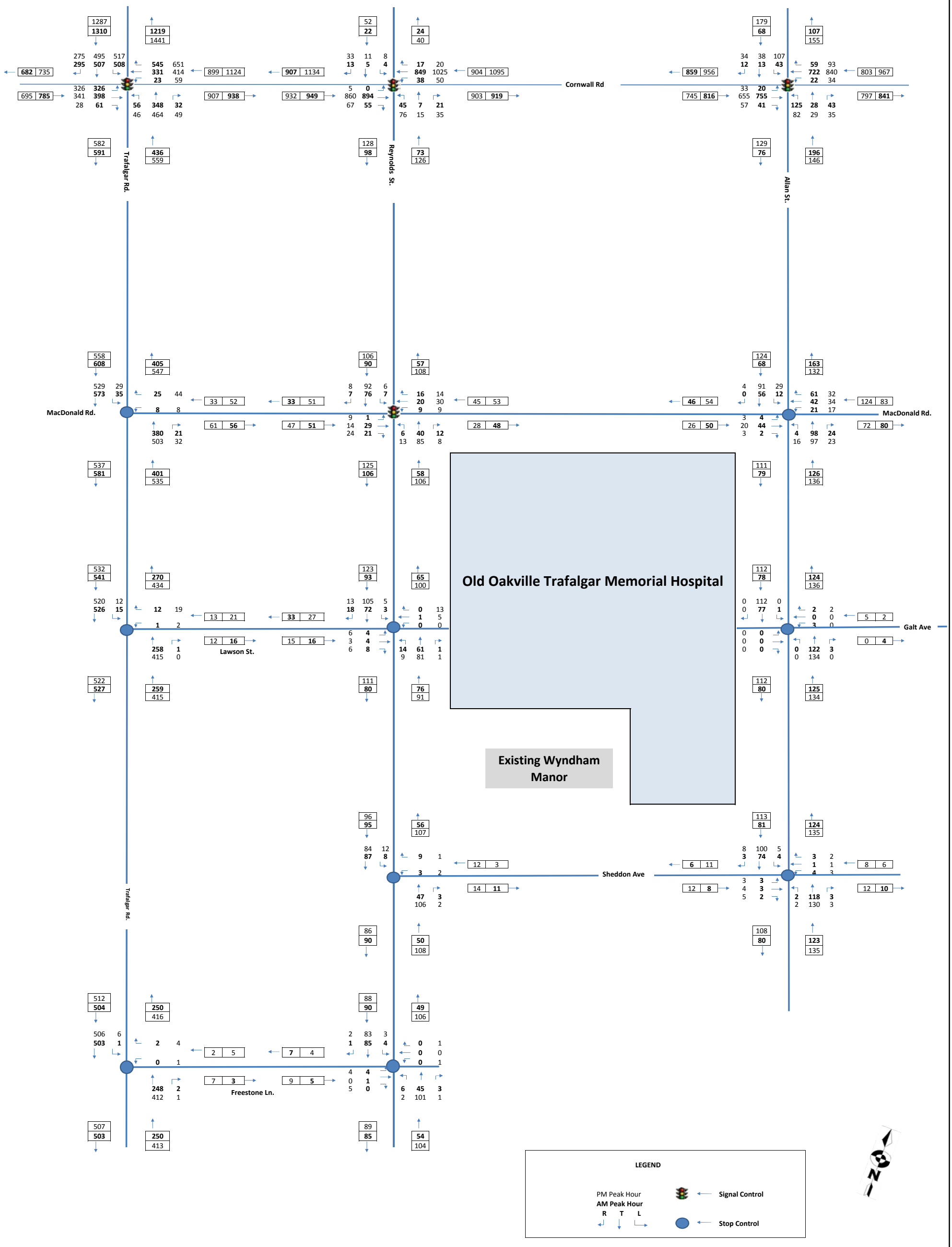


Figure 2: Existing (2017) Intersection Volumes, AM and PM Peak Hours

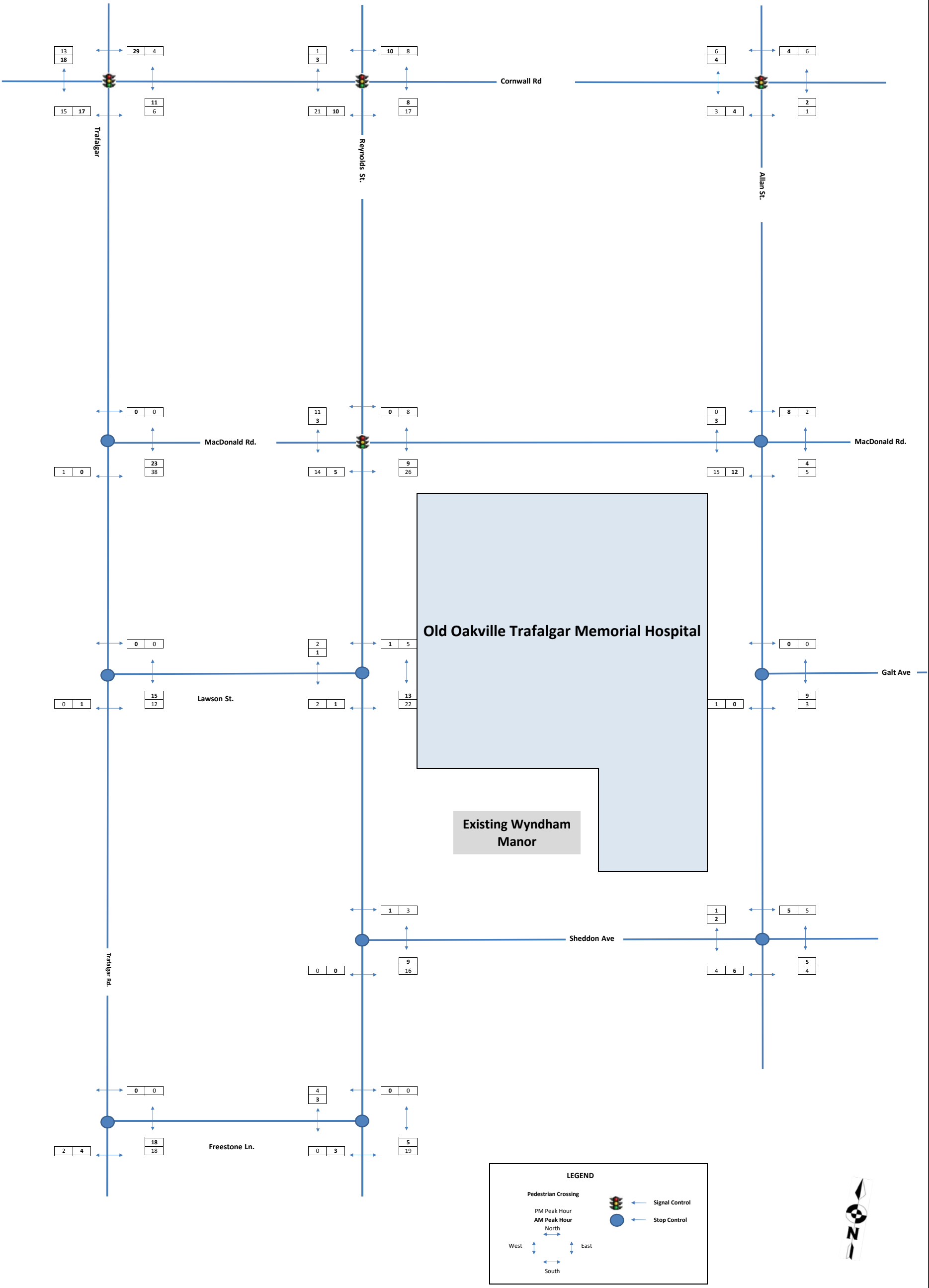
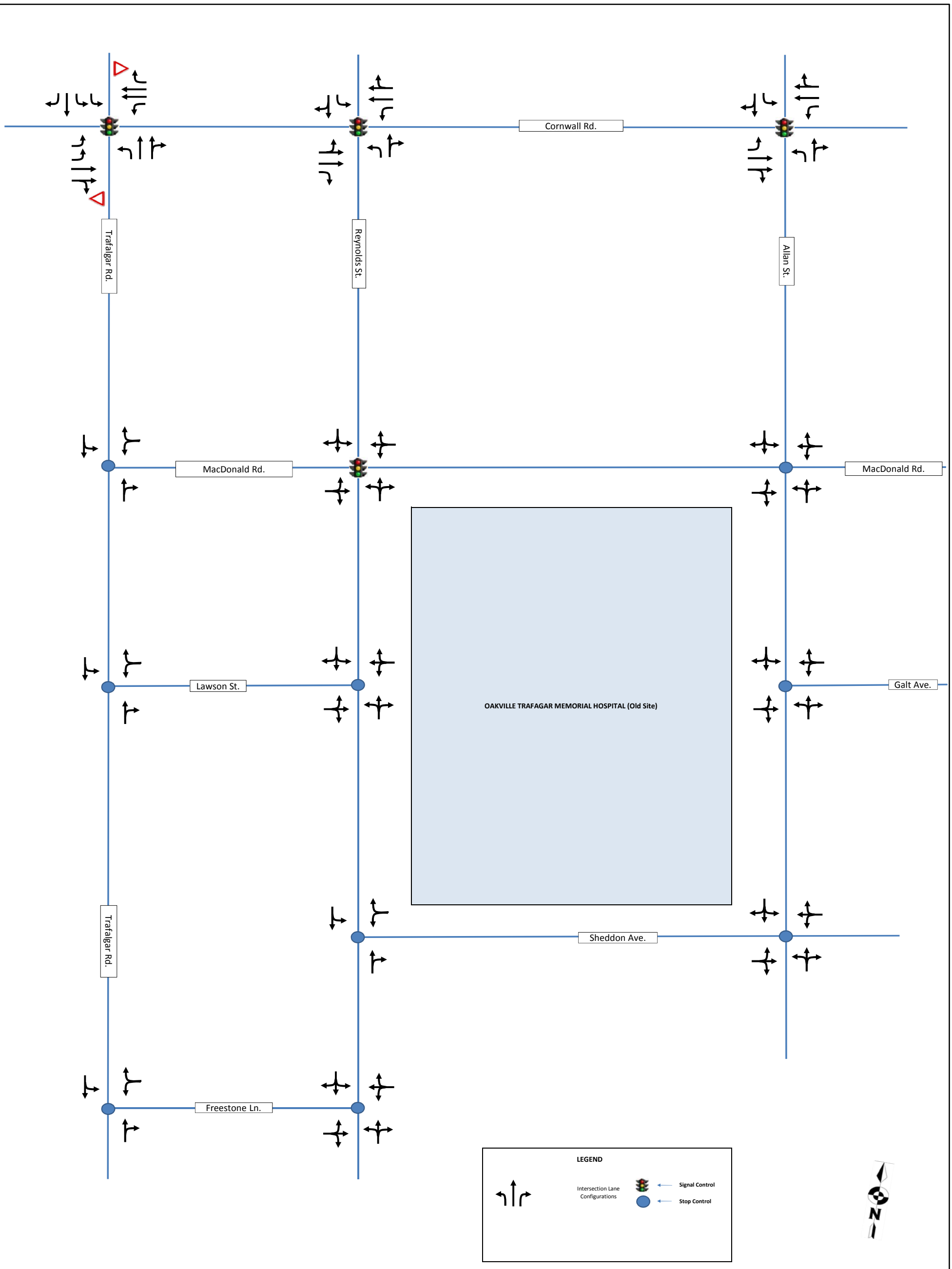


Figure 3: Existing (2017) Pedestrian Intersection Crossing Volumes, AM and PM Peak Hours



PARSONS

Figure 4: Existing Intersection Lane Configurations and Controls

OAKVILLE

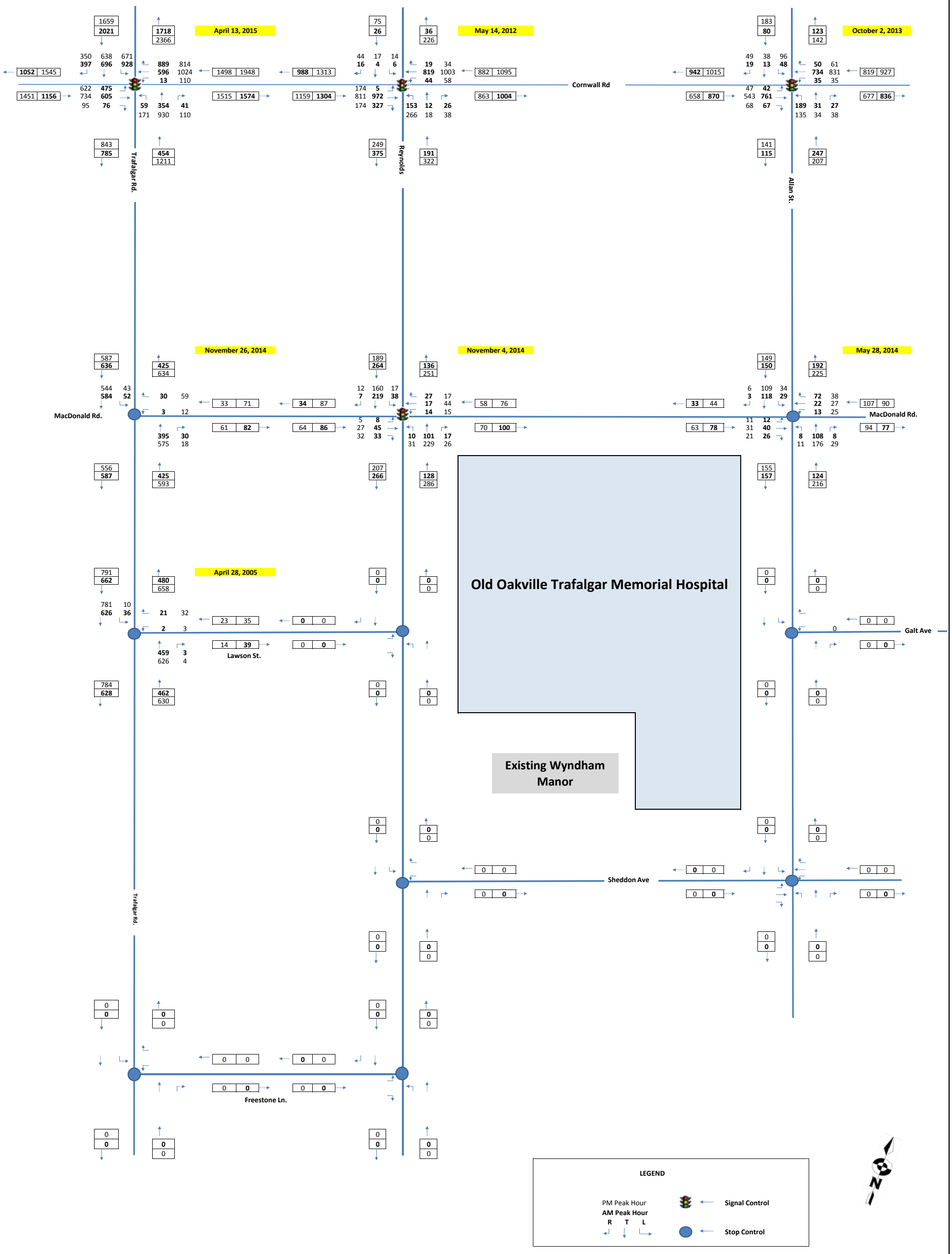


Figure 5: Historical Intersection Volumes, AM and PM Peak Hours

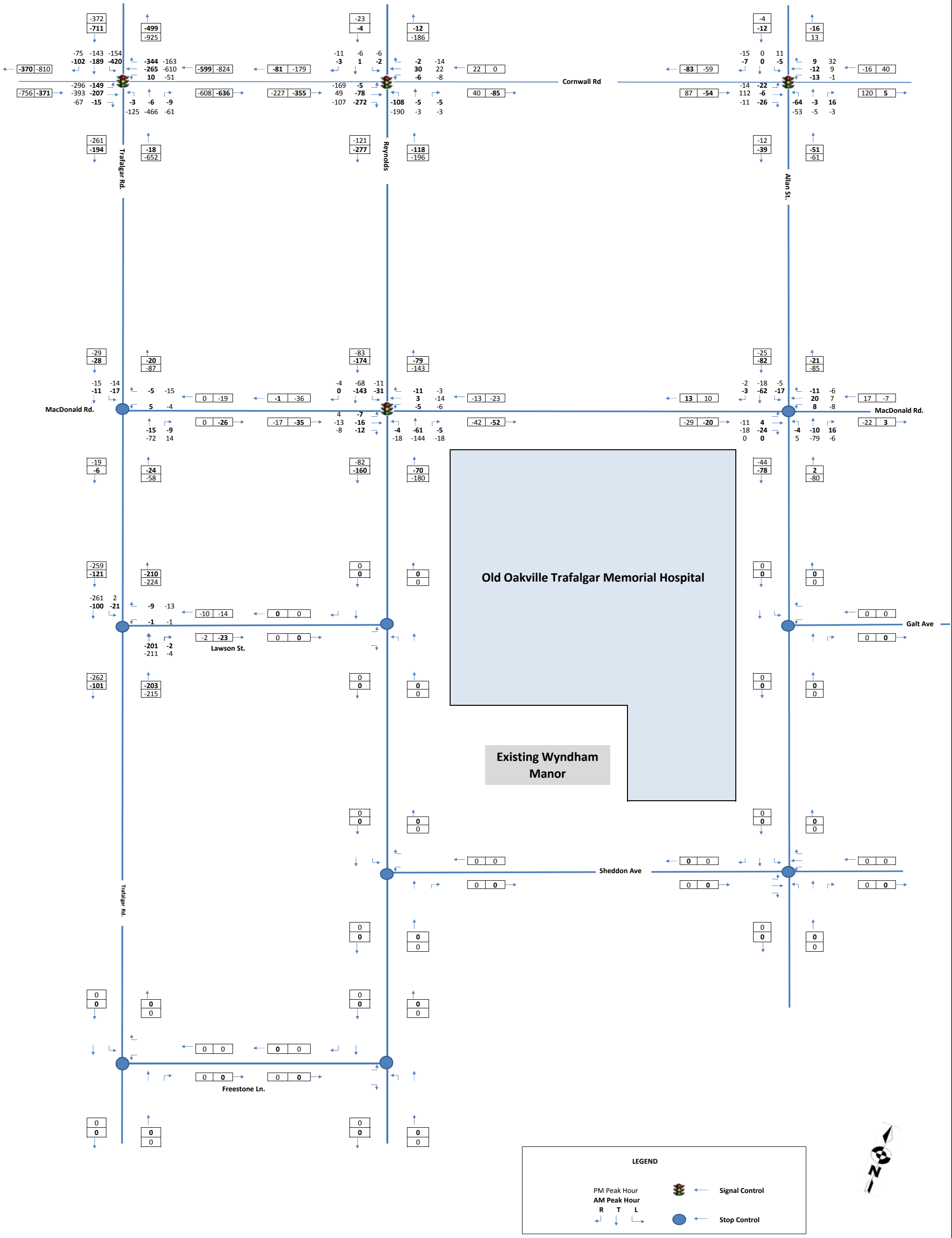
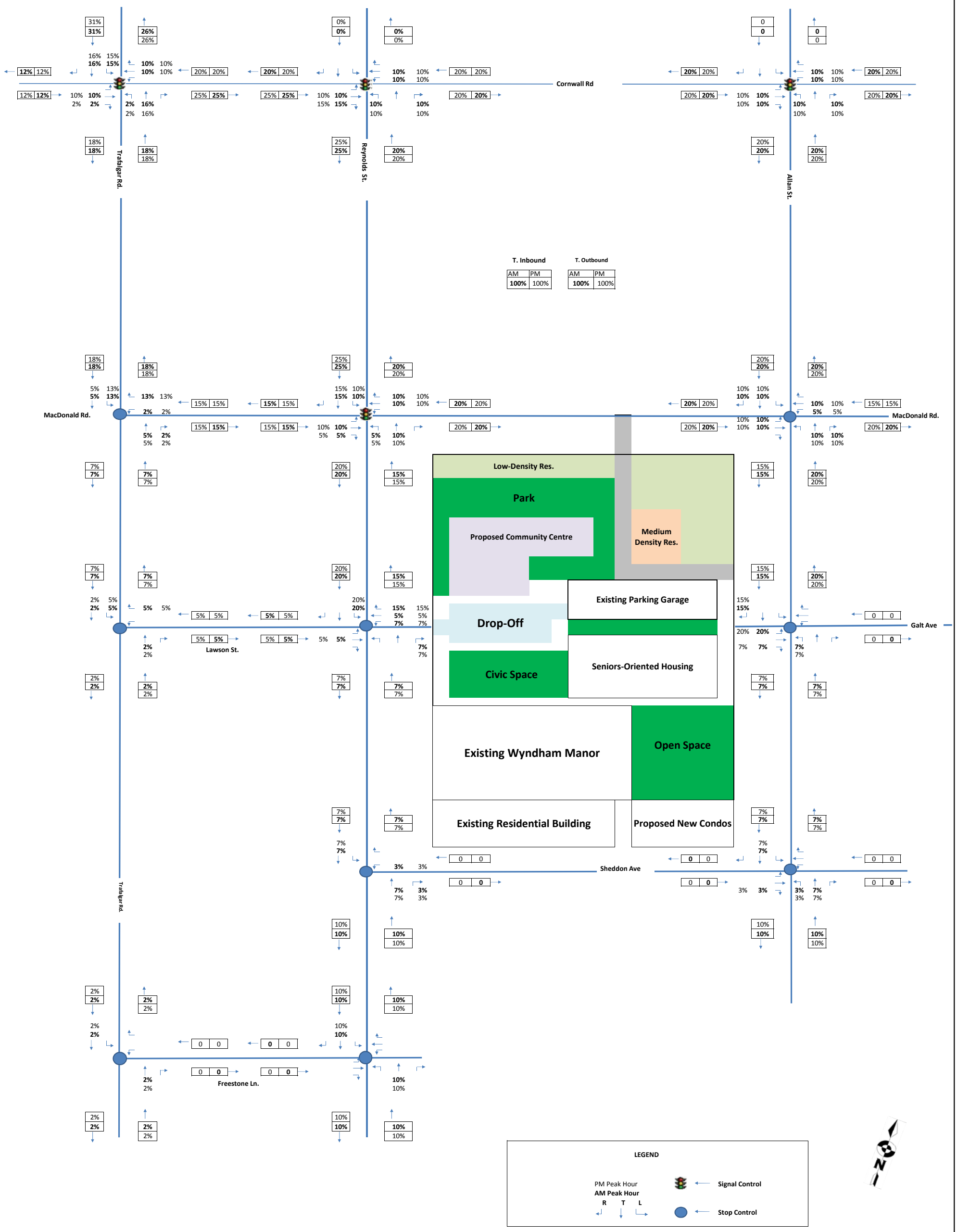


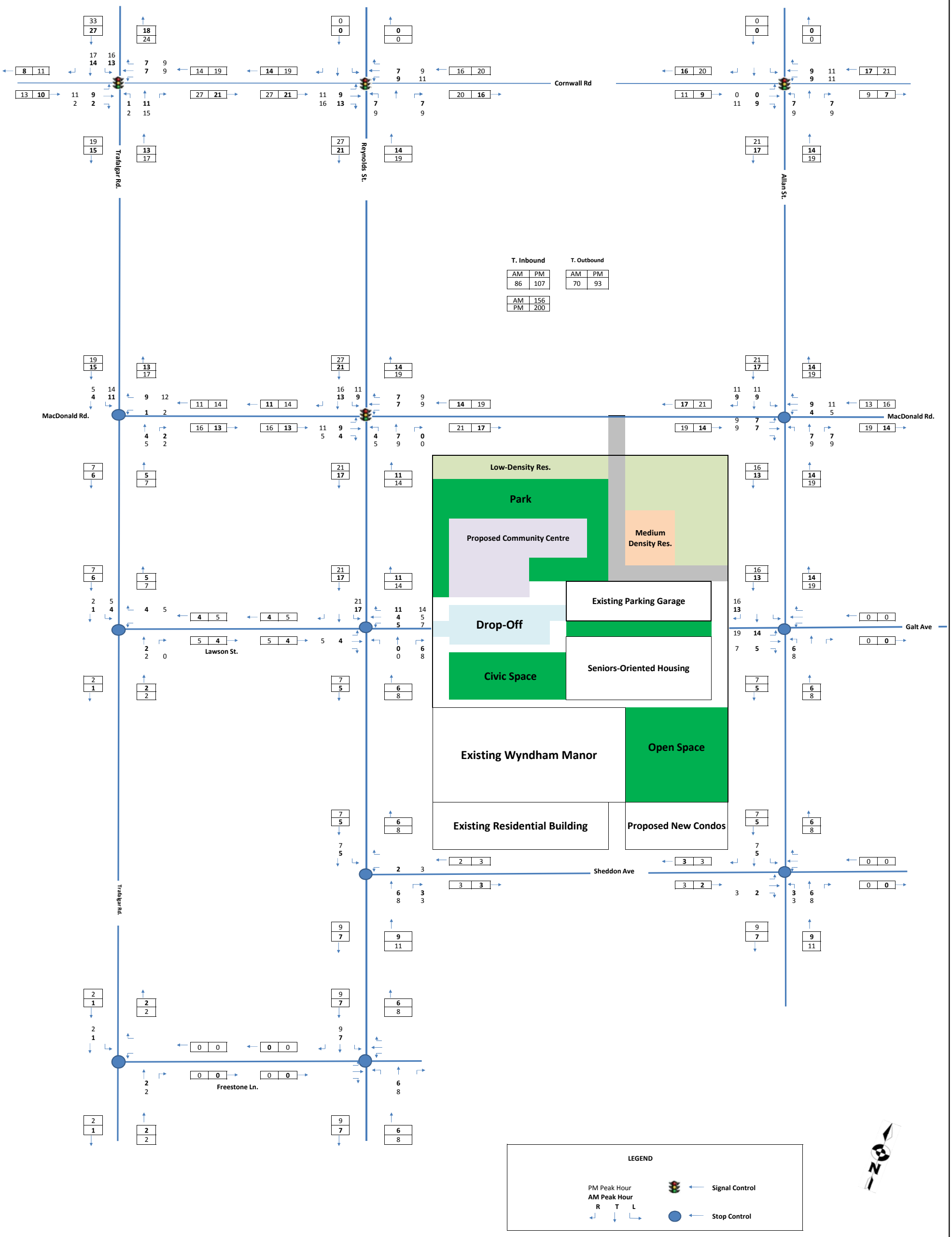
Figure 6: Variation in Intersection Volumes Without and With Hospital, AM and PM Peak Hours



PARSONS

Figure 8: Proposed Trip Distribution

OAKVILLE



PARSONS

Figure 9: Estimated Site Traffic Volumes, AM and PM Peak Hours

OAKVILLE

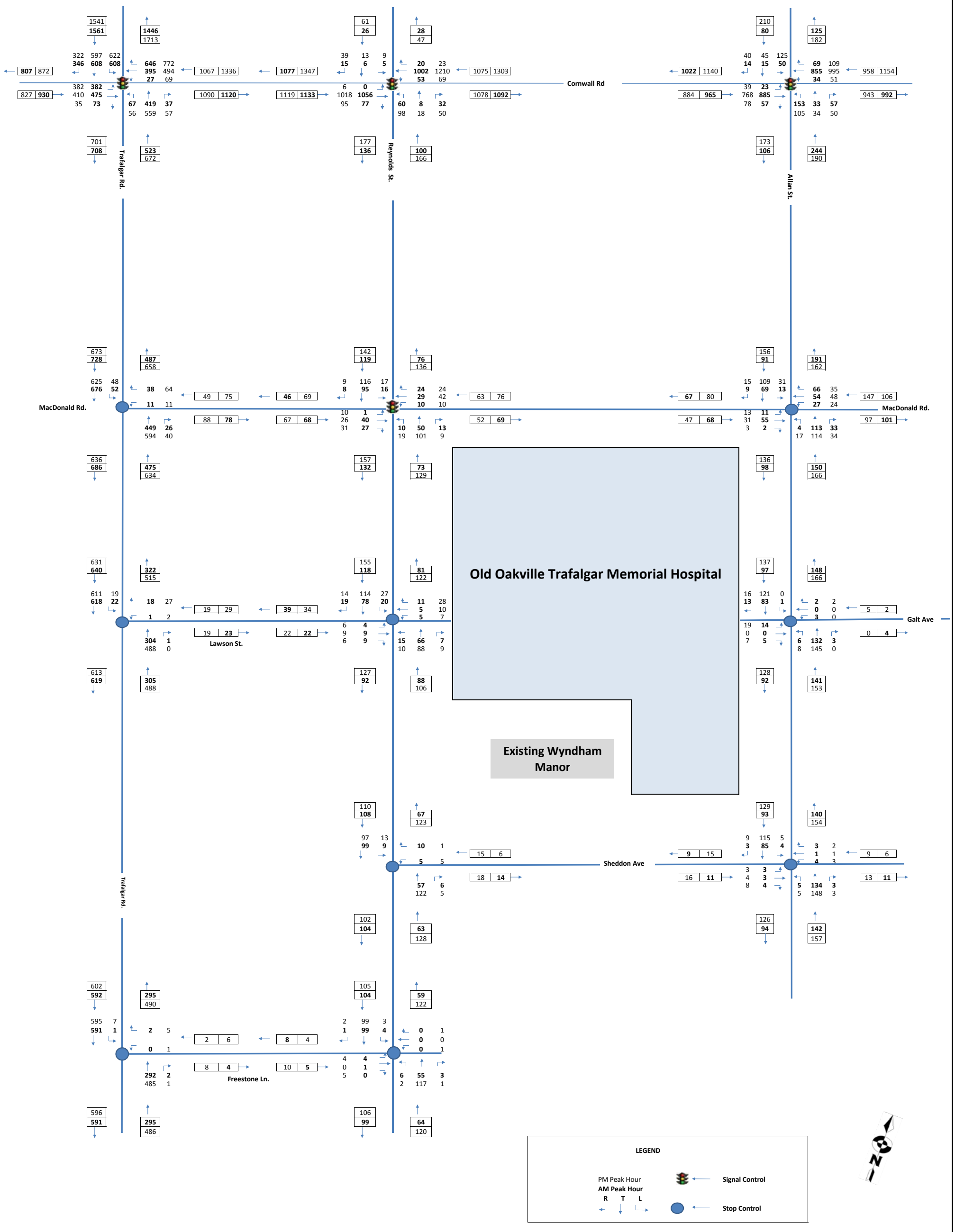


Figure 10: Future Total (2025) Intersection Volumes, AM and PM Peak Hours

APPENDICES

Appendix A

Existing (2017) Traffic Volume Data

Allan St @ Cornwall Rd

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:00:00
To: 9:00:00

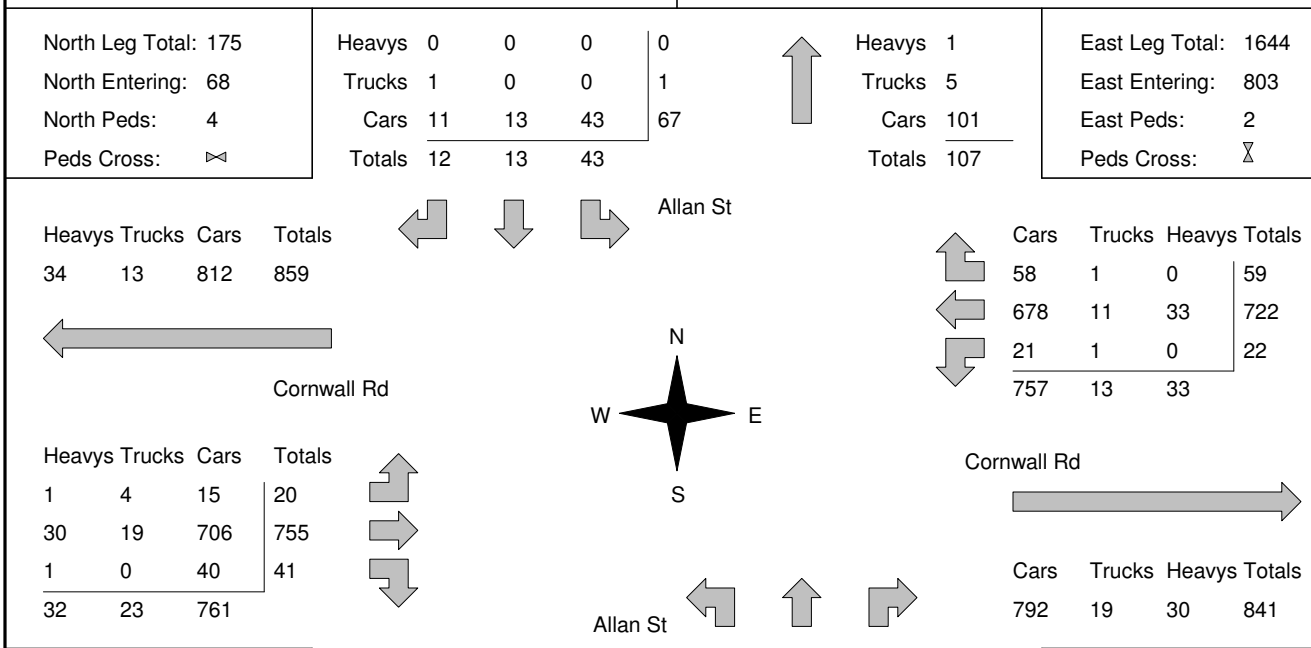
Municipality: Oakville
Site #: 0000000001
Intersection: Cornwall Rd & Allan St
TFR File #: 1
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Cornwall Rd runs W/E



Comments

Allan St @ Cornwall Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

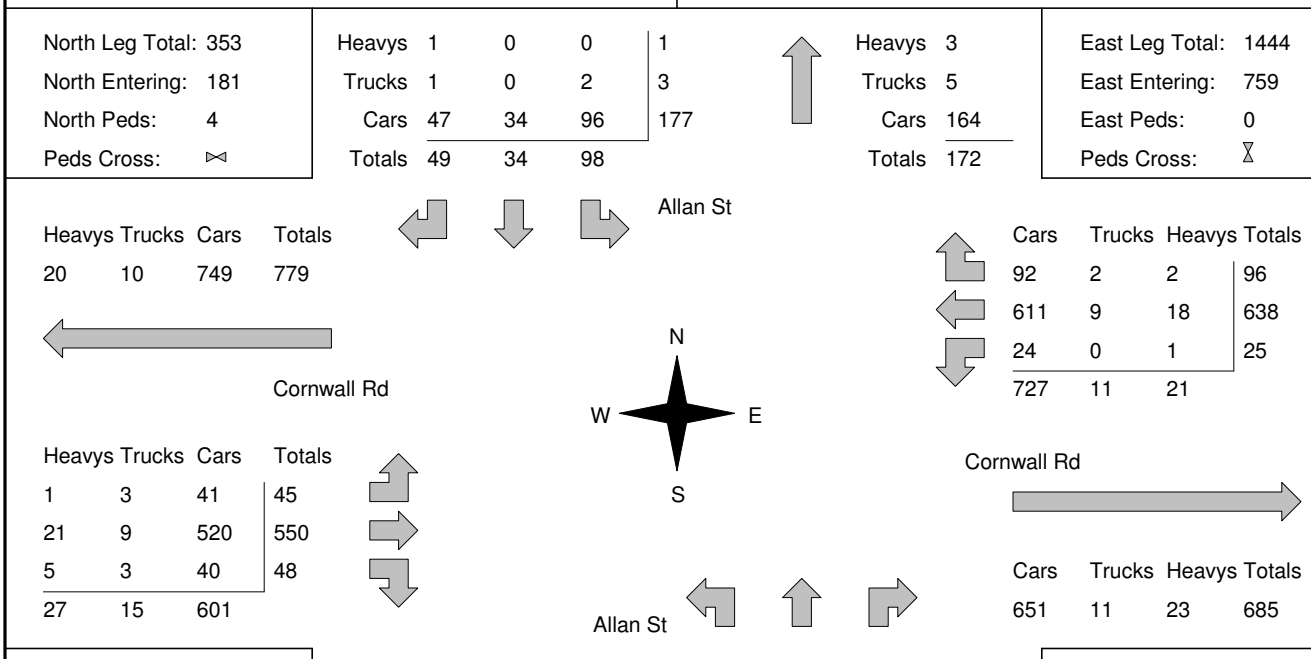
Municipality: Oakville
Site #: 0000000001
Intersection: Cornwall Rd & Allan St
TFR File #: 1
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Cornwall Rd runs W/E



Comments

Allan St @ Cornwall Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

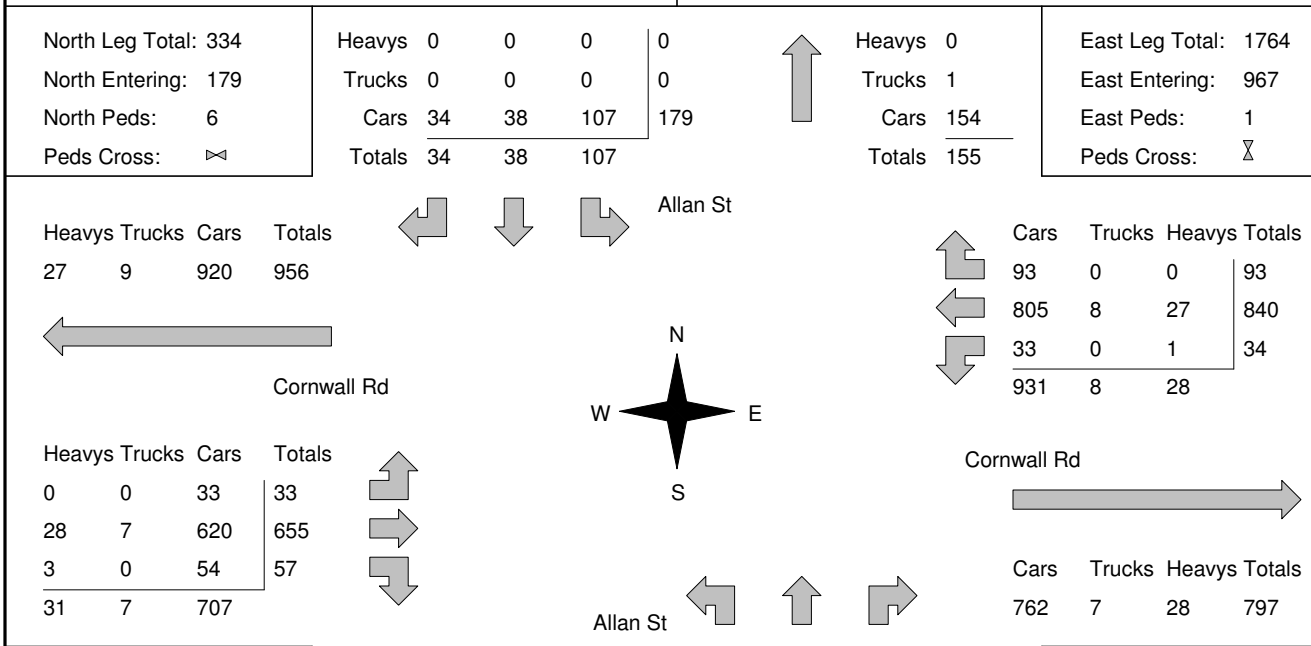
Municipality: Oakville
Site #: 0000000001
Intersection: Cornwall Rd & Allan St
TFR File #: 1
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Cornwall Rd runs W/E



Comments

Allan St @ Cornwall Rd

Total Count Diagram

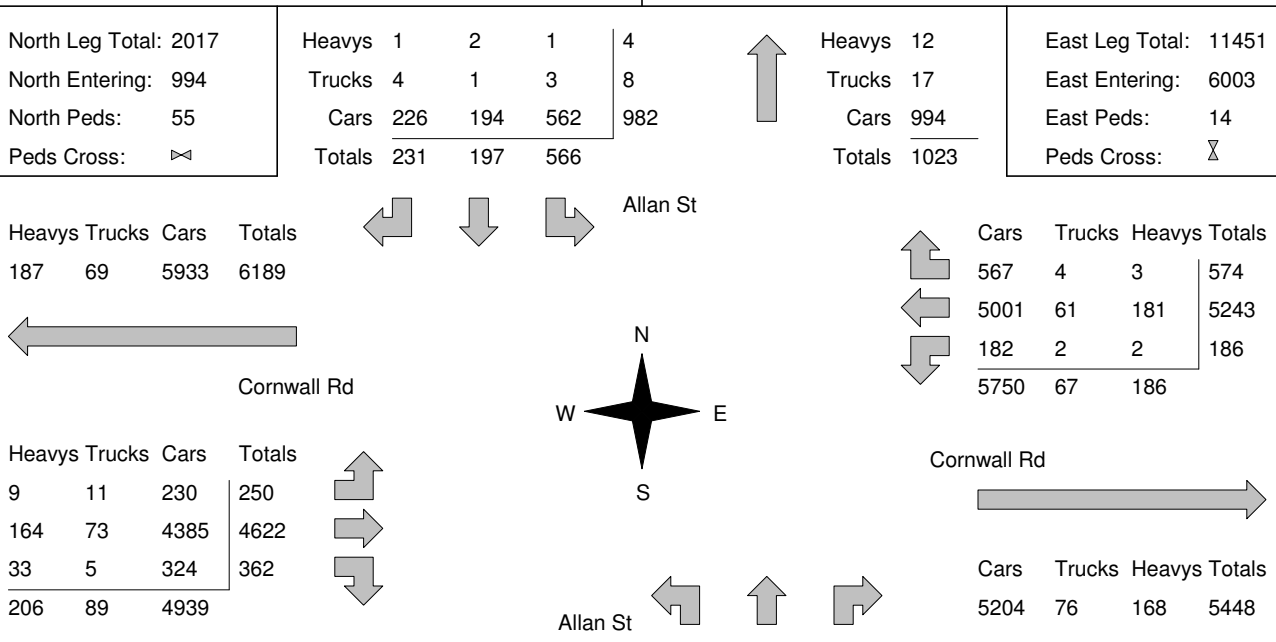
Municipality: Oakville
Site #: 0000000001
Intersection: Cornwall Rd & Allan St
TFR File #: 1
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Cornwall Rd runs W/E



Comments

Allan St @ Galt Ave

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Oakville
Site #: 0000000003
Intersection: Allan St & Galt Ave
TFR File #: 3
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

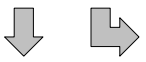
Major Road: Allan St runs N/S

North Leg Total: 202
North Entering: 78
North Peds: 0
Peds Cross: ⋈

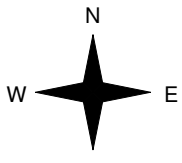
Heavys	3	0	3
Trucks	0	0	0
Cars	74	1	75
Totals	77	1	

Heavys	2
Trucks	1
Cars	121
Totals	124

East Leg Total: 9
East Entering: 5
East Peds: 9
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	2	0	0	2
	3	0	0	3
	5	0	0	



Galt Ave

	Cars	Trucks	Heavys	Totals
	4	0	0	4

Allan St

Cars	77
Trucks	0
Heavys	3
Totals	80

Cars	119	3	122
Trucks	1	0	1
Heavys	2	0	2
Totals	122	3	

Peds Cross: ⋈
South Peds: 0
South Entering: 125
South Leg Total: 205

Comments

Allan St @ Galt Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

Municipality: Oakville
Site #: 0000000003
Intersection: Allan St & Galt Ave
TFR File #: 3
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Allan St runs N/S

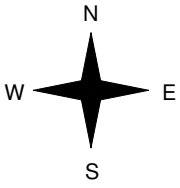
North Leg Total: 213
North Entering: 97
North Peds: 0
Peds Cross: ⋈

Heavys	4	0	4
Trucks	2	0	2
Cars	89	2	91
Totals	95	2	

Heavys	3
Trucks	3
Cars	110
Totals	116

East Leg Total: 12
East Entering: 5
East Peds: 5
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	1	1	0	2
	3	0	0	3
	4	1	0	



Galt Ave

	Cars	Trucks	Heavys	Totals
	7	0	0	7

Allan St

Cars	92		
Trucks	2		
Heavys	4		
Totals	98		

Cars	109	5	114
Trucks	2	0	2
Heavys	3	0	3
Totals	114	5	

Peds Cross: ⋈
South Peds: 0
South Entering: 119
South Leg Total: 217

Comments

Allan St @ Galt Ave

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

Municipality: Oakville
Site #: 0000000003
Intersection: Allan St & Galt Ave
TFR File #: 3
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

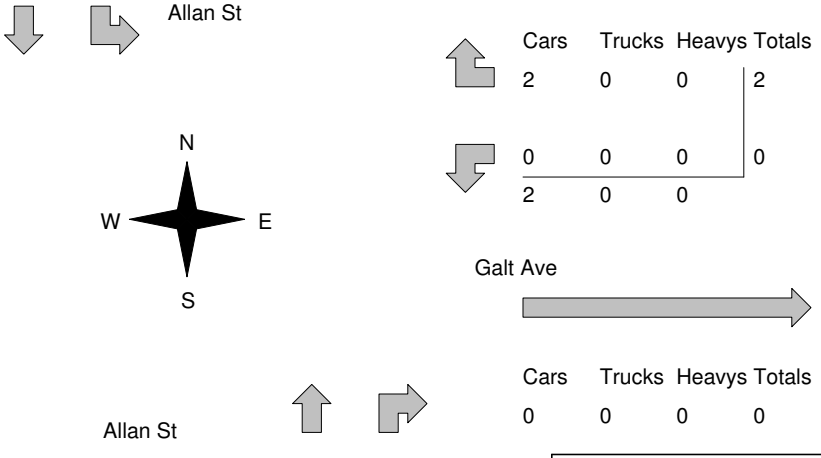
Major Road: Allan St runs N/S

North Leg Total: 248
North Entering: 112
North Peds: 0
Peds Cross: ⋈

Heavys	5	0	5
Trucks	0	0	0
Cars	107	0	107
Totals	112	0	

Heavys	1	
Trucks	2	
Cars	133	
Totals	136	

East Leg Total: 2
East Entering: 2
East Peds: 3
Peds Cross: ⋈



Cars	107		
Trucks	0		
Heavys	5		
Totals	112		

Cars	131	0	131
Trucks	2	0	2
Heavys	1	0	1
Totals	134	0	

Peds Cross: ⋈
South Peds: 1
South Entering: 134
South Leg Total: 246

Comments

Allan St @ Galt Ave

Total Count Diagram

Municipality: Oakville
Site #: 0000000003
Intersection: Allan St & Galt Ave
TFR File #: 3
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Allan St runs N/S

North Leg Total: 1455
North Entering: 625
North Peds: 0
Peds Cross: ⋈

Heavys	37	0	37
Trucks	5	1	6
Cars	576	6	582
Totals	618	7	

Heavys	8
Trucks	8
Cars	814
Totals	830

East Leg Total: 53
East Entering: 32
East Peds: 43
Peds Cross: ⋈

Allan St

Cars	Trucks	Heavys	Totals
17	1	1	19
13	0	0	13
30	1	1	

N
W E
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Galt Ave

Cars	Trucks	Heavys	Totals
20	1	0	21

Allan St

Cars	589		
Trucks	5		
Heavys	37		
Totals	631		

Cars	797	14	811
Trucks	7	0	7
Heavys	7	0	7
Totals	811	14	

Peds Cross: ⋈
South Peds: 1
South Entering: 825
South Leg Total: 1456

Comments

Allan St @ Sheddon Ave

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:00:00
To: 9:00:00

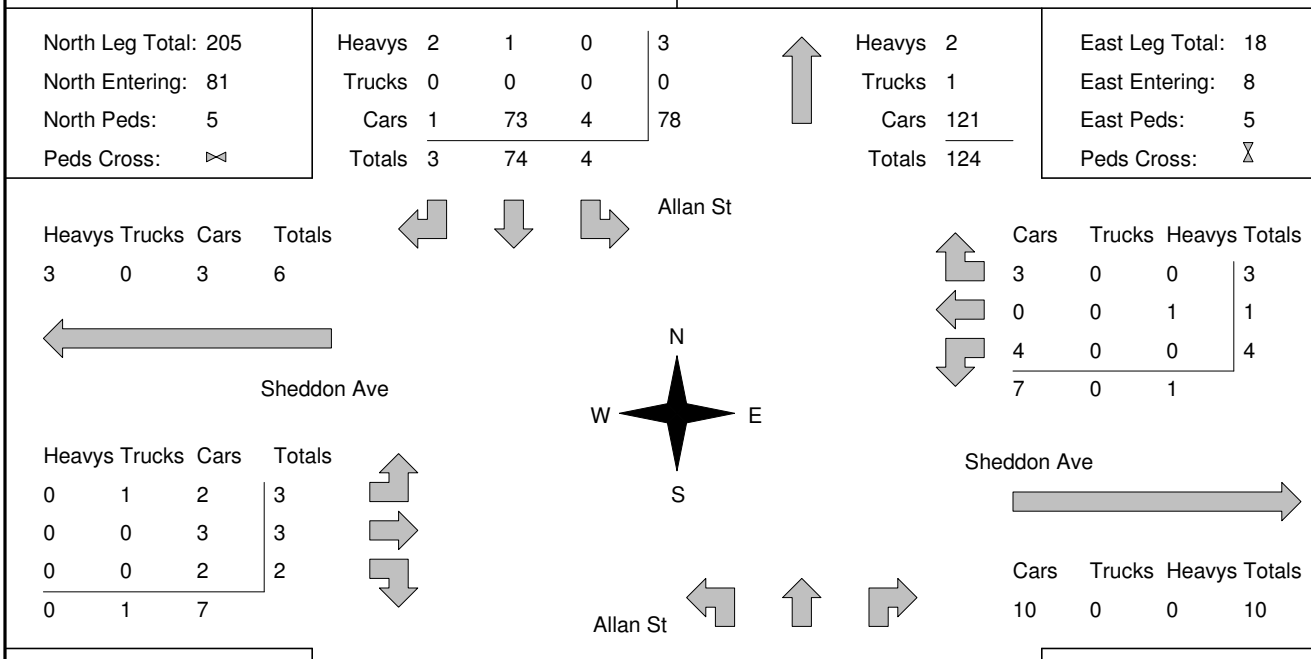
Municipality: Oakville
Site #: 0000000004
Intersection: Allan St & Sheddon Ave
TFR File #: 4
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Allan St runs N/S



Comments

Allan St @ Sheddon Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

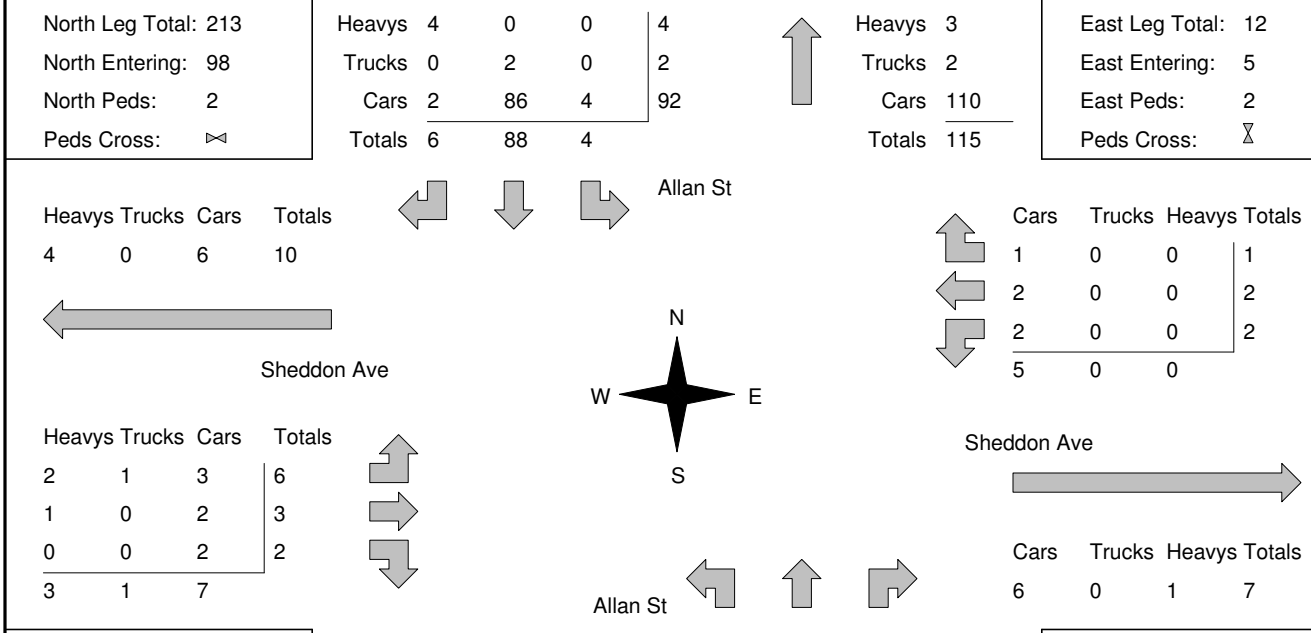
Municipality: Oakville
Site #: 0000000004
Intersection: Allan St & Sheddon Ave
TFR File #: 4
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Allan St runs N/S



Comments

Allan St @ Sheddon Ave

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

Municipality: Oakville
Site #: 0000000004
Intersection: Allan St & Sheddon Ave
TFR File #: 4
Count date: 12-Sep-2017

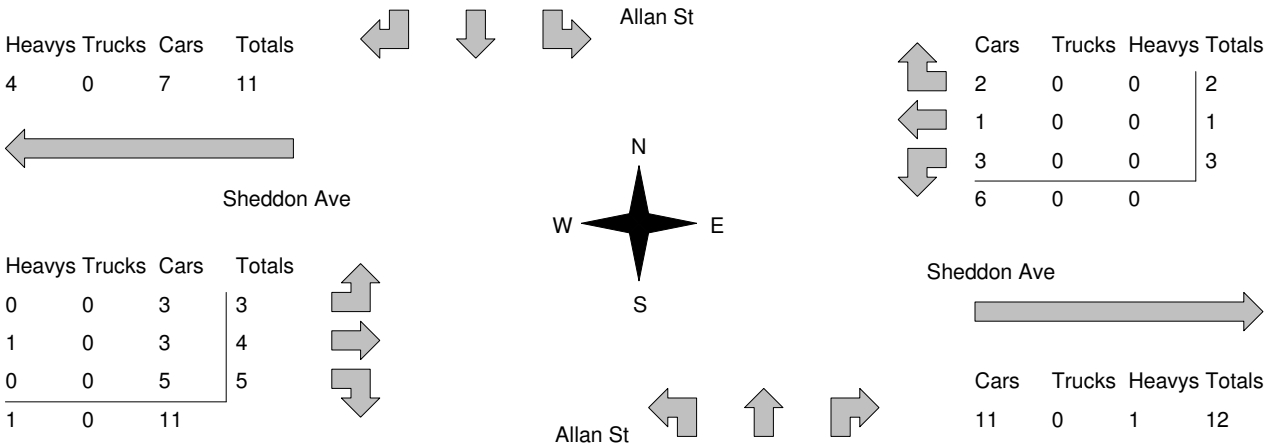
Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Allan St runs N/S

North Leg Total:	248			
North Entering:	113			
North Peds:	5			
Peds Cross:	⋈			
Heavys	4	0	0	4
Trucks	0	0	0	0
Cars	4	100	5	109
Totals	8	100	5	
Heavys	1			
Trucks	2			
Cars	132			
Totals	135			
East Leg Total:	18			
East Entering:	6			
East Peds:	4			
Peds Cross:	⧖			



Peds Cross:	⧖			
West Peds:	1			
West Entering:	12			
West Leg Total:	23			
Cars	108			
Trucks	0			
Heavys	0			
Totals	108			
Cars	2	127	3	132
Trucks	0	2	0	2
Heavys	0	1	0	1
Totals	2	130	3	
Peds Cross:	⋈			
South Peds:	4			
South Entering:	135			
South Leg Total:	243			

Comments

Allan St @ Sheddon Ave

Total Count Diagram

Municipality: Oakville
Site #: 0000000004
Intersection: Allan St & Sheddon Ave
TFR File #: 4
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Allan St runs N/S

North Leg Total:	1460			
North Entering:	640			
North Peds:	29			
Peds Cross:	⋈			
Heavys	34	3	0	37
Trucks	1	3	0	4
Cars	24	553	22	599
Totals	59	559	22	
Heavys	7			
Trucks	9			
Cars	804			
Totals	820			
East Leg Total:	106			
East Entering:	40			
East Peds:	33			
Peds Cross:	⧖			

Allan St

Heavys	Trucks	Cars	Totals
36	1	48	85

Sheddon Ave

Heavys	Trucks	Cars	Totals
2	3	31	36
3	0	26	29
1	0	26	27
6	3	83	

Cars	Trucks	Heavys	Totals
11	1	0	12
10	0	2	12
16	0	0	16
37	1	2	

N
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Sheddon Ave

Cars	Trucks	Heavys	Totals
62	0	4	66

Allan St

Peds Cross:	⧖			
West Peds:	7			
West Entering:	92			
West Leg Total:	177			
Cars	595			
Trucks	3			
Heavys	4			
Totals	602			
Cars	14	762	14	790
Trucks	0	5	0	5
Heavys	0	5	1	6
Totals	14	772	15	
Peds Cross:	⋈			
South Peds:	18			
South Entering:	801			
South Leg Total:	1403			

Comments

Reynolds St @ Cornwall Rd

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:00:00
To: 9:00:00

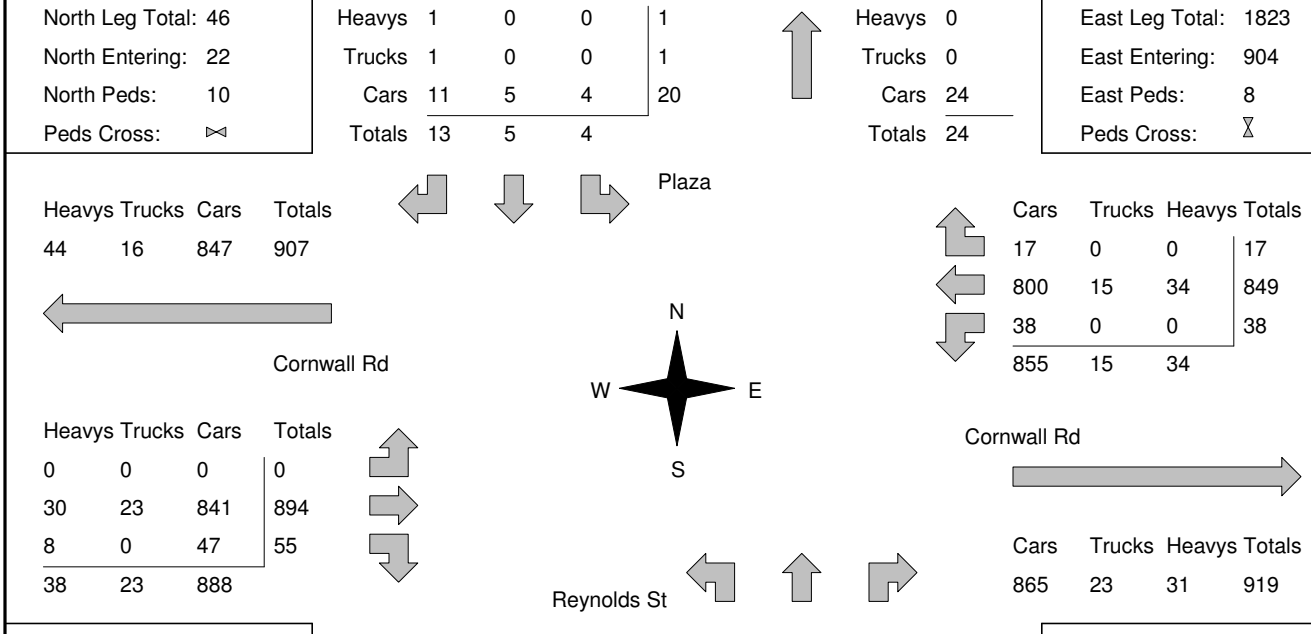
Municipality: Oakville
Site #: 0000000005
Intersection: Cornwall Rd & Reynolds St
TFR File #: 5
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Cornwall Rd runs W/E



Comments

Reynolds St @ Cornwall Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

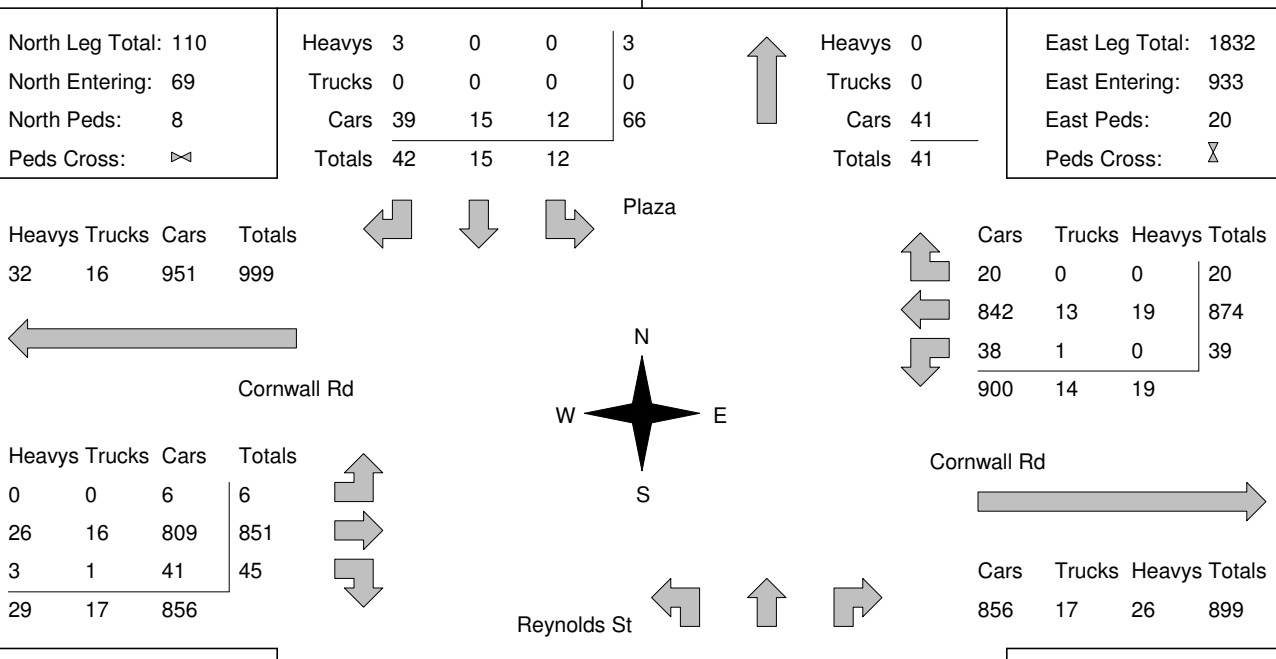
Municipality: Oakville
Site #: 0000000005
Intersection: Cornwall Rd & Reynolds St
TFR File #: 5
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Cornwall Rd runs W/E



Comments

Reynolds St @ Cornwall Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

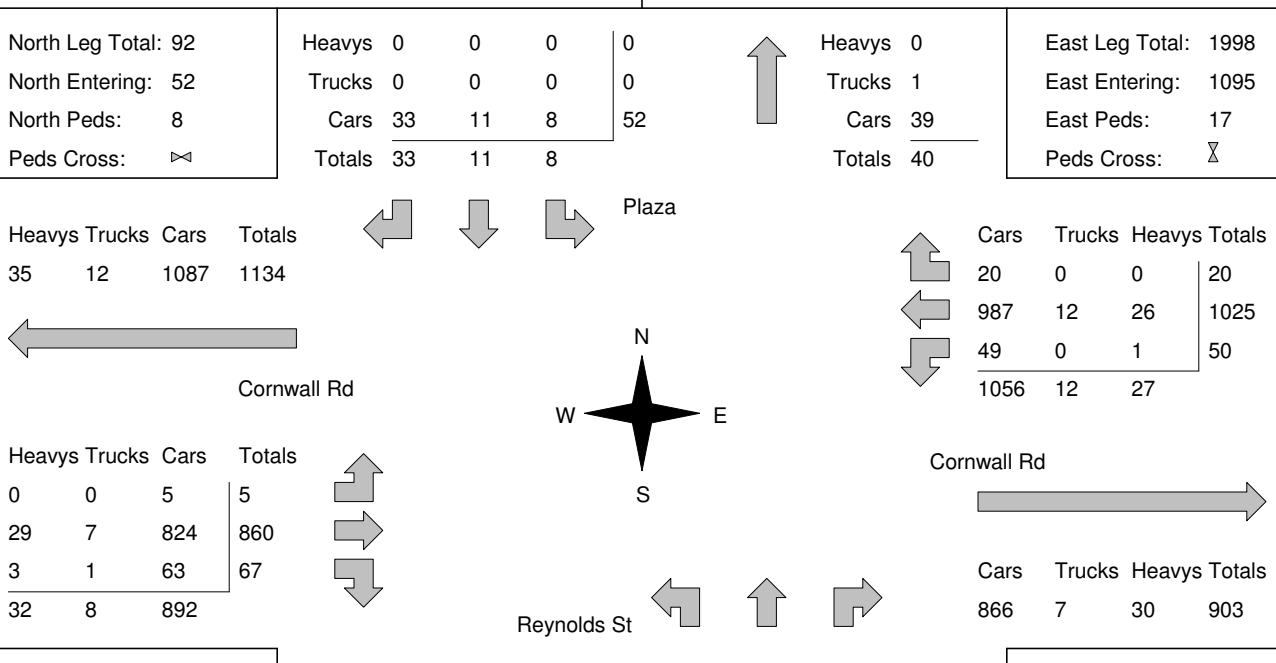
Municipality: Oakville
Site #: 0000000005
Intersection: Cornwall Rd & Reynolds St
TFR File #: 5
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Cornwall Rd runs W/E



Comments

Reynolds St @ Cornwall Rd

Total Count Diagram

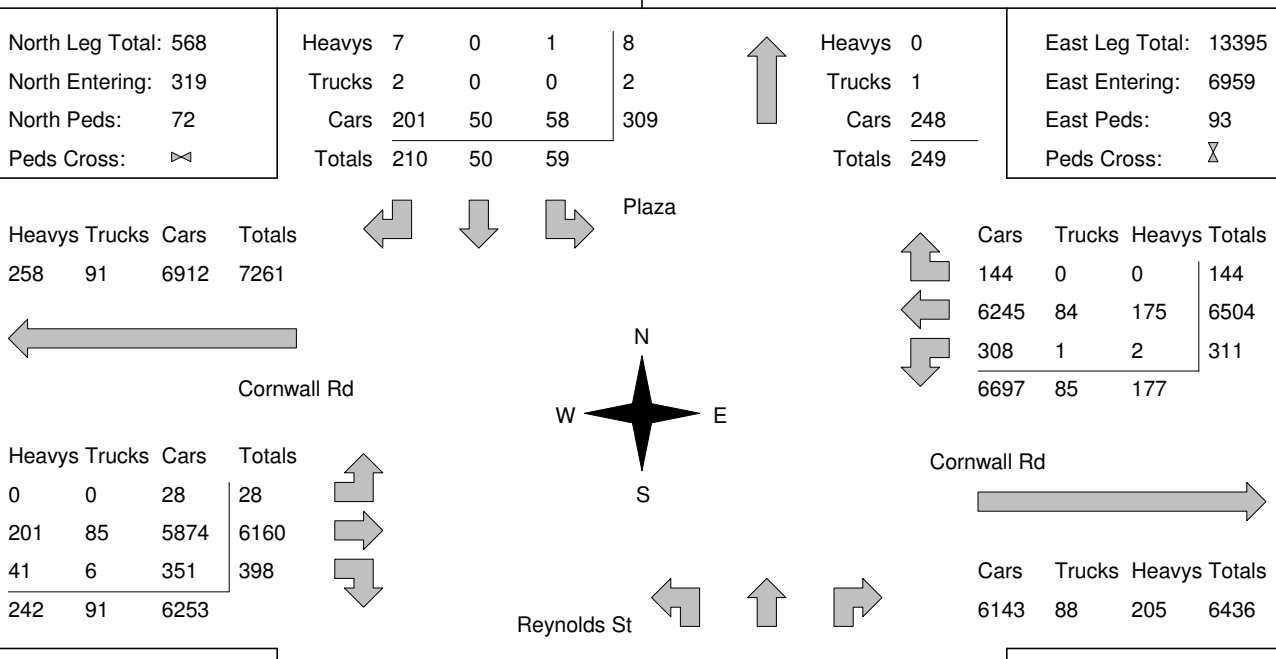
Municipality: Oakville
Site #: 0000000005
Intersection: Cornwall Rd & Reynolds St
TFR File #: 5
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Cornwall Rd runs W/E



Comments

Reynolds St @ Freestone Ln

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:00:00
To: 9:00:00

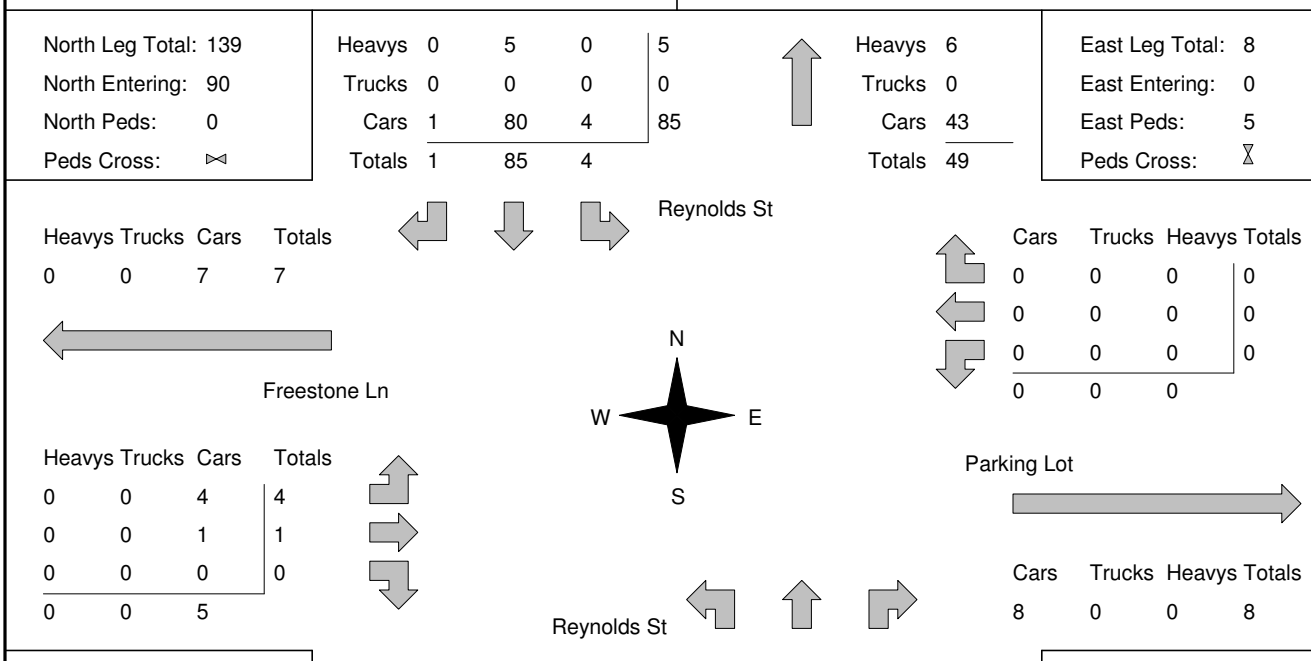
Municipality: Oakville
Site #: 0000000009
Intersection: Reynolds St & Freestone Ln
TFR File #: 9
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S



Comments

Reynolds St @ Freestone Ln

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:15:00
To: 12:15:00

Municipality: Oakville
Site #: 0000000009
Intersection: Reynolds St & Freestone Ln
TFR File #: 9
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S

North Leg Total:	163			
North Entering:	82			
North Peds:	1			
Peds Cross:	⋈			
Heavys	0	2	0	2
Trucks	1	3	0	4
Cars	1	71	4	76
Totals	2	76	4	
Heavys	4			
Trucks	1			
Cars	76			
Totals	81			
East Leg Total:	11			
East Entering:	4			
East Peds:	16			
Peds Cross:	⧖			

Reynolds St

Heavys	Trucks	Cars	Totals
0	1	3	4

Cars	Trucks	Heavys	Totals
4	0	0	4
0	0	0	0
0	0	0	0
4	0	0	

Freestone Ln

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	2	2
0	1	0	1
0	0	3	3
0	1	5	

Parking Lot

Cars	Trucks	Heavys	Totals
6	1	0	7

Reynolds St

Peds Cross:	⧖			
West Peds:	4			
West Entering:	6			
West Leg Total:	10			
Cars	74			
Trucks	3			
Heavys	2			
Totals	79			
Cars	2	70	2	74
Trucks	0	1	0	1
Heavys	0	4	0	4
Totals	2	75	2	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	79			
South Leg Total:	158			

Comments

Reynolds St @ Freestone Ln

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

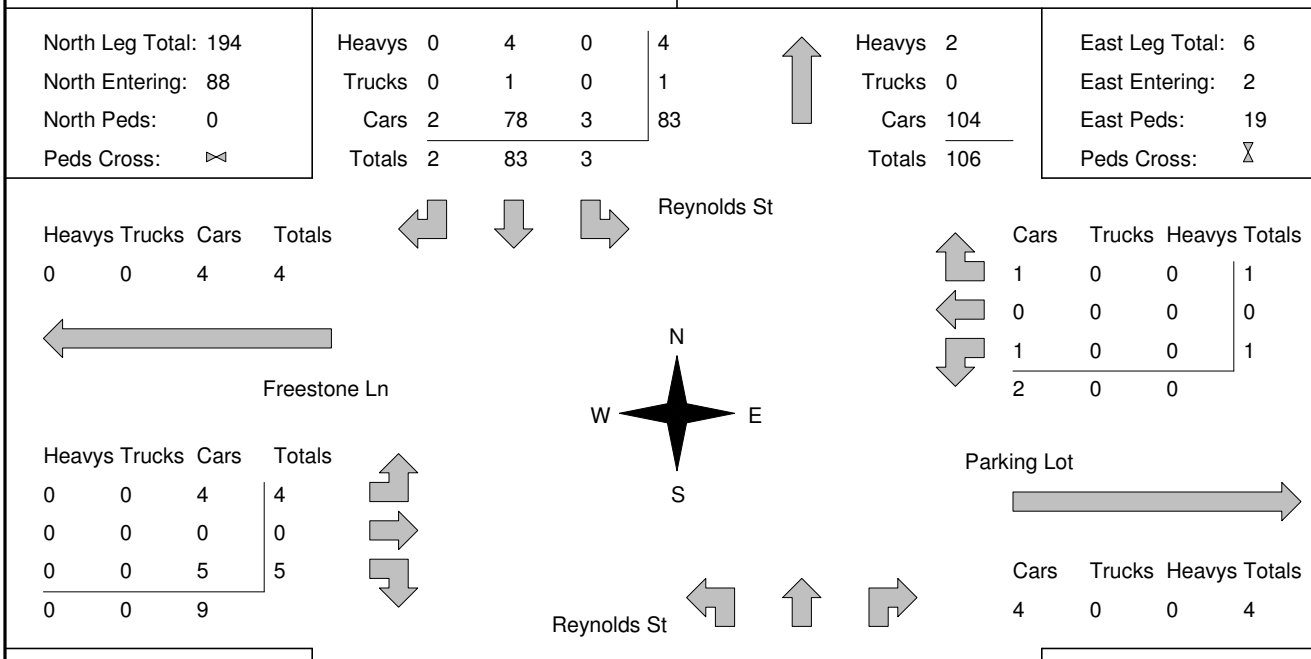
Municipality: Oakville
Site #: 0000000009
Intersection: Reynolds St & Freestone Ln
TFR File #: 9
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S



Comments

Reynolds St @ Freestone Ln

Total Count Diagram

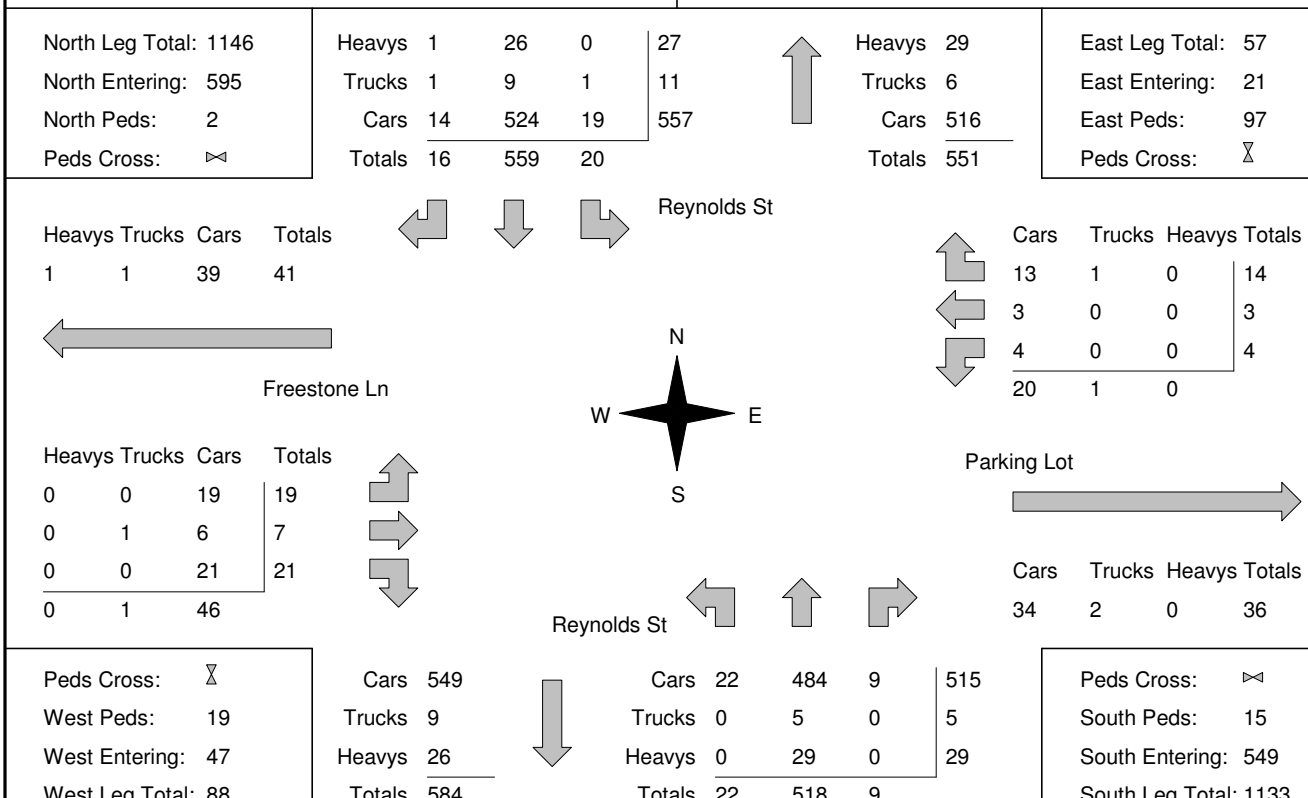
Municipality: Oakville
Site #: 0000000009
Intersection: Reynolds St & Freestone Ln
TFR File #: 9
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S



Comments

Reynolds St @ Lawson St

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 7:30:00
To: 8:30:00

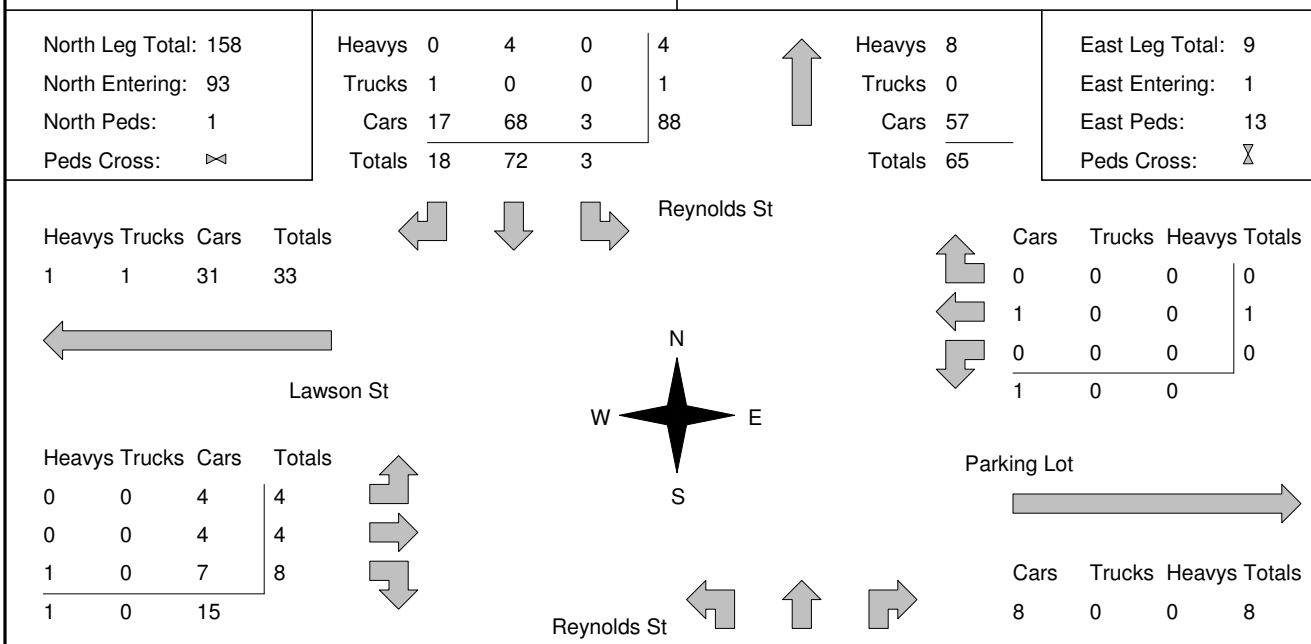
Municipality: Oakville
Site #: 0000000007
Intersection: Reynolds St & Lawson St
TFR File #: 7
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S



Comments

Reynolds St @ Lawson St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:00:00
To: 12:00:00

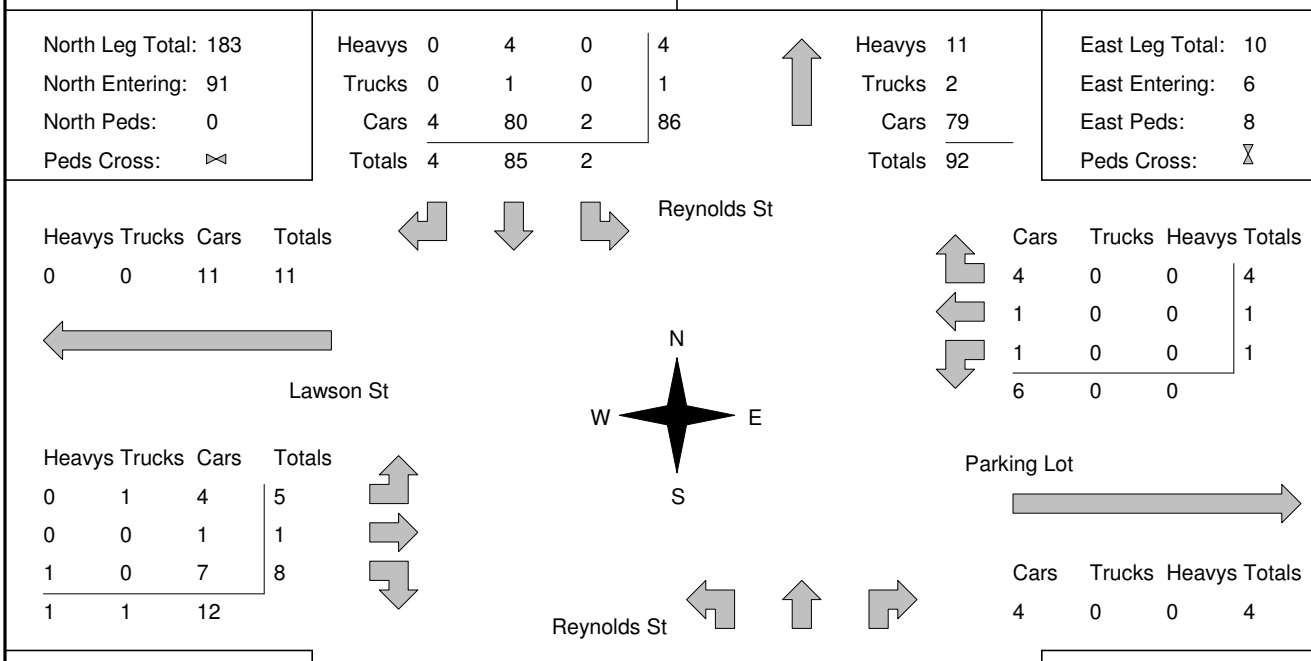
Municipality: Oakville
Site #: 0000000007
Intersection: Reynolds St & Lawson St
TFR File #: 7
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S



Comments

Reynolds St @ Lawson St

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

Municipality: Oakville
Site #: 0000000007
Intersection: Reynolds St & Lawson St
TFR File #: 7
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S

North Leg Total: 223
North Entering: 123
North Peds: 5
Peds Cross: ⋈

Heavys	0	3	0	3
Trucks	0	1	0	1
Cars	13	101	5	119
Totals	13	105	5	

Heavys	7
Trucks	1
Cars	92
Totals	100

East Leg Total: 27
East Entering: 18
East Peds: 22
Peds Cross: ⧖

Reynolds St

Heavys	Trucks	Cars	Totals
0	0	27	27

Cars	Trucks	Heavys	Totals
13	0	0	13
5	0	0	5
0	0	0	0
18	0	0	

Lawson St

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	6	6
0	0	3	3
0	0	6	6
0	0	15	

Parking Lot

Cars	Trucks	Heavys	Totals
9	0	0	9

Reynolds St

Peds Cross: ⧖
West Peds: 2
West Entering: 15
West Leg Total: 42

Cars	107
Trucks	1
Heavys	3
Totals	111

Cars	9	73	1	83
Trucks	0	1	0	1
Heavys	0	7	0	7
Totals	9	81	1	

Peds Cross: ⋈
South Peds: 2
South Entering: 91
South Leg Total: 202

Comments

Reynolds St @ Lawson St

Total Count Diagram

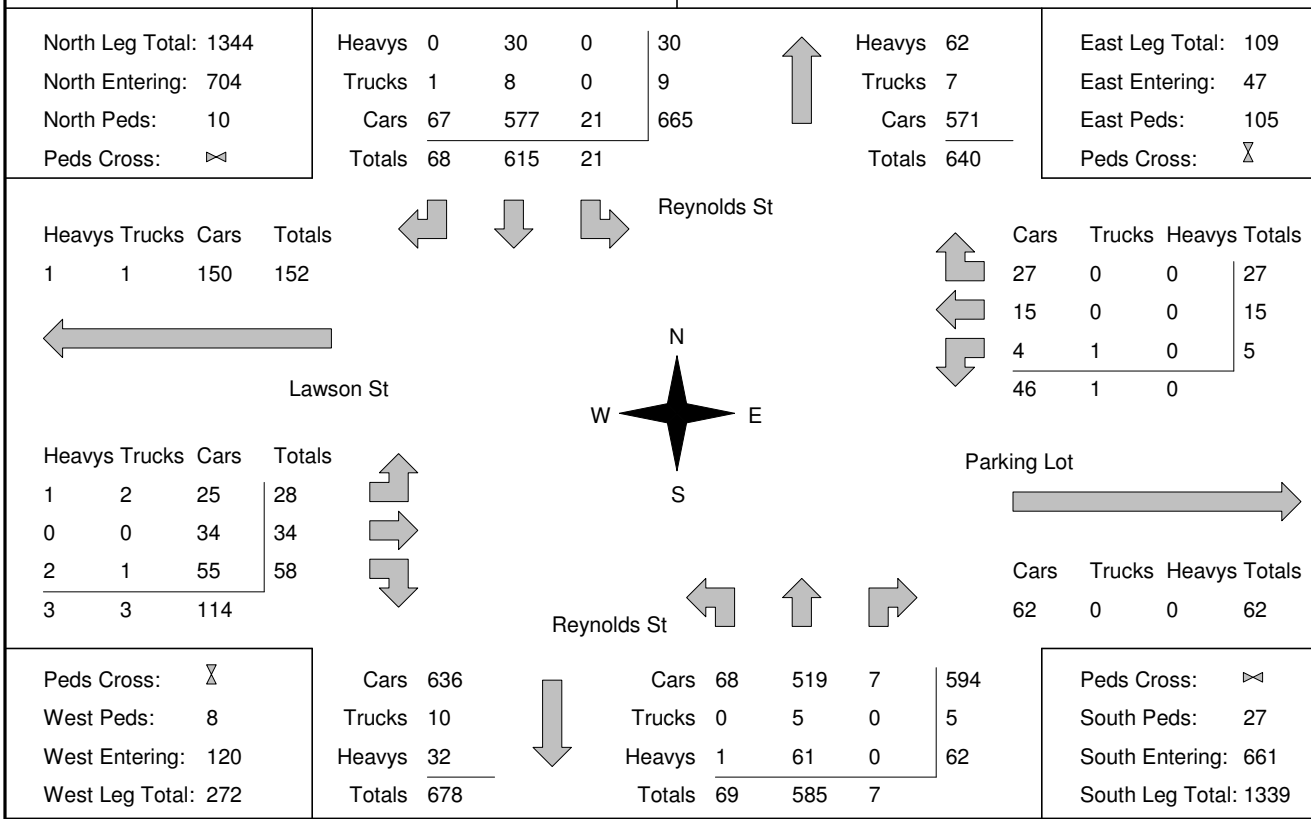
Municipality: Oakville
Site #: 0000000007
Intersection: Reynolds St & Lawson St
TFR File #: 7
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S



Comments

Reynolds St @ MacDonald Rd

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:00:00
To: 9:00:00

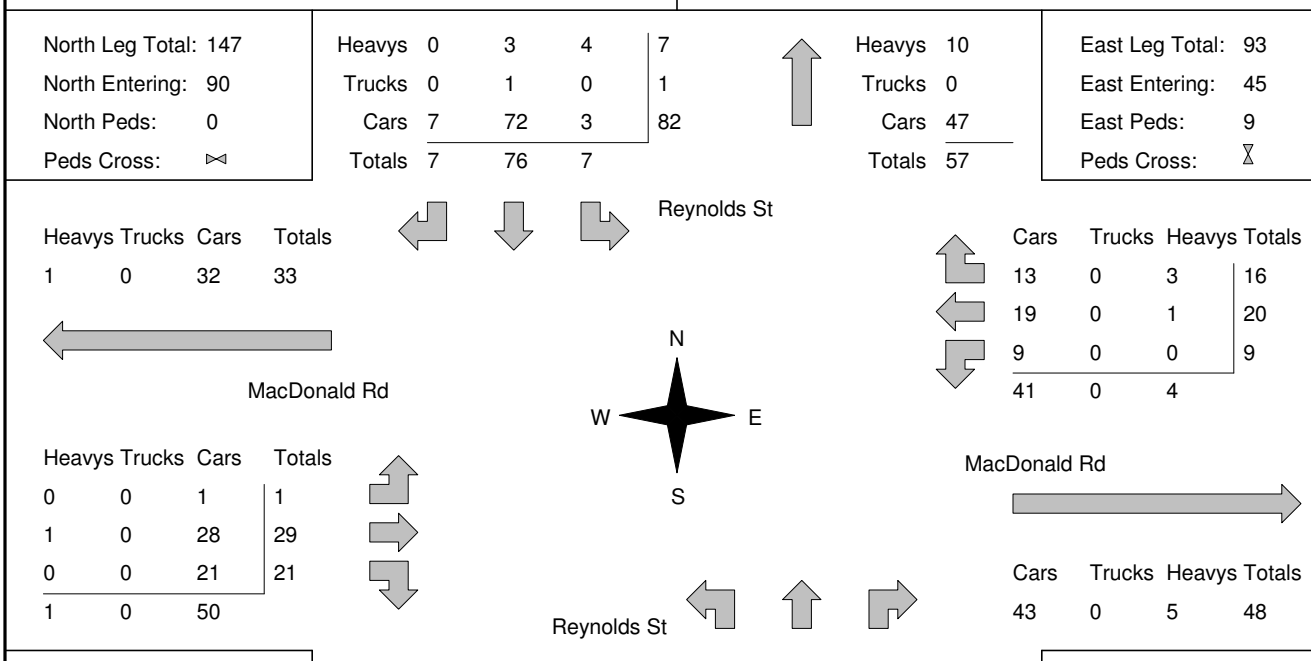
Municipality: Oakville
Site #: 0000000006
Intersection: Reynolds St & MacDonald Rd
TFR File #: 6
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S



Comments

Reynolds St @ MacDonald Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:00:00
To: 12:00:00

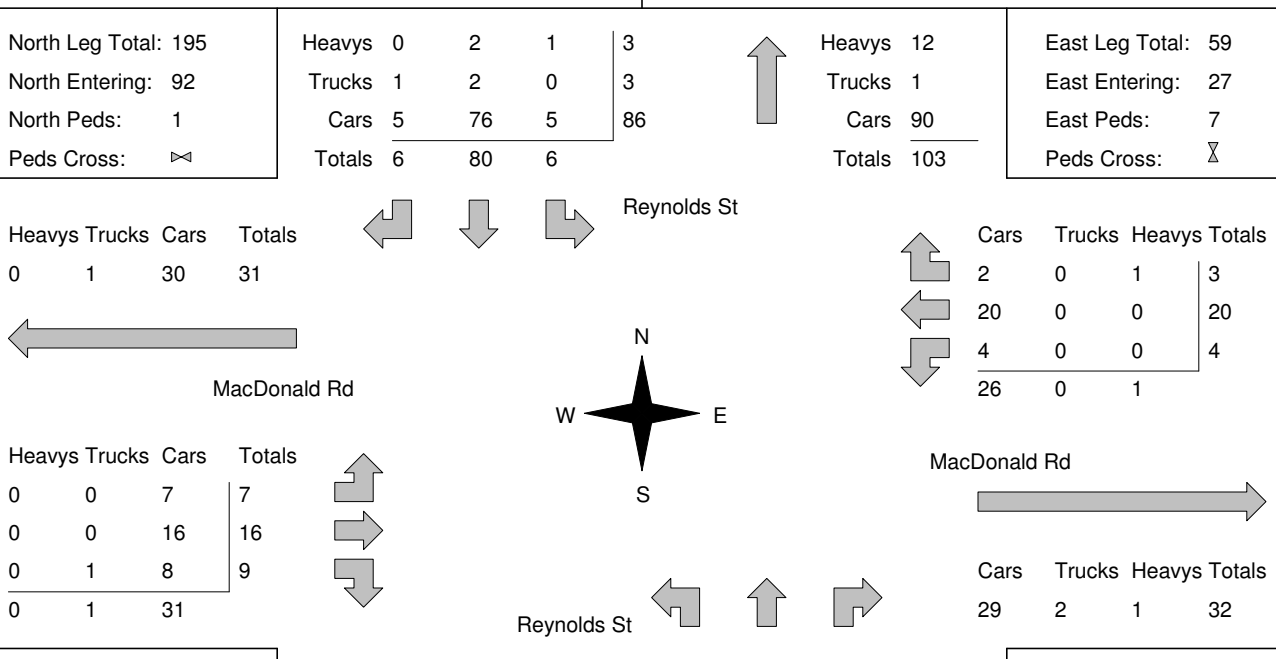
Municipality: Oakville
Site #: 0000000006
Intersection: Reynolds St & MacDonald Rd
TFR File #: 6
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S



Comments

Reynolds St @ MacDonald Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

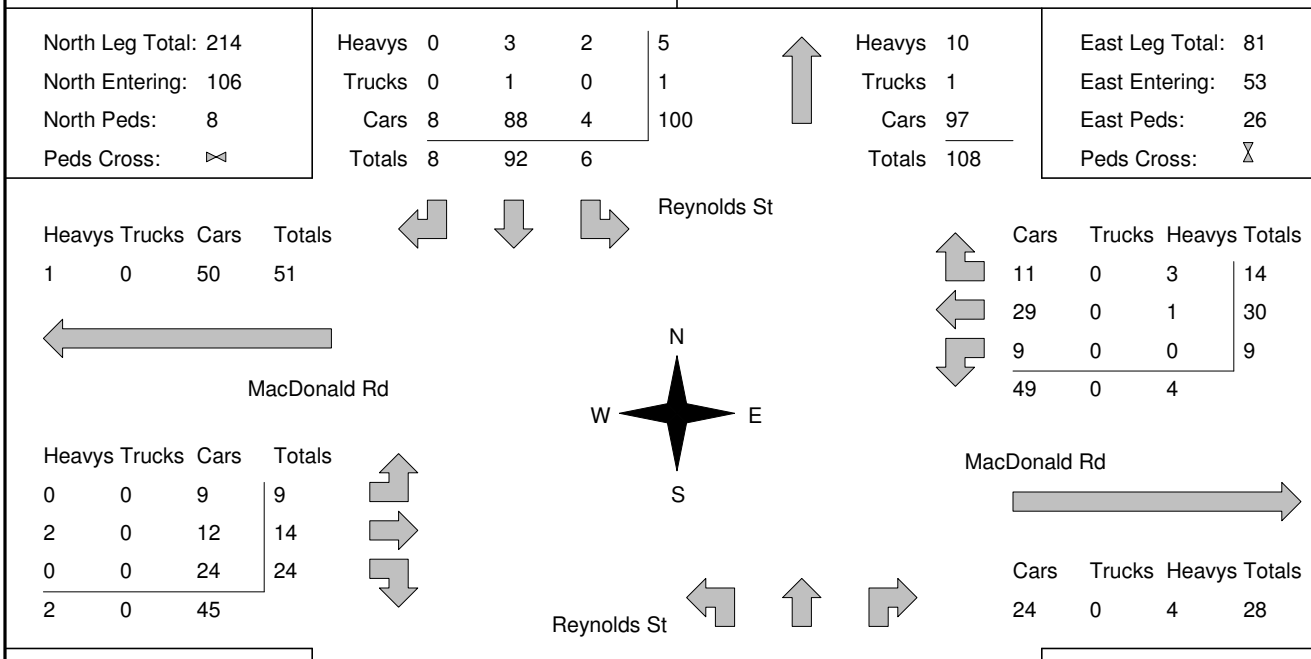
Municipality: Oakville
Site #: 0000000006
Intersection: Reynolds St & MacDonald Rd
TFR File #: 6
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S



Comments

Reynolds St @ MacDonald Rd

Total Count Diagram

Municipality: Oakville
Site #: 0000000006
Intersection: Reynolds St & MacDonald Rd
TFR File #: 6
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S

North Leg Total:	1372			
North Entering:	678			
North Peds:	30			
Peds Cross:	⋈			
Heavys	0	27	17	44
Trucks	1	11	0	12
Cars	46	549	27	622
Totals	47	587	44	
Heavys	79			
Trucks	7			
Cars	608			
Totals	694			
East Leg Total:	504			
East Entering:	264			
East Peds:	89			
Peds Cross:	⋈			

Reynolds St

Heavys	Trucks	Cars	Totals
6	2	266	274

MacDonald Rd

Cars	Trucks	Heavys	Totals
63	1	17	81
136	1	6	143
38	1	1	40
237	3	24	

N
W E
S

Heavys	Trucks	Cars	Totals
0	1	39	40
7	0	138	145
0	1	95	96
7	2	272	

MacDonald Rd

Cars	Trucks	Heavys	Totals
214	2	24	240

Reynolds St

Peds Cross:	⋈			
West Peds:	18			
West Entering:	281			
West Leg Total:	555			
Cars	682			
Trucks	13			
Heavys	28			
Totals	723			
Cars	84	506	49	639
Trucks	0	5	2	7
Heavys	0	62	0	62
Totals	84	573	51	
Peds Cross:	⋈			
South Peds:	33			
South Entering:	708			
South Leg Total:	1431			

Comments

Reynolds St @ Sheddon Ave

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:15:00
To: 9:15:00

Municipality: Oakville
Site #: 0000000008
Intersection: Reynolds St & Sheddon Ave
TFR File #: 8
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S

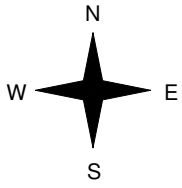
North Leg Total: 151
North Entering: 95
North Peds: 1
Peds Cross: ⋈

Heavys	4	0	4
Trucks	0	1	1
Cars	83	7	90
Totals	87	8	

Heavys	10
Trucks	0
Cars	46
Totals	56

East Leg Total: 23
East Entering: 12
East Peds: 9
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	5	0	4	9
	2	0	1	3
	7	0	5	



Cars	Trucks	Heavys	Totals
10	1	0	11

Cars	85
Trucks	0
Heavys	5
Totals	90

Cars	41	3	44
Trucks	0	0	0
Heavys	6	0	6
Totals	47	3	

Peds Cross: ⋈
South Peds: 0
South Entering: 50
South Leg Total: 140

Comments

Reynolds St @ Sheddon Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:00:00
To: 12:00:00

Municipality: Oakville
Site #: 0000000008
Intersection: Reynolds St & Sheddon Ave
TFR File #: 8
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S

North Leg Total: 181
North Entering: 91
North Peds: 0
Peds Cross: ⋈

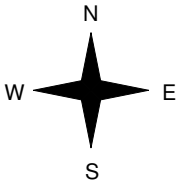
Heavys	3	2	5
Trucks	2	0	2
Cars	79	5	84
Totals	84	7	

Heavys	11
Trucks	1
Cars	78
Totals	90

East Leg Total: 25
East Entering: 13
East Peds: 17
Peds Cross: ⋈

Cars	Trucks	Heavys	Totals
4	0	8	12

1	0	0	1
5	0	8	



Cars	Trucks	Heavys	Totals
9	0	3	12

Cars	80
Trucks	2
Heavys	3
Totals	85

Cars	74	4	78
Trucks	1	0	1
Heavys	3	1	4
Totals	78	5	

Peds Cross: ⋈
South Peds: 0
South Entering: 83
South Leg Total: 168

Comments

Reynolds St @ Sheddon Ave

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Oakville
Site #: 0000000008
Intersection: Reynolds St & Sheddon Ave
TFR File #: 8
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S

North Leg Total: 203
North Entering: 96
North Peds: 3
Peds Cross: ⋈

Heavys	4	0	4
Trucks	1	0	1
Cars	79	12	91
Totals	84	12	

Heavys	2
Trucks	0
Cars	105
Totals	107

East Leg Total: 17
East Entering: 3
East Peds: 16
Peds Cross: ⋈

Reynolds St

Cars	Trucks	Heavys	Totals
1	0	0	1
2	0	0	2
3	0	0	

N
W E
S

Sheddon Ave

Cars	Trucks	Heavys	Totals
14	0	0	14

Reynolds St

Cars	81		
Trucks	1		
Heavys	4		
Totals	86		

Cars	104	2	106
Trucks	0	0	0
Heavys	2	0	2
Totals	106	2	

Peds Cross: ⋈
South Peds: 0
South Entering: 108
South Leg Total: 194

Comments

Reynolds St @ Sheddon Ave

Total Count Diagram

Municipality: Oakville
Site #: 0000000008
Intersection: Reynolds St & Sheddon Ave
TFR File #: 8
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Reynolds St runs N/S

North Leg Total: 1255
North Entering: 644
North Peds: 4
Peds Cross: ⋈

Heavys	27	5	32
Trucks	8	2	10
Cars	544	58	602
Totals	579	65	

Heavys	62
Trucks	6
Cars	543
Totals	611

East Leg Total: 191
East Entering: 97
East Peds: 109
Peds Cross: ⋈

Reynolds St

Cars	Trucks	Heavys	Totals
42	1	35	78
17	0	2	19
59	1	37	

N
W E
S

Sheddon Ave

Cars	Trucks	Heavys	Totals
85	3	6	94

Reynolds St

Cars	561		
Trucks	8		
Heavys	29		
Totals	598		

Cars	501	27	528
Trucks	5	1	6
Heavys	27	1	28
Totals	533	29	

Peds Cross: ⋈
South Peds: 2
South Entering: 562
South Leg Total: 1160

Comments

Trafalgar Rd @ Cornwall Rd

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:00:00
To: 9:00:00

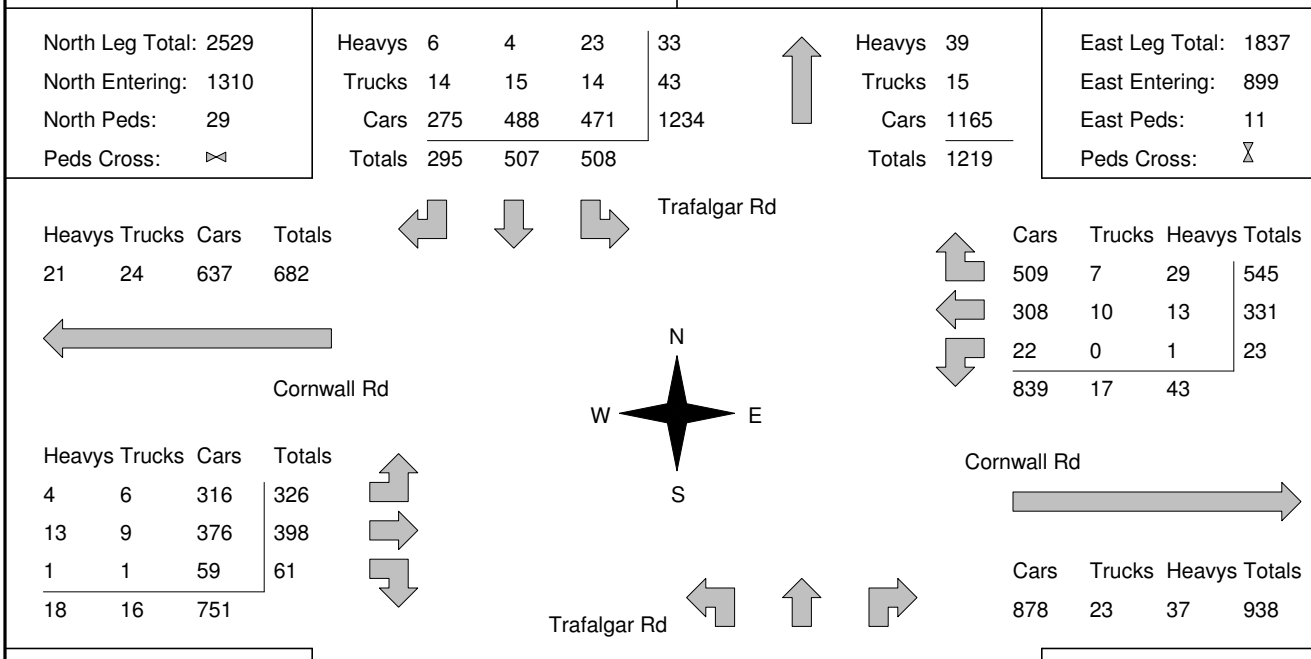
Municipality: Oakville
Site #: 0000000010
Intersection: Trafalgar Rd & Cornwall Rd
TFR File #: 10
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Trafalgar Rd @ Cornwall Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

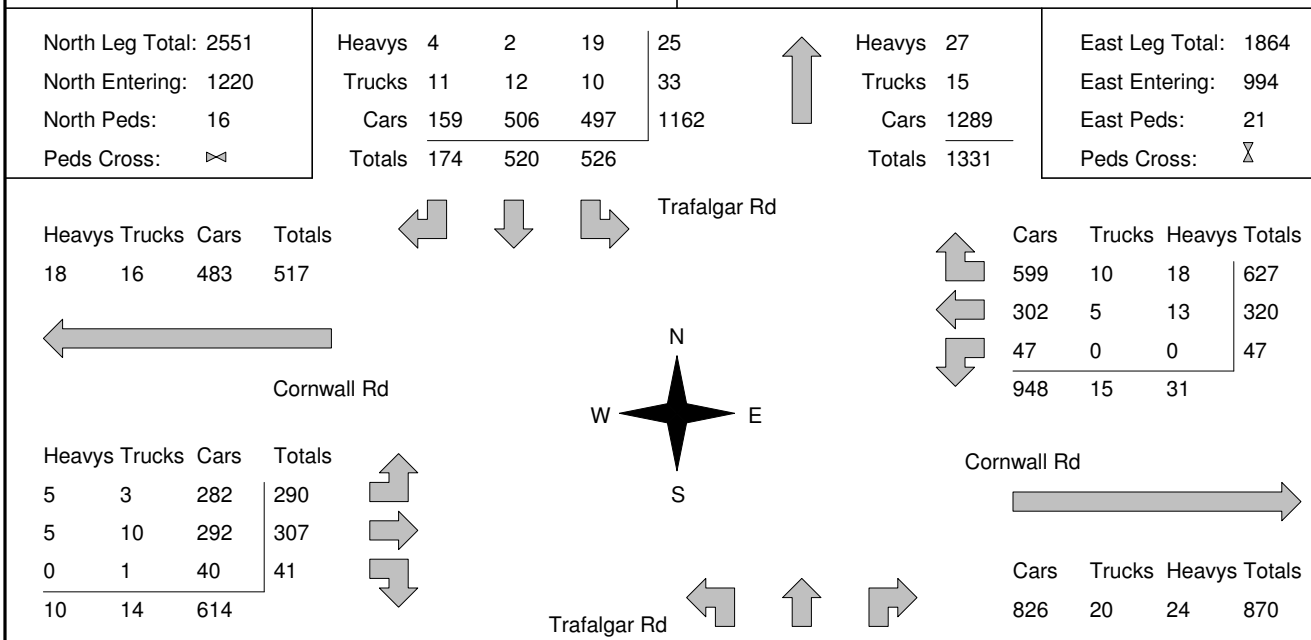
Municipality: Oakville
Site #: 0000000010
Intersection: Trafalgar Rd & Cornwall Rd
TFR File #: 10
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Trafalgar Rd @ Cornwall Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

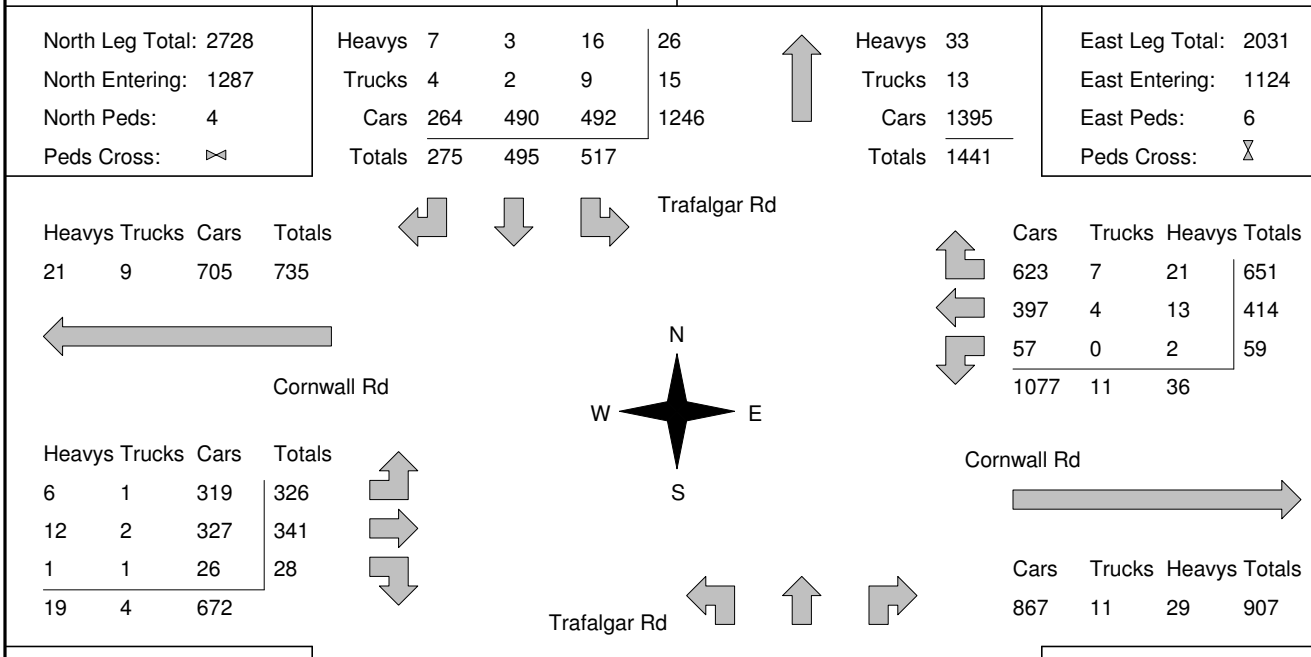
Municipality: Oakville
Site #: 0000000010
Intersection: Trafalgar Rd & Cornwall Rd
TFR File #: 10
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Trafalgar Rd @ Cornwall Rd

Total Count Diagram

Municipality: Oakville
Site #: 0000000010
Intersection: Trafalgar Rd & Cornwall Rd
TFR File #: 10
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total:	18638			
North Entering:	9223			
North Peds:	147			
Peds Cross:	⋈			

Heavys	36	19	153	208
Trucks	55	48	63	166
Cars	1929	3488	3432	8849
Totals	2020	3555	3648	

Heavys	229	
Trucks	85	
Cars	9101	
Totals	9415	

East Leg Total:	13626	
East Entering:	7199	
East Peds:	94	
Peds Cross:	⧖	

Trafalgar Rd

Heavys	Trucks	Cars	Totals
130	105	4758	4993

Cornwall Rd

Cars	Trucks	Heavys	Totals
4056	44	166	4266
2501	49	88	2638
289	3	3	295
6846	96	257	

N
W E
S

Heavys	Trucks	Cars	Totals
38	22	2266	2326
70	45	2396	2511
5	9	323	337
113	76	4985	

Cornwall Rd

Cars	Trucks	Heavys	Totals
6092	109	226	6427

Trafalgar Rd

Peds Cross:	⧖			
West Peds:	111			
West Entering:	5174			
West Leg Total:	10167			

Cars	4100			
Trucks	60			
Heavys	27			
Totals	4187			

Cars	328	2779	264	3371
Trucks	1	19	1	21
Heavys	6	25	3	34
Totals	335	2823	268	

Peds Cross:	⋈	
South Peds:	80	
South Entering:	3426	
South Leg Total:	7613	

Comments

Trafalgar Rd @ Freestone Ln

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:30:00
To: 9:30:00

Municipality: Oakville
Site #: 0000000013
Intersection: Trafalgar Rd & Freestone Ln
TFR File #: 13
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

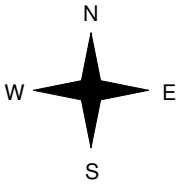
North Leg Total: 754
North Entering: 504
North Peds: 0
Peds Cross: ⋈

Heavys	1	0	1
Trucks	7	0	7
Cars	495	1	496
Totals	503	1	

Heavys	3
Trucks	2
Cars	245
Totals	250

East Leg Total: 5
East Entering: 2
East Peds: 18
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	2	0	0	2
	0	0	0	0
	2	0	0	



	Cars	Trucks	Heavys	Totals
	3	0	0	3

Cars	495		
Trucks	7		
Heavys	1		
Totals	503		

Cars	243	2	245
Trucks	2	0	2
Heavys	3	0	3
Totals	248	2	

Peds Cross: ⋈
South Peds: 4
South Entering: 250
South Leg Total: 753

Comments

Trafalgar Rd @ Freestone Ln

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

Municipality: Oakville
Site #: 0000000013
Intersection: Trafalgar Rd & Freestone Ln
TFR File #: 13
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

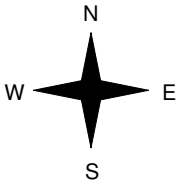
North Leg Total: 937
North Entering: 513
North Peds: 0
Peds Cross: ⋈

Heavys	2	0	2
Trucks	3	0	3
Cars	503	5	508
Totals	508	5	

Heavys	1
Trucks	7
Cars	416
Totals	424

East Leg Total: 13
East Entering: 6
East Peds: 20
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	6	0	0	6
	0	0	0	0
	6	0	0	



Freestone Ln

	Cars	Trucks	Heavys	Totals
	7	0	0	7

Trafalgar Rd

Cars	503		
Trucks	3		
Heavys	2		
Totals	508		

Cars	410	2	412
Trucks	7	0	7
Heavys	1	0	1
Totals	418	2	

Peds Cross: ⋈
South Peds: 1
South Entering: 420
South Leg Total: 928

Comments

Trafalgar Rd @ Freestone Ln

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

Municipality: Oakville
Site #: 0000000013
Intersection: Trafalgar Rd & Freestone Ln
TFR File #: 13
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 928
North Entering: 512
North Peds: 0
Peds Cross: ⋈

Heavys	2	0	2
Trucks	1	0	1
Cars	503	6	509
Totals	506	6	

Heavys	5
Trucks	3
Cars	408
Totals	416

East Leg Total: 12
East Entering: 5
East Peds: 18
Peds Cross: ⋈

Trafalgar Rd

Cars	Trucks	Heavys	Totals
4	0	0	4
1	0	0	1
5	0	0	

N
W E
S

Freestone Ln

Cars	Trucks	Heavys	Totals
7	0	0	7

Trafalgar Rd

Cars	504
Trucks	1
Heavys	2
Totals	507

Cars	404	1	405
Trucks	3	0	3
Heavys	5	0	5
Totals	412	1	

Peds Cross: ⋈
South Peds: 2
South Entering: 413
South Leg Total: 920

Comments

Trafalgar Rd @ Freestone Ln

Total Count Diagram

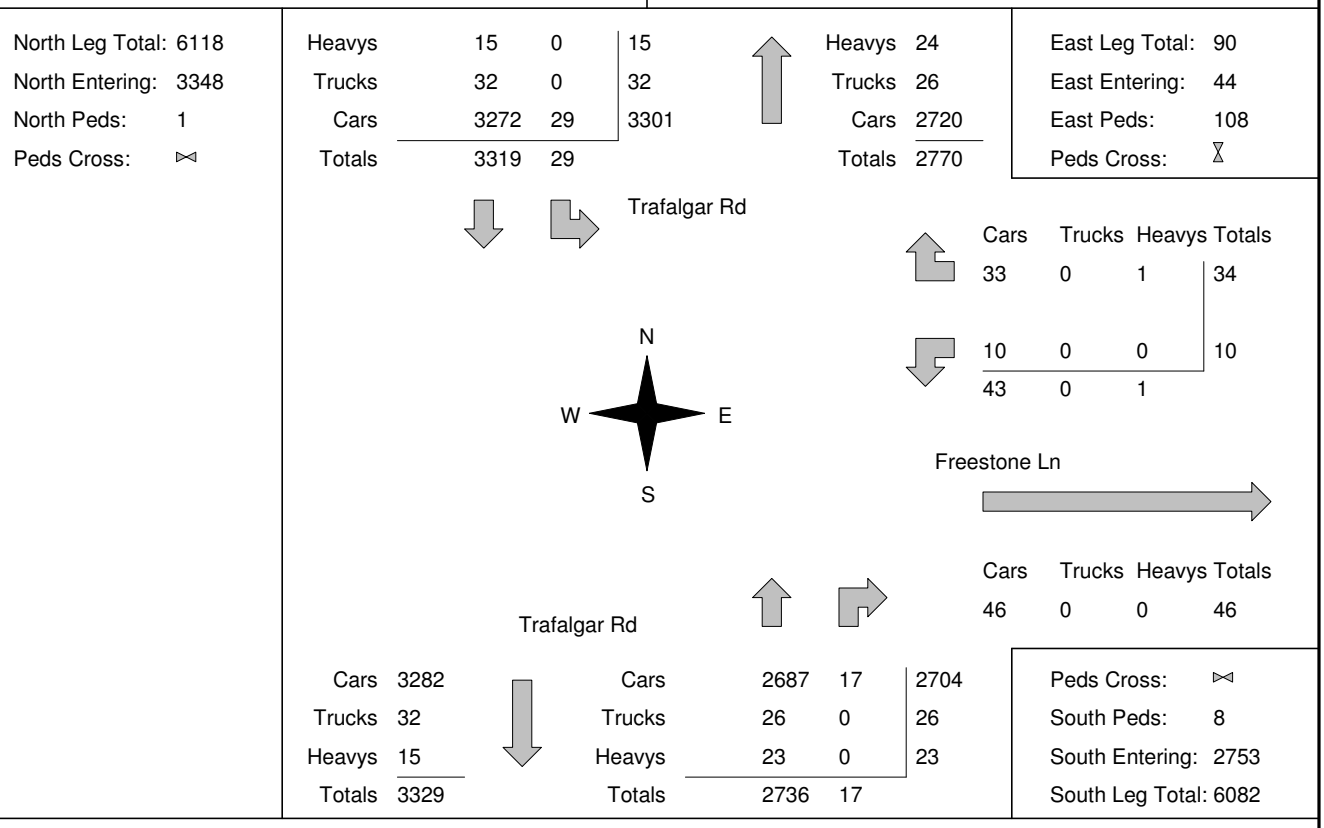
Municipality: Oakville
Site #: 0000000013
Intersection: Trafalgar Rd & Freestone Ln
TFR File #: 13
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Trafalgar Rd @ Freestone Ln

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:30:00
To: 9:30:00

Municipality: Oakville
Site #: 0000000013
Intersection: Trafalgar Rd & Freestone Ln
TFR File #: 13
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

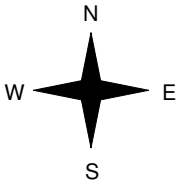
North Leg Total: 754
North Entering: 504
North Peds: 0
Peds Cross: ⋈

Heavys	1	0	1
Trucks	7	0	7
Cars	495	1	496
Totals	503	1	

Heavys	3
Trucks	2
Cars	245
Totals	250

East Leg Total: 5
East Entering: 2
East Peds: 18
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	2	0	0	2
	0	0	0	0
	2	0	0	



	Cars	Trucks	Heavys	Totals
	3	0	0	3

Cars	495		
Trucks	7		
Heavys	1		
Totals	503		

Cars	243	2	245
Trucks	2	0	2
Heavys	3	0	3
Totals	248	2	

Peds Cross: ⋈
South Peds: 4
South Entering: 250
South Leg Total: 753

Comments

Trafalgar Rd @ Freestone Ln

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

Municipality: Oakville
Site #: 0000000013
Intersection: Trafalgar Rd & Freestone Ln
TFR File #: 13
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

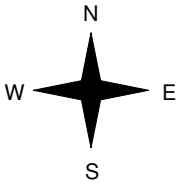
North Leg Total: 937
North Entering: 513
North Peds: 0
Peds Cross: ⋈

Heavys	2	0	2
Trucks	3	0	3
Cars	503	5	508
Totals	508	5	

Heavys	1
Trucks	7
Cars	416
Totals	424

East Leg Total: 13
East Entering: 6
East Peds: 20
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	6	0	0	6
	0	0	0	0
	6	0	0	



Freestone Ln

	Cars	Trucks	Heavys	Totals
	7	0	0	7

Trafalgar Rd

Cars	503		
Trucks	3		
Heavys	2		
Totals	508		

Cars	410	2	412
Trucks	7	0	7
Heavys	1	0	1
Totals	418	2	

Peds Cross: ⋈
South Peds: 1
South Entering: 420
South Leg Total: 928

Comments

Trafalgar Rd @ Freestone Ln

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

Municipality: Oakville
Site #: 0000000013
Intersection: Trafalgar Rd & Freestone Ln
TFR File #: 13
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 928
North Entering: 512
North Peds: 0
Peds Cross: ⋈

Heavys	2	0	2
Trucks	1	0	1
Cars	503	6	509
Totals	506	6	

Heavys	5
Trucks	3
Cars	408
Totals	416

East Leg Total: 12
East Entering: 5
East Peds: 18
Peds Cross: ⋈

Trafalgar Rd

Cars	Trucks	Heavys	Totals
4	0	0	4
1	0	0	1
5	0	0	

N
W E
S

Freestone Ln

Cars	Trucks	Heavys	Totals
7	0	0	7

Trafalgar Rd

Cars	504
Trucks	1
Heavys	2
Totals	507

Cars	404	1	405
Trucks	3	0	3
Heavys	5	0	5
Totals	412	1	

Peds Cross: ⋈
South Peds: 2
South Entering: 413
South Leg Total: 920

Comments

Trafalgar Rd @ Freestone Ln

Total Count Diagram

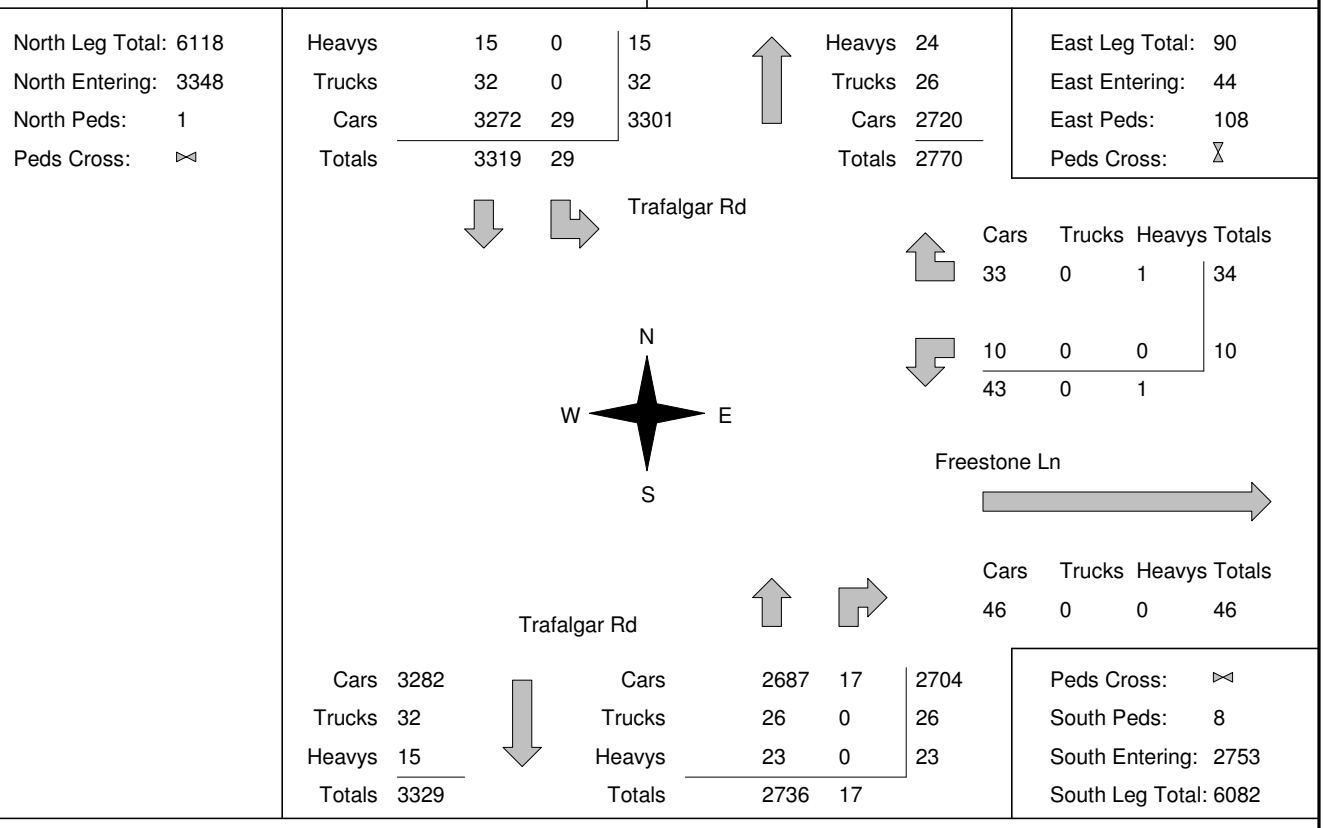
Municipality: Oakville
Site #: 0000000013
Intersection: Trafalgar Rd & Freestone Ln
TFR File #: 13
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Trafalgar Rd @ Lawson St

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:30:00
To: 9:30:00

Municipality: Oakville
Site #: 0000000012
Intersection: Trafalgar Rd & Lawson St
TFR File #: 12
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

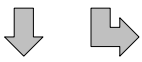
Major Road: Trafalgar Rd runs N/S

North Leg Total: 811
North Entering: 541
North Peds: 0
Peds Cross: ⋈

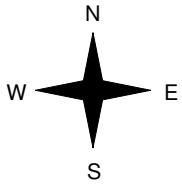
Heavys	1	1	2
Trucks	7	0	7
Cars	518	14	532
Totals	526	15	

Heavys	4
Trucks	2
Cars	264
Totals	270

East Leg Total: 29
East Entering: 13
East Peds: 15
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	12	0	0	12
	1	0	0	1
	13	0	0	



Lawson St

	Cars	Trucks	Heavys	Totals
	15	0	1	16

Cars	519		
Trucks	7		
Heavys	1		
Totals	527		

Cars	252	1	253
Trucks	2	0	2
Heavys	4	0	4
Totals	258	1	

Peds Cross: ⋈
South Peds: 1
South Entering: 259
South Leg Total: 786

Comments

Trafalgar Rd @ Lawson St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

Municipality: Oakville
Site #: 0000000012
Intersection: Trafalgar Rd & Lawson St
TFR File #: 12
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

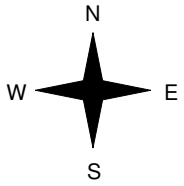
North Leg Total: 975
North Entering: 528
North Peds: 0
Peds Cross: ⋈

Heavys	2	0	2
Trucks	3	0	3
Cars	508	15	523
Totals	513	15	

Heavys	2
Trucks	6
Cars	439
Totals	447

East Leg Total: 26
East Entering: 7
East Peds: 15
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	6	0	0	6
	1	0	0	1
	7	0	0	



	Cars	Trucks	Heavys	Totals
	19	0	0	19

Cars	509	Cars	433	4	437
Trucks	3	Trucks	6	0	6
Heavys	2	Heavys	2	0	2
Totals	514	Totals	441	4	

Peds Cross: ⋈
South Peds: 0
South Entering: 445
South Leg Total: 959

Comments

Trafalgar Rd @ Lawson St

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

Municipality: Oakville
Site #: 0000000012
Intersection: Trafalgar Rd & Lawson St
TFR File #: 12
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 966
North Entering: 532
North Peds: 0
Peds Cross: ⋈

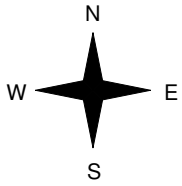
Heavys	3	0	3
Trucks	1	0	1
Cars	516	12	528
Totals	520	12	

Heavys	5
Trucks	3
Cars	426
Totals	434

East Leg Total: 33
East Entering: 21
East Peds: 12
Peds Cross: ⋈

Trafalgar Rd

Cars	Trucks	Heavys	Totals
19	0	0	19
2	0	0	2
21	0	0	



Lawson St

Cars	Trucks	Heavys	Totals
12	0	0	12

Trafalgar Rd

Cars	518
Trucks	1
Heavys	3
Totals	522

Cars	407	0	407
Trucks	3	0	3
Heavys	5	0	5
Totals	415	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 415
South Leg Total: 937

Comments

Trafalgar Rd @ Lawson St

Total Count Diagram

Municipality: Oakville
Site #: 0000000012
Intersection: Trafalgar Rd & Lawson St
TFR File #: 12
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 6445
North Entering: 3511
North Peds: 0
Peds Cross: ⋈

Heavys	14	3	17
Trucks	32	1	33
Cars	3358	103	3461
Totals	3404	107	

Heavys	26
Trucks	25
Cars	2883
Totals	2934

East Leg Total: 280
East Entering: 159
East Peds: 91
Peds Cross: ⋈

Trafalgar Rd

	Cars	Trucks	Heavys	Totals
	146	1	1	148
	11	0	0	11
	157	1	1	

N
W E
S

Lawson St

Cars	Trucks	Heavys	Totals
116	1	4	121

Trafalgar Rd

Cars	3369
Trucks	32
Heavys	14
Totals	3415

Cars	2737	13	2750
Trucks	24	0	24
Heavys	25	1	26
Totals	2786	14	

Peds Cross: ⋈
South Peds: 1
South Entering: 2800
South Leg Total: 6215

Comments

Trafalgar Rd @ MacDonald Rd

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 9:30:00

One Hour Peak
From: 8:15:00
To: 9:15:00

Municipality: Oakville
Site #: 0000000011
Intersection: Trafalgar Rd & MacDonald Rd
TFR File #: 11
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

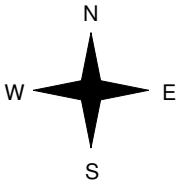
North Leg Total: 1014
North Entering: 609
North Peds: 0
Peds Cross: ⋈

Heavys	5	1	6
Trucks	8	0	8
Cars	560	35	595
Totals	573	36	

Heavys	6
Trucks	4
Cars	395
Totals	405

East Leg Total: 90
East Entering: 33
East Peds: 23
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	25	0	0	25
	8	0	0	8
	33	0	0	



MacDonald Rd

	Cars	Trucks	Heavys	Totals
	56	0	1	57

Trafalgar Rd

Cars	568		
Trucks	8		
Heavys	5		
Totals	581		

Cars	370	21	391
Trucks	4	0	4
Heavys	6	0	6
Totals	380	21	

Peds Cross: ⋈
South Peds: 0
South Entering: 401
South Leg Total: 982

Comments

Trafalgar Rd @ MacDonald Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 13:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

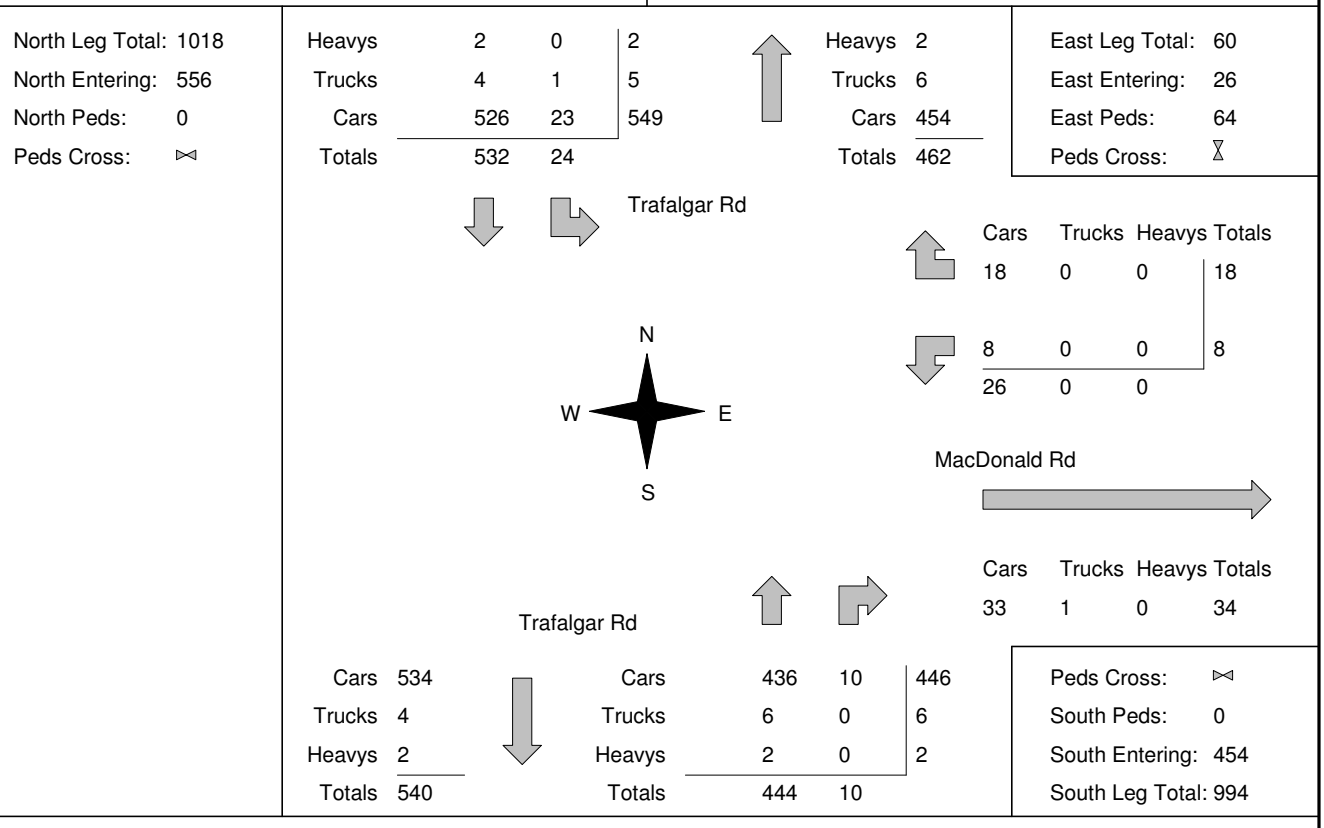
Municipality: Oakville
Site #: 0000000011
Intersection: Trafalgar Rd & MacDonald Rd
TFR File #: 11
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Trafalgar Rd @ MacDonald Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

Municipality: Oakville
Site #: 0000000011
Intersection: Trafalgar Rd & MacDonald Rd
TFR File #: 11
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

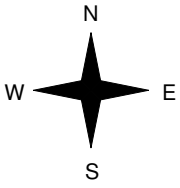
North Leg Total: 1105
North Entering: 558
North Peds: 0
Peds Cross: ⋈

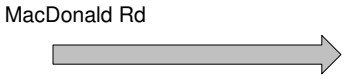
Heavys	5	1	6
Trucks	3	0	3
Cars	521	28	549
Totals	529	29	

Heavys	8
Trucks	6
Cars	533
Totals	547

East Leg Total: 113
East Entering: 52
East Peds: 38
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	43	0	1	44
	8	0	0	8
	51	0	1	





	Cars	Trucks	Heavys	Totals
	59	0	2	61

Cars	529	Cars	490	31	521
Trucks	3	Trucks	6	0	6
Heavys	5	Heavys	7	1	8
Totals	537	Totals	503	32	

Peds Cross: ⋈
South Peds: 1
South Entering: 535
South Leg Total: 1072

Comments

Trafalgar Rd @ MacDonald Rd

Total Count Diagram

Municipality: Oakville
Site #: 0000000011
Intersection: Trafalgar Rd & MacDonald Rd
TFR File #: 11
Count date: 12-Sep-2017

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 7175
North Entering: 3899
North Peds: 2
Peds Cross: ⋈

Heavys	22	5	27
Trucks	39	1	40
Cars	3630	202	3832
Totals	3691	208	

Heavys	32
Trucks	29
Cars	3215
Totals	3276

East Leg Total: 595
East Entering: 276
East Peds: 251
Peds Cross: ⋈

Trafalgar Rd

Cars	Trucks	Heavys	Totals
220	0	5	225
47	1	3	51
267	1	8	

N
W E
S

MacDonald Rd

Cars	Trucks	Heavys	Totals
310	1	8	319

Trafalgar Rd

Cars	3677		
Trucks	40		
Heavys	25		
Totals	3742		

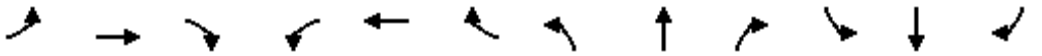
Cars	2995	108	3103
Trucks	29	0	29
Heavys	27	3	30
Totals	3051	111	

Peds Cross: ⋈
South Peds: 1
South Entering: 3162
South Leg Total: 6904

Comments

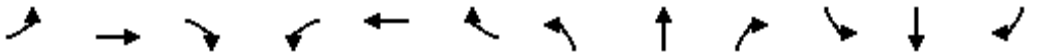
Appendix B

Existing (2017) Traffic Analysis – Synchro Output Sheets



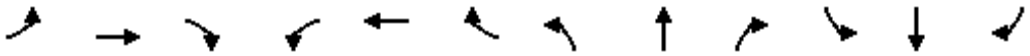
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	326	398	61	23	331	545	56	348	32	508	507	295
Future Volume (vph)	326	398	61	23	331	545	56	348	32	508	507	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		5.0	6.0	4.0	4.0	6.0		5.0	6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3437	3388		1738	3411	1526	1755	3530		3309	1847	1526
Flt Permitted	0.95	1.00		0.47	1.00	1.00	0.46	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3437	3388		858	3411	1526	846	3530		3309	1847	1526
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	354	433	66	25	360	592	61	378	35	552	551	321
RTOR Reduction (vph)	0	9	0	0	0	0	0	5	0	0	0	110
Lane Group Flow (vph)	354	490	0	25	360	592	61	408	0	552	551	211
Heavy Vehicles (%)	3%	6%	3%	5%	7%	7%	4%	2%	3%	7%	4%	7%
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases				4		Free	2					6
Actuated Green, G (s)	18.1	34.7		26.8	22.2	140.0	47.7	41.2		37.5	73.2	73.2
Effective Green, g (s)	18.1	34.7		26.8	22.2	140.0	47.7	41.2		37.5	73.2	73.2
Actuated g/C Ratio	0.13	0.25		0.19	0.16	1.00	0.34	0.29		0.27	0.52	0.52
Clearance Time (s)	4.0	6.0		5.0	6.0		4.0	6.0		5.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	444	839		193	540	1526	330	1038		886	965	797
v/s Ratio Prot	c0.10	0.14		0.00	c0.11		0.01	0.12		c0.17	c0.30	
v/s Ratio Perm				0.02		0.39	0.05					0.14
v/c Ratio	0.80	0.58		0.13	0.67	0.39	0.18	0.39		0.62	0.57	0.26
Uniform Delay, d1	59.2	46.3		46.4	55.4	0.0	31.5	39.4		45.0	22.7	18.5
Progression Factor	1.00	1.00		1.37	1.20	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.6	1.0		0.3	3.0	0.7	0.3	1.1		1.4	2.5	0.8
Delay (s)	68.8	47.3		64.0	69.3	0.7	31.8	40.5		46.4	25.2	19.3
Level of Service	E	D		E	E	A	C	D		D	C	B
Approach Delay (s)		56.2			27.6			39.4			32.1	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	894	55	38	849	17	45	7	21	4	5	13
Future Volume (vph)	0	894	55	38	849	17	45	7	21	4	5	13
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		5.7	5.7		5.7	5.7	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.89		1.00	0.89	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3444	1601	1789	3436		1789	1674		1789	1675	
Flt Permitted		1.00	1.00	0.29	1.00		0.75	1.00		0.74	1.00	
Satd. Flow (perm)		3444	1601	539	3436		1403	1674		1388	1675	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	972	60	41	923	18	49	8	23	4	5	14
RTOR Reduction (vph)	0	0	10	0	0	0	0	21	0	0	13	0
Lane Group Flow (vph)	0	972	50	41	941	0	49	10	0	4	6	0
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		116.3	116.3	116.3	116.3		12.0	12.0		12.0	12.0	
Effective Green, g (s)		116.3	116.3	116.3	116.3		12.0	12.0		12.0	12.0	
Actuated g/C Ratio		0.83	0.83	0.83	0.83		0.09	0.09		0.09	0.09	
Clearance Time (s)		6.0	6.0	6.0	6.0		5.7	5.7		5.7	5.7	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2860	1329	447	2854		120	143		118	143	
v/s Ratio Prot		c0.28			0.27			0.01			0.00	
v/s Ratio Perm			0.03	0.08			c0.03			0.00		
v/c Ratio		0.34	0.04	0.09	0.33		0.41	0.07		0.03	0.04	
Uniform Delay, d1		2.8	2.1	2.2	2.8		60.6	58.9		58.7	58.7	
Progression Factor		2.11	4.83	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.0	0.1	0.1		2.3	0.2		0.1	0.1	
Delay (s)		6.2	10.0	2.3	2.9		62.9	59.1		58.8	58.9	
Level of Service		A	B	A	A		E	E		E	E	
Approach Delay (s)		6.4			2.8			61.4			58.8	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



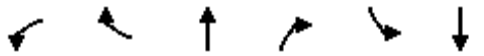
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	755	41	22	722	59	125	28	43	43	13	12
Future Volume (vph)	20	755	41	22	722	59	125	28	43	43	13	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.91		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3423		1789	3414		1789	1711		1789	1747	
Flt Permitted	0.22	1.00		0.21	1.00		0.74	1.00		0.71	1.00	
Satd. Flow (perm)	415	3423		400	3414		1393	1711		1331	1747	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	821	45	24	785	64	136	30	47	47	14	13
RTOR Reduction (vph)	0	4	0	0	6	0	0	25	0	0	7	0
Lane Group Flow (vph)	22	862	0	24	843	0	136	52	0	47	20	0
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	40.9	40.9		40.9	40.9		47.4	47.4		47.4	47.4	
Effective Green, g (s)	40.9	40.9		40.9	40.9		47.4	47.4		47.4	47.4	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.47	0.47		0.47	0.47	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	169	1400		163	1396		660	811		630	828	
v/s Ratio Prot		c0.25			0.25			0.03			0.01	
v/s Ratio Perm	0.05			0.06			c0.10			0.04		
v/c Ratio	0.13	0.62		0.15	0.60		0.21	0.06		0.07	0.02	
Uniform Delay, d1	18.4	23.3		18.6	23.2		15.3	14.3		14.3	14.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	2.0		1.9	1.9		0.7	0.2		0.2	0.1	
Delay (s)	20.0	25.4		20.5	25.1		16.0	14.4		14.6	14.0	
Level of Service	C	C		C	C		B	B		B	B	
Approach Delay (s)		25.2			25.0			15.5			14.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	29	21	9	20	16	6	40	12	7	76	7
Future Volume (vph)	1	29	21	9	20	16	6	40	12	7	76	7
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	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.95			0.97			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		1777			1777			1821			1855	
Flt Permitted		0.99			0.91			0.98			0.99	
Satd. Flow (perm)		1765			1641			1797			1839	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	32	23	10	22	17	7	43	13	8	83	8
RTOR Reduction (vph)	0	21	0	0	16	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	35	0	0	33	0	0	59	0	0	97	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		5.7			5.7			47.9			47.9	
Effective Green, g (s)		5.7			5.7			47.9			47.9	
Actuated g/C Ratio		0.09			0.09			0.73			0.73	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		153			142			1312			1342	
v/s Ratio Prot												
v/s Ratio Perm		0.02			c0.02			0.03			c0.05	
v/c Ratio		0.23			0.24			0.05			0.07	
Uniform Delay, d1		27.9			27.9			2.5			2.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			0.9			0.1			0.0	
Delay (s)		28.7			28.8			2.5			2.5	
Level of Service		C			C			A			A	
Approach Delay (s)		28.7			28.8			2.5			2.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

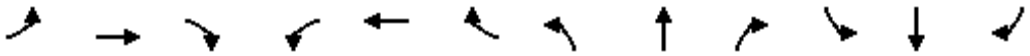
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	25	380	21	35	573
Future Volume (Veh/h)	8	25	380	21	35	573
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)	9	27	413	23	38	623
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						396
pX, platoon unblocked	0.78					
vC, conflicting volume	1124	424			436	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1019	424			436	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	96			97	
cM capacity (veh/h)	199	630			1124	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	36	436	661
Volume Left	9	0	38
Volume Right	27	23	0
cSH	408	1700	1124
Volume to Capacity	0.09	0.26	0.03
Queue Length 95th (m)	2.2	0.0	0.8
Control Delay (s)	14.7	0.0	0.9
Lane LOS	B		A
Approach Delay (s)	14.7	0.0	0.9
Approach LOS	B		

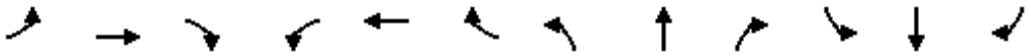
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	44	2	21	42	61	4	98	24	12	56	0
Future Volume (vph)	4	44	2	21	42	61	4	98	24	12	56	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	48	2	23	46	66	4	107	26	13	61	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	54	135	137	74
Volume Left (vph)	4	23	4	13
Volume Right (vph)	2	66	26	0
Hadj (s)	0.03	-0.23	-0.07	0.07
Departure Headway (s)	4.6	4.2	4.3	4.6
Degree Utilization, x	0.07	0.16	0.17	0.09
Capacity (veh/h)	744	801	788	743
Control Delay (s)	7.9	8.0	8.2	8.0
Approach Delay (s)	7.9	8.0	8.2	8.0
Approach LOS	A	A	A	A

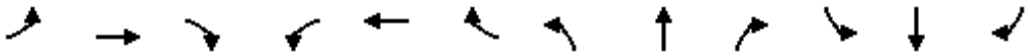
Intersection Summary			
Delay	8.1		
Level of Service	A		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	3	0	2	0	122	3	1	77	0
Future Volume (Veh/h)	0	0	0	3	0	2	0	122	3	1	77	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	3	0	2	0	133	3	1	84	0
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	222	222	84	220	220	134	84			136		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	222	222	84	220	220	134	84			136		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	731	676	975	735	677	914	1513			1448		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	5	136	85
Volume Left	0	3	0	1
Volume Right	0	2	3	0
cSH	1700	798	1513	1448
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	9.5	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.5	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	16.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	3	2	4	1	3	2	118	3	4	74	3
Future Volume (Veh/h)	3	3	2	4	1	3	2	118	3	4	74	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	3	2	4	1	3	2	128	3	4	80	3
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	226	224	82	226	224	130	83			131		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	226	224	82	226	224	130	83			131		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	723	672	978	723	672	920	1514			1454		

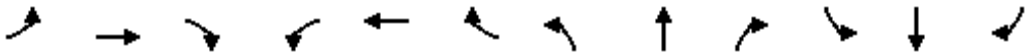
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	8	133	87
Volume Left	3	4	2	4
Volume Right	2	3	3	3
cSH	751	778	1514	1454
Volume to Capacity	0.01	0.01	0.00	0.00
Queue Length 95th (m)	0.2	0.2	0.0	0.1
Control Delay (s)	9.8	9.7	0.1	0.4
Lane LOS	A	A	A	A
Approach Delay (s)	9.8	9.7	0.1	0.4
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	17.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	9	47	3	8	87
Future Volume (Veh/h)	3	9	47	3	8	87
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	10	51	3	9	95
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	166	52			54	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	166	52			54	
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	99			99	
cM capacity (veh/h)	820	1015			1551	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	54	104
Volume Left	3	0	9
Volume Right	10	3	0
cSH	962	1700	1551
Volume to Capacity	0.01	0.03	0.01
Queue Length 95th (m)	0.3	0.0	0.1
Control Delay (s)	8.8	0.0	0.7
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	0.7
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	0	0	0	0	6	45	3	4	85	1
Future Volume (Veh/h)	4	1	0	0	0	0	6	45	3	4	85	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	1	0	0	0	0	7	49	3	4	92	1
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	165	166	92	166	166	50	93			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	165	166	92	166	166	50	93			52		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			100		
cM capacity (veh/h)	795	721	965	794	722	1018	1501			1554		

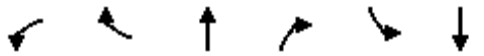
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	0	59	97
Volume Left	4	0	7	4
Volume Right	0	0	3	1
cSH	779	1700	1501	1554
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.1	0.1
Control Delay (s)	9.7	0.0	0.9	0.3
Lane LOS	A	A	A	A
Approach Delay (s)	9.7	0.0	0.9	0.3
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	15.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	2	248	2	1	503
Future Volume (Veh/h)	0	2	248	2	1	503
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)	0	2	270	2	1	547
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	820	271			272	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	820	271			272	
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)	344	768			1291	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	2	272	548
Volume Left	0	0	1
Volume Right	2	2	0
cSH	768	1700	1291
Volume to Capacity	0.00	0.16	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.7	0.0	0.0
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.0
Approach LOS	A		

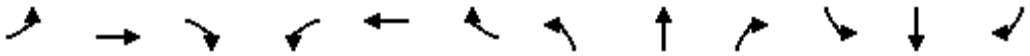
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		37.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	12	258	1	15	526
Future Volume (Veh/h)	1	12	258	1	15	526
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)	1	13	280	1	16	572
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	884	280			281	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	884	280			281	
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	98			99	
cM capacity (veh/h)	312	758			1282	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	14	281	588
Volume Left	1	0	16
Volume Right	13	1	0
cSH	688	1700	1282
Volume to Capacity	0.02	0.17	0.01
Queue Length 95th (m)	0.5	0.0	0.3
Control Delay (s)	10.3	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	10.3	0.0	0.4
Approach LOS	B		

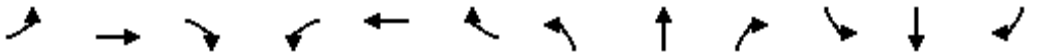
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	8	0	1	0	14	61	1	3	72	18
Future Volume (Veh/h)	4	4	8	0	1	0	14	61	1	3	72	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	4	9	0	1	0	15	66	1	3	78	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											233	
pX, platoon unblocked												
vC, conflicting volume	191	191	88	202	200	66	98			67		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	191	191	88	202	200	66	98			67		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	100	100	100	99			100		
cM capacity (veh/h)	761	696	970	740	687	997	1495			1535		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	1	82	101
Volume Left	4	0	15	3
Volume Right	9	0	1	20
cSH	838	687	1495	1535
Volume to Capacity	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.5	0.0	0.2	0.0
Control Delay (s)	9.4	10.2	1.4	0.2
Lane LOS	A	B	A	A
Approach Delay (s)	9.4	10.2	1.4	0.2
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	21.0%	ICU Level of Service	A	
Analysis Period (min)	15			

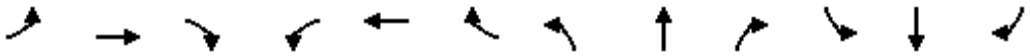


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	326	341	28	59	414	651	46	464	49	517	495	275
Future Volume (vph)	326	341	28	59	414	651	46	464	49	517	495	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		5.0	6.0	4.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3471	3463		1755	3510	1570	1755	3527		3372	1883	1570
Flt Permitted	0.95	1.00		0.52	1.00	1.00	0.46	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3471	3463		953	3510	1570	856	3527		3372	1883	1570
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	354	371	30	64	450	708	50	504	53	562	538	299
RTOR Reduction (vph)	0	5	0	0	0	0	0	6	0	0	0	112
Lane Group Flow (vph)	354	396	0	64	450	708	50	551	0	562	538	187
Heavy Vehicles (%)	2%	4%	7%	4%	4%	4%	4%	2%	2%	5%	2%	4%
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases				4		Free	2					6
Actuated Green, G (s)	18.1	34.0		32.3	24.6	140.0	48.7	42.5		34.8	71.1	71.1
Effective Green, g (s)	18.1	34.0		32.3	24.6	140.0	48.7	42.5		34.8	71.1	71.1
Actuated g/C Ratio	0.13	0.24		0.23	0.18	1.00	0.35	0.30		0.25	0.51	0.51
Clearance Time (s)	4.0	6.0		5.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	448	841		263	616	1570	337	1070		838	956	797
v/s Ratio Prot	c0.10	0.11		0.01	c0.13		0.01	0.16		c0.17	c0.29	
v/s Ratio Perm				0.04		0.45	0.04					0.12
v/c Ratio	0.79	0.47		0.24	0.73	0.45	0.15	0.52		0.67	0.56	0.23
Uniform Delay, d1	59.1	45.3		43.0	54.6	0.0	30.6	40.2		47.4	23.7	19.2
Progression Factor	1.00	1.00		1.39	1.27	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.2	0.4		0.5	4.2	0.9	0.2	1.8		2.1	2.4	0.7
Delay (s)	68.3	45.7		60.4	73.5	0.9	30.8	42.0		49.6	26.1	19.9
Level of Service	E	D		E	E	A	C	D		D	C	B
Approach Delay (s)		56.3			30.7			41.1			34.2	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	860	67	50	1025	20	76	15	35	8	11	33
Future Volume (vph)	5	860	67	50	1025	20	76	15	35	8	11	33
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		5.7	5.7		5.7	5.7	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.89		1.00	0.89	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3443	1601	1789	3501		1789	1685		1789	1672	
Flt Permitted		0.95	1.00	0.29	1.00		0.73	1.00		0.72	1.00	
Satd. Flow (perm)		3269	1601	549	3501		1367	1685		1359	1672	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	935	73	54	1114	22	83	16	38	9	12	36
RTOR Reduction (vph)	0	0	15	0	0	0	0	34	0	0	32	0
Lane Group Flow (vph)	0	940	58	54	1136	0	83	20	0	9	16	0
Heavy Vehicles (%)	2%	6%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		112.0	112.0	112.0	112.0		16.3	16.3		16.3	16.3	
Effective Green, g (s)		112.0	112.0	112.0	112.0		16.3	16.3		16.3	16.3	
Actuated g/C Ratio		0.80	0.80	0.80	0.80		0.12	0.12		0.12	0.12	
Clearance Time (s)		6.0	6.0	6.0	6.0		5.7	5.7		5.7	5.7	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2615	1280	439	2800		159	196		158	194	
v/s Ratio Prot					c0.32			0.01			0.01	
v/s Ratio Perm		0.29	0.04	0.10			c0.06			0.01		
v/c Ratio		0.36	0.05	0.12	0.41		0.52	0.10		0.06	0.08	
Uniform Delay, d1		3.9	2.9	3.1	4.1		58.2	55.3		55.0	55.2	
Progression Factor		1.49	3.51	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.1	0.2	0.1		3.1	0.2		0.2	0.2	
Delay (s)		6.2	10.2	3.3	4.3		61.3	55.6		55.2	55.4	
Level of Service		A	B	A	A		E	E		E	E	
Approach Delay (s)		6.5			4.2			59.0			55.3	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	655	57	34	840	93	82	29	35	107	38	34
Future Volume (vph)	33	655	57	34	840	93	82	29	35	107	38	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.92		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3442		1789	3464		1789	1730		1789	1749	
Flt Permitted	0.15	1.00		0.26	1.00		0.71	1.00		0.71	1.00	
Satd. Flow (perm)	282	3442		484	3464		1330	1730		1340	1749	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	712	62	37	913	101	89	32	38	116	41	37
RTOR Reduction (vph)	0	7	0	0	8	0	0	20	0	0	19	0
Lane Group Flow (vph)	36	767	0	37	1006	0	89	50	0	116	59	0
Heavy Vehicles (%)	2%	5%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	40.9	40.9		40.9	40.9		47.4	47.4		47.4	47.4	
Effective Green, g (s)	40.9	40.9		40.9	40.9		47.4	47.4		47.4	47.4	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.47	0.47		0.47	0.47	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	115	1407		197	1416		630	820		635	829	
v/s Ratio Prot		0.22			c0.29			0.03			0.03	
v/s Ratio Perm	0.13			0.08			0.07			c0.09		
v/c Ratio	0.31	0.55		0.19	0.71		0.14	0.06		0.18	0.07	
Uniform Delay, d1	20.0	22.5		18.9	24.6		14.8	14.2		15.1	14.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.0	1.5		2.1	3.0		0.5	0.1		0.6	0.2	
Delay (s)	27.0	24.0		21.0	27.7		15.3	14.4		15.8	14.5	
Level of Service	C	C		C	C		B	B		B	B	
Approach Delay (s)		24.1			27.4			14.9			15.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	14	24	9	30	14	13	85	8	6	92	8
Future Volume (vph)	9	14	24	9	30	14	13	85	8	6	92	8
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	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.93			0.97			0.99			0.99	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1737			1802			1852			1858	
Flt Permitted		0.92			0.93			0.97			0.99	
Satd. Flow (perm)		1608			1686			1813			1844	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	15	26	10	33	15	14	92	9	7	100	9
RTOR Reduction (vph)	0	24	0	0	14	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	27	0	0	44	0	0	113	0	0	114	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		6.1			6.1			52.2			52.2	
Effective Green, g (s)		6.1			6.1			52.2			52.2	
Actuated g/C Ratio		0.09			0.09			0.74			0.74	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		139			146			1346			1369	
v/s Ratio Prot												
v/s Ratio Perm		0.02			c0.03			c0.06			0.06	
v/c Ratio		0.20			0.30			0.08			0.08	
Uniform Delay, d1		29.8			30.1			2.5			2.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			1.2			0.1			0.0	
Delay (s)		30.5			31.3			2.6			2.5	
Level of Service		C			C			A			A	
Approach Delay (s)		30.5			31.3			2.6			2.5	
Approach LOS		C			C			A			A	

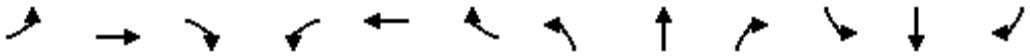
Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	44	503	32	29	529
Future Volume (Veh/h)	8	44	503	32	29	529
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)	9	48	547	35	32	575
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						396
pX, platoon unblocked	0.80					
vC, conflicting volume	1204	564			582	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1128	564			582	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	91			97	
cM capacity (veh/h)	174	525			992	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	57	582	607
Volume Left	9	0	32
Volume Right	48	35	0
cSH	398	1700	992
Volume to Capacity	0.14	0.34	0.03
Queue Length 95th (m)	3.8	0.0	0.8
Control Delay (s)	15.5	0.0	0.9
Lane LOS	C		A
Approach Delay (s)	15.5	0.0	0.9
Approach LOS	C		

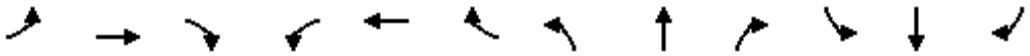
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	20	3	17	34	32	16	97	23	29	91	4
Future Volume (vph)	3	20	3	17	34	32	16	97	23	29	91	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	22	3	18	37	35	17	105	25	32	99	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	28	90	147	135
Volume Left (vph)	3	18	17	32
Volume Right (vph)	3	35	25	4
Hadj (s)	-0.01	-0.16	-0.04	0.06
Departure Headway (s)	4.6	4.4	4.3	4.4
Degree Utilization, x	0.04	0.11	0.17	0.16
Capacity (veh/h)	714	757	808	782
Control Delay (s)	7.8	8.0	8.2	8.3
Approach Delay (s)	7.8	8.0	8.2	8.3
Approach LOS	A	A	A	A

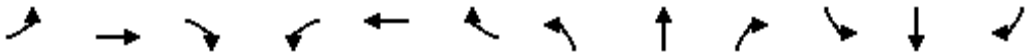
Intersection Summary				
Delay	8.1			
Level of Service	A			
Intersection Capacity Utilization	26.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	2	0	134	0	0	112	0
Future Volume (Veh/h)	0	0	0	0	0	2	0	134	0	0	112	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	2	0	146	0	0	122	0
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	270	268	122	268	268	146	122			146		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	270	268	122	268	268	146	122			146		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	681	638	929	685	638	901	1465			1436		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	2	146	122
Volume Left	0	0	0	0
Volume Right	0	2	0	0
cSH	1700	901	1465	1436
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	9.0	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	0.0	9.0	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	17.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	4	5	3	1	2	2	130	3	5	100	8
Future Volume (Veh/h)	3	4	5	3	1	2	2	130	3	5	100	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	4	5	3	1	2	2	141	3	5	109	9
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	272	272	114	277	274	142	118			144		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	272	272	114	277	274	142	118			144		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	100	100	100	100			100		
cM capacity (veh/h)	675	632	939	666	630	905	1470			1438		

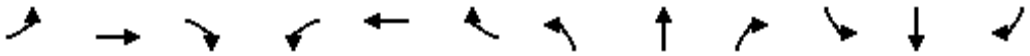
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	6	146	123
Volume Left	3	3	2	5
Volume Right	5	2	3	9
cSH	746	723	1470	1438
Volume to Capacity	0.02	0.01	0.00	0.00
Queue Length 95th (m)	0.4	0.2	0.0	0.1
Control Delay (s)	9.9	10.0	0.1	0.3
Lane LOS	A	B	A	A
Approach Delay (s)	9.9	10.0	0.1	0.3
Approach LOS	A	B		

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	18.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	1	106	2	12	84
Future Volume (Veh/h)	2	1	106	2	12	84
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)	2	1	115	2	13	91
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	233	116			117	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	233	116			117	
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			99	
cM capacity (veh/h)	749	936			1471	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	117	104
Volume Left	2	0	13
Volume Right	1	2	0
cSH	802	1700	1471
Volume to Capacity	0.00	0.07	0.01
Queue Length 95th (m)	0.1	0.0	0.2
Control Delay (s)	9.5	0.0	1.0
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	1.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	5	1	0	1	2	101	1	3	83	2
Future Volume (Veh/h)	4	0	5	1	0	1	2	101	1	3	83	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	0	5	1	0	1	2	110	1	3	90	2
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	212	212	91	216	212	110	92			111		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	212	212	91	216	212	110	92			111		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	100			100		
cM capacity (veh/h)	742	683	967	734	683	943	1503			1479		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	2	113	95
Volume Left	4	1	2	3
Volume Right	5	1	1	2
cSH	852	826	1503	1479
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (m)	0.2	0.1	0.0	0.0
Control Delay (s)	9.3	9.4	0.1	0.3
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.4	0.1	0.3
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	16.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	4	412	1	6	506
Future Volume (Veh/h)	1	4	412	1	6	506
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)	1	4	448	1	7	550
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	1012	448			449	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1012	448			449	
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	99			99	
cM capacity (veh/h)	263	610			1111	

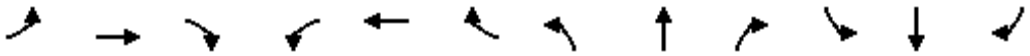
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	449	557
Volume Left	1	0	7
Volume Right	4	1	0
cSH	483	1700	1111
Volume to Capacity	0.01	0.26	0.01
Queue Length 95th (m)	0.2	0.0	0.1
Control Delay (s)	12.5	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	12.5	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	19	415	0	12	520
Future Volume (Veh/h)	2	19	415	0	12	520
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)	2	21	451	0	13	565
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	1042	451			451	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1042	451			451	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	97			99	
cM capacity (veh/h)	251	608			1109	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	23	451	578
Volume Left	2	0	13
Volume Right	21	0	0
cSH	541	1700	1109
Volume to Capacity	0.04	0.27	0.01
Queue Length 95th (m)	1.0	0.0	0.3
Control Delay (s)	11.9	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		



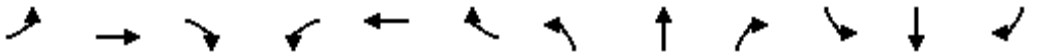
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	3	6	0	5	13	9	81	1	5	105	13
Future Volume (Veh/h)	6	3	6	0	5	13	9	81	1	5	105	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	3	7	0	5	14	10	88	1	5	114	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											233	
pX, platoon unblocked												
vC, conflicting volume	256	240	121	248	246	88	128			89		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	256	240	121	248	246	88	128			89		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	99	99	99			100		
cM capacity (veh/h)	678	655	930	692	649	970	1458			1506		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	19	99	133
Volume Left	7	0	10	5
Volume Right	7	14	1	14
cSH	758	858	1458	1506
Volume to Capacity	0.02	0.02	0.01	0.00
Queue Length 95th (m)	0.5	0.5	0.2	0.1
Control Delay (s)	9.9	9.3	0.8	0.3
Lane LOS	A	A	A	A
Approach Delay (s)	9.9	9.3	0.8	0.3
Approach LOS	A	A		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	20.8%	ICU Level of Service	A	
Analysis Period (min)	15			

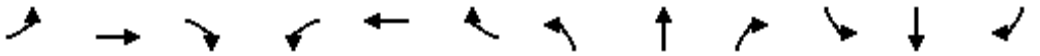
Appendix C

Future Total (2025) Traffic Analysis – Synchro Outputs Sheets



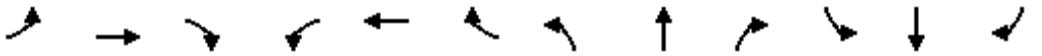
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	382	475	73	27	395	646	67	419	37	608	608	346
Future Volume (vph)	382	475	73	27	395	646	67	419	37	608	608	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		5.0	6.0	4.0	4.0	6.0		5.0	6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3437	3388		1738	3411	1526	1755	3532		3309	1847	1526
Flt Permitted	0.95	1.00		0.41	1.00	1.00	0.35	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3437	3388		751	3411	1526	655	3532		3309	1847	1526
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	415	516	79	29	429	702	73	455	40	661	661	376
RTOR Reduction (vph)	0	9	0	0	0	0	0	4	0	0	0	115
Lane Group Flow (vph)	415	586	0	29	429	702	73	491	0	661	661	261
Heavy Vehicles (%)	3%	6%	3%	5%	7%	7%	4%	2%	3%	7%	4%	7%
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases				4		Free	2					6
Actuated Green, G (s)	19.9	39.4		29.9	25.2	140.0	44.4	37.4		36.5	67.9	67.9
Effective Green, g (s)	19.9	39.4		29.9	25.2	140.0	44.4	37.4		36.5	67.9	67.9
Actuated g/C Ratio	0.14	0.28		0.21	0.18	1.00	0.32	0.27		0.26	0.49	0.49
Clearance Time (s)	4.0	6.0		5.0	6.0		4.0	6.0		5.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	488	953		193	613	1526	262	943		862	895	740
v/s Ratio Prot	c0.12	0.17		0.01	c0.13		0.01	0.14		c0.20	c0.36	
v/s Ratio Perm				0.03		0.46	0.07					0.17
v/c Ratio	0.85	0.62		0.15	0.70	0.46	0.28	0.52		0.77	0.74	0.35
Uniform Delay, d1	58.6	43.7		44.0	53.9	0.0	34.2	43.7		47.8	28.9	22.4
Progression Factor	1.00	1.00		1.42	1.24	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	13.3	1.2		0.3	3.3	0.9	0.6	2.1		4.1	5.4	1.3
Delay (s)	71.9	44.9		63.1	69.8	0.9	34.8	45.7		51.9	34.4	23.7
Level of Service	E	D		E	E	A	C	D		D	C	C
Approach Delay (s)		56.0			28.0			44.3			38.8	
Approach LOS		E			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



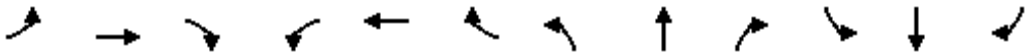
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1056	77	53	1002	20	60	8	32	5	6	15
Future Volume (vph)	0	1056	77	53	1002	20	60	8	32	5	6	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0		5.7	5.7		5.7	5.7	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.88		1.00	0.90	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3444	1601	1789	3436		1789	1659		1789	1687	
Flt Permitted		1.00	1.00	0.23	1.00		0.74	1.00		0.73	1.00	
Satd. Flow (perm)		3444	1601	441	3436		1398	1659		1372	1687	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1148	84	58	1089	22	65	9	35	5	7	16
RTOR Reduction (vph)	0	0	12	0	0	0	0	31	0	0	15	0
Lane Group Flow (vph)	0	1148	72	58	1111	0	65	13	0	5	8	0
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		115.9	115.9	115.9	115.9		12.4	12.4		12.4	12.4	
Effective Green, g (s)		115.9	115.9	115.9	115.9		12.4	12.4		12.4	12.4	
Actuated g/C Ratio		0.83	0.83	0.83	0.83		0.09	0.09		0.09	0.09	
Clearance Time (s)		6.0	6.0	6.0	6.0		5.7	5.7		5.7	5.7	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2851	1325	365	2844		123	146		121	149	
v/s Ratio Prot		c0.33			0.32			0.01			0.00	
v/s Ratio Perm			0.04	0.13			c0.05			0.00		
v/c Ratio		0.40	0.05	0.16	0.39		0.53	0.09		0.04	0.06	
Uniform Delay, d1		3.1	2.2	2.4	3.1		61.0	58.6		58.4	58.4	
Progression Factor		2.04	3.49	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.1	0.3	0.1		4.1	0.3		0.1	0.2	
Delay (s)		6.6	7.6	2.7	3.2		65.1	58.9		58.5	58.6	
Level of Service		A	A	A	A		E	E		E	E	
Approach Delay (s)		6.7			3.2			62.6			58.6	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	885	57	34	855	69	153	33	57	50	15	14
Future Volume (vph)	23	885	57	34	855	69	153	33	57	50	15	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.91		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3420		1789	3415		1789	1705		1789	1747	
Flt Permitted	0.15	1.00		0.15	1.00		0.74	1.00		0.69	1.00	
Satd. Flow (perm)	290	3420		275	3415		1388	1705		1306	1747	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	962	62	37	929	75	166	36	62	54	16	15
RTOR Reduction (vph)	0	5	0	0	6	0	0	24	0	0	8	0
Lane Group Flow (vph)	25	1019	0	37	998	0	166	74	0	54	23	0
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	40.9	40.9		40.9	40.9		47.4	47.4		47.4	47.4	
Effective Green, g (s)	40.9	40.9		40.9	40.9		47.4	47.4		47.4	47.4	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.47	0.47		0.47	0.47	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	118	1398		112	1396		657	808		619	828	
v/s Ratio Prot		c0.30			0.29			0.04			0.01	
v/s Ratio Perm	0.09			0.13			c0.12			0.04		
v/c Ratio	0.21	0.73		0.33	0.71		0.25	0.09		0.09	0.03	
Uniform Delay, d1	19.1	24.9		20.2	24.7		15.7	14.5		14.4	14.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.1	3.4		7.7	3.2		0.9	0.2		0.3	0.1	
Delay (s)	23.2	28.3		27.9	27.8		16.6	14.7		14.7	14.1	
Level of Service	C	C		C	C		B	B		B	B	
Approach Delay (s)		28.1			27.8			15.9			14.5	
Approach LOS		C			C			B			B	

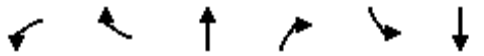
Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	40	27	10	29	24	10	50	13	16	95	8
Future Volume (vph)	1	40	27	10	29	24	10	50	13	16	95	8
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	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.95			0.95			0.98			0.99	
Flt Protected		1.00			0.99			0.99			0.99	
Satd. Flow (prot)		1781			1773			1826			1853	
Flt Permitted		0.99			0.93			0.97			0.97	
Satd. Flow (perm)		1771			1659			1784			1813	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	43	29	11	32	26	11	54	14	17	103	9
RTOR Reduction (vph)	0	26	0	0	24	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	47	0	0	45	0	0	75	0	0	127	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		6.1			6.1			49.1			49.1	
Effective Green, g (s)		6.1			6.1			49.1			49.1	
Actuated g/C Ratio		0.09			0.09			0.73			0.73	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		160			150			1303			1324	
v/s Ratio Prot												
v/s Ratio Perm		0.03			c0.03			0.04			c0.07	
v/c Ratio		0.29			0.30			0.06			0.10	
Uniform Delay, d1		28.5			28.6			2.5			2.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			1.1			0.1			0.1	
Delay (s)		29.5			29.7			2.6			2.8	
Level of Service		C			C			A			A	
Approach Delay (s)		29.5			29.7			2.6			2.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	67.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

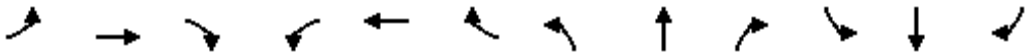
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	38	449	26	52	676
Future Volume (Veh/h)	11	38	449	26	52	676
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)	12	41	488	28	57	735
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						396
pX, platoon unblocked	0.68					
vC, conflicting volume	1351	502			516	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1281	502			516	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	93			95	
cM capacity (veh/h)	118	569			1050	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	53	516	792
Volume Left	12	0	57
Volume Right	41	28	0
cSH	305	1700	1050
Volume to Capacity	0.17	0.30	0.05
Queue Length 95th (m)	4.7	0.0	1.3
Control Delay (s)	19.3	0.0	1.4
Lane LOS	C		A
Approach Delay (s)	19.3	0.0	1.4
Approach LOS	C		

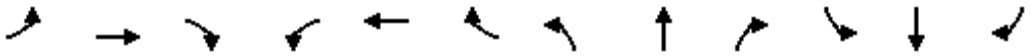
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	11	55	2	27	54	66	4	113	33	13	69	9
Future Volume (vph)	11	55	2	27	54	66	4	113	33	13	69	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	60	2	29	59	72	4	123	36	14	75	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	74	160	163	99
Volume Left (vph)	12	29	4	14
Volume Right (vph)	2	72	36	10
Hadj (s)	0.05	-0.20	-0.09	0.00
Departure Headway (s)	4.8	4.4	4.5	4.7
Degree Utilization, x	0.10	0.20	0.20	0.13
Capacity (veh/h)	698	762	759	722
Control Delay (s)	8.3	8.5	8.6	8.3
Approach Delay (s)	8.3	8.5	8.6	8.3
Approach LOS	A	A	A	A

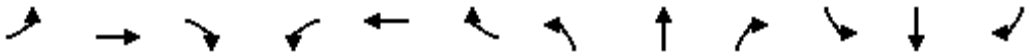
Intersection Summary				
Delay	8.5			
Level of Service	A			
Intersection Capacity Utilization	29.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	5	3	0	2	6	132	3	1	83	13
Future Volume (Veh/h)	14	0	5	3	0	2	6	132	3	1	83	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	5	3	0	2	7	143	3	1	90	14
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	260	259	97	262	264	144	104			146		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	260	259	97	262	264	144	104			146		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	100	100	100	100			100		
cM capacity (veh/h)	689	642	959	684	637	903	1488			1436		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	5	153	105
Volume Left	15	3	7	1
Volume Right	5	2	3	14
cSH	741	757	1488	1436
Volume to Capacity	0.03	0.01	0.00	0.00
Queue Length 95th (m)	0.6	0.2	0.1	0.0
Control Delay (s)	10.0	9.8	0.4	0.1
Lane LOS	A	A	A	A
Approach Delay (s)	10.0	9.8	0.4	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	20.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	3	4	4	1	3	5	134	3	4	85	3
Future Volume (Veh/h)	3	3	4	4	1	3	5	134	3	4	85	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	3	4	4	1	3	5	146	3	4	92	3
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	262	260	94	264	260	148	95			149		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	262	260	94	264	260	148	95			149		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	684	640	963	680	640	899	1499			1432		

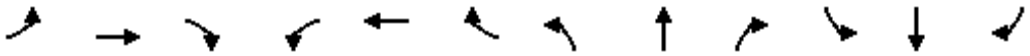
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	8	154	99
Volume Left	3	4	5	4
Volume Right	4	3	3	3
cSH	756	742	1499	1432
Volume to Capacity	0.01	0.01	0.00	0.00
Queue Length 95th (m)	0.3	0.2	0.1	0.1
Control Delay (s)	9.8	9.9	0.3	0.3
Lane LOS	A	A	A	A
Approach Delay (s)	9.8	9.9	0.3	0.3
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	19.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	10	57	6	9	99
Future Volume (Veh/h)	5	10	57	6	9	99
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)	5	11	62	7	10	108
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	194	66			69	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	194	66			69	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	790	998			1532	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	69	118
Volume Left	5	0	10
Volume Right	11	7	0
cSH	922	1700	1532
Volume to Capacity	0.02	0.04	0.01
Queue Length 95th (m)	0.4	0.0	0.1
Control Delay (s)	9.0	0.0	0.7
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	0.7
Approach LOS	A		

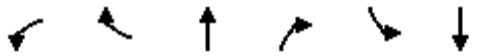
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	0	0	0	0	6	55	3	4	99	1
Future Volume (Veh/h)	4	1	0	0	0	0	6	55	3	4	99	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	1	0	0	0	0	7	60	3	4	108	1
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	192	194	108	192	192	62	109			63		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	192	194	108	192	192	62	109			63		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			100		
cM capacity (veh/h)	763	697	945	762	697	1004	1481			1540		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	0	70	113
Volume Left	4	0	7	4
Volume Right	0	0	3	1
cSH	749	1700	1481	1540
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (m)	0.2	0.0	0.1	0.1
Control Delay (s)	9.8	0.0	0.8	0.3
Lane LOS	A	A	A	A
Approach Delay (s)	9.8	0.0	0.8	0.3
Approach LOS	A	A		

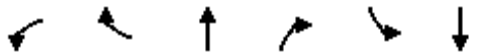
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	16.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	2	295	2	1	591
Future Volume (Veh/h)	0	2	295	2	1	591
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)	0	2	321	2	1	642
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	966	322			323	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	966	322			323	
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)	282	719			1237	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	2	323	643
Volume Left	0	0	1
Volume Right	2	2	0
cSH	719	1700	1237
Volume to Capacity	0.00	0.19	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	10.0	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	10.0	0.0	0.0
Approach LOS	B		

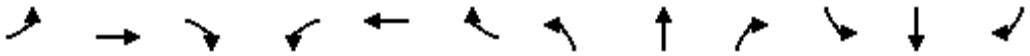
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		41.9%	ICU Level of Service A
Analysis Period (min)		15	



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	18	304	1	22	618
Future Volume (Veh/h)	1	18	304	1	22	618
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)	1	20	330	1	24	672
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	1050	330			331	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1050	330			331	
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	97			98	
cM capacity (veh/h)	247	711			1228	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	331	696
Volume Left	1	0	24
Volume Right	20	1	0
cSH	652	1700	1228
Volume to Capacity	0.03	0.19	0.02
Queue Length 95th (m)	0.8	0.0	0.5
Control Delay (s)	10.7	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	10.7	0.0	0.5
Approach LOS	B		

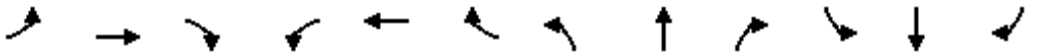
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	9	9	5	5	11	15	66	7	20	78	19
Future Volume (Veh/h)	4	9	9	5	5	11	15	66	7	20	78	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	10	10	5	5	12	16	72	8	22	85	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											233	
pX, platoon unblocked												
vC, conflicting volume	262	252	96	262	258	76	106			80		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	262	252	96	262	258	76	106			80		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	99	99	99	99	99			99		
cM capacity (veh/h)	665	635	961	662	630	985	1485			1518		

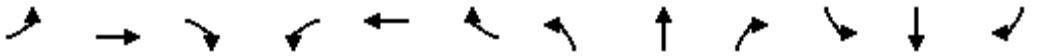
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	22	96	128
Volume Left	4	5	16	22
Volume Right	10	12	8	21
cSH	746	795	1485	1518
Volume to Capacity	0.03	0.03	0.01	0.01
Queue Length 95th (m)	0.8	0.6	0.2	0.3
Control Delay (s)	10.0	9.7	1.3	1.4
Lane LOS	A	A	A	A
Approach Delay (s)	10.0	9.7	1.3	1.4
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	18.5%	ICU Level of Service	A	
Analysis Period (min)	15			



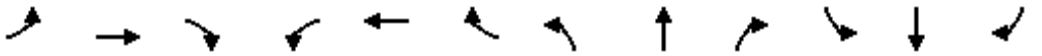
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	382	410	35	69	494	772	56	559	57	622	597	322
Future Volume (vph)	382	410	35	69	494	772	56	559	57	622	597	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		5.0	6.0	4.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3471	3461		1755	3510	1570	1755	3529		3372	1883	1570
Flt Permitted	0.95	1.00		0.43	1.00	1.00	0.33	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3471	3461		797	3510	1570	606	3529		3372	1883	1570
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	415	446	38	75	537	839	61	608	62	676	649	350
RTOR Reduction (vph)	0	4	0	0	0	0	0	6	0	0	0	116
Lane Group Flow (vph)	415	480	0	75	537	839	61	664	0	676	649	234
Heavy Vehicles (%)	2%	4%	7%	4%	4%	4%	4%	2%	2%	5%	2%	4%
Turn Type	Prot	NA		pm+pt	NA	Free	pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases				4		Free	2					6
Actuated Green, G (s)	19.0	35.9		36.7	27.3	140.0	47.3	40.6		33.1	67.0	67.0
Effective Green, g (s)	19.0	35.9		36.7	27.3	140.0	47.3	40.6		33.1	67.0	67.0
Actuated g/C Ratio	0.14	0.26		0.26	0.20	1.00	0.34	0.29		0.24	0.48	0.48
Clearance Time (s)	4.0	6.0		5.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	471	887		273	684	1570	259	1023		797	901	751
v/s Ratio Prot	c0.12	0.14		0.02	c0.15		0.01	0.19		c0.20	c0.34	
v/s Ratio Perm				0.05		0.53	0.07					0.15
v/c Ratio	0.88	0.54		0.27	0.79	0.53	0.24	0.65		0.85	0.72	0.31
Uniform Delay, d1	59.4	44.9		39.8	53.6	0.0	32.1	43.5		51.1	29.0	22.4
Progression Factor	1.00	1.00		1.44	1.29	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.3	0.7		0.5	5.4	1.2	0.5	3.2		8.4	5.0	1.1
Delay (s)	76.7	45.6		57.9	74.4	1.2	32.6	46.7		59.4	34.0	23.5
Level of Service	E	D		E	E	A	C	D		E	C	C
Approach Delay (s)		60.0			31.2			45.5			42.1	
Approach LOS		E			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



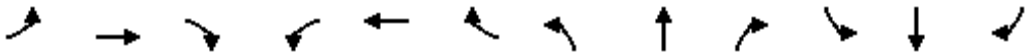
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	1018	95	69	1210	23	98	18	50	9	13	39
Future Volume (vph)	6	1018	95	69	1210	23	98	18	50	9	13	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0		5.7	5.7		5.7	5.7	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.89		1.00	0.89	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3443	1601	1789	3501		1789	1677		1789	1672	
Flt Permitted		0.94	1.00	0.24	1.00		0.72	1.00		0.71	1.00	
Satd. Flow (perm)		3252	1601	446	3501		1357	1677		1335	1672	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	1107	103	75	1315	25	107	20	54	10	14	42
RTOR Reduction (vph)	0	0	19	0	0	0	0	33	0	0	17	0
Lane Group Flow (vph)	0	1114	84	75	1340	0	107	41	0	10	39	0
Heavy Vehicles (%)	2%	6%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		110.4	110.4	110.4	110.4		17.9	17.9		17.9	17.9	
Effective Green, g (s)		110.4	110.4	110.4	110.4		17.9	17.9		17.9	17.9	
Actuated g/C Ratio		0.79	0.79	0.79	0.79		0.13	0.13		0.13	0.13	
Clearance Time (s)		6.0	6.0	6.0	6.0		5.7	5.7		5.7	5.7	
Vehicle Extension (s)		4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2564	1262	351	2760		173	214		170	213	
v/s Ratio Prot					c0.38			0.02			0.02	
v/s Ratio Perm		0.34	0.05	0.17			c0.08			0.01		
v/c Ratio		0.43	0.07	0.21	0.49		0.62	0.19		0.06	0.18	
Uniform Delay, d1		4.8	3.3	3.8	5.1		57.8	54.6		53.6	54.5	
Progression Factor		1.73	3.10	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4	0.1	0.4	0.2		6.4	0.4		0.1	0.4	
Delay (s)		8.6	10.3	4.2	5.3		64.3	55.0		53.8	54.9	
Level of Service		A	B	A	A		E	E		D	D	
Approach Delay (s)		8.8			5.2			60.5			54.7	
Approach LOS		A			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	768	78	51	995	109	105	34	50	125	45	40
Future Volume (vph)	39	768	78	51	995	109	105	34	50	125	45	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.91		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3437		1789	3465		1789	1716		1789	1751	
Flt Permitted	0.10	1.00		0.19	1.00		0.70	1.00		0.70	1.00	
Satd. Flow (perm)	184	3437		355	3465		1313	1716		1315	1751	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	835	85	55	1082	118	114	37	54	136	49	43
RTOR Reduction (vph)	0	8	0	0	8	0	0	28	0	0	16	0
Lane Group Flow (vph)	42	912	0	55	1192	0	114	63	0	136	76	0
Heavy Vehicles (%)	2%	5%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	40.9	40.9		40.9	40.9		47.4	47.4		47.4	47.4	
Effective Green, g (s)	40.9	40.9		40.9	40.9		47.4	47.4		47.4	47.4	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.47	0.47		0.47	0.47	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	75	1405		145	1417		622	813		623	829	
v/s Ratio Prot		0.27			c0.34			0.04			0.04	
v/s Ratio Perm	0.23			0.15			0.09			c0.10		
v/c Ratio	0.56	0.65		0.38	0.84		0.18	0.08		0.22	0.09	
Uniform Delay, d1	22.7	23.8		20.7	26.6		15.1	14.4		15.4	14.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.9	2.3		7.4	6.2		0.6	0.2		0.8	0.2	
Delay (s)	49.5	26.1		28.1	32.8		15.8	14.5		16.2	14.7	
Level of Service	D	C		C	C		B	B		B	B	
Approach Delay (s)		27.1			32.6			15.2			15.6	
Approach LOS		C			C			B			B	

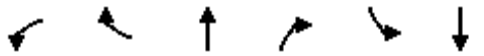
Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	26	31	10	42	24	19	101	9	17	116	9
Future Volume (vph)	10	26	31	10	42	24	19	101	9	17	116	9
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	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.96			0.99			0.99	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1752			1792			1852			1856	
Flt Permitted		0.94			0.94			0.96			0.97	
Satd. Flow (perm)		1655			1694			1786			1809	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	28	34	11	46	26	21	110	10	18	126	10
RTOR Reduction (vph)	0	31	0	0	23	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	42	0	0	60	0	0	139	0	0	153	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		6.6			6.6			49.2			49.2	
Effective Green, g (s)		6.6			6.6			49.2			49.2	
Actuated g/C Ratio		0.10			0.10			0.73			0.73	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		161			164			1296			1312	
v/s Ratio Prot												
v/s Ratio Perm		0.03			c0.04			0.08			c0.08	
v/c Ratio		0.26			0.36			0.11			0.12	
Uniform Delay, d1		28.3			28.6			2.8			2.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.9			1.4			0.2			0.2	
Delay (s)		29.2			30.0			2.9			3.0	
Level of Service		C			C			A			A	
Approach Delay (s)		29.2			30.0			2.9			3.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	67.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		

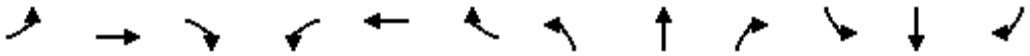
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	64	594	40	48	625
Future Volume (Veh/h)	11	64	594	40	48	625
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)	12	70	646	43	52	679
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						396
pX, platoon unblocked	0.70					
vC, conflicting volume	1450	668			689	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1430	668			689	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	85			94	
cM capacity (veh/h)	98	458			905	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	82	689	731
Volume Left	12	0	52
Volume Right	70	43	0
cSH	299	1700	905
Volume to Capacity	0.27	0.41	0.06
Queue Length 95th (m)	8.3	0.0	1.4
Control Delay (s)	21.6	0.0	1.5
Lane LOS	C		A
Approach Delay (s)	21.6	0.0	1.5
Approach LOS	C		

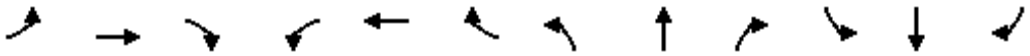
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	31	3	24	48	35	17	114	34	31	109	15
Future Volume (vph)	13	31	3	24	48	35	17	114	34	31	109	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	34	3	26	52	38	18	124	37	34	118	16

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	51	116	179	168
Volume Left (vph)	14	26	18	34
Volume Right (vph)	3	38	37	16
Hadj (s)	0.05	-0.12	-0.07	0.02
Departure Headway (s)	4.9	4.7	4.4	4.5
Degree Utilization, x	0.07	0.15	0.22	0.21
Capacity (veh/h)	668	712	773	752
Control Delay (s)	8.3	8.5	8.7	8.8
Approach Delay (s)	8.3	8.5	8.7	8.8
Approach LOS	A	A	A	A

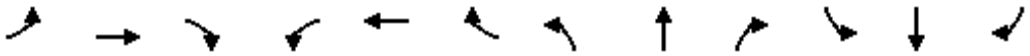
Intersection Summary				
Delay	8.6			
Level of Service	A			
Intersection Capacity Utilization	28.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	0	7	0	0	2	8	145	0	0	121	16
Future Volume (Veh/h)	19	0	7	0	0	2	8	145	0	0	121	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	0	8	0	0	2	9	158	0	0	132	17
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	318	316	140	324	325	158	149			158		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	318	316	140	324	325	158	149			158		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	99	100	100	100	99			100		
cM capacity (veh/h)	630	596	907	620	589	887	1432			1422		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	29	2	167	149
Volume Left	21	0	9	0
Volume Right	8	2	0	17
cSH	688	887	1432	1422
Volume to Capacity	0.04	0.00	0.01	0.00
Queue Length 95th (m)	1.0	0.1	0.1	0.0
Control Delay (s)	10.5	9.1	0.5	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.5	9.1	0.5	0.0
Approach LOS	B	A		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	29.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	4	8	3	1	2	5	148	3	5	115	9
Future Volume (Veh/h)	3	4	8	3	1	2	5	148	3	5	115	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	4	9	3	1	2	5	161	3	5	125	10
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	315	314	130	324	318	162	135			164		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	315	314	130	324	318	162	135			164		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	100	100	100	100			100		
cM capacity (veh/h)	632	597	920	617	595	882	1449			1414		

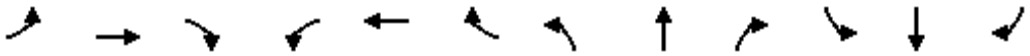
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	6	169	140
Volume Left	3	3	5	5
Volume Right	9	2	3	10
cSH	754	681	1449	1414
Volume to Capacity	0.02	0.01	0.00	0.00
Queue Length 95th (m)	0.5	0.2	0.1	0.1
Control Delay (s)	9.9	10.3	0.2	0.3
Lane LOS	A	B	A	A
Approach Delay (s)	9.9	10.3	0.2	0.3
Approach LOS	A	B		

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	19.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	1	122	5	13	97
Future Volume (Veh/h)	5	1	122	5	13	97
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)	5	1	133	5	14	105
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	268	136			138	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	268	136			138	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			99	
cM capacity (veh/h)	714	913			1446	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	138	119
Volume Left	5	0	14
Volume Right	1	5	0
cSH	741	1700	1446
Volume to Capacity	0.01	0.08	0.01
Queue Length 95th (m)	0.2	0.0	0.2
Control Delay (s)	9.9	0.0	1.0
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	1.0
Approach LOS	A		

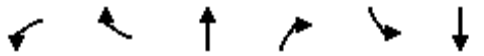
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	5	1	0	1	2	117	1	3	99	2
Future Volume (Veh/h)	4	0	5	1	0	1	2	117	1	3	99	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	0	5	1	0	1	2	127	1	3	108	2
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	248	247	109	252	248	128	110			128		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	248	247	109	252	248	128	110			128		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	100			100		
cM capacity (veh/h)	704	653	945	696	653	923	1480			1458		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	2	130	113
Volume Left	4	1	2	3
Volume Right	5	1	1	2
cSH	820	794	1480	1458
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (m)	0.3	0.1	0.0	0.0
Control Delay (s)	9.4	9.5	0.1	0.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.4	9.5	0.1	0.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	17.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	5	485	1	7	595
Future Volume (Veh/h)	1	5	485	1	7	595
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)	1	5	527	1	8	647
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	1190	528			528	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1190	528			528	
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	99			99	
cM capacity (veh/h)	206	551			1039	

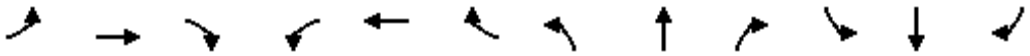
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	528	655
Volume Left	1	0	8
Volume Right	5	1	0
cSH	430	1700	1039
Volume to Capacity	0.01	0.31	0.01
Queue Length 95th (m)	0.3	0.0	0.2
Control Delay (s)	13.5	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	13.5	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	27	488	0	19	611
Future Volume (Veh/h)	2	27	488	0	19	611
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)	2	29	530	0	21	664
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	1236	530			530	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1236	530			530	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	95			98	
cM capacity (veh/h)	191	549			1037	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	31	530	685
Volume Left	2	0	21
Volume Right	29	0	0
cSH	490	1700	1037
Volume to Capacity	0.06	0.31	0.02
Queue Length 95th (m)	1.5	0.0	0.5
Control Delay (s)	12.9	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	12.9	0.0	0.5
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		



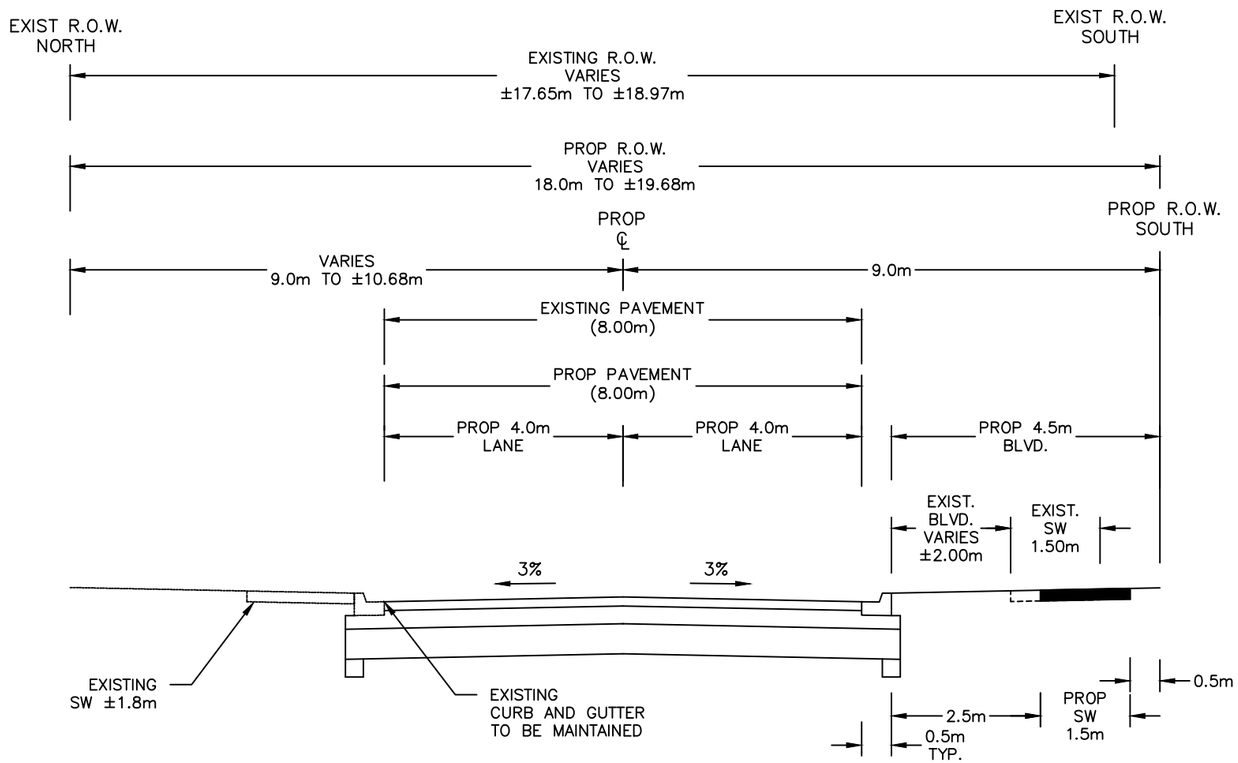
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	9	9	7	10	28	10	88	9	27	114	14
Future Volume (Veh/h)	6	9	9	7	10	28	10	88	9	27	114	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	10	10	8	11	30	11	96	10	29	124	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											233	
pX, platoon unblocked												
vC, conflicting volume	348	318	132	328	320	101	139			106		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	348	318	132	328	320	101	139			106		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	99	99	98	97	99			98		
cM capacity (veh/h)	567	583	918	598	581	954	1445			1485		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	27	49	117	168
Volume Left	7	8	11	29
Volume Right	10	30	10	15
cSH	668	769	1445	1485
Volume to Capacity	0.04	0.06	0.01	0.02
Queue Length 95th (m)	1.0	1.5	0.2	0.5
Control Delay (s)	10.6	10.0	0.8	1.4
Lane LOS	B	B	A	A
Approach Delay (s)	10.6	10.0	0.8	1.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	23.8%	ICU Level of Service	A	
Analysis Period (min)	15			

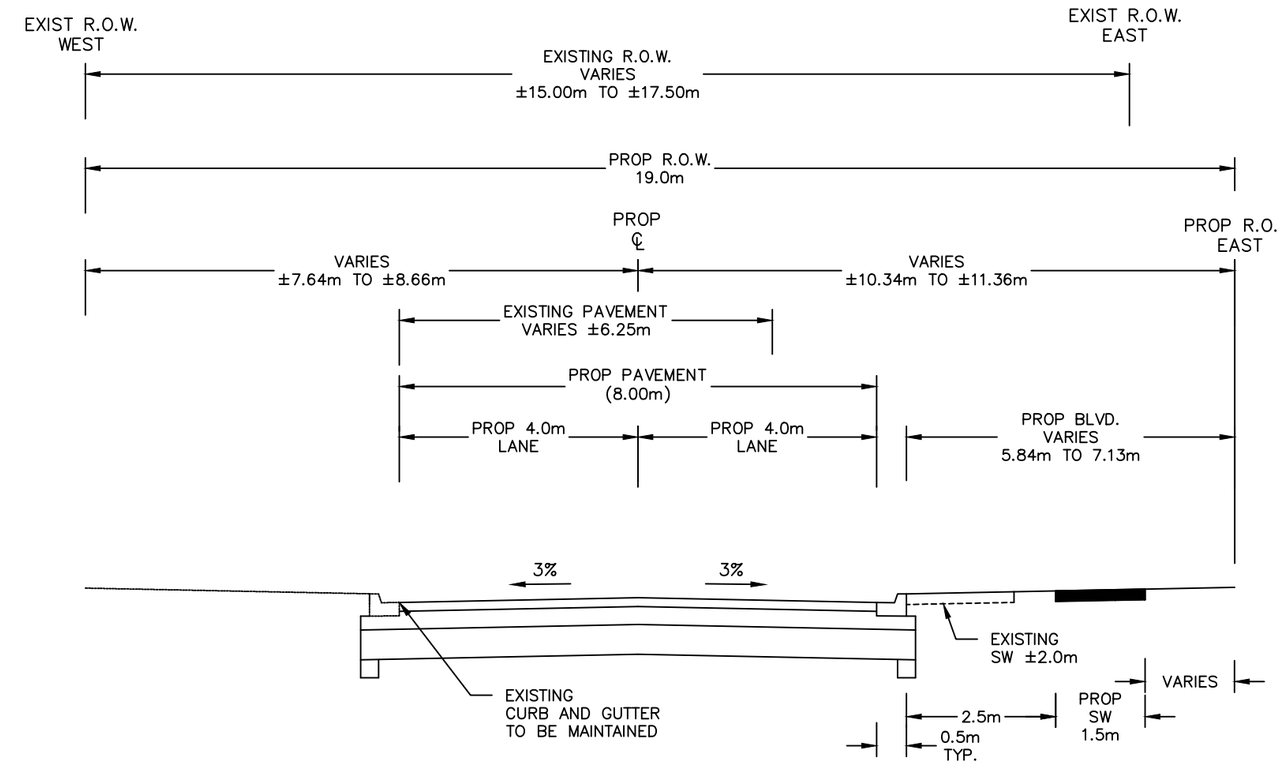
Appendix D

Study Area Roadways ROW Functional Plan and Typical Sections



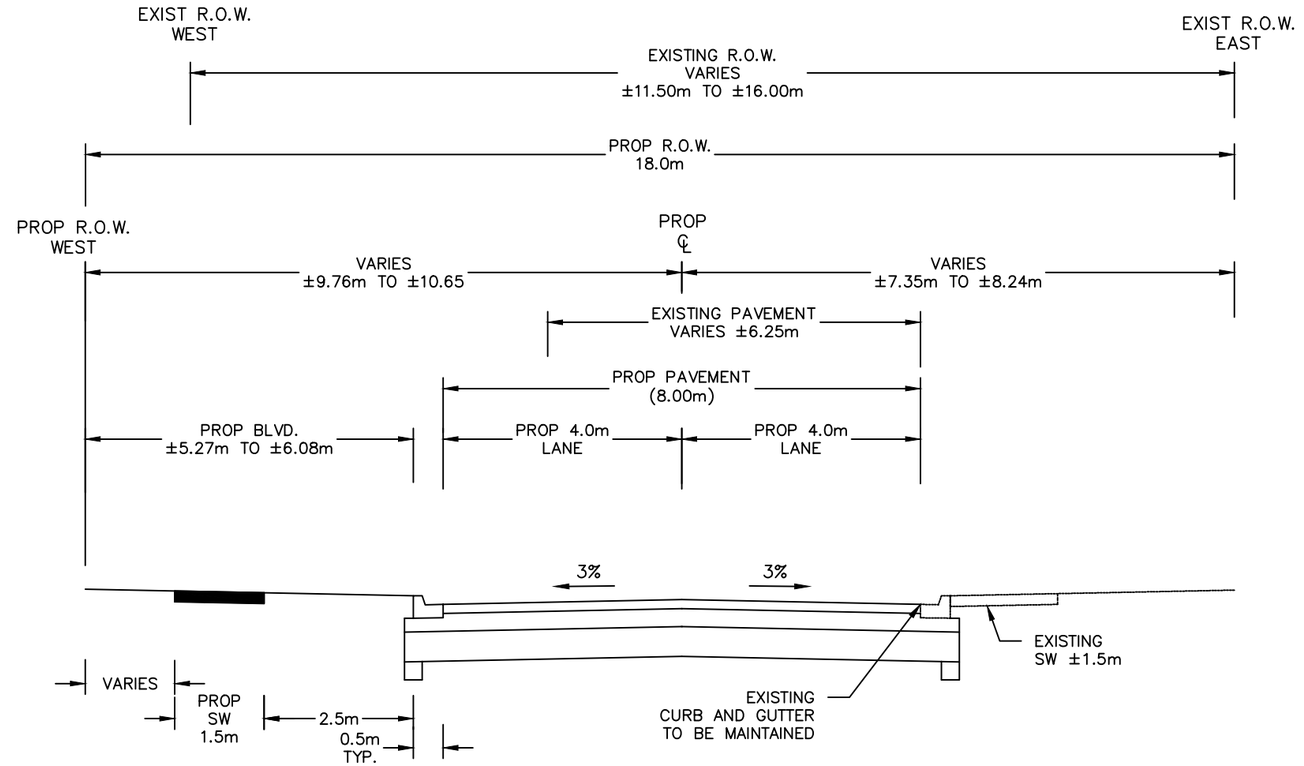
MACDONALD ROAD

OAKVILLE / PARSONS	SCALE: N.T.S. DATE: 29/01/2018 DRAWN BY: HX / MZ SHEET No. 1 OF 3	TYPICAL SECTION MACDONALD ROAD



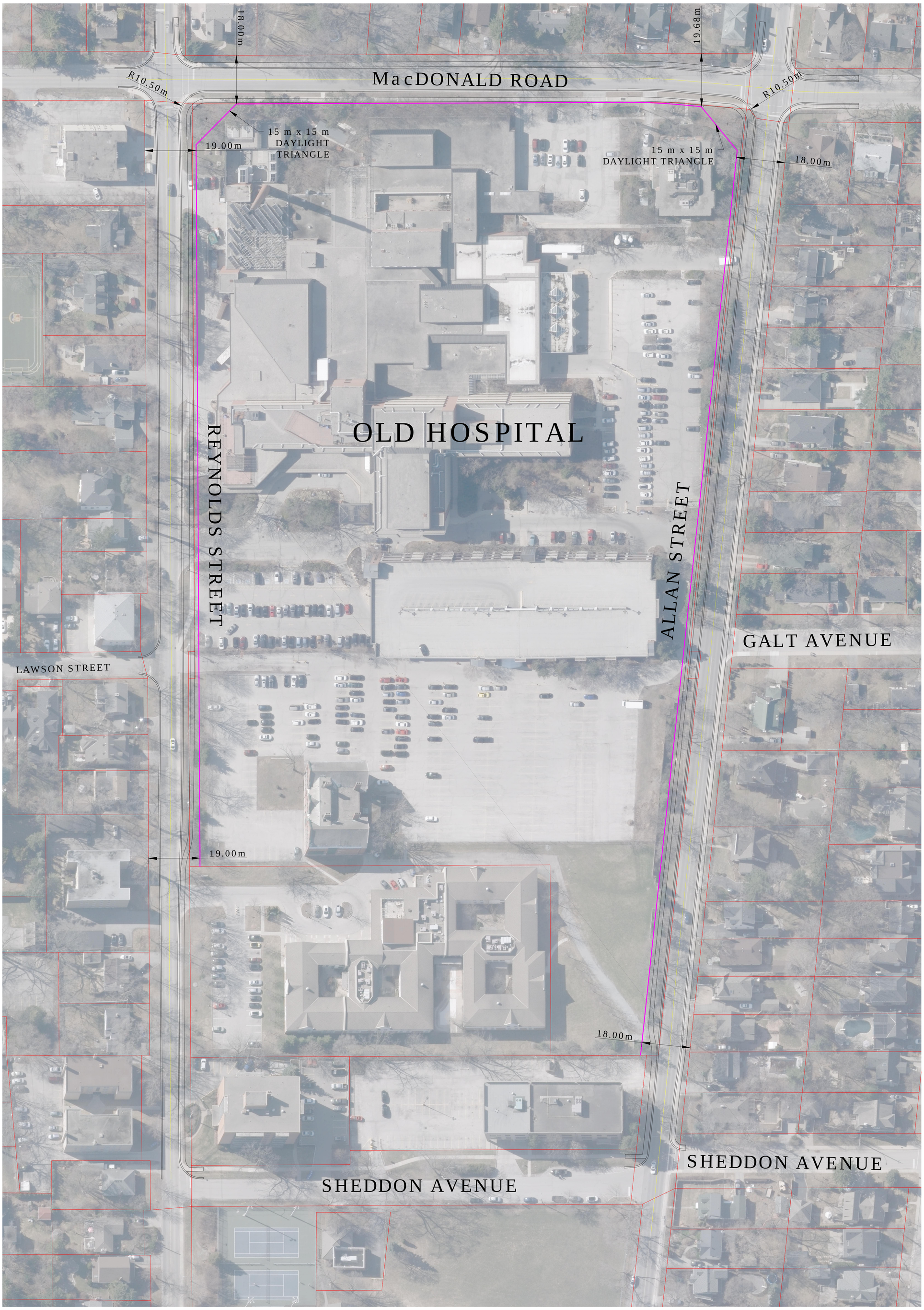
REYNOLDS STREET

OAKVILLE PARSONS	SCALE: N.T.S.	TYPICAL SECTION REYNOLDS STREET
	DATE: 29/01/2018	
	DRAWN BY: HX / MZ	
	SHEET No. 2 OF 3	



ALLAN STREET

OAKVILLE PARSONS	SCALE: N.T.S.	TYPICAL SECTION ALLAN STREET
	DATE: 29/01/2018	
	DRAWN BY: HX / MZ	
	SHEET No. 3 OF 3	



LE□END:

PROPOSED R.O.W LINE

EXISTIN□ PROPERTY

OAKVILLE

PARSONS

R.O.W IMPACT AT
OLD HOSPITAL

F□NCTIONAL PLAN

SCALE HOR. 1:.00

DATE: 29/01/2018

SHEET No. 1 OF 1

Z:□□□□□□□O□□□□O:d Ho□□□□R:d□□□e□□□□□TIS.MF□□Corr□□□e:d□□□□CADD Ro□□
P:□□□OH: P□□□ 2018.01.29.d□□