

Appendix D: Traffic Impact Study Technical Memorandum



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Whiskey Creek Drainage Improvements at Minet's Point

TRAFFIC IMPACT STUDY TECHNICAL MEMORANDUM

City of Barrie

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1 Introduction

Tatham Engineering Limited has been retained by the City of Barrie to complete a Schedule B Municipal Class Environmental Assessment (Class EA) under the Municipal Class Environmental Assessment Planning Process to assess alternative solutions to reduce the frequency of flooding in Whiskey Creek at Minet's Point. Alternative solutions include changes to the existing road, creek culverts, and other infrastructure in the area to mitigate flooding downstream of The Boulevard to Kempenfelt Bay.

The purpose of this Technical Memorandum is to summarize the traffic review that has been completed in context of changes to the road system.



2 Existing Conditions

This chapter will describe the road network, traffic volumes and operations for the existing conditions.

2.1 ROAD NETWORK

The study area road network to be addressed by this study consists of Lakeshore Drive, Hurst Drive, Minet's Point Road, Brennan Avenue, White Oaks Road, The Boulevard, Minet's Point Park and their respective intersections.

2.1.1 Road Sections

A brief description of the included road sections is provided in Table 1, whereas corresponding mapping is provided in Figure 1.

Table 1: Road Sections

ROAD	ROAD CLASS ¹	CROSS SECTION	SPEED (km/h)	CAPACITY ² (vphpl)	DIRECTION OF TRAVEL
Lakeshore Drive	Parkway	2-lane	50	900	E-W
Hurst Drive	Arterial	2-lane	50	900	E-W
Minet's Point Road (S of Lakeshore Dr)	Arterial	4-lanes	50	900	N-S
Minet's Point Road (N of Lakeshore Dr)	Local	2-lane	50	400	N-S
Brennan Avenue	Local	2-lane	40	400	N-S
White Oaks Road	Local	2-lane	40	400	N-S
The Boulevard	Local	2-lane	40	400	N-S
Minet's Point Park	Local	2-lane	40	400	N-S

¹ functional classification as per the City of Barrie Official Plan¹

² capacity is denoted as vehicles per hour per lane

¹ City of Barrie Official Plan. Planning and Building Services Department, January 2018.



2.1.2 Key Intersections

The intersection configurations for each of the study area intersections are detailed below and further illustrated in Figure 2.

Lakeshore Drive/Hurst Drive & Minet's Point Road

south leg:	Minet's Point Road	1 shared left/thru lane and 1 right turn lane
north leg:	Minet's Point Road	1 shared left/thru/right turn lane
west leg:	Lakeshore Drive	1 left turn lane, 1 thru and 1 right turn lane
east leg:	Hurst Drive	1 left turn lane, 1 thru and 1 shared thru/right lane
traffic control:	traffic signals	

Hurst Drive & Brennan Avenue

south leg:	Brennan Avenue	1 shared left/thru/right turn lane
north leg:	Brennan Avenue	1 shared left/thru/right turn lane
west leg:	Hurst Drive	1 shared left/thru/right turn lane
east leg:	Hurst Drive	1 shared left/thru/right turn lane
traffic control:	stop control on Brennan Avenue	

White Oaks Road & The Boulevard

south leg:	White Oaks Road	1 shared thru/right lane
north leg:	White Oaks Road	1 shared left/thru lane
east leg:	The Boulevard	1 shared left/right lane
traffic control:	stop control on The Boulevard	

White Oaks Road & Brennan Avenue

south leg:	White Oaks Road	1 shared thru/right lane
north leg:	White Oaks Road	1 shared left/thru lane
east leg:	The Boulevard	1 shared left/right lane
traffic control:	stop control on the north leg of White Oaks Road	

Minet's Point Park with Brennan Avenue

north leg:	Minet's Point Park	1 shared left/right lane
west leg:	Brennan Avenue	1 shared left/ thru lane
east leg:	Brennan Avenue	1 shared thru/right lane
traffic control:	stop control on Minet's Point Park	



2.2 TRAFFIC VOLUMES

2.2.1 2020 Traffic Counts

To determine existing traffic volumes through the study area, the City undertook traffic counts at the following intersections:

- Lakeshore Drive/Hurst Drive and Minet's Point Road;
- White Oaks Road and The Boulevard;
- Hurst Drive and Brennan Avenue; and
- Brennan Avenue and Minet's Point Park.

The counts were completed on Wednesday, August 19, 2020 and Saturday, August 22, 2020 over the following time periods:

- 07:00 to 09:00 (AM peak period);
- 11:00 to 14:00 (mid-day peak); and
- 15:00 to 18:00 (PM peak period).

In consideration of the weekday AM and PM peak periods (ie. the commuter peaks), the peak hour volumes have been established (the PM peak hour volumes are greater than the mid-day, thus ensuring the most critical conditions are addressed). In considering the Saturday counts, the peak hour volumes typically occurred during the PM peak period and thus the corresponding peak hour volumes have been employed.

Traffic counts were not completed at the intersection of White Oaks Road and Brennan Avenue. Rather, volumes were determined from the immediately adjacent intersections, assuming no traffic movements between the north leg of White Oaks Road and Brennan Avenue (given that White Oaks Road dead ends beyond Brennan Avenue and serves only 5 houses).

The resulting peak hour traffic volumes, as determined from the traffic counts, are summarized in Figure 3; additional count details are provided in Appendix A.

2.2.2 Consideration for COVID-19

As previously indicated, the traffic counts were completed in August 2020, and thus travel demands and traffic volumes through the study area were likely impacted by the COVID-19 pandemic given the current restrictions put in place by the Provincial Government.

In order to establish a "pre-COVID-10" baseline, historic traffic volumes and counts in the study area were requested of the City, with the most applicable being a July 2014 count conducted at the intersection of Lakeshore Drive and Minet's Point Road. The July 2014 volumes on the west,



south and east legs (the major legs) were subsequently increased by 2% per year, whereas those on the north leg (minor leg) were increased by 1% per year, to project 2020 conditions, and the resulting volumes compared to those realized through the 2020 traffic counts. A summary of the key metrics is provided in Table 2 (ie. comparison between the noted traffic volumes). As the north leg of Minet's Point Road primarily serves a residential area (as opposed to the south leg of Minet's Point Road, Lakeshore Drive and Hurst Drive which all serve an arterial road function), it has been considered separately from the remaining road sections.

Table 2: Lakeshore Drive/Hurst Drive & Minet's Point Road Traffic Volumes - 2014 vs 2020

TRAFFIC VOLUMES	2014 COUNT	2020 ESTIMATE	2020 COUNT	FACTOR ¹
Total Intersection	3778	4099	3367	1.22
Minet's Point Road North Leg	231	245	263	0.93
Minet's Point Road South Leg + Lakeshore Drive + Hurst Drive	3547	3854	3104	1.24

¹ factor = 2020 Estimate ÷ 2020 Count

In consideration of the above, the following COVID-19 factors were assumed for this study:

- 1.0 for the north leg of Minet's Point Road (ie. no adjustment to the August 2020 traffic counts); and
- 1.2 for the south leg of Minet's Point Road and volumes on Lakeshore Drive and Hurst Drive.

2.2.3 2020 Peak Hour Volumes

The resulting 2020 adjusted peak hour volumes are illustrated in Figure 4 (2020 counts x COVID factor).

2.3 TRAFFIC OPERATIONS

The assessment of existing conditions establishes the baseline operating conditions of the road network and provides an indication of the available capacity within the system.

2.3.1 Road Operations

Road operations have been considered for Minet's Point Road north of Lakeshore Drive and Brennan Avenue north of Hurst Drive, in that these road sections provide the means of access to the study area and may experience an increase or decrease in traffic volumes resulting from the various alternatives subsequently considered.



A summary of the peak hour volumes and the resulting capacity assessment (expressed as the ratio of volume to capacity) is provided Table 3 for the maximum peak hour volumes (ie. greatest of the northbound and southbound volumes) under each peak hour period. As noted, Minet's Point Road is operating at 13 to 28% of its available capacity (ie. v/c ratios of 0.13 to 0.28), whereas Brennan Avenue is operating at 4 to 10%. Therefore, there is ample capacity available on both roads to accommodate the noted traffic volumes and facilitate future growth.

Table 3: 2020 Road Operations

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	Volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	50	0.13	93	0.23	112	0.28
Brennan Avenue north of Hurst Drive	400	17	0.04	38	0.10	31	0.08

¹ capacity is denoted as vehicles per hour per lane

2.3.2 Intersection Operations

Notwithstanding the road section operations, the capacity, and hence operations, of a road system is typically dictated by its intersections. The intersection operations analysis is based on the 2020 traffic volumes, the existing intersection configuration and procedures outlined in the *2000 Highway Capacity Manual*² (using Synchro v.10 software). For signalized and unsignalized intersections, the analysis considers the average delay (measured in seconds), level of service (LOS) and volume to capacity (v/c) for each approach and the overall intersection. Level of service 'A' corresponds to the best operating condition with minimal delays whereas level of service 'F' corresponds to poor operations resulting from high intersection delays. A v/c ratio of less than 1.0 indicates the intersection movement/approach is operating at less than capacity while v/c of 1.0 indicates capacity has been reached.

A summary of the analysis is provided in Table 4, whereas detailed operations worksheets for the existing traffic conditions are included in Appendix B. It is noted that operations during the PM and Saturday peak hours are considered the more critical given the overall traffic volumes. At the Lakeshore Drive intersection with Minet's Point Road (which serves the greatest traffic volumes), both the PM and Saturday volumes are greater for all movements with the exception of the westbound through movement on Hurst Drive/Lakeshore Drive. In this regard, the

² *Highway Capacity Manual*. Transportation Research Board. Washington D.C. 2000



summary table focusses on the operations during the PM and Saturday periods, the AM results are included in Appendix B.

Table 4: 2020 Intersection Operations

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	27	C	0.84	17	B	0.66
	WB	signal	17	B	0.59	14	B	0.56
	NB	signal	25	C	0.83	17	B	0.73
	SB	signal	8	A	0.09	7	A	0.11
	overall	signal	20	B	0.83	14	B	0.70
Hurst Drive & Brennan Avenue	NB	stop	15	C	0.03	14	B	0.02
	SB	stop	23	C	0.12	16	C	0.08
White Oaks Road & The Boulevard	WB	stop	9	A	0.01	10	A	0.02
White Oaks Road & Brennan Avenue	SB	stop	9	A	0.00	9	A	0.00
Minet's Point Park & Brennan Avenue	SB	stop	9	A	0.05	9	A	0.08

Based on the existing volumes and intersection control, the key intersections provide good conditions (level of service C or better).

2.4 NEED FOR IMPROVEMENTS

Under the 2020 conditions, no intersection improvements are required.

It is further noted that the road system has reserve capacity should the 2020 projected volumes be somewhat understated (ie. if the COVID-19 factor were to be increased).



3 Alternative Solutions

A number of alternative solutions have been developed to reduce the frequency of flooding in Whiskey Creek at Minet's Point. Each alternative solution is described below and conceptual/schematic design drawings are included in Appendix C for reference. While the solutions are premised on improvements/modifications to the existing drainage system, the focus of this technical memorandum is on the resulting improvements/modifications to the transportation system.

Alternatives have been established in consideration of hydraulic improvements and flow diversion improvements, and thus have been grouped accordingly. Consideration has also been given to maintaining existing conditions.

3.1 EXISTING (BASELINE) CONDITIONS

3.1.1 Alternative 1 – Do Nothing

For Alternative 1, the existing culverts, watercourse and roads will remain unchanged from existing conditions.

3.2 HYDRAULIC IMPROVEMENTS

The following improvements focus on improving the existing hydraulics of Whiskey Creek, with associated/resulting road improvements/modifications.

3.2.1 Alternative 2 – Improve Culverts/Watercourse to Convey 1:100-Year Design Storm

For Alternative 2, the main channel will be widened and deepened to provide conveyance capacity for the 1:100-year return frequency design storm and the existing culverts at The Boulevard and Brennan Avenue will be replaced with culverts with capacity to convey the 1:100-year return frequency design storm with no overtopping. No modifications otherwise will be implemented on the road system.

3.2.2 Alternative 3 – Improve Culvert/Watercourse to Convey <1:100-Year Design Storm

For Alternative 3, the main channel will be widened and deepened to provide the maximum conveyance capacity that can be achieved without having to relocate the generator building at Minet's Point Park. The existing culverts at The Boulevard and Brennan Avenue will be replaced with culverts matching the maximum conveyance capacity of the watercourse without regrading the road. No other changes to the road system will result.



3.2.3 Alternative 4A – Remove Brennan Avenue at Whiskey Creek

For Alternative 4A, the main channel will be widened and deepened to improve conveyance. To accommodate this, the portion of Brennan Avenue that crosses the watercourse will be removed to allow for unobstructed flow and the existing culvert at The Boulevard will be replaced with a larger culvert. To maintain pedestrian connectivity along Brennan Avenue, a pedestrian span bridge over the watercourse will be provided.

3.2.4 Alternative 4B – Remove Brennan Avenue at Whiskey Creek and Connect Brennan Avenue and The Boulevard

For Alternative 4B, all of the improvements described under Alternative 4A will be required. To account for the removal of the section of Brennan Avenue that connects to White Oaks Road, a new road connection will be made between Brennan Avenue and The Boulevard (through 7 Brennan Avenue and 199 The Boulevard). This new connection will provide an expedited route to access White Oaks Road and Hurst Drive for many of the properties in this area.

3.2.5 Alternative 5A – Remove The Boulevard at Whiskey Creek

For Alternative 5A, the main channel will be widened and deepened to improve conveyance. To facilitate these improvements, the portion of The Boulevard that crosses the watercourse will be removed to allow for unobstructed flow and the existing culvert at Brennan Avenue will be replaced with a larger culvert. A turnaround facility will be required at the terminus of The Boulevard (either a cul-de-sac or hammerhead) for service vehicles. To maintain pedestrian connectivity along The Boulevard, a pedestrian span bridge over the watercourse will be provided.

3.2.6 Alternative 5B – Remove The Boulevard at Whiskey Creek and Connect Brennan Avenue and The Boulevard

For Alternative 5B, all of the improvements described under Alternative 5A will be required, with the exception of the turnaround facility. To account for the removal of the section of The Boulevard that connects to White Oaks Road, a new road connection will be made between Brennan Avenue and The Boulevard (through 7 Brennan Avenue and 199 The Boulevard). This new connection will provide an expedited route to access White Oaks Road and Hurst Drive for many of the properties in this area.

3.2.7 Alternative 6A – Remove Brennan Avenue and The Boulevard at Whiskey Creek

For Alternative 6A, the main channel will be widened and deepened to improve its conveyance capacity. Sections of The Boulevard and Brennan Avenue that cross the watercourse will be removed to allow for unobstructed flow. To maintain pedestrian access, pedestrian span bridges



would replace the Brennan Avenue and The Boulevard culvert crossings. As with Alternative 5A, a turnaround facility will be required at the terminus of The Boulevard. This alternative eliminates an access route such that properties north of Southview Road can only be accessed from Hurst Drive via Brennan Avenue.

3.2.8 Alternative 6B – Remove Brennan Avenue and The Boulevard at Whiskey Creek and Connect Brennan Avenue and The Boulevard

For Alternative 6B, all of the improvements described for Alternative 6A will be required, with the exception of the turnaround facility. To account for the removal of the sections of Brennan Avenue and The Boulevard that connect to White Oaks Road, a new road will be constructed through 7 Brennan Avenue and 199 The Boulevard to connect Brennan Avenue and The Boulevard. This new connection will provide general improvement for traffic routing north of Southview Road. However, the properties north of Southview Road will still only have one access from Hurst Drive via Brennan Avenue.

3.2.9 Alternative 6C – Remove Brennan Avenue and The Boulevard at Whiskey Creek, Connect Brennan Avenue and The Boulevard and New Connection to Hurst Drive

For Alternative 6C, all of the watercourse improvements described for Alternative 6B will be required. In addition, a new road connection will be constructed through 205 and 207 Southview Road to provide a secondary access via Hurst Drive, and align opposite Wallwins Way to the south.

3.3 FLOW DIVERSIONS

3.3.1 Alternative 7 – Additional Conveyance Route (Flow Diversion) Through 36 White Oaks Road

For Alternative 7, the existing culverts and watercourse will remain unchanged from existing conditions and a new culvert crossing and overland flow conveyance channel will be constructed through 36 White Oaks Road. The new flow route will be constructed to convey Whiskey Creek flows exceeding the capacity of The Boulevard culvert crossing to Kempenfelt Bay.

3.4 POTENTIAL FOR TRAFFIC OPERATIONS IMPLICATIONS

As detailed above, the alternative solutions encompass a myriad of proposed improvements/modifications to the drainage and road systems. In context of this technical memorandum, only those alternatives that are expected to have an impact on the transportation system, and hence traffic operations, have been considered. Specifically, the alternatives further addressed include:

- Alternative 1 – Do Nothing;
- Alternative 4A – Remove Brennan Avenue at Whiskey Creek;



- Alternative 4B – Remove Brennan Avenue at Whiskey Creek and Connect Brennan Avenue and The Boulevard;
- Alternative 5A – Remove The Boulevard at Whiskey Creek;
- Alternative 5B – Remove The Boulevard at Whiskey Creek and Connect Brennan Avenue and The Boulevard;
- Alternative 6A – Remove Brennan Avenue and The Boulevard at Whiskey Creek;
- Alternative 6B – Remove Brennan Avenue and The Boulevard at Whiskey Creek and Connect Brennan Avenue and The Boulevard; and
- Alternative 6C – Remove Brennan Avenue and The Boulevard at Whiskey Creek, Connect Brennan Avenue and The Boulevard and New Connection to Hurst Drive.



4 Future Conditions - Alternative 1

This chapter will describe the road network, traffic volumes and expected traffic operations for the future horizon years 2031 and 2041 (which are consistent with the City's future planning studies) under the following:

- Alternative 1 - Do Nothing (maintain existing conditions).

4.1 ROAD NETWORK

While Alternative 1 reflects a Do Nothing scenario, this pertains specifically to the implementation of improvement/modifications to address the issue of flooding along Whiskey Creek (ie. no improvements to mitigate the flooding issues have been considered). This is not to suggest that road system improvements, that are not otherwise related to Whiskey Creek, should not be considered.

As per the City's *Transportation Master Plan*³, the following study area road network improvements have been identified (all of which have been noted for the 2026-2031 period):

- widen Hurst Drive from Minet's Point Road to Bay Lane from 2 lanes to 4 lanes;
- widen Hurst Drive from Bay Lane to Cox Mill Road from 3 lanes (2 lanes + two-way left turn lane) to 4 lanes; and
- widen Minet's Point Road from Lakeshore Drive to Yonge Street from 4 lanes to 5 lanes (4 lanes + two-way left turn lane).

The resulting road system considered for Alternative 1 is illustrated in Figure 5, mirroring that of the existing conditions with exception of the noted proposed improvements.

4.2 TRAFFIC VOLUMES

Future background traffic volumes expected for the 2031 and 2041 horizon years for the study area have been determined based on the existing traffic volumes and anticipated growth through the study area.

4.2.1 Projected Growth

As part of the City's *Transportation Master Plan*, a demand forecasting model has been prepared for the entire City based primarily on population and employment levels within individual zones. In developing future travel demands, a number of factors have been considered including

³ The City of Barrie *Transportation Master Plan*. WSP, June 2019.



planned growth, development levels, population forecasts, transit initiatives and service levels. The model is premised on average weekday AM and PM peak hour conditions for the future horizon years 2031 and 2041.

In consideration of the resulting model projections for the study area road system, City staff have provided the following annual growth rates to be applied through to the 2031 horizon year.

- Lakeshore Drive– 3.6% per annum;
- Hurst Drive – 6% per annum; and
- remaining and/or local roads – 1% per annum.

Beyond the 2031 horizon, the following growth rates have been applied:

- Lakeshore Drive– 2% per annum;
- Hurst Drive – 2% per annum; and
- remaining and/or local roads – 1% per annum.

4.2.2 Traffic Volumes

The resulting 2031 and 2041 traffic volumes are illustrated in Figure 6 and Figure 7.

4.3 TRAFFIC OPERATIONS

4.3.1 Road Operations

The operations of Minet's Point Road and Brennan Avenue have again been considered, the results of which are summarized in Table 5 and Table 6 for the 2031 and 2041 horizon years respectively. As noted, despite the anticipated growth through to the 2031 and 2041 horizons, volumes on Minet's Point Road are not expected to exceed 35% of the available road capacity, whereas those on Brennan Avenue are not expected to exceed 12%. In this regard, there are no capacity issues on either road and both will continue to provide significant reserve capacity.

Table 5: 2031 Road Operations - Alternative 1

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	56	0.14	104	0.26	125	0.31
Brennan Avenue north of Hurst Drive	400	19	0.05	42	0.11	35	0.09

¹ capacity is denoted as vehicles per hour per lane



Table 6: 2041 Road Operations - Alternative 1

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	62	0.15	115	0.29	138	0.35
Brennan Avenue north of Hurst Drive	400	21	0.05	47	0.12	38	0.10

¹ capacity is denoted as vehicles per hour per lane

4.3.2 Intersection Operations

The key intersections were again analyzed for each horizon year given the existing intersection configurations and control, the projected volumes and considering the road network improvements identified in the *Transportation Master Plan* (all of which are assumed to be in place for the 2031 horizon). With the recommended widening of both Hurst Drive and Minet's Point Road, the following intersection configurations have been assumed:

Lakeshore Drive/Hurst Drive & Minet's Point Road

south leg: Minet's Point Road 1 left turn lane, 1 thru lane and 1 right turn lane
 north leg: Minet's Point Road 1 shared left/thru/right turn lane
 west leg: Lakeshore Drive 1 left turn lane, 1 thru and 1 shared thru/right lane
 east leg: Hurst Drive 1 left turn lane, 1 thru and 1 shared thru/right lane
 traffic control: traffic signals

Hurst Drive & Brennan Avenue

south leg: Brennan Avenue 1 shared left/thru/right turn lane
 north leg: Brennan Avenue 1 shared left/thru/right turn lane
 west leg: Hurst Drive 1 shared left/thru and 1 shared thru/right turn lane
 east leg: Hurst Drive 1 shared left/thru and 1 shared thru/right turn lane
 traffic control: stop control on Brennan Avenue

The results of the operational analysis are summarized in Table 7 and Table 8 whereas detailed worksheets are provided in Appendix D. As indicated, most intersections are expected to continue to provide good overall operating conditions (level of service C or better) with average delays through the considered horizon periods. The exception is the intersection of Brennan Avenue and Hurst Drive - the increased volumes on Hurst Drive and stop control on Brennan



Avenue results in increased delays to the southbound movement on Brennan Avenue during the PM peak hour of both the 2031 and 2041 horizon (58 and 154 second delays respectively), which translate to a level of service F.

Table 7: 2031 Intersection Operations - Alternative 1

Intersection & Movement		Control	Weekday PM Peak Hour			Saturday Peak Hour		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	21	C	0.79	13	B	0.50
	WB	signal	14	B	0.45	11	B	0.36
	NB	signal	12	B	0.07	13	B	0.09
	SB	signal	12	B	0.07	13	B	0.15
	overall	signal	24	C	0.88	16	B	0.66
Hurst Drive & Brennan Avenue	NB	stop	26	D	0.06	19	C	0.04
	SB	stop	58	F	0.33	27	D	0.16
White Oaks Road & The Boulevard	WB	stop	9	A	0.01	10	A	0.02
White Oaks Road & Brennan Avenue	SB	stop	9	A	0.00	9	A	0.00
Minet's Point Park & Brennan Avenue	SB	stop	9	A	0.06	9	A	0.09



Table 8: 2041 Intersection Operations - Alternative 1

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	35	D	0.97	16	B	0.65
	WB	signal	16	B	0.56	13	B	0.45
	NB	signal	12	B	0.08	13	B	0.10
	SB	signal	12	B	0.12	13	B	0.15
	overall	signal	32	C	0.98	20	B	0.78
Hurst Drive & Brennan Avenue	NB	stop	44	E	0.10	28	D	0.07
	SB	stop	154	F	0.65	42	E	0.27
White Oaks Road & The Boulevard	WB	stop	9	A	0.02	10	A	0.02
White Oaks Road & Brennan Avenue	SB	stop	9	A	0.00	9	A	0.00
Minet's Point Park & Brennan Avenue	SB	stop	9	A	0.07	9	A	0.09

4.4 NEED FOR IMPROVEMENTS

In consideration of the intersection operations at Brennan Avenue with Hurst Drive, traffic signals are recommended. While signal warrants are not satisfied (completed warrants under weekday 2031 and 2041 conditions are included in Appendix D), such are nonetheless recommended to ensure adequate intersection operations.

It is noted that the intersection of Brennan Avenue with Hurst Drive is approximately 440 metres east of the Minet's Point Road signalized intersection and 780 metres west of the Little Avenue signalized intersection, and therefore the resulting spacing is considered acceptable (a minimum of 400 metres is typically recommended).

Under signal control (assuming a basic 2-phase timing plan), and maintaining the same intersection configuration, acceptable operations will be provided; 2041 operations are summarized in Table 9 (as acceptable operations will be provided in 2041, such will also be provided in 2031).



Table 9: 2041 Intersection Operations + Improvements - Alternative 1

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
			delay	LOS	v/c	delay	LOS	v/c
Hurst Drive & Brennan Avenue	EB	signal	16	B	0.84	26	C	0.93
	WB	signal	12	B	0.71	16	B	0.82
	NB	signal	13	B	0.01	19	B	0.01
	SB	signal	13	B	0.03	19	B	0.06
	overall	signal	14	B	0.52	21	C	0.66



5 Future Conditions - Alternative 4A

This chapter details the road system improvements/modifications associated with the following solution:

- Alternative 4A – Remove Brennan Avenue at Whiskey Creek.

5.1 ROAD NETWORK

The future road system as documented under Alternative 1 - Do Nothing has been maintained, which includes the widening of Hurst Drive to 4 lanes east of Minet's Point Road and the widening of Minet's Point Road south of Lakeshore Drive to 5 lanes.

Specific to Alternative 4A, the following has been considered:

- removal of the Brennan Avenue connection to White Oaks Road.

5.2 TRAFFIC VOLUMES

Traffic volumes as per Alternative 1 - Do Nothing, have been carried forward (which are effectively the base volumes for the future conditions). As the 2041 horizon is the more critical of the 2 horizons considered, only the 2041 projections have been considered.

Specific to Alternative 4A, the elimination of the Brennan Avenue connection to White Oaks Road will require area motorists to modify their travel routes and divert to alternative routes which include the following:

- the use of Cliff Road and The Boulevard to access White Oaks Road; and
- the use of Brennan Avenue to access Hurst Drive.

The choice of the alternative will likely depend upon the trip origin or destination, and whether the motorist is a resident of the area and thus would be more likely to be familiar with the local road system and the alternative means of connectivity or a visitor (eg. to Minet's Point Park) and thus perhaps not as knowledgeable.

Figure 8 illustrates the road system changes resulting from Alternative 4A and the associated trip diversions that have been assumed, namely:

- 50% of motorists to/from Lakeshore Drive to the west will divert to Cliff Road and The Boulevard, whereas the remaining 50% will divert to Brennan Avenue;
- 50% of motorists to/from Minet's Point Road to the south will divert to Cliff Road and The Boulevard, whereas the remaining 50% will divert to Brennan Avenue; and



- 100% of motorists to/from Hurst Drive to the east will divert to Brennan Avenue.

The resulting traffic volumes for Alternative 4A under the 2041 horizon are illustrated in Figure 9. In comparison to the Do Nothing conditions, this alternative will increase volumes on several of the area road sections, as summarized in Table 10.

Table 10: 2041 Traffic Volumes - Impacts of Alternative 4A

ROAD SECTION	AM PEAK HOUR		PM PEAK HOUR		SAT PEAK HOUR	
	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
Minet's Point Road north of Lakeshore Drive	-18	-16	-46	-39	-48	-55
The Boulevard east of White Oaks Road	16	12	30	33	40	45
Brennan Avenue east of White Oaks Road	-35	-28	-75	-71	-89	-100
Brennan Avenue north of Cliff Road	35	28	75	71	89	100
Brennan Avenue north of Hurst Drive	18	16	46	39	48	55

5.3 TRAFFIC OPERATIONS

5.3.1 Road Operations

In context of the noted changes in volumes on Minet's Point Road and Brennan Avenue, the operations have been reviewed, as summarized in Table 11. In all cases, the volumes are projected to be less than 25% of the available road capacity.

Table 11: 2041 Road Operations - Alternative 4A

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	45	0.11	76	0.19	90	0.22
Brennan Avenue north of Hurst Drive	400	39	0.10	86	0.21	94	0.23

¹ capacity is denoted as vehicles per hour per lane



5.3.2 Intersection Operations

The anticipated operations at the study area intersections are provided in Table 12, detailed worksheets are provided in Appendix E. Given the excellent levels of service provided at the internal intersections (eg. White Oaks Road with The Boulevard and Brennan Avenue, and Brennan Avenue with Minet's Point Park) under Alternative 1 - Do Nothing scenario (all level of service A with minimal delays), and considering the minimal volumes being considered, operations at these intersections has not been repeated. While volumes through the noted intersections will change as a result of the suggested road modifications, such will not detract from the excellent levels of service - all roads are local roads serving traffic volumes conducive to local roads. As such, the focus of the operational analysis is with the intersections with Lakeshore Drive and Hurst Drive, as summarized in Table 12.

Table 12: 2041 Intersection Operations - Alternative 4A

Intersection & Movement		Control	Weekday PM Peak Hour			Saturday Peak Hour		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	37	D	0.98	14	B	0.62
	WB	signal	14	B	0.57	11	B	0.43
	NB	signal	11	B	0.06	13	B	0.07
	SB	signal	11	B	0.05	14	B	0.10
	overall	signal	35	D	1.02	18	B	0.78
Hurst Drive & Brennan Avenue	NB	stop	53	F	0.12	33	D	0.08
	SB	stop	386	F	1.44	39	E	0.46

As per the operations, a poor level of service will occur at the Brennan Avenue intersection with Hurst Drive, given the increased volumes on Hurst Drive and stop control on Brennan Avenue.

5.4 NEED FOR IMPROVEMENTS

Traffic signals are again recommended for the intersection of Brennan Avenue and Hurst Drive to ensure acceptable operations can be provided.



6 Future Conditions - Alternative 4B

This chapter details the road system improvements/modifications associated with the following solution:

- Alternative 4B – Remove Brennan Avenue at Whiskey Creek and connect Brennan Avenue and The Boulevard.

6.1 ROAD NETWORK

Specific to Alternative 4B, the following have been considered:

- removal of the Brennan Avenue connection to White Oaks Road; and
- a new road connection between Brennan Avenue and The Boulevard.

6.2 TRAFFIC VOLUMES

As compared to Alternative 1 - Do Nothing, traffic patterns through the area road system are not expected to change significantly under Alternative 4B with the exception that those who would otherwise travel through the intersection of Brennan Avenue with White Oaks Road, will now travel through intersection of The Boulevard with White Oaks Road and utilize the new connection. As illustrated in Figure 10, the following reassignment of traffic has been assumed:

- 100% of motorists will divert to the new road connection and the intersection of The Boulevard with White Oaks Road.

The resulting traffic volumes are illustrated in Figure 11. As motorists will still be able to access the overall area via White Oaks Road, the volumes at the Lakeshore Drive/Hurst Road intersections will be equal to those under Alternative 1 - Do Nothing. A summary of changes in volumes to select local roads is provide in Table 13.

Table 13: 2041 Traffic Volumes - Impacts of Alternative 4B

ROAD SECTION	AM PEAK HOUR		PM PEAK HOUR		SAT PEAK HOUR	
	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
The Boulevard east of White Oaks Road	35	28	75	71	89	100
Brennan Avenue east of White Oaks Road	-35	-28	-75	-71	-89	-100



6.3 TRAFFIC OPERATIONS

6.3.1 Road Operations

Operations on Minet's Point Road and Brennan Avenue north of Lakeshore Drive/Hurst Drive will not vary from Alternative 1 - Do Nothing. Volumes will remain well below the respective road capacities ($v/c \leq 0.35$) as illustrated in Table 14.

Table 14: 2041 Road Operations - Alternative 4B

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	62	0.15	115	0.29	138	0.35
Brennan Avenue north of Hurst Drive	400	21	0.05	47	0.12	38	0.10

¹ capacity is denoted as vehicles per hour per lane

6.3.2 Intersection Operations

Intersection operations under Alternative 4B are summarized in Table 15; detailed worksheets are provided in Appendix F. As noted, acceptable operations will be provided at the Lakeshore Drive intersection, whereas unacceptable operations result at the Hurst Drive intersection (ie. level of service F).

Table 15: 2041 Intersection Operations - Alternative 4B

Intersection & Movement		Control	Weekday PM Peak Hour			Saturday Peak Hour		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	35	D	0.97	13	B	0.67
	WB	signal	16	B	0.56	11	B	0.51
	NB	signal	12	B	0.08	9	A	0.10
	SB	signal	12	B	0.12	9	A	0.16
	overall	signal	32	C	0.98	14	B	0.77
Hurst Drive & Brennan Avenue	NB	stop	44	E	0.10	28	D	0.07
	SB	stop	154	F	0.65	30	D	0.15



6.4 NEED FOR IMPROVEMENTS

Traffic signals are again recommended for the intersection of Brennan Avenue and Hurst Drive to ensure acceptable operations can be provided. It is noted that Alternative 4B does not affect traffic volumes at this intersection - signals are warranted to address the traffic volumes under the Do Nothing scenario.



7 Future Conditions - Alternative 5A

This chapter details the road system improvements/modifications associated with the following:

- Alternative 5A - Remove The Boulevard at Whiskey Creek.

7.1 ROAD NETWORK

Under the future road system of Alternative 5A, the following has been considered:

- removal of The Boulevard connection to White Oaks Road.

7.2 TRAFFIC VOLUMES

In eliminating the connection of The Boulevard to White Oaks Road, motorists will be required to divert to Brennan Avenue and travel north/west to access White Oaks Road or travel south to access Hurst Drive.

Given the resulting circuitous travel associated with the first option, the following has been assumed:

- 100% of motorists that access White Oaks Road via The Boulevard will divert to Brennan Avenue and access Hurst Drive.

Figure 12 illustrates the road system changes resulting from Alternative 5A and the associated trip diversions that have been assumed. The resulting traffic volumes for Alternative 5A under the 2041 horizon are illustrated in Figure 13, with the changes to volumes on select area roads summarized in Table 16.

Table 16: 2041 Traffic Volumes - Impacts of Alternative 5A

ROAD SECTION	AM PEAK HOUR		PM PEAK HOUR		SAT PEAK HOUR	
	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
Minet's Point Road north of Lakeshore Drive	-9	-2	-11	-14	-16	-10
Brennan Avenue north of Hurst Drive	9	2	11	14	16	10

7.3 TRAFFIC OPERATIONS

7.3.1 Road Operations

Operations on Minet's Point Road and Brennan Avenue north of Lakeshore Drive/Hurst Drive are summarized in Table 17. Both roads will operate well below their capacities.



Table 17: 2041 Road Operations - Alternative 5A

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	59	0.15	101	0.25	127	0.32
Brennan Avenue north of Hurst Drive	400	30	0.07	60	0.15	49	0.12

¹ capacity is denoted as vehicles per hour per lane

7.3.2 Intersection Operations

Intersection operations under Alternative 5A are summarized in Table 18; detailed worksheets are provided in Appendix G. As noted, acceptable operations will be provided at the Lakeshore Drive intersection, whereas unacceptable operations result at the Hurst Drive intersection.

Table 18: 2041 Intersection Operations - Alternative 5A

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	37	D	0.96	17	B	0.64
	WB	signal	17	B	0.55	34	B	0.44
	NB	signal	14	B	0.07	14	B	0.09
	SB	signal	14	B	0.07	15	B	0.14
	overall	signal	33	C	0.97	21	C	0.77
Hurst Drive & Brennan Avenue	NB	stop	47	E	0.10	30	D	0.07
	SB	stop	169	F	0.78	38	E	0.33

7.4 NEED FOR IMPROVEMENTS

The recommendation for traffic signals at the intersection of Brennan Avenue and Hurst Drive remains applicable under this option, precipitated by general growth in the area (as opposed to the transportation implications of Alternative 5A).



8 Future Conditions - Alternative 5B

This chapter details the road system improvements/modifications associated with the following solution:

- Alternative 5B – Remove The Boulevard at Whiskey Creek and connect Brennan Avenue and The Boulevard.

8.1 ROAD NETWORK

Specific to Alternative 5B, the following have been considered:

- removal of The Boulevard connection to White Oaks Road; and
- a new road connection between Brennan Avenue and The Boulevard.

8.2 TRAFFIC VOLUMES

As with Alternative 4B, traffic patterns through the area road system are not expected to change significantly under Alternative 5B with the exception that those who would otherwise travel through the intersection of The Boulevard with White Oaks Road, will now travel through the intersection of Brennan Avenue with White Oaks Road and utilize the new connection. As illustrated in Figure 14, the following reassignment of traffic has been assumed:

- 100% of motorists will divert to the new road connection and the intersection of Brennan Avenue with White Oaks Road.

The resulting traffic volumes are illustrated in Figure 15. As motorist will still be able to access the full area via White Oaks Road, the volumes at the Lakeshore Drive/Hurst Road intersections will be equal to those under Alternative 1 - Do Nothing. A summary of the local road change in volumes is provide in Table 19.

Table 19: 2041 Traffic Volumes - Impacts of Alternative 5B

ROAD SECTION	AM PEAK HOUR		PM PEAK HOUR		SAT PEAK HOUR	
	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
The Boulevard east of White Oaks Road	-9	-2	-11	-14	-16	-10
Brennan Avenue east of White Oaks Road	9	2	11	14	16	10



8.3 TRAFFIC OPERATIONS

8.3.1 Road Operations

Operations on Minet's Point Road and Brennan Avenue north of Lakeshore Drive/Hurst Drive are summarized in Table 20. Given the proposed road connection between The Boulevard and Brennan Avenue, operations under Alternative 5B will be similar to that of Alternative 1 and Alternative 4B.

Table 20: 2041 Road Operations - Alternative 5B

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	62	0.15	115	0.29	138	0.35
Brennan Avenue north of Hurst Drive	400	21	0.05	47	0.12	38	0.10

¹ capacity is denoted as vehicles per hour per lane

8.3.2 Intersection Operations

Intersection operations under Alternative 5B are summarized in Table 21; detailed worksheets are provided in Appendix H. Similar to Alternatives 1 and 4B, operations at the Brennan Avenue intersection will incur increased delays.

Table 21: 2041 Intersection Operations - Alternative 5B

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	35	D	0.97	13	B	0.67
	WB	signal	16	B	0.56	11	B	0.51
	NB	signal	12	B	0.08	9	A	0.10
	SB	signal	12	B	0.12	9	A	0.16
	overall	signal	32	C	0.98	14	B	0.77
Hurst Drive & Brennan Avenue	NB	stop	44	E	0.10	28	D	0.07
	SB	stop	154	F	0.65	42	E	0.27



8.4 NEED FOR IMPROVEMENTS

The recommendation for traffic signals at the intersection of Brennan Avenue and Hurst Drive remains applicable under this option, precipitated by general growth in the area (as opposed to the transportation implications of Alternative 5B).



9 Future Conditions - Alternative 6A

This chapter details the road system improvements/modifications associated with the following solution:

- Alternative 6A – Remove Brennan Avenue and The Boulevard at Whiskey Creek.

9.1 ROAD NETWORK

Specific to Alternative 6A, the following have been considered:

- removal of The Boulevard connection to White Oaks Road; and
- removal of the Brennan Avenue connection to White Oaks Road.

9.2 TRAFFIC VOLUMES

With the elimination of both the Brennan Avenue and The Boulevard connections to White Oaks Road, motorists will be forced to use Brennan Avenue and its connection with Hurst Drive, as illustrated in Figure 16 and noted below:

- 100% of motorists will divert from The Boulevard and White Oaks Road to Brennan Avenue to connect to Hurst Drive.

The resulting traffic volumes are illustrated in Figure 17, with a resulting increase in volumes on Brennan Avenue as evident in Table 22. All of the area volumes that would otherwise use White Oaks Road to access Hurst Drive have been shifted to Brennan Avenue.

Table 22: 2041 Traffic Volumes - Impacts of Alternative 6A

ROAD SECTION	AM PEAK HOUR		PM PEAK HOUR		SAT PEAK HOUR	
	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
Minet's Point Road north of Lakeshore Drive	-43	-31	-86	-85	-105	-110
The Boulevard east of White Oaks Road	-9	-2	-11	-14	-16	-10
Brennan Avenue east of White Oaks Road	-35	-28	-75	-71	-89	-100
Brennan Avenue north of Cliff Road	26	18	17	51	63	66
Brennan Avenue north of Hurst Drive	43	31	86	85	105	110



As further evident in Figure 16, the closure of both roads will effectively leave Brennan Avenue as the only means of access to those residences on Brennan Avenue, Southview Road, Cliff Road, The Boulevard, Kempview Lane and Lismer Boulevard (approximately 125 residences in total).

9.3 TRAFFIC OPERATIONS

9.3.1 Road Operations

Operations on Minet's Point Road and Brennan Avenue north of Lakeshore Drive/Hurst Drive are summarized in Table 23. This alternative will result in the greatest reduction in volumes on Minet's Point Road and the greatest increase in volumes on Brennan Avenue. Notwithstanding, Brennan Avenue will continue to operate well below its capacity (ie. $v/c \leq 0.35$).

Table 23: 2041 Road Operations - Alternative 6A

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	31	0.08	30	0.07	33	0.08
Brennan Avenue north of Hurst Drive	400	64	0.16	132	0.33	148	0.37

¹ capacity is denoted as vehicles per hour per lane

9.3.2 Intersection Operations

Intersection operations under Alternative 6A are summarized in Table 24; detailed worksheets are provided in Appendix I. With the increased volumes anticipated on Brennan Avenue, the operations will be more problematic for both northbound and southbound travel through the Hurst Drive intersection.

9.4 NEED FOR IMPROVEMENTS

The recommendation for traffic signals at the intersection of Brennan Avenue and Hurst Drive remains applicable under this option. While volumes on Brennan Avenue will increase significantly as a result of Alternative 6A, the signals are required in context of the increased volumes on Hurst Drive.



Table 24: 2041 Intersection Operations - Alternative 6A

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	30	C	0.95	15	B	0.73
	WB	signal	14	B	0.55	11	B	0.54
	NB	signal	12	B	0.02	8	A	0.02
	SB	signal	12	B	0.01	8	A	0.04
	overall	signal	35	C	1.02	17	B	0.81
Hurst Drive & Brennan Avenue	NB	stop	72	F	0.16	58	F	0.14
	SB	stop	614	F	2.02	74	F	0.80



10 Future Conditions - Alternative 6B

This chapter details the road system improvements/modifications associated with the following:

- Alternative 6B – Remove Brennan Avenue and The Boulevard at Whiskey Creek and connect Brennan Avenue and The Boulevard.

10.1 ROAD NETWORK

Specific to Alternative 6B, the following have been considered:

- removal of The Boulevard connection to White Oaks Road;
- removal of the Brennan Avenue connection to White Oaks Road; and
- a new road connection between Brennan Avenue and The Boulevard.

10.2 TRAFFIC VOLUMES

The traffic volumes are comparable to those of Alternative 6A in that the only change to the road system is the connection of Brennan Avenue with The Boulevard which will cater to internal traffic only. As with Alternative 6A and as illustrated in Figure 18:

- 100% of motorists will divert from The Boulevard and White Oaks Road to Brennan Avenue to connect to Hurst Drive.

The resulting traffic volumes are illustrated in Figure 19; Table 25 illustrates the resulting changes to the local road system traffic volumes.

Table 25: 2041 Traffic Volumes - Impacts of Alternative 6B

ROAD SECTION	AM PEAK HOUR		PM PEAK HOUR		SAT PEAK HOUR	
	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
Minet's Point Road north of Lakeshore Drive	-43	-31	-86	-85	-105	-110
The Boulevard east of White Oaks Road	-9	-2	-11	-14	-16	-10
Brennan Avenue east of White Oaks Road	-35	-28	-75	-71	-89	-100
Brennan Avenue north of Cliff Road	26	18	17	51	63	66
Brennan Avenue north of Hurst Drive	43	31	86	85	105	110



10.3 TRAFFIC OPERATIONS

10.3.1 Road Operations

Link volumes and operations are summarized in Table 26 for Minet's Point Road and Brennan Avenue north of Lakeshore Drive/Hurst Drive. As with Alternative 6A, this alternative will result in the greatest reduction in volumes on Minet's Point Road and the greatest increase on Brennan Avenue. Notwithstanding, Brennan Avenue will continue to operate well below its capacity.

Table 26: 2041 Road Operations - Alternative 6B

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	31	0.08	30	0.07	33	0.08
Brennan Avenue north of Hurst Drive	400	64	0.16	132	0.33	148	0.37

¹ capacity is denoted as vehicles per hour per lane

10.3.2 Intersection Operations

Intersection operations under Alternative 6B are summarized in Table 27; detailed worksheets are provided in Appendix J. With the increased volumes anticipated on Brennan Avenue, the operations will be more problematic for both northbound and southbound travel at Hurst Drive.

Table 27: 2041 Intersection Operations - Alternative 6B

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	30	C	0.95	15	B	0.73
	WB	signal	14	B	0.55	11	B	0.54
	NB	signal	12	B	0.02	8	A	0.02
	SB	signal	12	B	0.01	8	A	0.04
	overall	signal	35	C	1.02	17	B	0.81
Hurst Drive & Brennan Avenue	NB	stop	72	F	0.16	58	F	0.14
	SB	stop	614	F	2.02	74	F	0.80



10.4 NEED FOR IMPROVEMENTS

The recommendation for traffic signals at the intersection of Brennan Avenue and Hurst Drive remains applicable under this option. While volumes on Brennan Avenue will increase significantly as a result of Alternative 6B, the signals are required in context of the increased volumes on Hurst Drive.



11 Future Conditions - Alternative 6C

This chapter details the road system improvements/modifications associated with the following solution:

- Alternative 6C – Remove Brennan Avenue and The Boulevard at Whiskey Creek and connect Brennan Avenue and The Boulevard and new connection to Hurst Drive.

11.1 ROAD NETWORK

Specific to Alternative 6C, the following have been considered:

- removal of The Boulevard connection to White Oaks Road;
- removal of the Brennan Avenue connection to White Oaks Road; and
- a new road connection to Hurst Drive through 205 and 207 Southview Road.

The location of the new road connection to Hurst Drive and the corresponding sight lines looking to the west and east are illustrated in Figure 20. Should an eastbound vehicle be stopped on Hurst Drive waiting to turn left onto the new road connection, it can be seen from a distance of approximately 150 metres to the west and 205 metres to the east. For a vehicle stopped on the new road connection waiting to enter Hurst Drive, it can see approaching vehicles at a distance of 170 metres to the west and 210 metres to the east. In both directions, the sight lines are limited by the horizontal alignment of the road. For a design speed of 60 km/h (10 km/h over the existing posted speed of 50 km/h on Hurst Drive), the minimum stopping sight distance requirement is 85 metres (minimum distance to observe a hazard and bring the vehicle to a stop). Turning sight distance (distance which allows a vehicle to turn onto the road and achieve operating speed without impacting an approaching vehicle) is 180 metres. While the turning sight distance is not satisfied to the west, this is not considered problematic in that minimum stopping sight distance is achieved, and furthermore Hurst Drive will be widened to 2 lanes per direction, thus affording greater manoeuvrability for approaching vehicles.

The connection of Brennan Avenue with The Boulevard and the new road connection to Hurst Drive will also provide a second means of access to the study area, thus addressing emergency access concerns relating to Alternatives 6A and 6B

11.2 TRAFFIC VOLUMES

While both the Brennan Avenue and The Boulevard connections to White Oaks Road have been eliminated, motorists will effectively have a parallel and alternative route created through the



introduction of the road connecting Brennan Avenue to The Boulevard, and the new road connection to Hurst Drive. As illustrated in Figure 21, the following has been assumed:

- 100% of traffic that would access White Oaks Road via The Boulevard or Brennan Avenue will use the new road connections to access Hurst Drive.

In addition to the above, the new connection is also likely to be favoured by the adjacent residents on Southview Drive, The Boulevard and Cliff Road for access to Hurst Drive (as opposed to using Brennan Avenue).

The resulting traffic volumes associated with Alternative 6C are illustrated in Figure 22 (volumes to/from Wallwins Way have been estimated based on the level of development); Table 28 illustrates the resulting changes to the local road system traffic volumes.

Table 28: 2041 Traffic Volumes - Impacts of Alternative 6C

ROAD SECTION	AM PEAK HOUR		PM PEAK HOUR		SAT PEAK HOUR	
	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
Minet's Point Road north of Lakeshore Drive	-43	-31	-86	-85	-105	-110
The Boulevard east of White Oaks Road	-9	-2	-11	-14	-16	-10
Brennan Avenue east of White Oaks Road	-35	-28	-75	-71	-89	-100
Brennan Avenue north of Cliff Road	4	3	4	7	4	3
Brennan Avenue north of Hurst Drive	-6	-4	-6	-12	-7	-6

11.3 TRAFFIC OPERATIONS

11.3.1 Road Operations

The Minet's Point Road and Brennan Avenue volumes and operations north of Lakeshore Drive/Hurst Drive Link are summarized in Table 29; operations on both roads will remain well below capacity. Volumes and operations are also noted for the new road connection to Hurst Drive. As noted, the projected volumes on it will remain less than 30% of its capacity.



Table 29: 2041 Road Operations - Alternative 6C

ROAD SECTION	CAPACITY ¹ (vphpl)	AM PEAK		PM PEAK		SAT PEAK	
		volume	v/c	volume	v/c	volume	v/c
Minet's Point Road north of Lakeshore Drive	400	31	0.08	30	0.07	33	0.08
Brennan Avenue north of Hurst Drive	400	15	0.04	35	0.09	33	0.08
New road connection to Hurst Drive	400	49	0.12	97	0.24	115	0.29

¹ capacity is denoted as vehicles per hour per lane

11.3.2 Intersection Operations

Intersection operations under Alternative 6C are summarized in Table 30; detailed worksheets are provided in Appendix K. While volumes on Brennan Avenue are expected to decrease somewhat as those in the immediate area divert to the new road connection for access to Hurst Drive, the operations will remain problematic. Operations on Wallwins Way reflect a level of service F in the PM peak hour (resulting from the 60 second delay). Given the limited period in which this occurs and the limited volumes to/from Wallwins Way (the delays are more a function of volumes on Hurst Drive), such is not considered problematic and does not warrant mitigation.

Table 30: 2041 Intersection Operations - Alternative 6C

INTERSECTION & MOVEMENT			WEEKDAY PM PEAK HOUR			SATURDAY PEAK HOUR		
			delay	LOS	v/c	delay	LOS	v/c
Lakeshore Drive & Minet's Point Road	EB	signal	30	C	0.95	15	B	0.73
	WB	signal	14	B	0.55	11	B	0.54
	NB	signal	12	B	0.02	8	A	0.02
	SB	signal	12	B	0.01	8	A	0.04
	overall	signal	35	C	1.02	17	B	0.81
Hurst Drive & Brennan Avenue	NB	stop	42	E	0.09	27	D	0.06
	SB	stop	158	F	0.60	47	E	0.25
Hurst Drive & New Connection / Wallwins Way	SB	stop	24	C	0.35	15	C	0.26
	NB	stop	60	F	0.20	50	E	0.17



11.4 NEED FOR IMPROVEMENTS

The recommendation for traffic signals at the intersection of Brennan Avenue and Hurst Drive remains applicable under this option.



12 Minet's Point Park Access

In addition to the noted alternatives, consideration has been given to the relocation of the Minet's Point Park Access from Brennan Avenue to Lismer Boulevard as is likely warranted to facilitate the implementation of the preferred solution. The corresponding Minet's Point Park area and 2020 traffic volumes at the park access are illustrated in Figure 23.

12.1 TRAFFIC VOLUMES

As per the traffic counts, there were approximately:

- 40 vehicle trips to/from the parking during the AM peak hour (ie. 20 trips to the park and 20 trips from the park);
- 90 vehicle trips to/from the parking during the PM peak hour; and
- 140 vehicle trips to/from the parking during the Saturday peak hour.

While not specifically counted, traffic volumes on Lismer Boulevard will be minimal, as there is limited development along it (it serves in the order of 20 houses, of which only 3 are located beyond Kempview Lane).

12.2 ACCESS LOCATION OPTIONS

A number of alternative access points can be considered along Lismer Boulevard. As illustrated in Figure 23, recommended locations include:

- opposite Kempview Lane; and
- opposite the internal drive aisles in the parking lot.

Preferably, the access should be located outside of the parking lot footprint to minimize the potential for conflict between vehicles wishing to enter/exit the park, and those manoeuvring to/from a parking stall. It is acknowledged that opportunities may also be restricted or dictated by any future development/redevelopment within the park (ie. relocation of the generator building).

12.3 TRAFFIC IMPACTS

Given the limited volumes generated by the park, and the limited volumes otherwise on Brennan Avenue and Lismer Boulevard, the relocation of the access to Lismer Boulevard can be readily accommodate from a traffic perspective. Lismer Boulevard is relatively straight and flat, and thus excellent visibility can be provided at all possible access locations.



13 Summary

This brief has addressed the anticipated traffic impacts of the various alternatives proposed to remedy drainage and flooding issues pertaining to the Whiskey Creek, extending from Lakeshore Drive to Kempenfelt Bay.

From a traffic operations and road network perspective the following are noted and should be considered in the assessment of the alternative solutions.

Available Road System Capacity

- The local road system and its means of connection to the external boundary road (Lakeshore Drive/Hurst Drive) do not currently serve significant volumes and the respective roads have significant reserve capacity.
- Under future conditions (both 2031 and 2041) delays for southbound traffic on Brennan Avenue will result in a level of service F for southbound movements during the PM peak hour. In this regard, traffic signal control is recommended at this location (although not warranted based on traffic volume thresholds, such is recommended to ensure appropriate operations).

Impacts to Local Travel

- Alternatives 4A and 5A will result in more circuitous travel for both area resident and visitors given the proposed road system changes. Alternative 6A will have greater impacts yet given that both the Brennan Avenue and The Boulevard connections to White Oaks Road will be removed, thereby forcing all motorists to Brennan Avenue.
- Alternatives 4B and 5B will have the least impact on the operations of the road system (as compared to existing conditions) and will result in minimal changes to travel patterns through the neighbourhoods.

Impacts to Traffic Operations

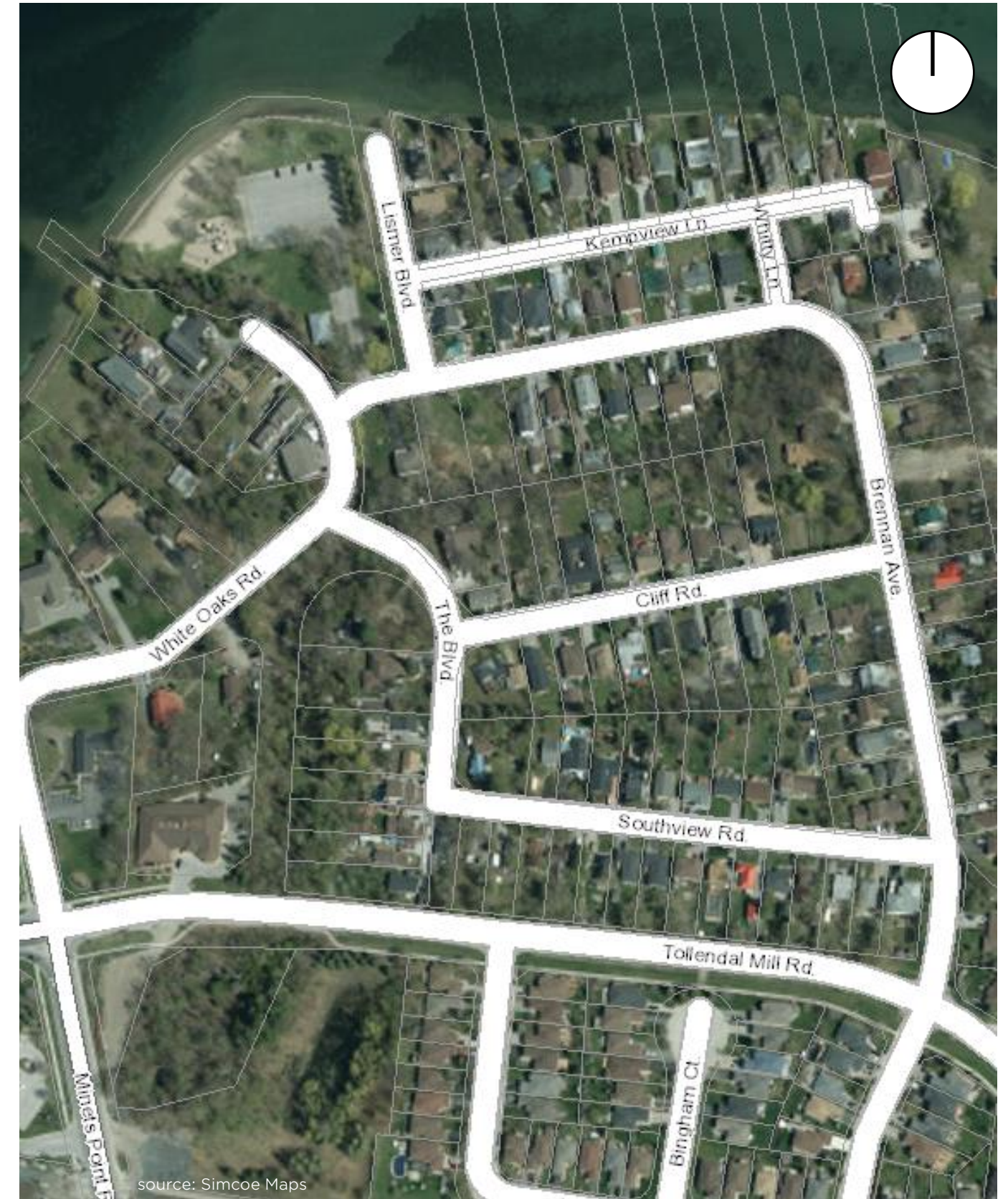
- Despite the resulting changes to the area road system and travel patterns, all alternatives can be accommodated from a traffic operations perspective (assuming the road system improvements as recommended in the *Transportation Master Plan* and signalization of the Brennan Avenue/Hurst Drive intersection are implemented).
- The above noted road system improvements are not warranted by the proposed alternatives, but rather are warranted by existing and/or future conditions (ie. would be warranted under Alternative 1 - Do Nothing).



Access Points

- Alternatives 1, 4A, 4B, 5A and 5B will maintain 2 points of access to the local road system and area development - 1 via Minet's Point Road and 1 via Brennan Avenue.
- Alternatives 6A and 6B will eliminate both the Brennan Avenue and The Boulevard connections to White Oaks Road, and thus the only means of access to the area will be via Brennan Avenue at Hurst Drive. This may be of concern from an emergency access perspective in context of the number of residential units in the area.
- Alternative 6C will result in a new connection to Hurst Drive, to ensure 2 points of access to the external road system. To minimize associated impacts to Hurst Drive, given that it is an arterial road, the new road connection is opposite Wallwins Way.





WHISKEY CREEK AT MINET'S POINT

Figure 1: Study Area Roads





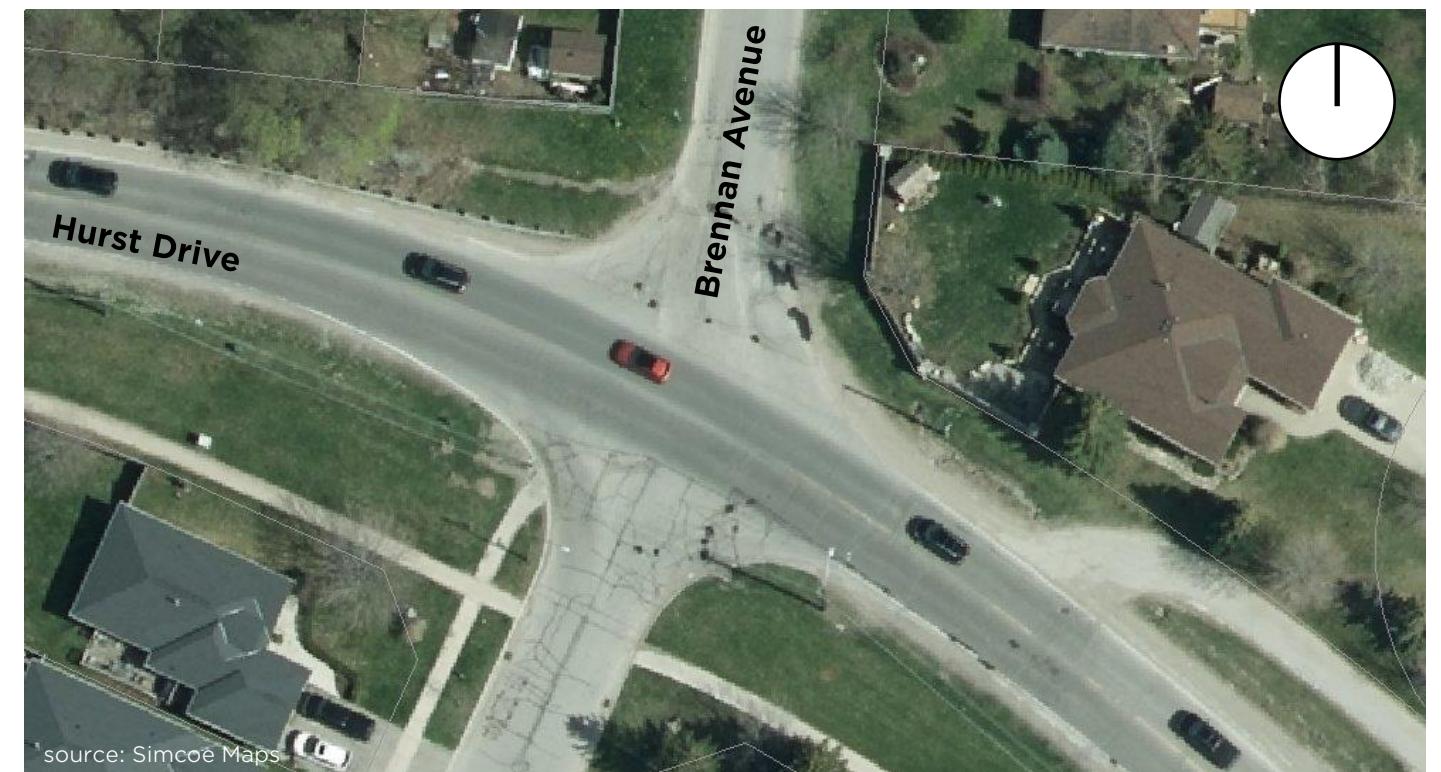
White Oaks Road & The Boulevard



White Oaks Road & Brennan Avenue



Lakeshore Drive/Hurst Drive & Minet's Point Road

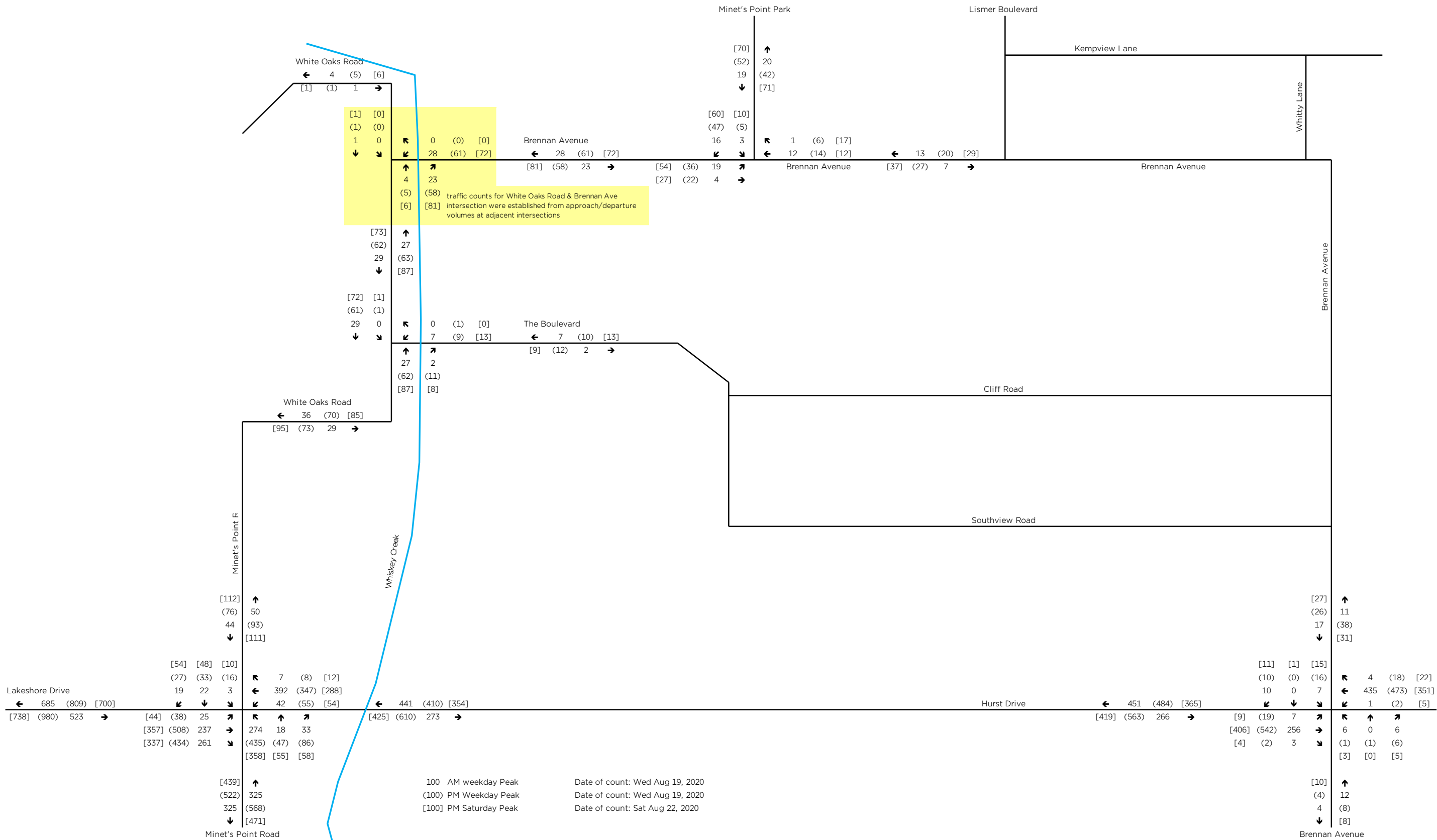


Hurst Drive & Brennan Avenue

WHISKEY CREEK AT MINET'S POINT

Figure 2: Study Area Intersections

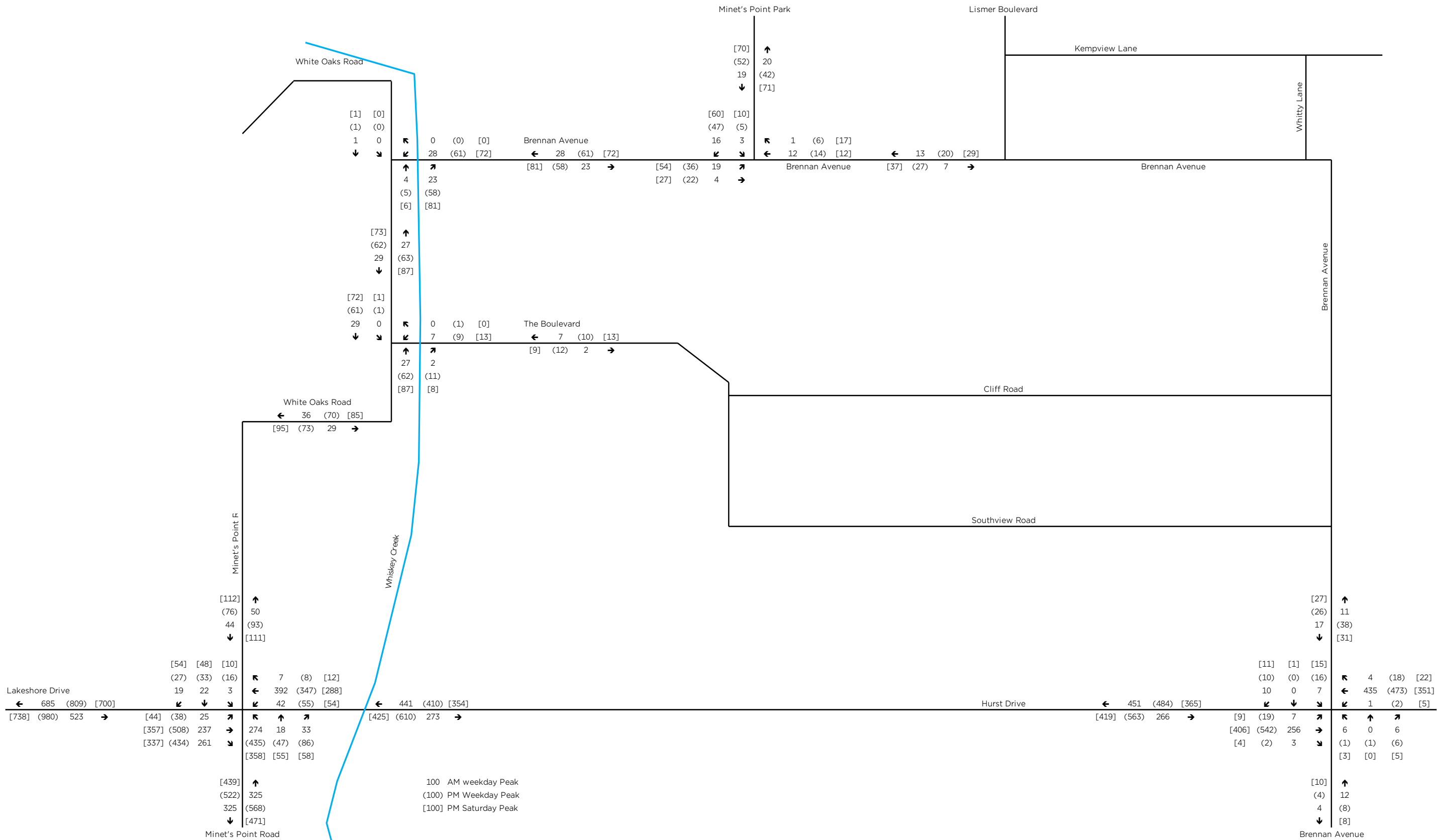




WHISKEY CREEK AT MINET'S POINT

Figure 3: 2020 Traffic Counts





WHISKEY CREEK AT MINET'S POINT

Figure 4: 2020 Traffic Volumes

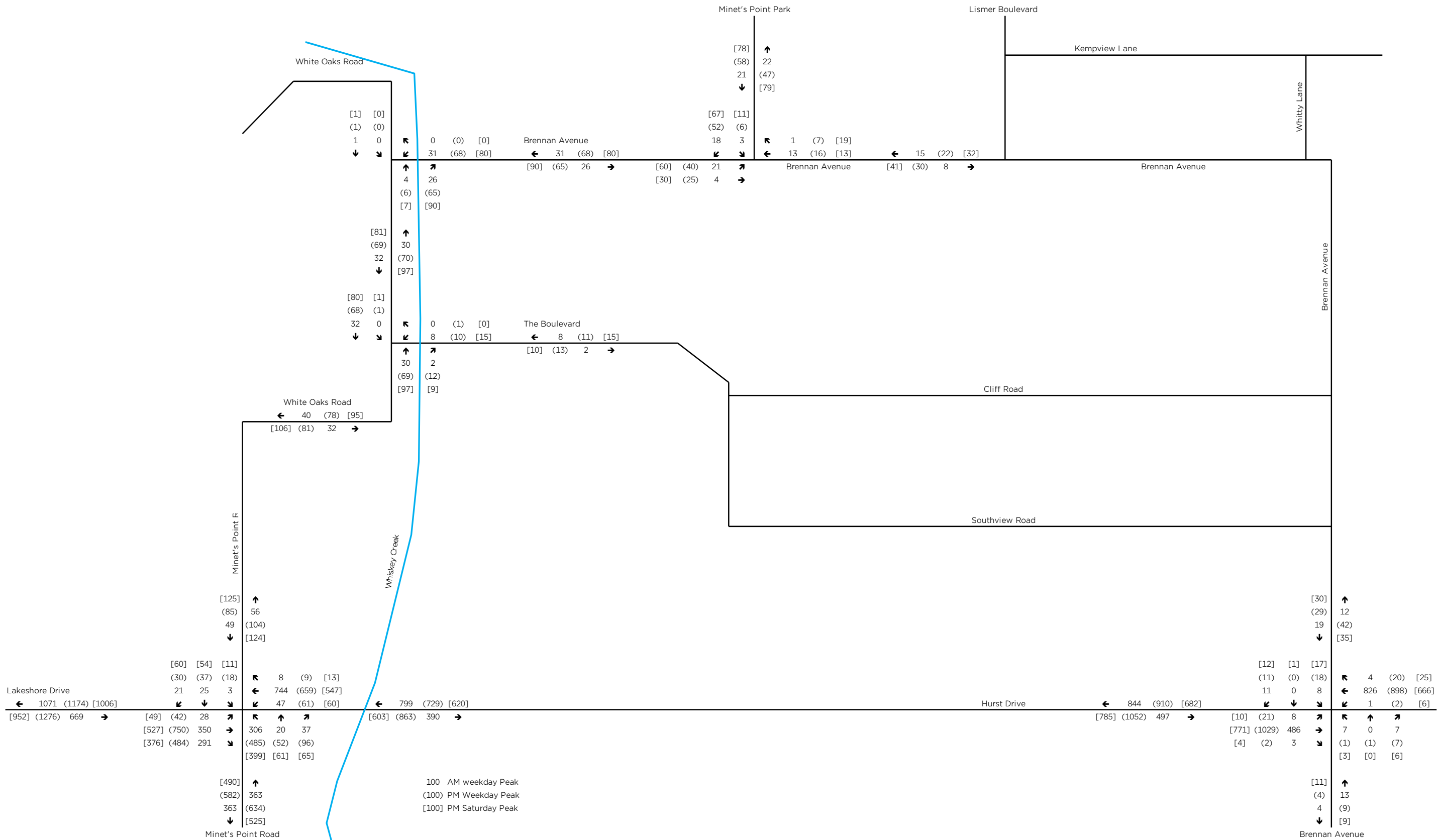




WHISKEY CREEK AT MINET'S POINT

Figure 5: Alternative 1 - Road Network

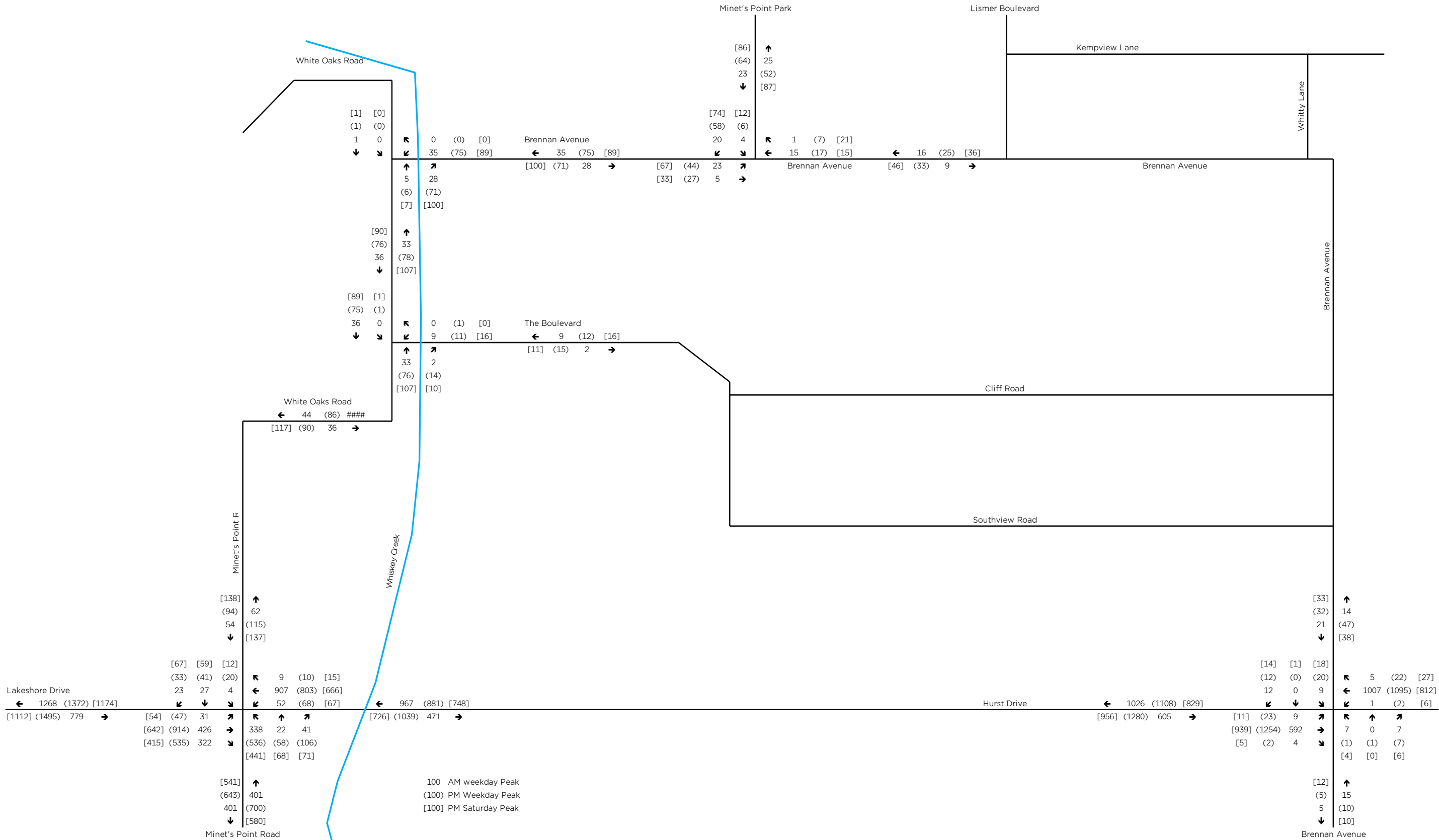




WHISKEY CREEK AT MINET'S POINT

Figure 6: Alternative 1 - 2031 Traffic Volumes

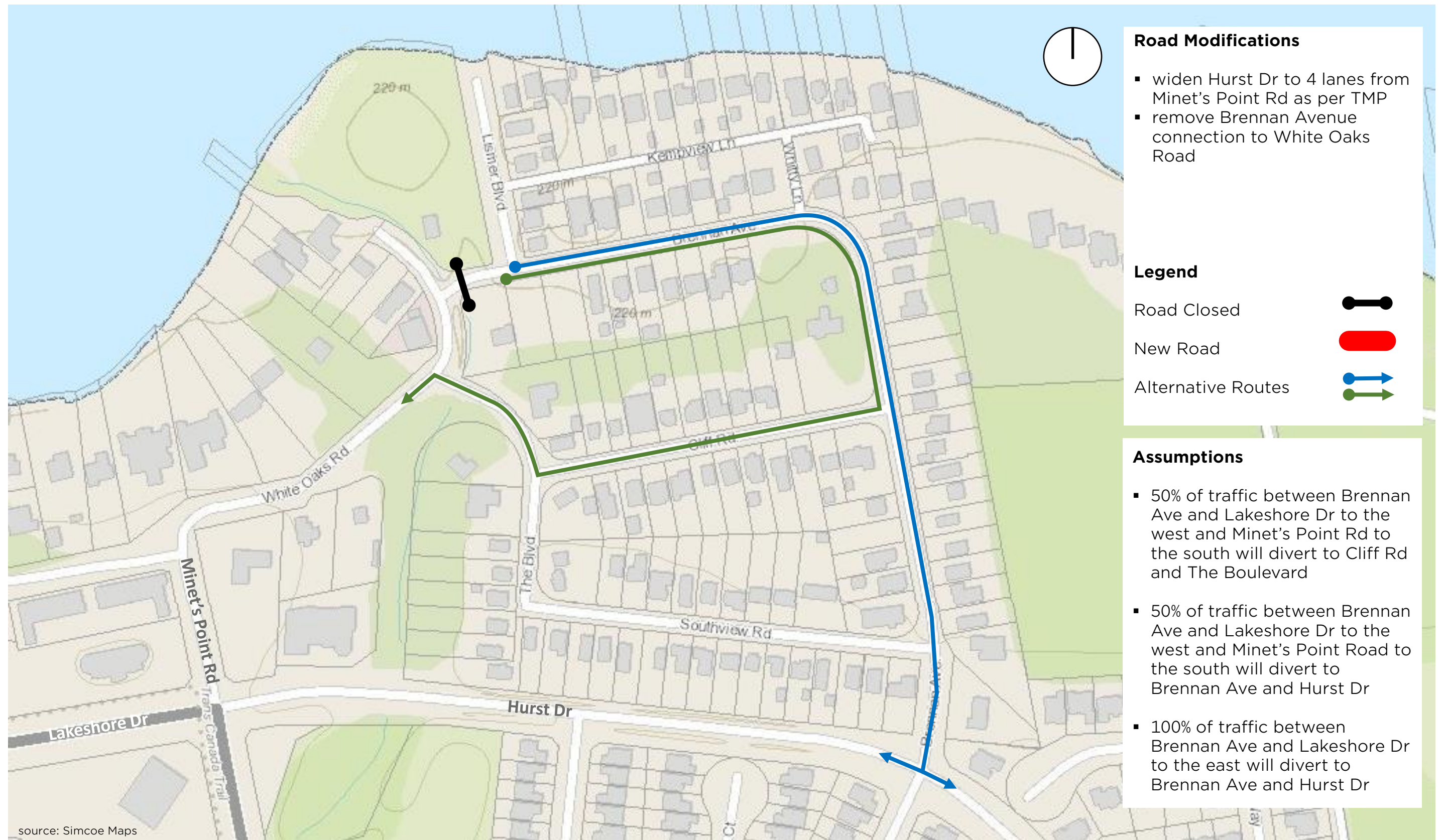




WHISKEY CREEK AT MINET'S POINT

Figure 7: Alternative 1 - 2041 Traffic Volumes

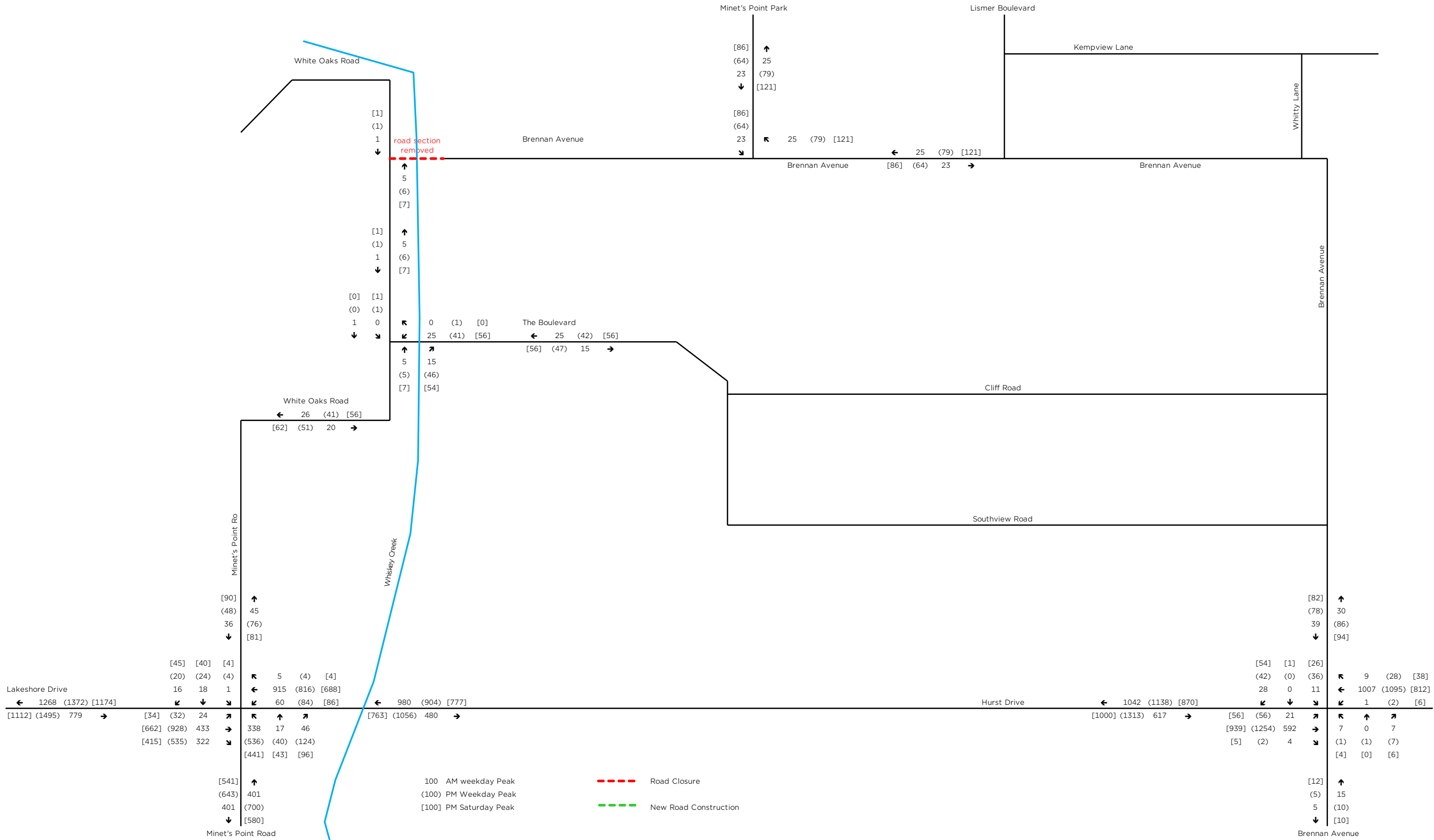




WHISKEY CREEK AT MINET'S POINT

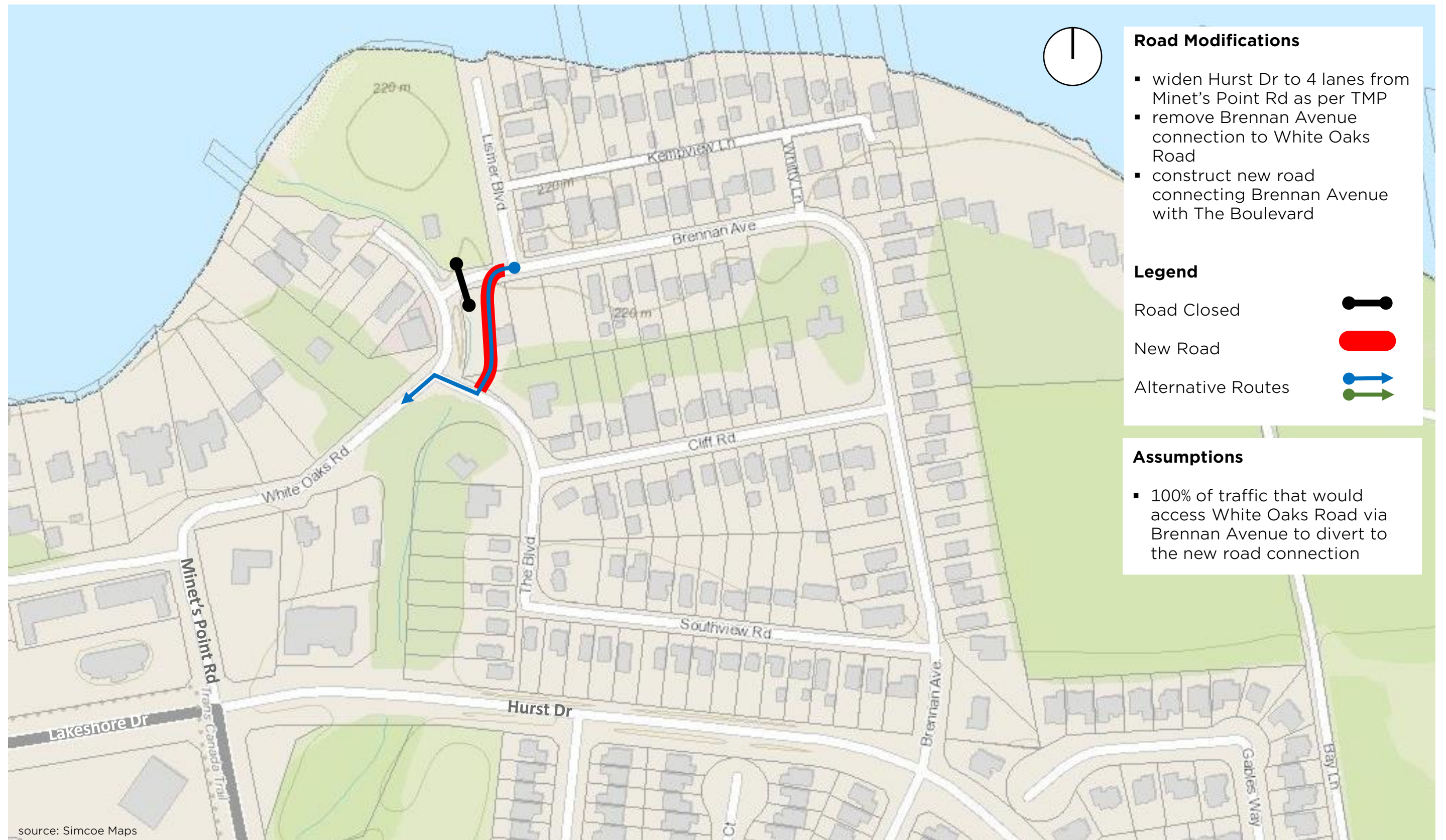
Figure 8: Alternative 4A - Road Network





WHISKEY CREEK AT MINET'S POINT
Figure 9: Alternative 4A - 2041 Traffic Volumes

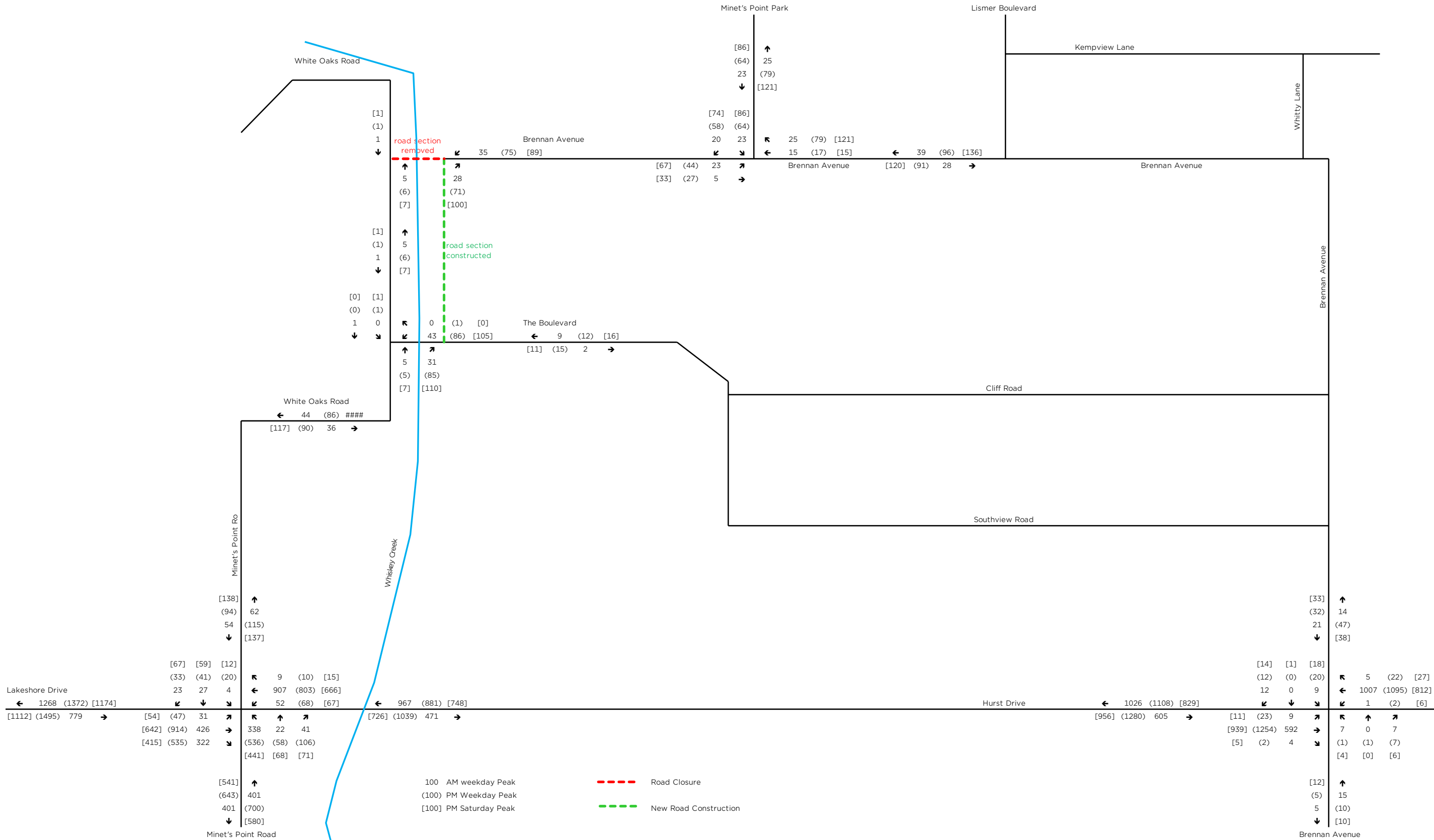




WHISKEY CREEK AT MINET'S POINT

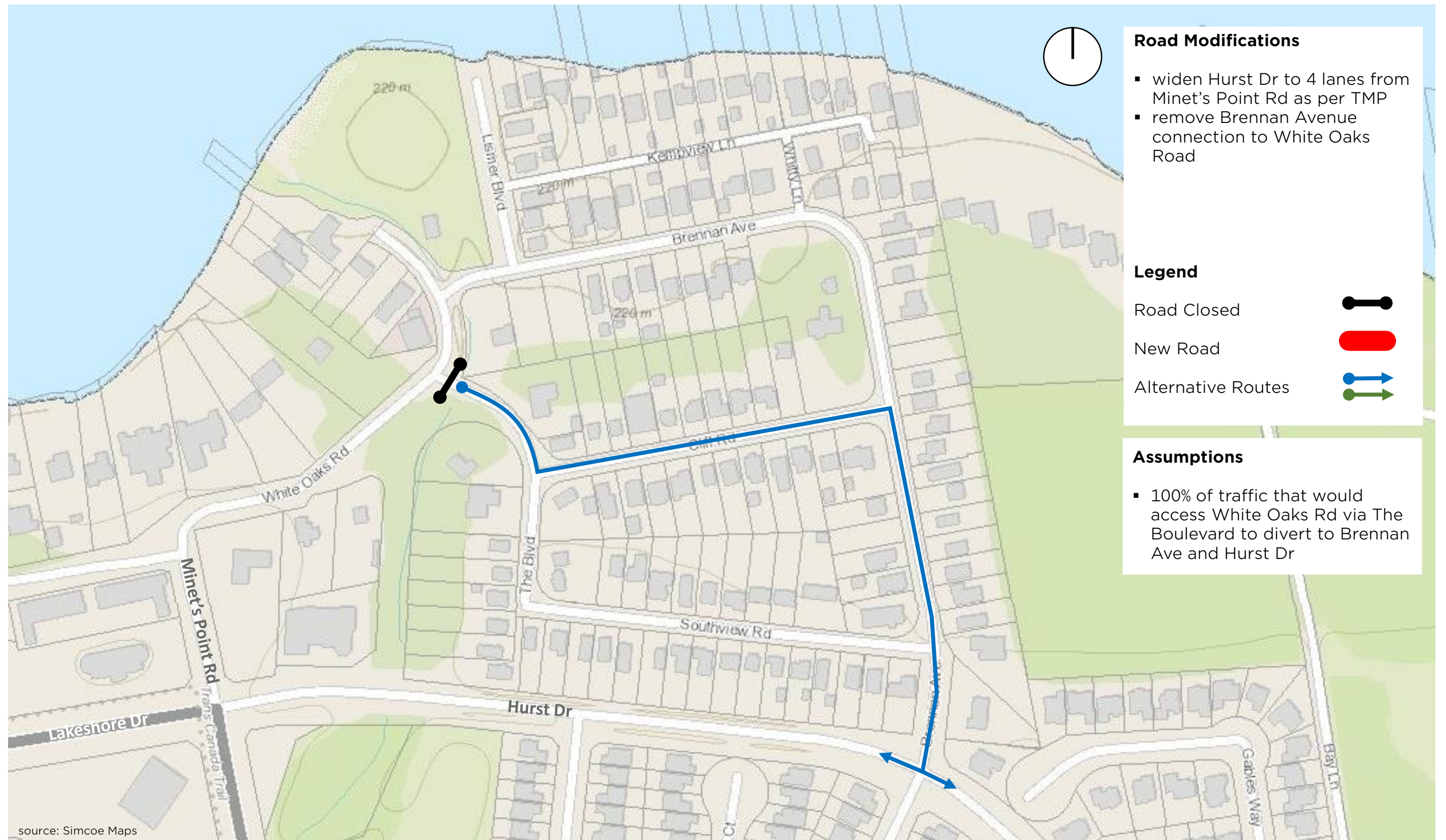
Figure 10: Alternative 4B - Road Network





WHISKEY CREEK AT MINET'S POINT
Figure 11: Alternative 4B - 2041 Traffic Volumes

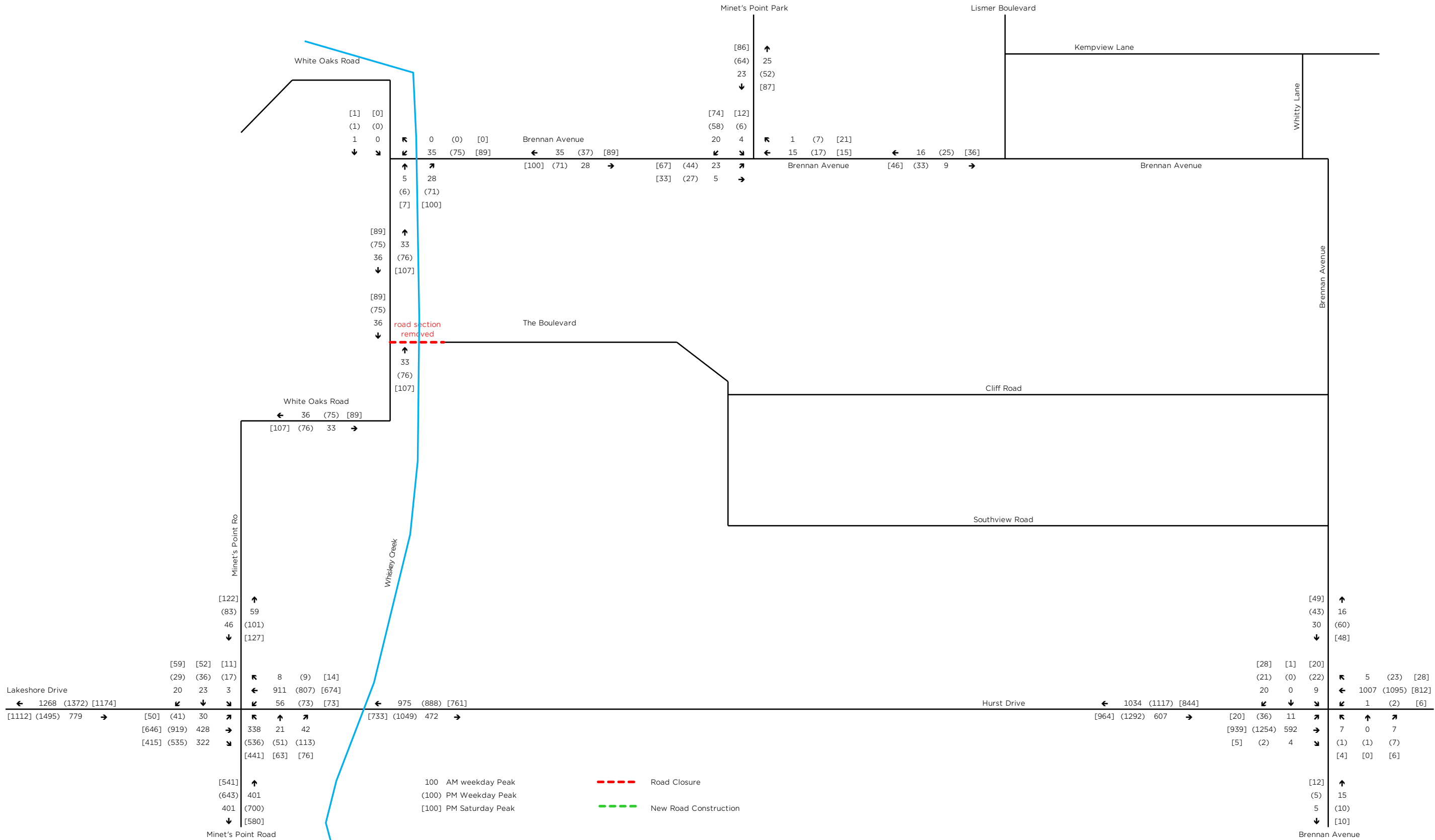




WHISKEY CREEK AT MINET'S POINT

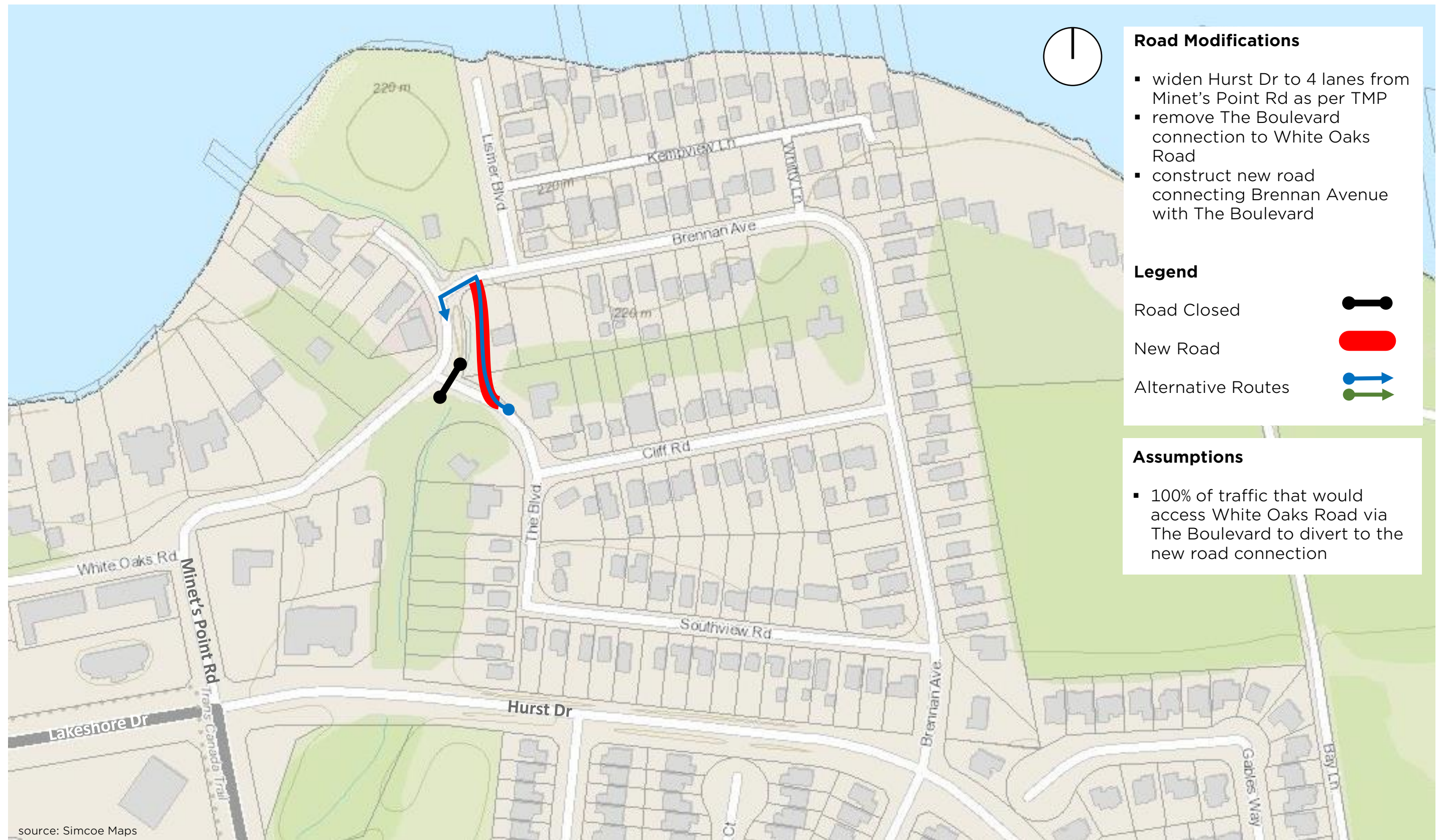
Figure 12: Alternative 5A - Road Network





WHISKEY CREEK AT MINET'S POINT
Figure 13: Alternative 5A - 2041 Traffic Volumes

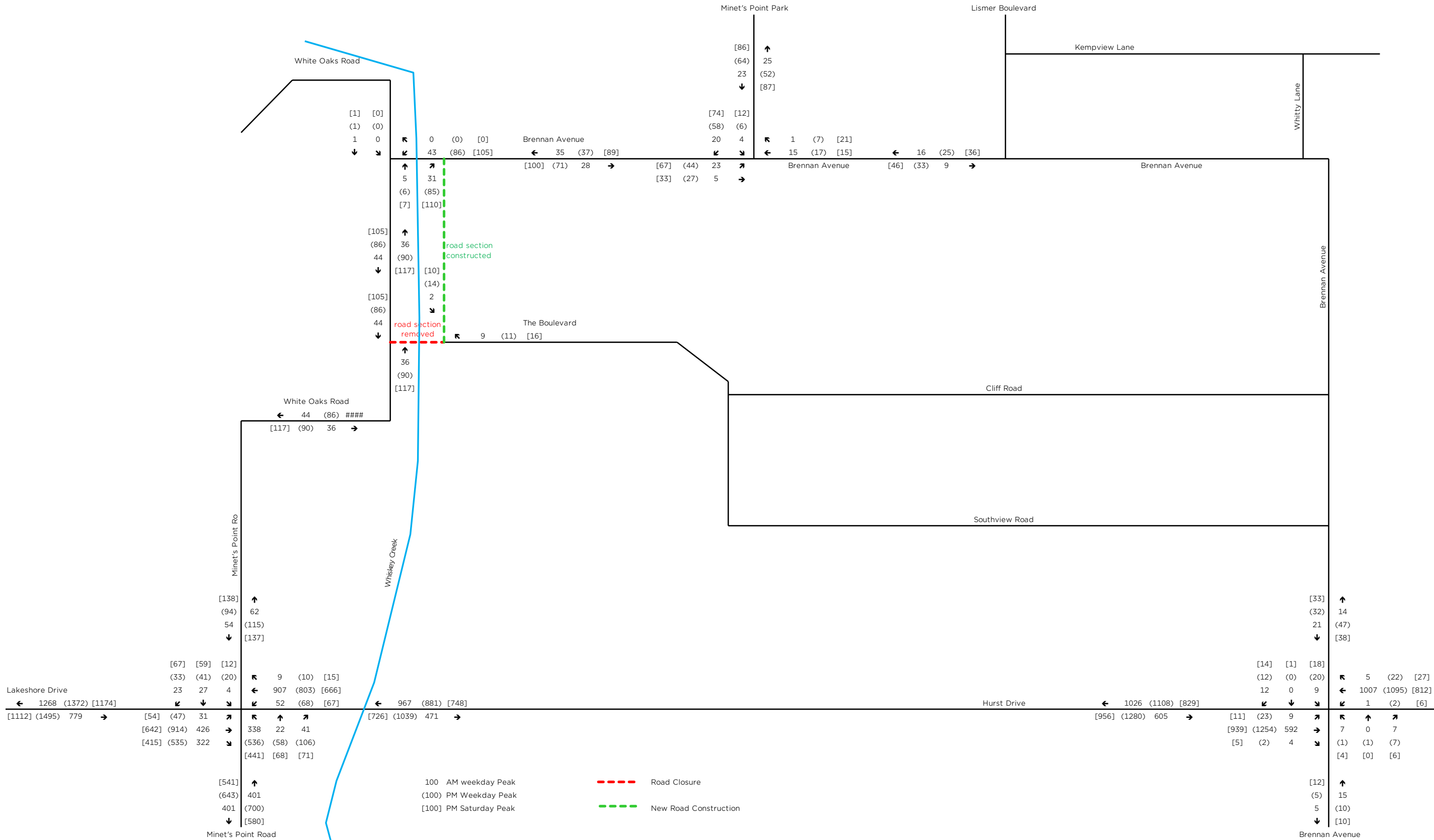




WHISKEY CREEK AT MINET'S POINT

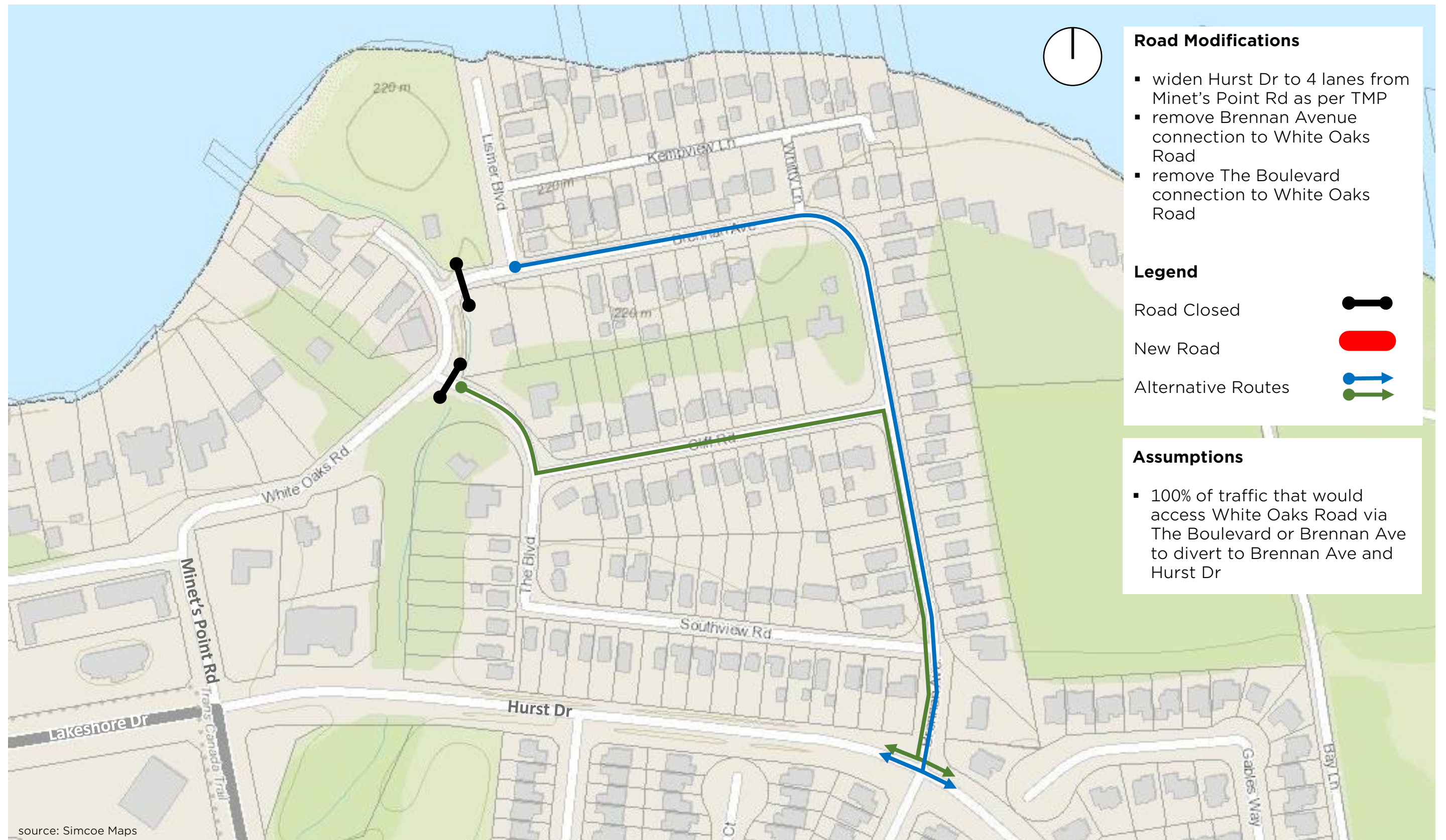
Figure 14: Alternative 5B - Road Network





WHISKEY CREEK AT MINET'S POINT
Figure 15: Alternative 5B - 2041 Traffic Volumes

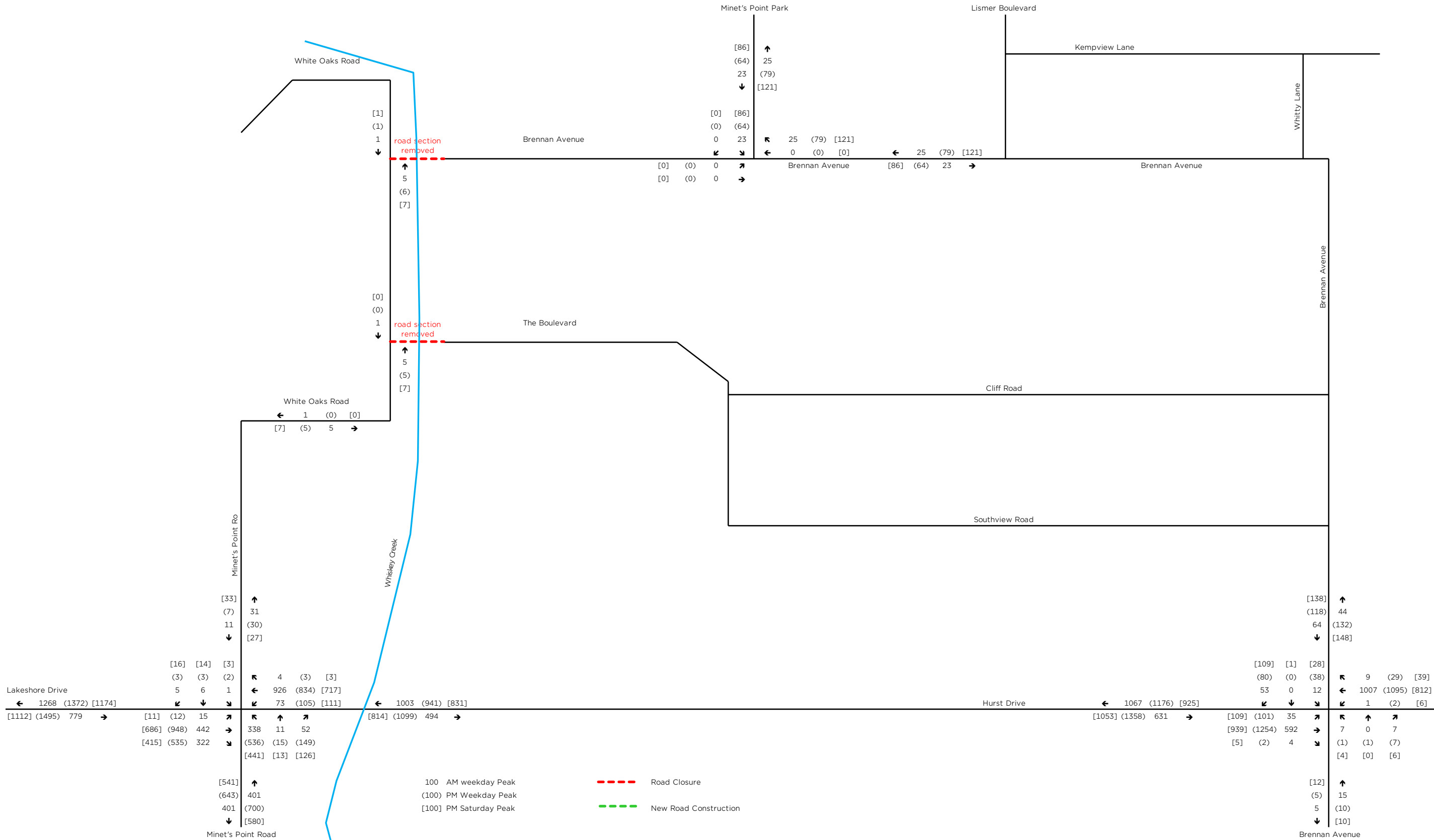




WHISKEY CREEK AT MINET'S POINT

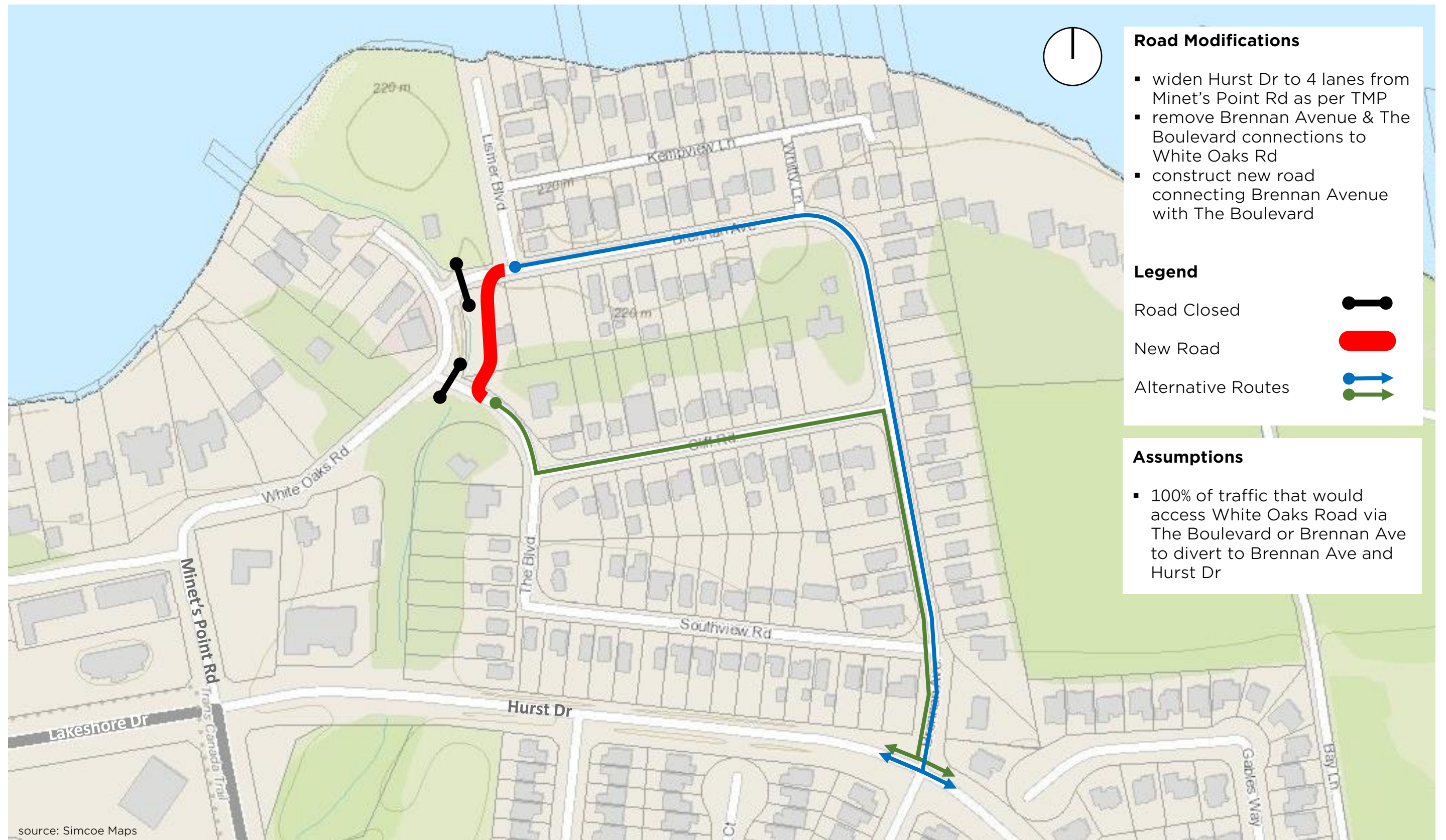
Figure 16: Alternative 6A - Road Network





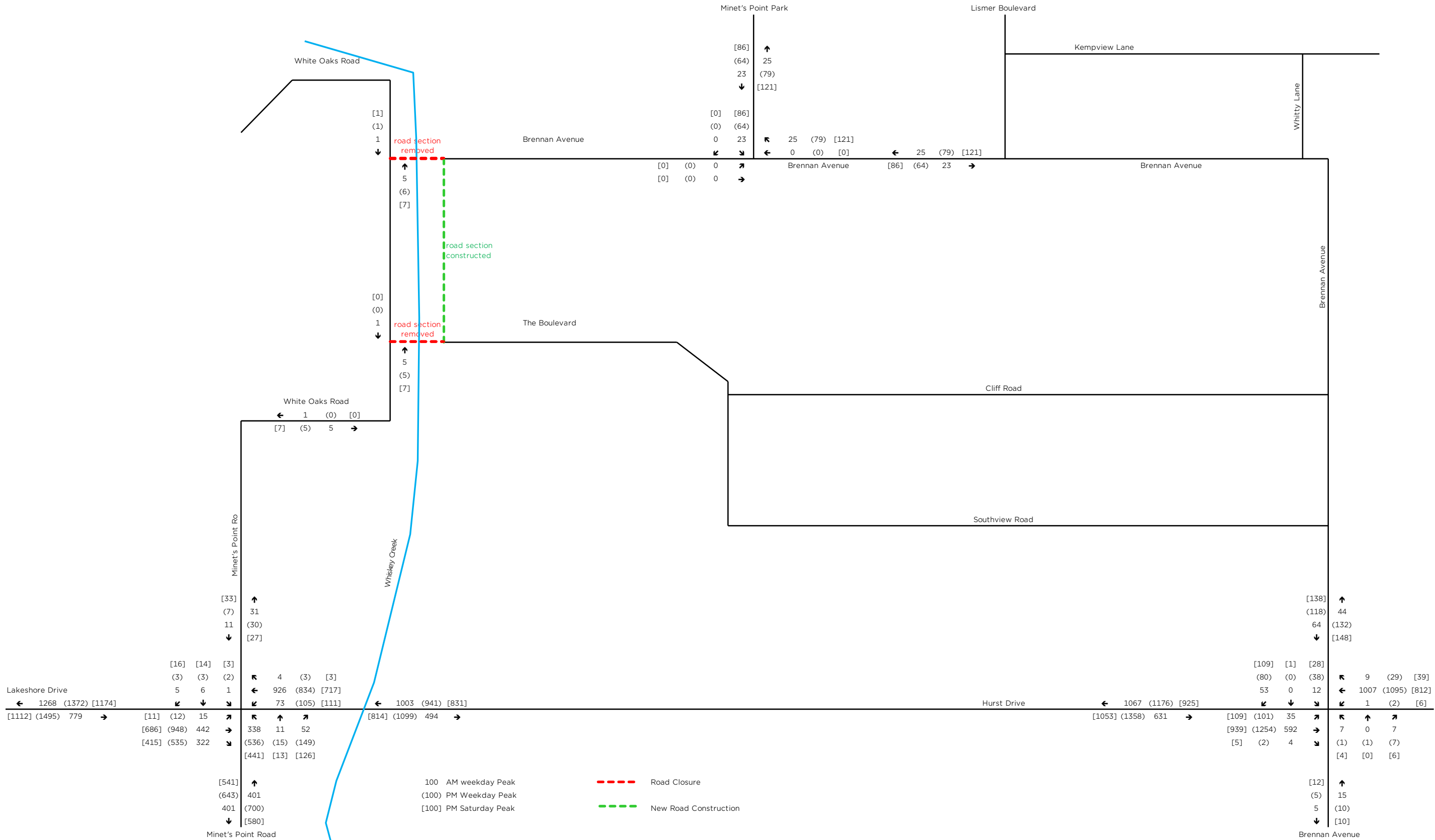
WHISKEY CREEK AT MINET'S POINT
Figure 17: Alternative 6A - 2041 Traffic Volumes





WHISKEY CREEK AT MINET'S POINT
 Figure 18: Alternative 6B Transportation Impacts

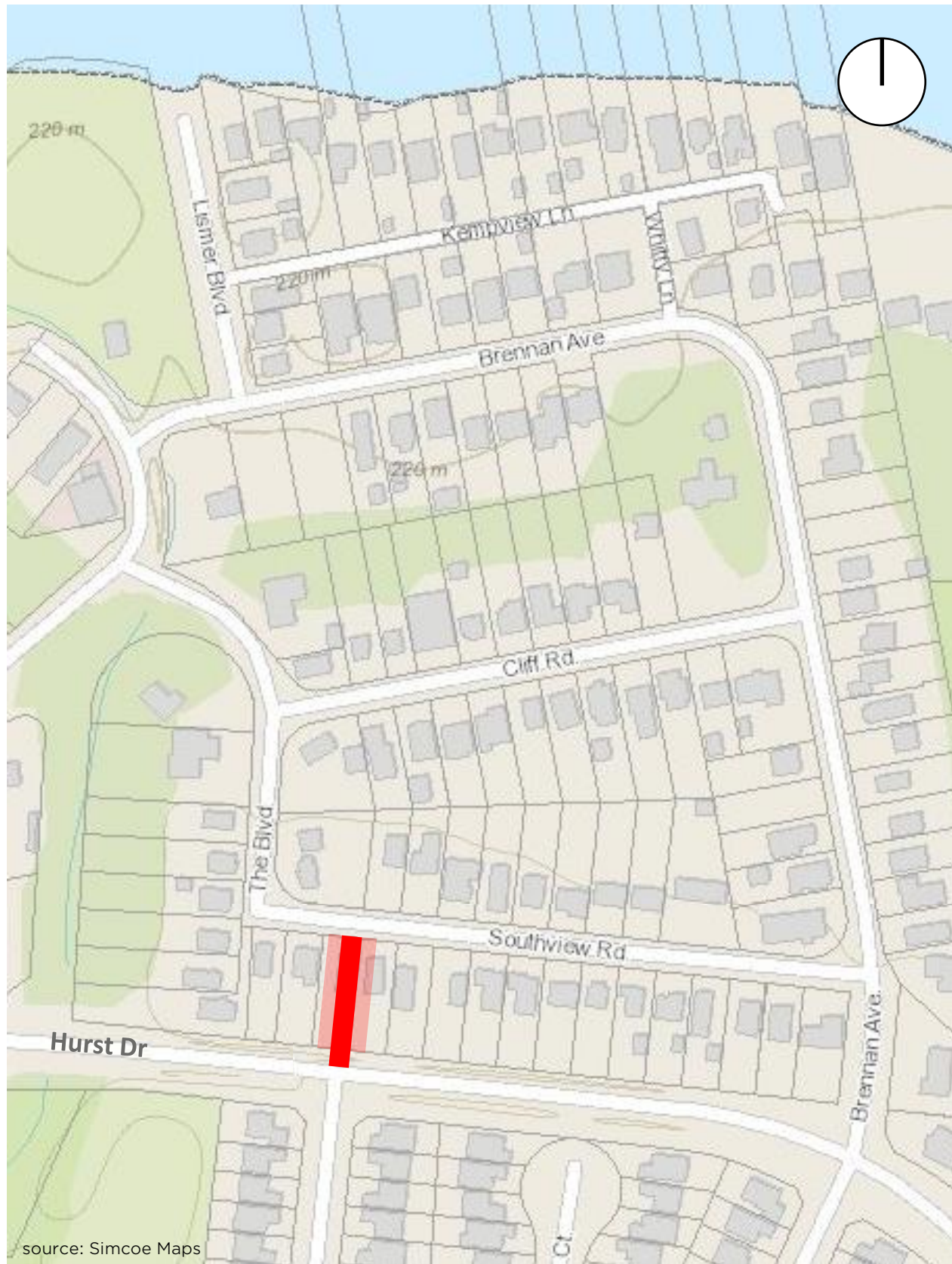




WHISKEY CREEK AT MINET'S POINT

Figure 19: Alternative 6B - 2041 Traffic Volumes





looking west on Hurst Drive at new road connection (between 205 & 207 Southview)

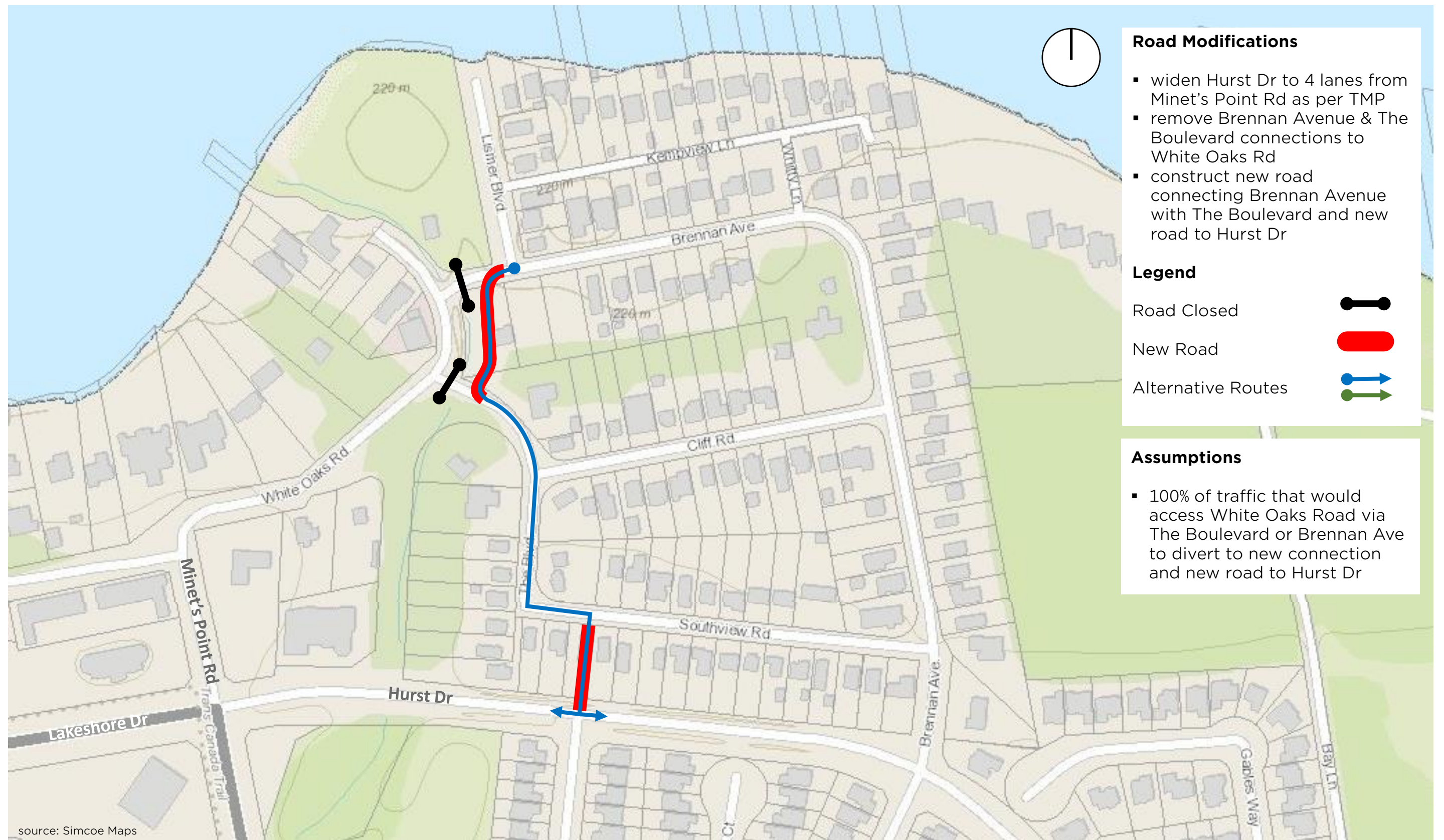


looking east on Hurst Drive at new road connection (between 205 & 207 Southview)

WHISKEY CREEK AT MINET'S POINT

Figure 20: Alternative 6C - New Road Connection to Hurst Drive

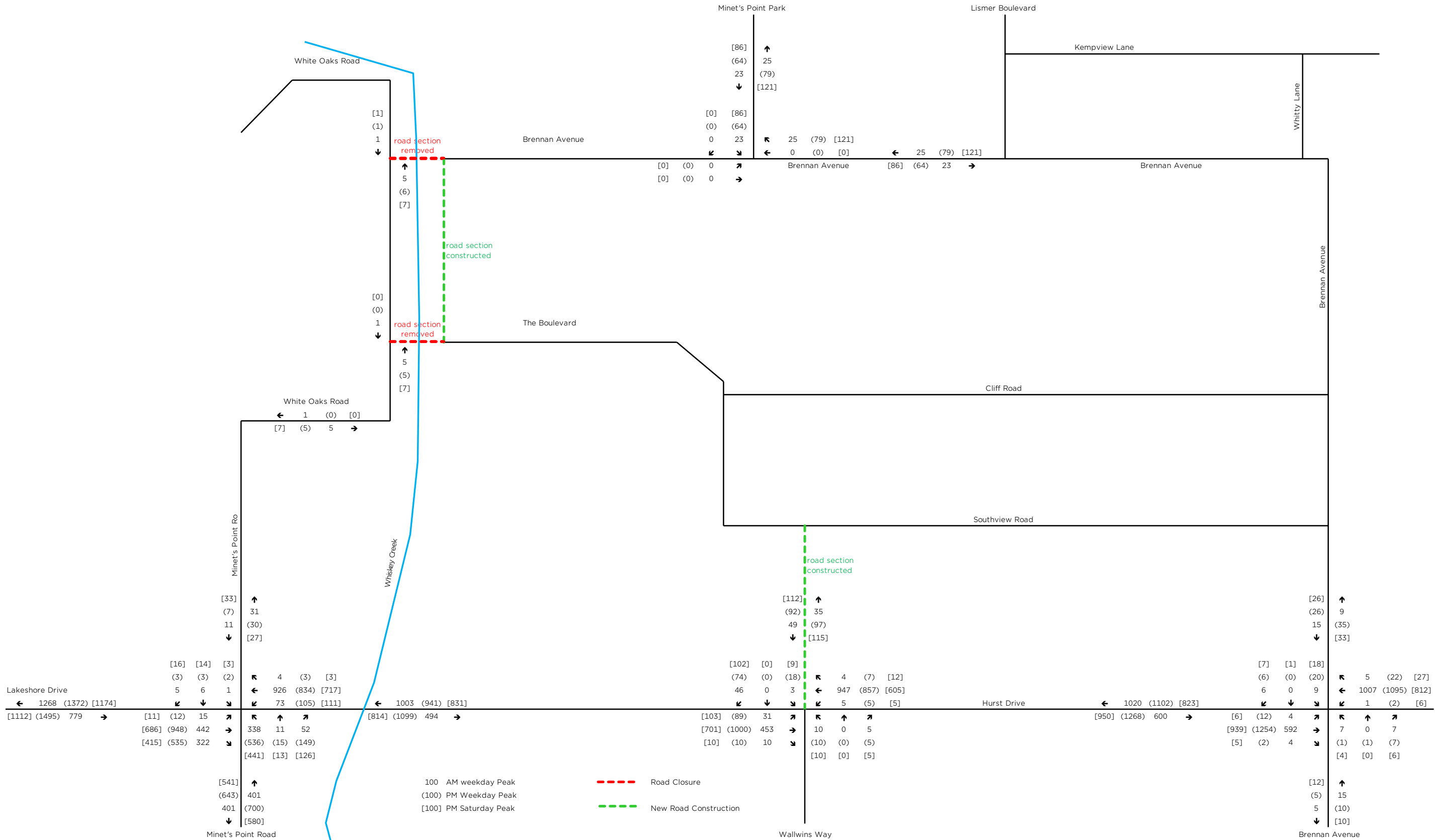




WHISKEY CREEK AT MINET'S POINT

Figure 21: Alternative 6C - Road Network





WHISKEY CREEK AT MINET'S POINT
Figure 22: Alternative 6C - 2041 Traffic Volumes





2020 Peak Hour Traffic Volumes

Minet's Point Park													
				[70]	↑								
				(52)	20								
				19	(42)								
				↓	[71]								
[60]	[10]												
(47)	(5)												
16	3	↖	1	(6)	[17]								
↙	↘	←	12	(14)	[12]								
[54]	(36)	19	↗	Brennan Avenue									
[27]	(22)	4	→										

WHISKEY CREEK AT MINET'S POINT

Figure 23: Minet's Point Park Access



Appendix A: Traffic Counts

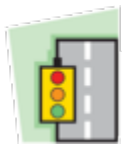


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Project #20-013 - City of Barrie

Intersection Count Report

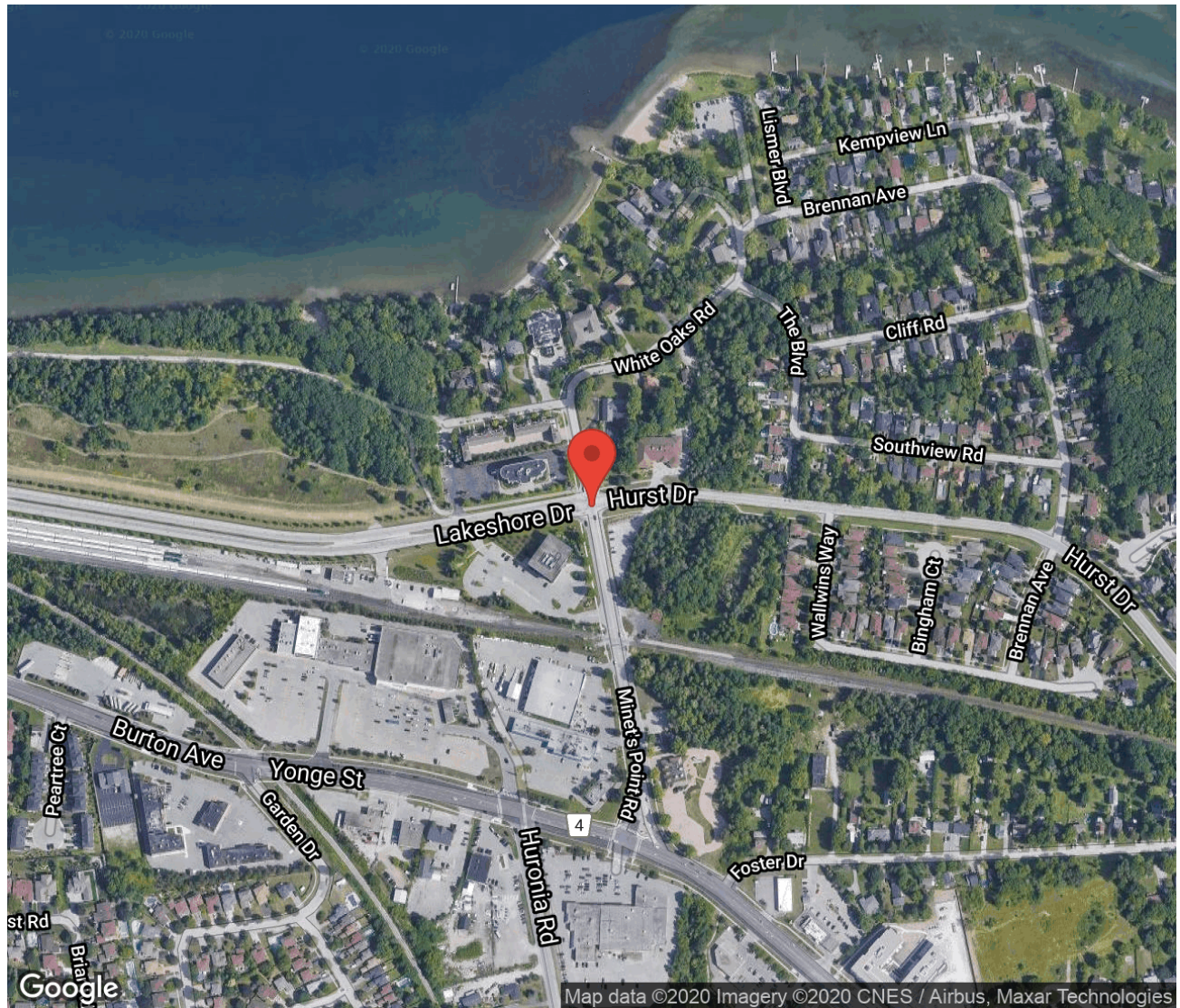
Intersection:	Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality:	Barrie
Count Date:	Aug 19, 2020
Site Code:	2001300119
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 11:00-14:00, 15:00-18:00
Weather:	Clear

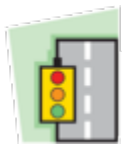


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Traffic Count Map

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020





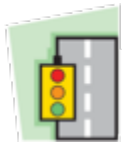
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Traffic Count Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

Minet's Point Rd - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	3	24	16	0	43	3	206	12	13	0	231	0
08:00 - 09:00	3	22	19	0	44	2	274	18	33	0	325	0
BREAK												
11:00 - 12:00	7	33	33	0	73	1	359	44	61	0	464	0
12:00 - 13:00	4	47	44	0	95	4	373	46	82	0	501	2
13:00 - 14:00	13	42	32	0	87	2	379	47	63	0	489	1
BREAK												
15:00 - 16:00	10	35	41	0	86	0	399	47	90	0	536	0
16:00 - 17:00	15	35	33	0	83	2	413	44	82	0	539	0
17:00 - 18:00	14	33	32	0	79	3	369	38	77	0	484	4
GRAND TOTAL	69	271	250	0	590	17	2772	296	501	0	3569	7



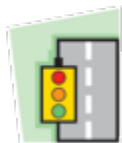
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Traffic Count Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

Hurst Dr - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	23	333	4	0	360	2	10	186	220	0	416	2
08:00 - 09:00	42	392	7	0	441	0	25	237	261	0	523	4
BREAK												
11:00 - 12:00	63	317	7	0	387	4	32	297	346	0	675	7
12:00 - 13:00	69	336	7	0	412	1	39	342	383	0	764	2
13:00 - 14:00	58	360	6	0	424	0	23	344	442	0	809	7
BREAK												
15:00 - 16:00	71	341	6	0	418	0	34	444	420	0	898	4
16:00 - 17:00	54	394	9	0	457	0	37	497	403	0	937	3
17:00 - 18:00	55	338	4	1	398	0	44	444	408	0	896	9
GRAND TOTAL	435	2811	50	1	3297	7	244	2791	2883	0	5918	38



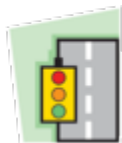
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Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

North Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	7	0	0	7	0	1	1	0	2	0	0	1	0	1	1
07:15	0	6	5	0	11	0	0	0	0	0	0	1	0	0	1	1
07:30	0	2	4	0	6	0	0	1	0	1	2	0	0	0	2	1
07:45	0	6	3	0	9	1	0	1	0	2	0	1	0	0	1	0
08:00	0	4	1	0	5	0	1	1	0	2	0	0	0	0	0	0
08:15	1	4	2	0	7	0	0	2	0	2	1	1	0	0	2	1
08:30	0	6	7	0	13	0	1	0	0	1	0	1	1	0	2	0
08:45	1	4	5	0	10	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	2	39	27	0	68	1	3	6	0	10	3	4	2	0	9	5



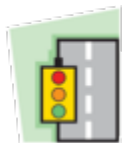
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Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

North Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	1	5	4	0	10	1	1	0	0	2	0	2	0	0	2	0
11:15	2	6	7	0	15	0	1	0	0	1	0	3	1	0	4	0
11:30	2	9	7	0	18	0	0	1	0	1	0	0	0	0	0	0
11:45	1	5	9	0	15	0	1	3	0	4	0	0	1	0	1	1
12:00	0	7	5	0	12	1	3	7	0	11	0	1	0	0	1	0
12:15	1	8	9	0	18	0	4	4	0	8	0	0	0	0	0	0
12:30	1	9	11	0	21	0	2	1	0	3	0	2	0	0	2	3
12:45	1	10	7	0	18	0	0	0	0	0	0	1	0	0	1	1
13:00	1	9	9	0	19	1	0	1	0	2	0	2	0	0	2	0
13:15	4	11	8	0	23	1	0	2	0	3	0	0	0	0	0	2
13:30	2	5	7	0	14	0	0	1	0	1	1	0	0	0	1	0
13:45	2	11	3	0	16	1	2	1	0	4	0	2	0	0	2	0
SUBTOTAL	18	95	86	0	199	5	14	21	0	40	1	13	2	0	16	7



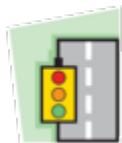
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Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

North Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	0	12	5	0	17	1	1	3	0	5	0	0	1	0	1	0
15:15	0	4	6	0	10	0	1	1	0	2	1	2	2	0	5	0
15:30	2	4	9	0	15	0	2	3	0	5	0	0	2	0	2	0
15:45	4	5	7	0	16	0	0	2	0	2	2	4	0	0	6	0
16:00	3	8	9	0	20	1	0	2	0	3	0	2	0	0	2	1
16:15	5	9	7	0	21	0	0	1	0	1	0	0	0	0	0	1
16:30	1	5	9	0	15	0	0	1	0	1	2	1	0	0	3	0
16:45	3	7	3	0	13	0	1	1	0	2	0	2	0	0	2	0
17:00	3	2	3	0	8	0	1	0	0	1	4	0	0	0	4	1
17:15	2	10	10	0	22	0	1	0	0	1	1	3	0	0	4	0
17:30	0	6	8	0	14	0	0	0	0	0	0	0	1	0	1	0
17:45	4	7	8	0	19	0	1	2	0	3	0	2	0	0	2	2
SUBTOTAL	27	79	84	0	190	2	8	16	0	26	10	16	6	0	32	5
GRAND TOTAL	47	213	197	0	457	8	25	43	0	76	14	33	10	0	57	17



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

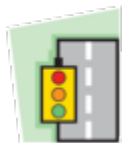
Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd

Municipality: Barrie

Count Date: Aug 19, 2020

South Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	39	2	2	0	43	5	0	1	0	6	1	0	0	0	1	0
07:15	38	1	4	0	43	17	0	0	0	17	0	0	0	0	0	0
07:30	43	6	1	0	50	8	0	0	0	8	1	0	0	0	1	0
07:45	47	1	3	0	51	7	2	2	0	11	0	0	0	0	0	0
08:00	49	3	1	0	53	7	1	4	0	12	1	0	0	0	1	0
08:15	57	3	5	0	65	10	0	0	0	10	1	0	0	0	1	0
08:30	67	5	8	0	80	9	1	2	0	12	0	0	0	0	0	0
08:45	62	4	10	0	76	11	1	3	0	15	0	0	0	0	0	0
SUBTOTAL	402	25	34	0	461	74	5	12	0	91	4	0	0	0	4	0



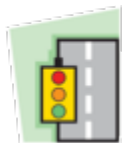
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

South Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	90	8	11	0	109	16	0	0	0	16	1	1	0	0	2	0
11:15	74	7	9	0	90	18	3	0	0	21	0	2	0	0	2	0
11:30	82	6	10	0	98	12	0	2	0	14	0	0	0	0	0	0
11:45	55	14	23	0	92	11	2	6	0	19	0	1	0	0	1	0
12:00	82	10	15	0	107	10	4	6	0	20	0	0	0	0	0	0
12:15	71	10	15	0	96	11	1	4	0	16	0	0	0	0	0	0
12:30	92	11	16	0	119	11	1	6	0	18	0	0	0	0	0	2
12:45	90	9	18	0	117	6	0	2	0	8	0	0	0	0	0	0
13:00	77	8	17	0	102	12	1	3	0	16	0	0	0	0	0	0
13:15	95	8	16	0	119	17	3	1	0	21	0	2	1	0	3	1
13:30	79	8	10	0	97	11	2	2	0	15	1	0	0	0	1	0
13:45	78	15	12	0	105	8	0	1	0	9	1	0	0	0	1	0
SUBTOTAL	965	114	172	0	1251	143	17	33	0	193	3	6	1	0	10	3



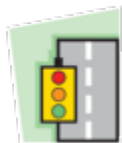
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

South Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	68	12	24	0	104	9	3	3	0	15	3	0	0	0	3	0
15:15	86	15	18	0	119	15	1	5	0	21	0	0	0	0	0	0
15:30	91	7	23	0	121	19	1	2	0	22	2	0	1	0	3	0
15:45	84	8	14	0	106	21	0	0	0	21	1	0	0	0	1	0
16:00	89	12	18	0	119	12	0	1	0	13	0	1	0	0	1	0
16:15	82	10	17	0	109	13	0	3	0	16	0	0	0	0	0	0
16:30	94	8	20	0	122	14	1	2	0	17	6	1	0	0	7	0
16:45	86	11	18	0	115	15	0	3	0	18	2	0	0	0	2	0
17:00	99	10	24	0	133	17	1	0	0	18	0	1	0	0	1	0
17:15	81	12	18	0	111	20	1	1	0	22	1	1	0	0	2	1
17:30	66	4	16	0	86	10	1	1	0	12	0	1	0	0	1	1
17:45	64	5	13	0	82	9	1	4	0	14	2	0	0	0	2	2
SUBTOTAL	990	114	223	0	1327	174	10	25	0	209	17	5	1	0	23	4
GRAND TOTAL	2357	253	429	0	3039	391	32	70	0	493	24	11	2	0	37	7



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

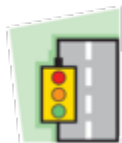
Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd

Municipality: Barrie

Count Date: Aug 19, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	4	41	0	0	45	0	16	0	0	16	0	1	0	0	1	1
07:15	4	64	0	0	68	2	11	0	0	13	0	2	1	0	3	1
07:30	6	77	0	0	83	3	15	0	0	18	0	2	0	0	2	0
07:45	4	93	2	0	99	0	11	0	0	11	0	0	1	0	1	0
08:00	6	79	3	0	88	1	9	0	0	10	0	1	1	0	2	0
08:15	7	79	1	0	87	0	14	1	0	15	0	3	0	0	3	0
08:30	11	92	1	0	104	3	9	0	0	12	1	1	0	0	2	0
08:45	10	85	0	0	95	2	18	0	0	20	1	2	0	0	3	0
SUBTOTAL	52	610	7	0	669	11	103	1	0	115	2	12	3	0	17	2



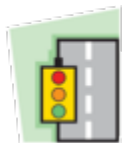
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	11	59	2	0	72	3	12	0	0	15	0	1	0	0	1	0
11:15	14	72	0	0	86	4	14	0	0	18	0	1	0	0	1	2
11:30	9	74	1	0	84	5	10	1	0	16	0	3	0	0	3	1
11:45	13	65	2	0	80	4	5	0	0	9	0	1	1	0	2	1
12:00	13	75	1	0	89	5	9	1	0	15	0	1	0	0	1	0
12:15	12	53	2	0	67	1	14	0	0	15	0	4	0	0	4	0
12:30	14	84	1	0	99	4	10	0	0	14	0	0	0	0	0	0
12:45	19	77	1	0	97	1	9	1	0	11	0	0	0	0	0	1
13:00	12	88	0	0	100	3	9	1	0	13	0	0	0	0	0	0
13:15	9	65	1	0	75	1	10	0	0	11	0	1	0	0	1	0
13:30	13	79	2	0	94	4	17	1	0	22	0	3	0	0	3	0
13:45	13	79	1	0	93	3	8	0	0	11	0	1	0	0	1	0
SUBTOTAL	152	870	14	0	1036	38	127	5	0	170	0	16	1	0	17	5



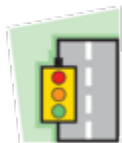
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	22	65	1	0	88	4	13	0	0	17	0	0	0	0	0	0
15:15	8	68	1	0	77	1	11	0	0	12	0	4	0	0	4	0
15:30	13	76	2	0	91	3	9	1	0	13	0	0	0	0	0	0
15:45	19	77	1	0	97	1	18	0	0	19	0	0	0	0	0	0
16:00	10	83	1	0	94	3	18	0	0	21	0	0	0	0	0	0
16:15	12	84	1	0	97	2	15	0	0	17	0	0	1	0	1	0
16:30	10	99	2	0	111	5	17	1	0	23	0	1	0	0	1	0
16:45	11	62	0	0	73	1	13	2	0	16	0	2	1	0	3	0
17:00	11	66	2	0	79	2	14	0	0	16	0	0	0	1	1	0
17:15	11	58	0	0	69	3	13	0	0	16	1	2	0	0	3	0
17:30	12	85	1	0	98	3	21	0	0	24	0	0	0	0	0	0
17:45	8	66	1	0	75	4	12	0	0	16	0	1	0	0	1	0
SUBTOTAL	147	889	13	0	1049	32	174	4	0	210	1	10	2	1	14	0
GRAND TOTAL	351	2369	34	0	2754	81	404	10	0	495	3	38	6	1	48	7



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

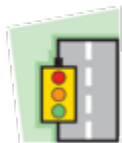
Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd

Municipality: Barrie

Count Date: Aug 19, 2020

West Approach - Lakeshore Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	21	42	0	63	0	8	8	0	16	2	0	0	0	2	0
07:15	0	27	34	0	61	4	13	13	0	30	0	1	0	0	1	0
07:30	4	39	52	0	95	0	17	11	0	28	0	0	0	0	0	0
07:45	0	46	48	0	94	0	14	11	0	25	0	0	1	0	1	2
08:00	4	26	36	0	66	0	14	18	0	32	0	0	0	0	0	2
08:15	4	45	51	0	100	2	13	10	0	25	0	0	1	0	1	2
08:30	3	41	50	0	94	3	15	11	0	29	0	0	1	0	1	0
08:45	9	54	69	0	132	0	28	14	0	42	0	1	0	0	1	0
SUBTOTAL	24	299	382	0	705	9	122	96	0	227	2	2	3	0	7	6



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 19, 2020

West Approach - Lakeshore Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	7	72	75	0	154	2	8	11	0	21	1	0	0	0	1	2
11:15	7	60	75	0	142	0	8	14	0	22	0	2	2	0	4	1
11:30	6	53	67	0	126	1	7	11	0	19	0	0	1	0	1	3
11:45	7	74	73	0	154	1	13	17	0	31	0	0	0	0	0	1
12:00	10	81	90	0	181	2	14	14	0	30	0	1	0	0	1	0
12:15	9	55	76	0	140	0	11	17	0	28	0	0	2	0	2	0
12:30	6	65	82	0	153	2	10	15	0	27	0	1	1	0	2	0
12:45	7	84	74	0	165	3	19	12	0	34	0	1	0	0	1	2
13:00	2	76	111	0	189	2	10	9	0	21	0	2	0	0	2	3
13:15	6	66	84	0	156	0	12	15	0	27	0	0	0	0	0	1
13:30	5	79	93	0	177	1	16	22	0	39	0	0	0	0	0	3
13:45	7	67	95	0	169	0	13	13	0	26	0	3	0	0	3	0
SUBTOTAL	79	832	995	0	1906	14	141	170	0	325	1	10	6	0	17	16

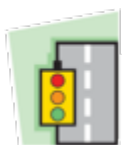


Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
 Municipality: Barrie
 Count Date: Aug 19, 2020

West Approach - Lakeshore Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	4	85	92	0	181	0	11	16	0	27	0	0	0	0	0	3
15:15	5	94	84	0	183	0	11	23	0	34	0	0	0	0	0	1
15:30	13	122	88	0	223	2	16	21	0	39	0	0	0	0	0	0
15:45	5	84	83	0	172	1	18	13	0	32	4	3	0	0	7	0
16:00	6	108	89	0	203	1	20	9	0	30	0	0	0	0	0	1
16:15	7	114	85	0	206	5	12	14	0	31	0	2	0	0	2	0
16:30	6	103	88	0	197	1	15	13	0	29	0	0	1	0	1	0
16:45	9	105	95	0	209	2	17	9	0	28	0	1	0	0	1	2
17:00	11	108	93	0	212	0	21	19	0	40	0	2	0	0	2	0
17:15	9	108	102	0	219	0	24	14	0	38	0	4	0	0	4	3
17:30	9	71	89	0	169	1	6	11	0	18	0	3	1	0	4	3
17:45	10	77	64	0	151	4	18	15	0	37	0	2	0	0	2	3
SUBTOTAL	94	1179	1052	0	2325	17	189	177	0	383	4	17	2	0	23	16
GRAND TOTAL	197	2310	2429	0	4936	40	452	443	0	935	7	29	11	0	47	38



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

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

One Hour Peak

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

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd

Site ID: 2001300119

Count Date: Aug 19, 2020

Weather conditions:

** Signalized Intersection **

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	35	40	75
	5	9	14
	4	1	5
Totals	44	50	94

Minet's Point Rd

	1	2	1	0
	3	2	0	0
	15	18	2	0
Totals	19	22	3	0

East Approach

	Out	In	Total
	374	192	566
	57	79	136
	10	2	12
Totals	441	273	714

Lakeshore Dr

				Totals
	0	0	0	0
	0	5	20	25
	1	70	166	237
	2	53	206	261

Peds: 2

Peds: 4



Peds: 0

Peds: 0

Hurst Dr

Totals			
	0	0	0
	7	5	1
	392	335	50
	42	34	6

West Approach

	Out	In	Total
	392	585	977
	128	90	218
	3	10	13
Totals	523	685	1208

Totals				
	274	18	33	0
	235	15	24	0
	37	3	9	0
	2	0	0	0

Minet's Point Rd

South Approach

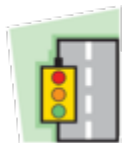
	Out	In	Total
	274	258	532
	49	61	110
	2	6	8
Totals	325	325	650

- Cars

- Trucks

- Bicycles

Comments



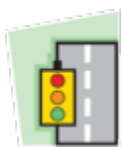
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Count Date: Aug 19, 2020
Period: 07:00 - 09:00

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

Start Time	North Approach Minet's Point Rd						South Approach Minet's Point Rd						East Approach Hurst Dr						West Approach Lakeshore Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0	5	2	0	0	7	57	4	5	0	0	66	7	89	4	0	0	100	4	40	54	0	2	98	271
08:15	2	5	4	0	1	11	68	3	5	0	0	76	7	96	2	0	0	105	6	58	62	0	2	126	318
08:30	0	8	8	0	0	16	76	6	10	0	0	92	15	102	1	0	0	118	6	56	62	0	0	124	350
08:45	1	4	5	0	1	10	73	5	13	0	0	91	13	105	0	0	0	118	9	83	83	0	0	175	394
Grand Total	3	22	19	0	2	44	274	18	33	0	0	325	42	392	7	0	0	441	25	237	261	0	4	523	1333
Approach %	6.8	50	43.2	0	-	-	84.3	5.5	10.2	0	-	-	9.5	88.9	1.6	0	-	-	4.8	45.3	49.9	0	-	-	-
Totals %	0.2	1.7	1.4	0	-	3.3	20.6	1.4	2.5	0	-	24.4	3.2	29.4	0.5	0	-	33.1	1.9	17.8	19.6	0	-	39.2	-
PHF	0.38	0.69	0.59	0	-	0.69	0.9	0.75	0.63	0	-	0.88	0.7	0.93	0.44	0	-	0.93	0.69	0.71	0.79	0	-	0.75	0.85
Cars	2	18	15	0	-	35	235	15	24	0	-	274	34	335	5	0	-	374	20	166	206	0	-	392	1075
% Cars	66.7	81.8	78.9	0	-	79.5	85.8	83.3	72.7	0	-	84.3	81	85.5	71.4	0	-	84.8	80	70	78.9	0	-	75	80.6
Trucks	0	2	3	0	-	5	37	3	9	0	-	49	6	50	1	0	-	57	5	70	53	0	-	128	239
% Trucks	0	9.1	15.8	0	-	11.4	13.5	16.7	27.3	0	-	15.1	14.3	12.8	14.3	0	-	12.9	20	29.5	20.3	0	-	24.5	17.9
Bicycles	1	2	1	0	-	4	2	0	0	0	-	2	2	7	1	0	-	10	0	1	2	0	-	3	19
% Bicycles	33.3	9.1	5.3	0	-	9.1	0.7	0	0	0	-	0.6	4.8	1.8	14.3	0	-	2.3	0	0.4	0.8	0	-	0.6	1.4
Peds	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	6
% Peds	-	-	-	-	33.3	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	66.7	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:45:00
To: 13:45:00

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd

Site ID: 2001300119

Count Date: Aug 19, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	74	57	131
	6	15	21
	4	2	6
Totals	84	74	158

Minet's Point Rd

	0	3	1	0
	4	0	2	0
	31	35	8	0
Totals	35	38	11	0

East Approach

	Out	In	Total
	366	374	740
	57	67	124
	4	5	9
Totals	427	446	873

Lakeshore Dr

				Totals
	0	0	0	0
	0	6	20	26
	3	57	305	365
	0	58	362	420

Peds: 3



Peds: 9

Peds: 1

Peds: 1

Hurst Dr

Totals			
	0	0	0
	7	4	3
	358	309	45
	62	53	9

West Approach

	Out	In	Total
	687	681	1368
	121	95	216
	3	5	8
Totals	811	781	1592

Totals				
	341	33	61	0
	46	6	8	0
	1	2	1	0

Minet's Point Rd

South Approach

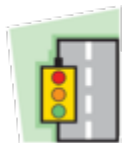
	Out	In	Total
	435	450	885
	60	67	127
	4	3	7
Totals	499	520	1019

- Cars

- Trucks

- Bicycles

Comments



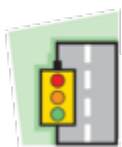
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Count Date: Aug 19, 2020
Period: 11:00 - 14:00

Peak Hour Data (12:45 - 13:45)

Start Time	North Approach Minet's Point Rd						South Approach Minet's Point Rd						East Approach Hurst Dr						West Approach Lakeshore Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
12:45	1	11	7	0	1	19	96	9	20	0	0	125	20	86	2	0	1	108	10	104	86	0	2	200	452
13:00	2	11	10	0	0	23	89	9	20	0	0	118	15	97	1	0	0	113	4	88	120	0	3	212	466
13:15	5	11	10	0	2	26	112	13	18	0	1	143	10	76	1	0	0	87	6	78	99	0	1	183	439
13:30	3	5	8	0	0	16	91	10	12	0	0	113	17	99	3	0	0	119	6	95	115	0	3	216	464
Grand Total	11	38	35	0	3	84	388	41	70	0	1	499	62	358	7	0	1	427	26	365	420	0	9	811	1821
Approach %	13.1	45.2	41.7	0	-	-	77.8	8.2	14	0	-	-	14.5	83.8	1.6	0	-	-	3.2	45	51.8	0	-	-	-
Totals %	0.6	2.1	1.9	0	-	4.6	21.3	2.3	3.8	0	-	27.4	3.4	19.7	0.4	0	-	23.4	1.4	20	23.1	0	-	44.5	-
PHF	0.55	0.86	0.88	0	-	0.81	0.87	0.79	0.88	0	-	0.87	0.78	0.9	0.58	0	-	0.9	0.65	0.88	0.88	0	-	0.94	0.98
Cars	8	35	31	0	-	74	341	33	61	0	-	435	53	309	4	0	-	366	20	305	362	0	-	687	1562
% Cars	72.7	92.1	88.6	0	-	88.1	87.9	80.5	87.1	0	-	87.2	85.5	86.3	57.1	0	-	85.7	76.9	83.6	86.2	0	-	84.7	85.8
Trucks	2	0	4	0	-	6	46	6	8	0	-	60	9	45	3	0	-	57	6	57	58	0	-	121	244
% Trucks	18.2	0	11.4	0	-	7.1	11.9	14.6	11.4	0	-	12	14.5	12.6	42.9	0	-	13.3	23.1	15.6	13.8	0	-	14.9	13.4
Bicycles	1	3	0	0	-	4	1	2	1	0	-	4	0	4	0	0	-	4	0	3	0	0	-	3	15
% Bicycles	9.1	7.9	0	0	-	4.8	0.3	4.9	1.4	0	-	0.8	0	1.1	0	0	-	0.9	0	0.8	0	0	-	0.4	0.8
Peds	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	9	-	14
% Peds	-	-	-	-	21.4	-	-	-	-	-	7.1	-	-	-	-	-	7.1	-	-	-	-	-	64.3	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

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

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd

Site ID: 2001300119

Count Date: Aug 19, 2020

Weather conditions:

** Signalized Intersection **

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	58	80	138
	5	9	14
	13	4	17
Totals	76	93	169

Minet's Point Rd

	0	6	7	0
	2	3	0	0
	25	24	9	0
Totals	27	33	16	0

East Approach

	Out	In	Total
	332	513	845
	71	83	154
	8	15	23
Totals	411	611	1022

Lakeshore Dr

				Totals
	0	0	0	0
	0	3	35	38
	7	77	424	508
	1	55	378	434

Peds: 1



Peds: 5

Peds: 0

Peds: 1

Hurst Dr

Totals			
	1	0	0
	8	4	3
	347	285	57
	55	43	11

West Approach

	Out	In	Total
	837	670	1507
	135	125	260
	8	14	22
Totals	980	809	1789

Totals				
	435	47	86	0
	66	3	6	0
	9	3	0	0

Minet's Point Rd

South Approach

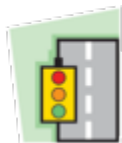
	Out	In	Total
	481	445	926
	75	69	144
	12	8	20
Totals	568	522	1090

- Cars

- Trucks

- Bicycles

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Count Date: Aug 19, 2020
Period: 15:00 - 18:00

Peak Hour Data (16:30 - 17:30)

Start Time	North Approach Minet's Point Rd						South Approach Minet's Point Rd						East Approach Hurst Dr						West Approach Lakeshore Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:30	3	6	10	0	0	19	114	10	22	0	0	146	15	117	3	0	0	135	7	118	102	0	0	227	527
16:45	3	10	4	0	0	17	103	11	21	0	0	135	12	77	3	0	0	92	11	123	104	0	2	238	482
17:00	7	3	3	0	1	13	116	12	24	0	0	152	13	80	2	1	0	96	11	131	112	0	0	254	515
17:15	3	14	10	0	0	27	102	14	19	0	1	135	15	73	0	0	0	88	9	136	116	0	3	261	511
Grand Total	16	33	27	0	1	76	435	47	86	0	1	568	55	347	8	1	0	411	38	508	434	0	5	980	2035
Approach %	21.1	43.4	35.5	0	-	-	76.6	8.3	15.1	0	-	-	13.4	84.4	1.9	0.2	-	-	3.9	51.8	44.3	0	-	-	-
Totals %	0.8	1.6	1.3	0	-	3.7	21.4	2.3	4.2	0	-	27.9	2.7	17.1	0.4	0	-	20.2	1.9	25	21.3	0	-	48.2	-
PHF	0.57	0.59	0.68	0	-	0.7	0.94	0.84	0.9	0	-	0.93	0.92	0.74	0.67	0.25	-	0.76	0.86	0.93	0.94	0	-	0.94	0.97
Cars	9	24	25	0	-	58	360	41	80	0	-	481	43	285	4	0	-	332	35	424	378	0	-	837	1708
% Cars	56.3	72.7	92.6	0	-	76.3	82.8	87.2	93	0	-	84.7	78.2	82.1	50	0	-	80.8	92.1	83.5	87.1	0	-	85.4	83.9
Trucks	0	3	2	0	-	5	66	3	6	0	-	75	11	57	3	0	-	71	3	77	55	0	-	135	286
% Trucks	0	9.1	7.4	0	-	6.6	15.2	6.4	7	0	-	13.2	20	16.4	37.5	0	-	17.3	7.9	15.2	12.7	0	-	13.8	14.1
Bicycles	7	6	0	0	-	13	9	3	0	0	-	12	1	5	1	1	-	8	0	7	1	0	-	8	41
% Bicycles	43.8	18.2	0	0	-	17.1	2.1	6.4	0	0	-	2.1	1.8	1.4	12.5	100	-	1.9	0	1.4	0.2	0	-	0.8	2
Peds	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	5	-	7
% Peds	-	-	-	-	14.3	-	-	-	-	-	14.3	-	-	-	-	-	0	-	-	-	-	-	71.4	-	-

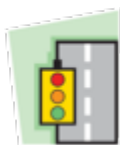


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TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #20-013 - City of Barrie

Intersection Count Report

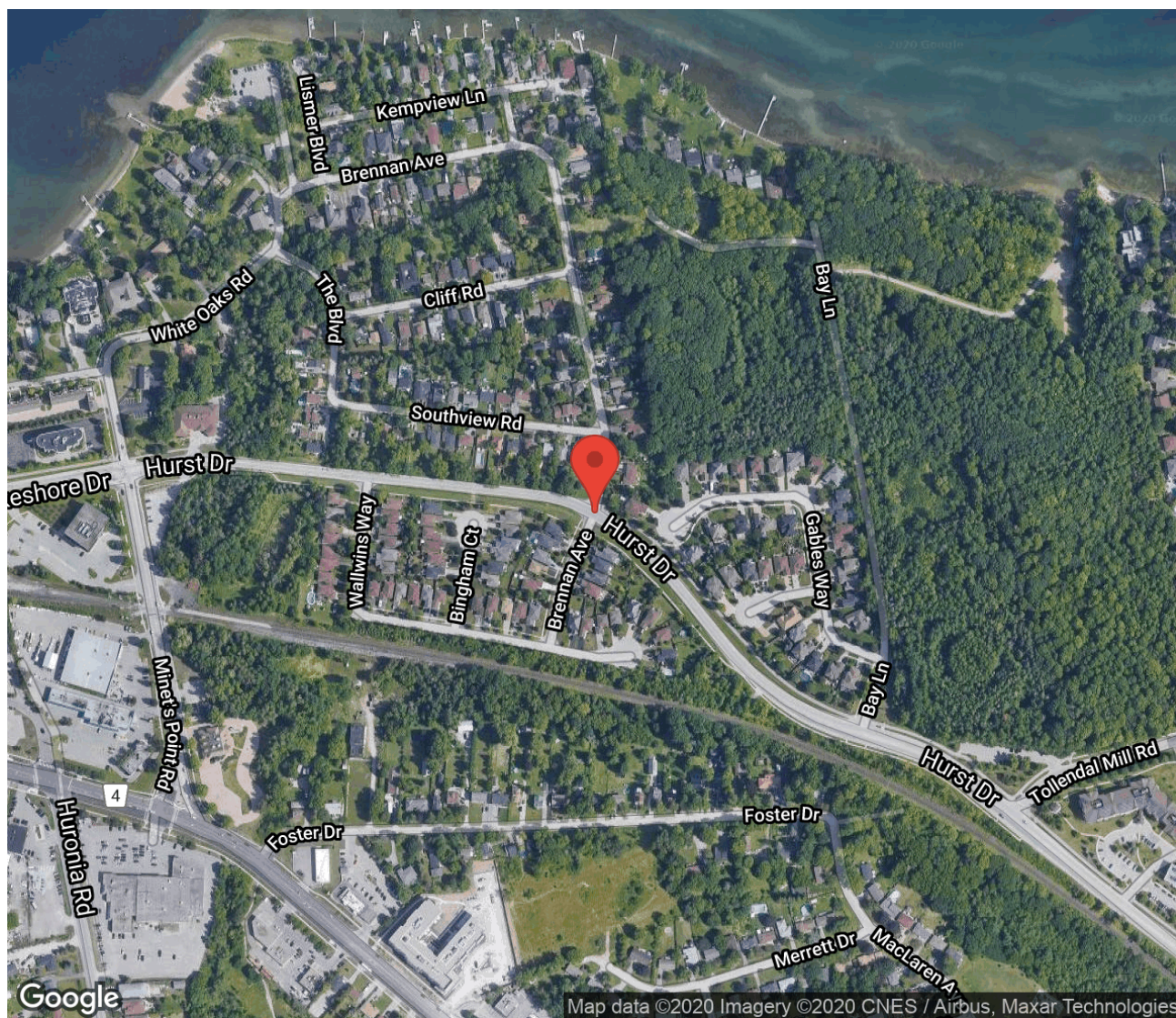
Intersection:	Hurst Dr & Brennan Ave
Municipality:	Barrie
Count Date:	Aug 19, 2020
Site Code:	2001300120
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 11:00-14:00, 15:00-18:00
Weather:	Clear

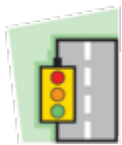


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Map

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020





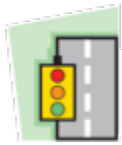
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

Brennan Ave - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	11	0	8	0	19	1	1	0	1	0	2	8
08:00 - 09:00	7	0	10	0	17	1	6	0	6	0	12	2
BREAK												
11:00 - 12:00	19	1	11	0	31	3	1	2	5	0	8	4
12:00 - 13:00	17	1	8	0	26	2	1	0	3	0	4	5
13:00 - 14:00	20	0	11	0	31	0	4	0	0	0	4	5
BREAK												
15:00 - 16:00	11	0	10	0	21	1	2	1	4	0	7	0
16:00 - 17:00	18	0	12	0	30	0	0	1	8	0	9	0
17:00 - 18:00	20	1	8	0	29	1	1	0	2	0	3	3
GRAND TOTAL	123	3	78	0	204	9	16	4	29	0	49	27



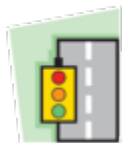
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

Hurst Dr - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	1	348	5	0	354	2	5	195	1	0	201	1
08:00 - 09:00	1	435	4	0	440	1	7	256	3	0	266	1
BREAK												
11:00 - 12:00	4	366	14	0	384	0	14	346	1	0	361	0
12:00 - 13:00	1	386	19	0	406	1	17	421	1	0	439	0
13:00 - 14:00	1	396	10	0	407	1	13	408	1	0	422	0
BREAK												
15:00 - 16:00	3	400	14	0	417	0	13	496	4	0	513	0
16:00 - 17:00	2	443	17	0	462	1	18	568	2	0	588	1
17:00 - 18:00	5	377	15	0	397	1	21	495	1	0	517	1
GRAND TOTAL	18	3151	98	0	3267	7	108	3185	14	0	3307	4



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

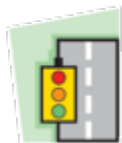
Intersection: Hurst Dr & Brennan Ave

Municipality: Barrie

Count Date: Aug 19, 2020

North Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	1	0	2	0	3	0	0	0	0	0	1	0	0	0	1	0
07:15	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	1
07:30	2	0	2	0	4	0	0	1	0	1	0	0	0	0	0	0
07:45	4	0	2	0	6	1	0	0	0	1	0	0	0	0	0	0
08:00	0	0	3	0	3	1	0	0	0	1	0	0	0	0	0	0
08:15	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
08:30	3	0	2	0	5	1	0	0	0	1	0	0	0	0	0	1
08:45	1	0	3	0	4	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	11	0	16	0	27	4	0	1	0	5	3	0	1	0	4	2



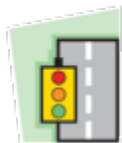
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

North Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	2	0	1	0	3	0	0	1	0	1	1	0	0	0	1	1
11:15	4	0	3	0	7	1	0	1	0	2	2	0	0	0	2	0
11:30	4	1	2	0	7	0	0	0	0	0	1	0	0	0	1	2
11:45	1	0	2	0	3	2	0	0	0	2	1	0	1	0	2	0
12:00	1	0	2	0	3	0	0	0	0	0	2	0	0	0	2	0
12:15	2	0	3	0	5	0	0	0	0	0	3	0	0	0	3	1
12:30	2	0	2	0	4	0	0	0	0	0	2	0	0	0	2	0
12:45	4	1	1	0	6	0	0	0	0	0	1	0	0	0	1	1
13:00	3	0	2	0	5	0	0	0	0	0	2	0	0	0	2	0
13:15	5	0	3	0	8	0	0	0	0	0	0	0	0	0	0	0
13:30	6	0	1	0	7	1	0	2	0	3	0	0	0	0	0	0
13:45	2	0	3	0	5	0	0	0	0	0	1	0	0	0	1	0
SUBTOTAL	36	2	25	0	63	4	0	4	0	8	16	0	1	0	17	5



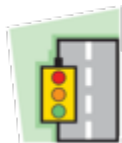
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

North Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	3	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0
15:15	4	0	2	0	6	0	0	0	0	0	0	0	0	0	0	1
15:30	3	0	4	0	7	0	0	1	0	1	0	0	0	0	0	0
15:45	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
16:00	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0
16:15	5	0	3	0	8	0	0	0	0	0	1	0	0	0	1	0
16:30	3	0	2	0	5	1	0	1	0	2	3	0	0	0	3	0
16:45	2	0	3	0	5	0	0	1	0	1	1	0	0	0	1	0
17:00	5	0	2	0	7	0	0	1	0	1	2	0	0	0	2	1
17:15	3	0	3	0	6	0	0	1	0	1	0	0	0	0	0	0
17:30	2	1	0	0	3	1	0	0	0	1	2	0	0	0	2	0
17:45	4	0	0	0	4	1	0	1	0	2	0	0	0	0	0	0
SUBTOTAL	37	1	24	0	62	3	0	6	0	9	9	0	0	0	9	2
GRAND TOTAL	84	3	65	0	152	11	0	11	0	22	28	0	2	0	30	9



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TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

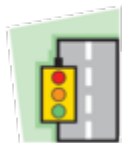
Intersection: Hurst Dr & Brennan Ave

Municipality: Barrie

Count Date: Aug 19, 2020

South Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
07:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
07:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
08:15	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
08:30	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	1
08:45	4	0	0	0	4	0	0	1	0	1	0	0	0	0	0	1
SUBTOTAL	6	0	6	0	12	1	0	1	0	2	0	0	0	0	0	10



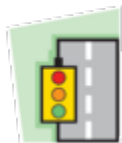
Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

South Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:45	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	1
12:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12:45	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	3
13:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
13:15	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	6	2	7	0	15	0	0	1	0	1	0	0	0	0	0	14



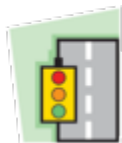
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

South Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
15:30	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0
15:45	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
16:15	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	2	0	2	0	0	1	0	1	0	0	0	0	0	0
17:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
17:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
SUBTOTAL	3	2	12	0	17	0	0	2	0	2	0	0	0	0	0	3
GRAND TOTAL	15	4	25	0	44	1	0	4	0	5	0	0	0	0	0	27



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

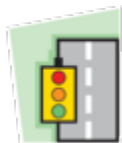
Intersection: Hurst Dr & Brennan Ave

Municipality: Barrie

Count Date: Aug 19, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	0	48	0	0	48	0	11	1	0	12	0	1	1	0	2	0
07:15	0	75	0	0	75	0	6	0	0	6	0	2	0	0	2	2
07:30	0	86	2	0	88	0	17	1	0	18	0	3	0	0	3	0
07:45	1	87	0	0	88	0	10	0	0	10	0	2	0	0	2	0
08:00	1	89	0	0	90	0	11	0	0	11	0	2	0	0	2	0
08:15	0	90	1	0	91	0	15	0	0	15	0	2	1	0	3	0
08:30	0	100	0	0	100	0	9	0	0	9	0	2	0	0	2	0
08:45	0	97	2	0	99	0	15	0	0	15	0	3	0	0	3	1
SUBTOTAL	2	672	5	0	679	0	94	2	0	96	0	17	2	0	19	3



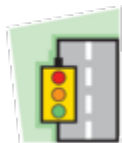
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	1	69	5	0	75	0	19	0	0	19	0	3	0	0	3	0
11:15	0	75	1	0	76	0	16	0	0	16	0	2	0	0	2	0
11:30	1	75	1	0	77	0	15	0	0	15	0	3	5	0	8	0
11:45	2	81	0	0	83	0	7	2	0	9	0	1	0	0	1	0
12:00	1	83	2	0	86	0	15	1	0	16	0	0	0	0	0	1
12:15	0	73	2	0	75	0	12	1	0	13	0	4	2	0	6	0
12:30	0	90	6	0	96	0	13	0	0	13	0	0	2	0	2	0
12:45	0	89	3	0	92	0	7	0	0	7	0	0	0	0	0	0
13:00	0	88	3	0	91	0	12	0	0	12	0	0	0	0	0	0
13:15	0	73	1	0	74	0	10	0	0	10	0	2	0	0	2	0
13:30	1	92	4	0	97	0	21	0	0	21	0	1	0	0	1	0
13:45	0	87	1	0	88	0	10	1	0	11	0	0	0	0	0	1
SUBTOTAL	6	975	29	0	1010	0	157	5	0	162	0	16	9	0	25	2



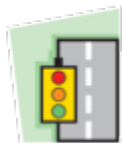
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	1	78	3	0	82	1	15	0	0	16	0	0	1	0	1	0
15:15	0	85	2	0	87	0	12	1	0	13	0	5	2	0	7	0
15:30	0	84	2	0	86	0	10	0	0	10	0	1	0	0	1	0
15:45	1	91	2	0	94	0	19	0	0	19	0	0	1	0	1	0
16:00	0	94	6	0	100	0	22	0	0	22	0	1	1	0	2	1
16:15	1	95	4	0	100	0	18	0	0	18	0	1	3	0	4	0
16:30	0	112	1	0	113	0	20	0	0	20	0	0	0	0	0	0
16:45	1	59	1	0	61	0	18	0	0	18	0	3	1	0	4	0
17:00	2	75	1	0	78	0	12	0	0	12	0	0	1	0	1	0
17:15	1	66	3	0	70	0	18	0	0	18	0	3	0	0	3	1
17:30	0	91	3	0	94	1	20	1	0	22	0	1	2	0	3	0
17:45	0	74	3	0	77	1	15	0	0	16	0	2	1	0	3	0
SUBTOTAL	7	1004	31	0	1042	3	199	2	0	204	0	17	13	0	30	2
GRAND TOTAL	15	2651	65	0	2731	3	450	9	0	462	0	50	24	0	74	7



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

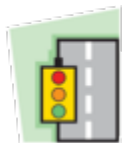
Intersection: Hurst Dr & Brennan Ave

Municipality: Barrie

Count Date: Aug 19, 2020

West Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	21	0	0	21	0	6	0	0	6	0	0	0	0	0	0
07:15	1	33	0	0	34	0	14	0	0	14	0	1	0	0	1	0
07:30	2	42	1	0	45	0	14	0	0	14	0	2	0	0	2	1
07:45	1	49	0	0	50	1	13	0	0	14	0	0	0	0	0	0
08:00	1	28	0	0	29	1	15	1	0	17	0	0	0	0	0	0
08:15	0	48	0	0	48	0	12	0	0	12	0	1	0	0	1	0
08:30	3	45	1	0	49	1	13	0	0	14	0	0	0	0	0	1
08:45	1	64	1	0	66	0	29	0	0	29	0	1	0	0	1	0
SUBTOTAL	9	330	3	0	342	3	116	1	0	120	0	5	0	0	5	2



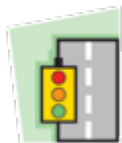
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

West Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
11:00	2	83	1	0	86	0	12	0	0	12	0	0	0	0	0	0
11:15	2	66	0	0	68	0	10	0	0	10	0	1	0	0	1	0
11:30	2	62	0	0	64	1	8	0	0	9	0	1	0	0	1	0
11:45	6	89	0	0	95	1	14	0	0	15	0	0	0	0	0	0
12:00	3	95	1	0	99	3	17	0	0	20	0	2	0	0	2	0
12:15	5	72	0	0	77	2	13	0	0	15	0	0	0	0	0	0
12:30	2	89	0	0	91	2	15	0	0	17	0	1	0	0	1	0
12:45	0	97	0	0	97	0	17	0	0	17	0	3	0	0	3	0
13:00	6	83	0	0	89	1	13	1	0	15	0	0	0	0	0	0
13:15	1	88	0	0	89	0	13	0	0	13	0	4	0	0	4	0
13:30	3	80	0	0	83	0	20	0	0	20	0	2	0	0	2	0
13:45	1	87	0	0	88	1	14	0	0	15	0	4	0	0	4	0
SUBTOTAL	33	991	2	0	1026	11	166	1	0	178	0	18	0	0	18	0



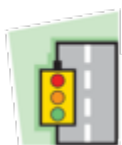
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 19, 2020

West Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	2	93	1	0	96	1	10	0	0	11	0	1	0	0	1	0
15:15	2	114	2	0	118	1	13	0	0	14	0	1	0	0	1	0
15:30	2	132	0	0	134	1	14	1	0	16	0	0	0	0	0	0
15:45	4	104	0	0	108	0	11	0	0	11	0	3	0	0	3	0
16:00	5	122	0	0	127	0	20	0	0	20	0	0	0	0	0	1
16:15	3	131	0	0	134	2	11	0	0	13	0	0	0	0	0	0
16:30	5	120	2	0	127	0	16	0	0	16	0	4	0	0	4	0
16:45	3	126	0	0	129	0	17	0	0	17	0	1	0	0	1	0
17:00	10	123	0	0	133	0	20	0	0	20	0	2	0	0	2	0
17:15	4	126	0	0	130	0	19	0	0	19	0	4	0	0	4	0
17:30	4	84	0	0	88	0	7	0	0	7	0	5	0	0	5	0
17:45	2	84	0	0	86	1	18	1	0	20	0	3	0	0	3	1
SUBTOTAL	46	1359	5	0	1410	6	176	2	0	184	0	24	0	0	24	2
GRAND TOTAL	88	2680	10	0	2778	20	458	4	0	482	0	47	0	0	47	4



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

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

One Hour Peak

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

Intersection: Hurst Dr & Brennan Ave

Site ID: 2001300120

Count Date: Aug 19, 2020

Weather conditions:

** Unsignalized Intersection **

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	14	8	22
	3	2	5
	0	1	1
Totals	17	11	28

Brennan Ave

	0	0	0	0
	0	0	3	0
	10	0	4	0
Totals	10	0	7	0

East Approach

	Out	In	Total
	380	194	574
	50	73	123
	10	2	12
Totals	440	269	709

Hurst Dr

				Totals
	0	0	0	0
	0	2	5	7
	2	69	185	256
	0	1	2	3

Peds: 1



Peds: 2

Hurst Dr

Totals			
	0	0	0
	4	3	0
	435	376	50
	1	1	0

West Approach

	Out	In	Total
	192	392	584
	72	50	122
	2	9	11
Totals	266	451	717

Totals				
	6	0	5	0
	0	0	1	0
	0	0	0	0

Brennan Ave

South Approach

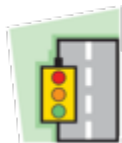
	Out	In	Total
	11	3	14
	1	1	2
	0	0	0
Totals	12	4	16

- Cars

- Trucks

- Bicycles

Comments



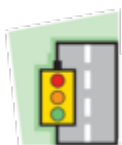
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Hurst Dr & Brennan Ave
Count Date: Aug 19, 2020
Period: 07:00 - 09:00

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

Start Time	North Approach Brennan Ave						South Approach Brennan Ave						East Approach Hurst Dr						West Approach Hurst Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	1	0	3	0	0	4	0	0	2	0	0	2	1	102	0	0	0	103	2	43	1	0	0	46	155
08:15	0	0	2	0	0	2	1	0	2	0	0	3	0	107	2	0	0	109	0	61	0	0	0	61	175
08:30	4	0	2	0	1	6	1	0	1	0	1	2	0	111	0	0	0	111	4	58	1	0	1	63	182
08:45	2	0	3	0	0	5	4	0	1	0	1	5	0	115	2	0	1	117	1	94	1	0	0	96	223
Grand Total	7	0	10	0	1	17	6	0	6	0	2	12	1	435	4	0	1	440	7	256	3	0	1	266	735
Approach %	41.2	0	58.8	0	-	-	50	0	50	0	-	-	0.2	98.9	0.9	0	-	-	2.6	96.2	1.1	0	-	-	-
Totals %	1	0	1.4	0	-	2.3	0.8	0	0.8	0	-	1.6	0.1	59.2	0.5	0	-	59.9	1	34.8	0.4	0	-	36.2	-
PHF	0.44	0	0.83	0	0.71	-	0.38	0	0.75	0	0.6	-	0.25	0.95	0.5	0	0.94	-	0.44	0.68	0.75	0	0.69	0.82	0.82
Cars	4	0	10	0	-	14	6	0	5	0	-	11	1	376	3	0	-	380	5	185	2	0	-	192	597
% Cars	57.1	0	100	0	-	82.4	100	0	83.3	0	-	91.7	100	86.4	75	0	-	86.4	71.4	72.3	66.7	0	-	72.2	81.2
Trucks	3	0	0	0	-	3	0	0	1	0	-	1	0	50	0	0	-	50	2	69	1	0	-	72	126
% Trucks	42.9	0	0	0	-	17.6	0	0	16.7	0	-	8.3	0	11.5	0	0	-	11.4	28.6	27	33.3	0	-	27.1	17.1
Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	9	1	0	-	10	0	2	0	0	-	2	12
% Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	2.1	25	0	-	2.3	0	0.8	0	0	-	0.8	1.6
Peds	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	1	-	5
% Peds	-	-	-	-	20	-	-	-	-	-	40	-	-	-	-	-	20	-	-	-	-	-	20	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:45:00
To: 13:45:00

Intersection: Hurst Dr & Brennan Ave

Site ID: 2001300120

Count Date: Aug 19, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	26	21	47
	3	1	4
	3	0	3
Totals	32	22	54

Brennan Ave

	0	0	3	0
	2	0	1	0
	7	1	18	0
Totals	9	1	22	0

East Approach

	Out	In	Total
	354	368	722
	50	64	114
	3	12	15
Totals	407	444	851

Hurst Dr

				Totals
	0	0	0	0
	0	1	10	11
	9	63	348	420
	0	1	0	1

Peds: 1



Peds: 0

Peds: 0

Peds: 7

Hurst Dr

Totals			
	0	0	0
	11	11	0
	395	342	50
	1	1	0

West Approach

	Out	In	Total
	358	354	712
	65	52	117
	9	3	12
Totals	432	409	841

Totals				
	5	0	2	0
	0	0	0	0
	0	0	0	0

Brennan Ave

South Approach

	Out	In	Total
	7	2	9
	0	1	1
	0	0	0
Totals	7	3	10

- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

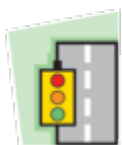
Intersection: Hurst Dr & Brennan Ave

Count Date: Aug 19, 2020

Period: 11:00 - 14:00

Peak Hour Data (12:45 - 13:45)

Start Time	North Approach Brennan Ave						South Approach Brennan Ave						East Approach Hurst Dr						West Approach Hurst Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
12:45	5	1	1	0	1	7	1	0	2	0	3	3	0	96	3	0	0	99	0	117	0	0	0	117	226
13:00	5	0	2	0	0	7	2	0	0	0	0	2	0	100	3	0	0	103	7	96	1	0	0	104	216
13:15	5	0	3	0	0	8	2	0	0	0	4	2	0	85	1	0	0	86	1	105	0	0	0	106	202
13:30	7	0	3	0	0	10	0	0	0	0	0	0	1	114	4	0	0	119	3	102	0	0	0	105	234
Grand Total	22	1	9	0	1	32	5	0	2	0	7	7	1	395	11	0	0	407	11	420	1	0	0	432	878
Approach %	68.8	3.1	28.1	0	-	-	71.4	0	28.6	0	-	-	0.2	97.1	2.7	0	-	-	2.5	97.2	0.2	0	-	-	-
Totals %	2.5	0.1	1	0	-	3.6	0.6	0	0.2	0	-	0.8	0.1	45	1.3	0	-	46.4	1.3	47.8	0.1	0	-	49.2	-
PHF	0.79	0.25	0.75	0	-	0.8	0.63	0	0.25	0	-	0.58	0.25	0.87	0.69	0	-	0.86	0.39	0.9	0.25	0	-	0.92	0.94
Cars	18	1	7	0	-	26	5	0	2	0	-	7	1	342	11	0	-	354	10	348	0	0	-	358	745
% Cars	81.8	100	77.8	0	-	81.3	100	0	100	0	-	100	100	86.6	100	0	-	87	90.9	82.9	0	0	-	82.9	84.9
Trucks	1	0	2	0	-	3	0	0	0	0	-	0	0	50	0	0	-	50	1	63	1	0	-	65	118
% Trucks	4.5	0	22.2	0	-	9.4	0	0	0	0	-	0	0	12.7	0	0	-	12.3	9.1	15	100	0	-	15	13.4
Bicycles	3	0	0	0	-	3	0	0	0	0	-	0	0	3	0	0	-	3	0	9	0	0	-	9	15
% Bicycles	13.6	0	0	0	-	9.4	0	0	0	0	-	0	0	0.8	0	0	-	0.7	0	2.1	0	0	-	2.1	1.7
Peds	-	-	-	-	1	-	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	0	-	8
% Peds	-	-	-	-	12.5	-	-	-	-	-	87.5	-	-	-	-	-	0	-	-	-	-	-	0	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

From: 15:45:00
To: 16:45:00

Intersection: Hurst Dr & Brennan Ave
Site ID: 2001300120
Count Date: Aug 19, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	20	31	51
	2	2	4
	4	5	9
Totals	26	38	64

Brennan Ave

	0	0	4	0
	1	0	1	0
	9	0	11	0
Totals	10	0	16	0

East Approach

	Out	In	Total
	407	494	901
	79	59	138
	7	11	18
Totals	493	564	1057

Hurst Dr

				Totals
	0	0	0	0
	0	2	17	19
	7	58	477	542
	0	0	2	2

Peds: 0



Peds: 1

Peds: 1

Peds: 0

Hurst Dr

Totals			
	0	0	0
	18	13	0
	473	392	79
	2	2	0

West Approach

	Out	In	Total
	496	402	898
	60	80	140
	7	2	9
Totals	563	484	1047

Totals				
	1	1	6	0
	0	0	0	0
	0	0	0	0

Brennan Ave

South Approach

	Out	In	Total
	8	4	12
	0	0	0
	0	0	0
Totals	8	4	12

- Cars

- Trucks

- Bicycles

Comments

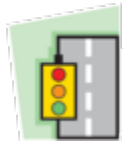


Peak Hour Summary

Intersection: Hurst Dr & Brennan Ave
 Count Date: Aug 19, 2020
 Period: 15:00 - 18:00

Peak Hour Data (15:45 - 16:45)

Start Time	North Approach Brennan Ave						South Approach Brennan Ave						East Approach Hurst Dr						West Approach Hurst Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
15:45	1	0	2	0	0	3	1	0	1	0	0	2	1	110	3	0	0	114	4	118	0	0	0	122	241
16:00	2	0	2	0	0	4	0	0	2	0	0	2	0	117	7	0	1	124	5	142	0	0	1	147	277
16:15	6	0	3	0	0	9	0	1	2	0	0	3	1	114	7	0	0	122	5	142	0	0	0	147	281
16:30	7	0	3	0	0	10	0	0	1	0	0	1	0	132	1	0	0	133	5	140	2	0	0	147	291
Grand Total	16	0	10	0	0	26	1	1	6	0	0	8	2	473	18	0	1	493	19	542	2	0	1	563	1090
Approach %	61.5	0	38.5	0	-	-	12.5	12.5	75	0	-	-	0.4	95.9	3.7	0	-	-	3.4	96.3	0.4	0	-	-	-
Totals %	1.5	0	0.9	0	-	2.4	0.1	0.1	0.6	0	-	0.7	0.2	43.4	1.7	0	-	45.2	1.7	49.7	0.2	0	-	51.7	-
PHF	0.57	0	0.83	0	-	0.65	0.25	0.25	0.75	0	-	0.67	0.5	0.9	0.64	0	-	0.93	0.95	0.95	0.25	0	-	0.96	0.94
Cars	11	0	9	0	-	20	1	1	6	0	-	8	2	392	13	0	-	407	17	477	2	0	-	496	931
% Cars	68.8	0	90	0	-	76.9	100	100	100	0	-	100	100	82.9	72.2	0	-	82.6	89.5	88	100	0	-	88.1	85.4
Trucks	1	0	1	0	-	2	0	0	0	0	-	0	0	79	0	0	-	79	2	58	0	0	-	60	141
% Trucks	6.3	0	10	0	-	7.7	0	0	0	0	-	0	0	16.7	0	0	-	16	10.5	10.7	0	0	-	10.7	12.9
Bicycles	4	0	0	0	-	4	0	0	0	0	-	0	0	2	5	0	-	7	0	7	0	0	-	7	18
% Bicycles	25	0	0	0	-	15.4	0	0	0	0	-	0	0	0.4	27.8	0	-	1.4	0	1.3	0	0	-	1.2	1.7
Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	1	-	-	2
% Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	50	-	-	-	-	50	-	-	-

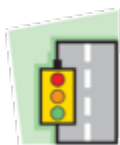


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #20-013 - City of Barrie

Intersection Count Report

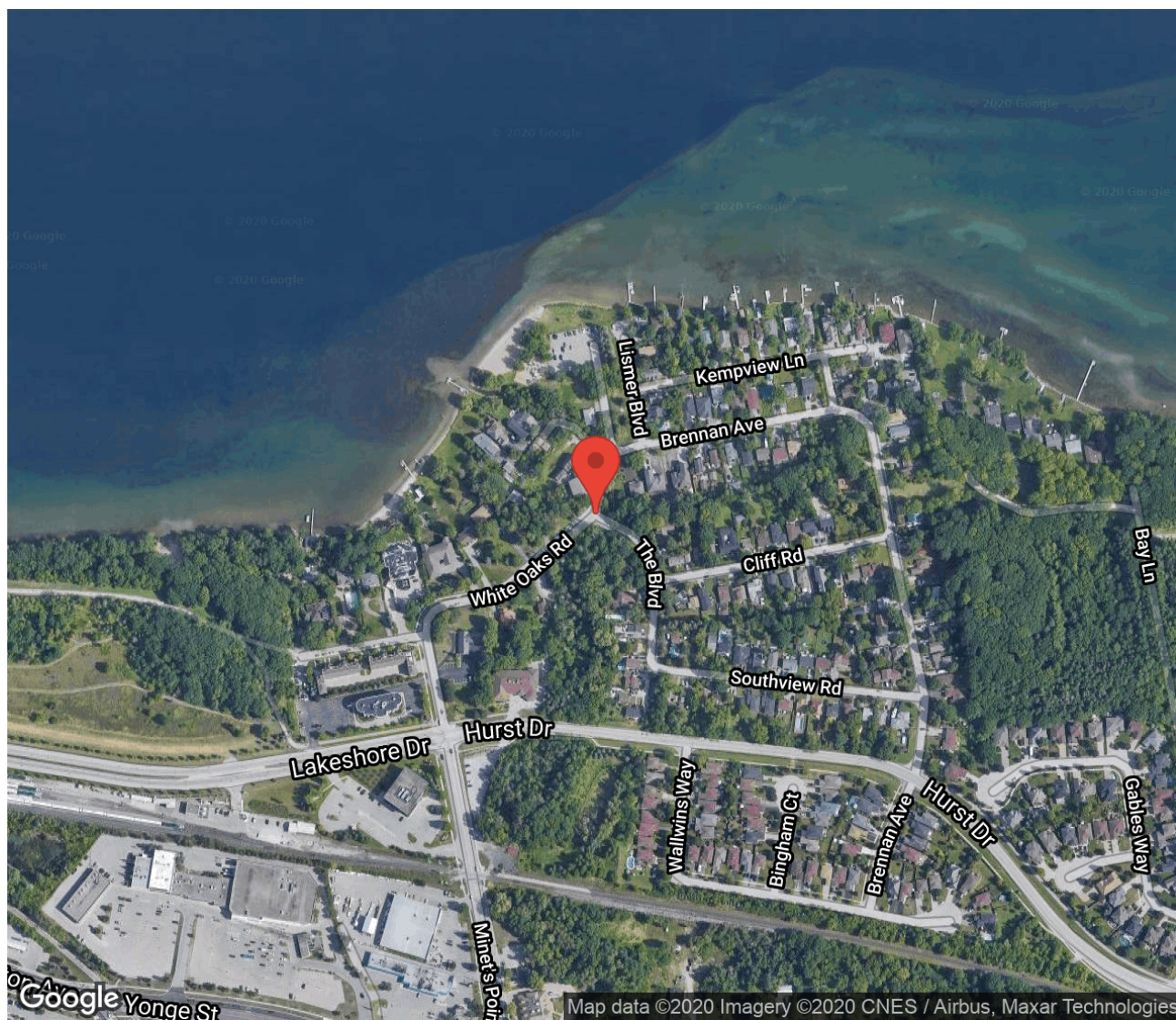
Intersection:	White Oaks Rd & The Blvd
Municipality:	Barrie
Count Date:	Aug 19, 2020
Site Code:	2001300121
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 11:00-14:00, 15:00-18:00
Weather:	Clear

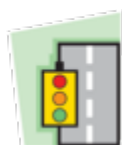


Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Map

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 19, 2020





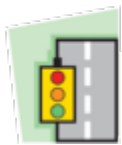
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 19, 2020

White Oaks Rd - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	0	17	0	0	17	1	0	18	8	0	26	0
08:00 - 09:00	1	28	0	0	29	1	0	26	2	0	28	0
BREAK												
11:00 - 12:00	1	35	0	0	36	3	0	54	9	0	63	0
12:00 - 13:00	1	53	0	0	54	0	0	65	2	0	67	0
13:00 - 14:00	0	49	0	0	49	0	0	55	10	0	65	0
BREAK												
15:00 - 16:00	0	56	0	0	56	0	0	58	13	0	71	0
16:00 - 17:00	1	50	0	0	51	0	0	54	14	0	68	0
17:00 - 18:00	0	50	0	0	50	5	0	51	15	0	66	0
GRAND TOTAL	4	338	0	0	342	10	0	381	73	0	454	0



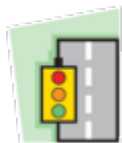
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 19, 2020

The Blvd - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	9	0	0	0	9	0	0	0	0	0	0	4
08:00 - 09:00	8	0	0	0	8	0	0	0	0	0	0	14
BREAK												
11:00 - 12:00	9	0	0	0	9	4	0	0	0	0	0	18
12:00 - 13:00	13	0	3	0	16	1	0	0	0	0	0	9
13:00 - 14:00	8	0	1	0	9	0	0	0	0	0	0	12
BREAK												
15:00 - 16:00	5	0	1	0	6	0	0	0	0	0	0	18
16:00 - 17:00	12	0	0	0	12	0	0	0	0	0	0	3
17:00 - 18:00	8	0	0	0	8	1	0	0	0	0	0	10
GRAND TOTAL	72	0	5	0	77	6	0	0	0	0	0	88



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

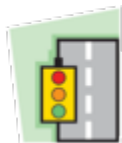
Intersection: White Oaks Rd & The Blvd

Municipality: Barrie

Count Date: Aug 19, 2020

North Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	4	0	0	4	0	1	0	0	1	0	1	0	0	1	0
07:15	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0
07:30	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0
07:45	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	1
08:00	0	5	0	0	5	0	2	0	0	2	0	1	0	0	1	0
08:15	0	6	0	0	6	0	2	0	0	2	0	1	0	0	1	0
08:30	0	5	0	0	5	0	1	0	0	1	0	1	0	0	1	1
08:45	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	1	32	0	0	33	0	8	0	0	8	0	5	0	0	5	2



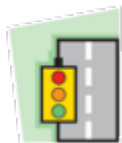
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 19, 2020

North Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	2
11:15	1	9	0	0	10	0	1	0	0	1	0	0	0	0	0	0
11:30	0	15	0	0	15	0	0	0	0	0	0	0	0	0	0	0
11:45	0	4	0	0	4	0	1	0	0	1	0	1	0	0	1	1
12:00	0	8	0	0	8	0	0	0	0	0	0	1	0	0	1	0
12:15	1	8	0	0	9	0	7	0	0	7	0	0	0	0	0	0
12:30	0	12	0	0	12	0	2	0	0	2	0	2	0	0	2	0
12:45	0	12	0	0	12	0	1	0	0	1	0	0	0	0	0	0
13:00	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0
13:15	0	15	0	0	15	0	2	0	0	2	0	3	0	0	3	0
13:30	0	9	0	0	9	0	2	0	0	2	0	2	0	0	2	0
13:45	0	8	0	0	8	0	1	0	0	1	0	1	0	0	1	0
SUBTOTAL	2	110	0	0	112	0	17	0	0	17	0	10	0	0	10	3



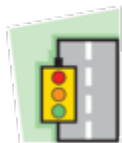
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 19, 2020

North Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	0	12	0	0	12	0	2	0	0	2	0	4	0	0	4	0
15:15	0	7	0	0	7	0	2	0	0	2	0	3	0	0	3	0
15:30	0	11	0	0	11	0	3	0	0	3	0	0	0	0	0	0
15:45	0	9	0	0	9	0	2	0	0	2	0	1	0	0	1	0
16:00	1	17	0	0	18	0	1	0	0	1	0	2	0	0	2	0
16:15	0	11	0	0	11	0	1	0	0	1	0	2	0	0	2	0
16:30	0	7	0	0	7	0	1	0	0	1	0	0	0	0	0	0
16:45	0	6	0	0	6	0	1	0	0	1	0	1	0	0	1	0
17:00	0	10	0	0	10	0	0	0	0	0	0	1	0	0	1	0
17:15	0	14	0	0	14	0	1	0	0	1	0	1	0	0	1	0
17:30	0	4	0	0	4	0	1	0	0	1	0	6	0	0	6	0
17:45	0	10	0	0	10	0	2	0	0	2	0	0	0	0	0	5
SUBTOTAL	1	118	0	0	119	0	17	0	0	17	0	21	0	0	21	5
GRAND TOTAL	4	260	0	0	264	0	42	0	0	42	0	36	0	0	36	10



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

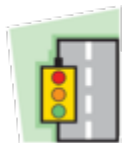
Intersection: White Oaks Rd & The Blvd

Municipality: Barrie

Count Date: Aug 19, 2020

South Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	0
07:15	0	1	0	0	1	0	3	1	0	4	0	0	4	0	4	0
07:30	0	7	1	0	8	0	0	0	0	0	0	0	0	0	0	0
07:45	0	3	1	0	4	0	2	0	0	2	0	0	0	0	0	0
08:00	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	0
08:15	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0
08:30	0	5	0	0	5	0	5	1	0	6	0	1	0	0	1	0
08:45	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	0
SUBTOTAL	0	27	3	0	30	0	13	2	0	15	0	4	5	0	9	0



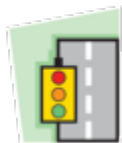
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 19, 2020

South Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	0	12	0	0	12	0	3	0	0	3	0	1	1	0	2	0
11:15	0	9	2	0	11	0	1	1	0	2	0	0	1	0	1	0
11:30	0	8	1	0	9	0	1	1	0	2	0	0	1	0	1	0
11:45	0	13	0	0	13	0	3	0	0	3	0	3	1	0	4	0
12:00	0	13	1	0	14	0	4	0	0	4	0	0	0	0	0	0
12:15	0	12	0	0	12	0	1	0	0	1	0	1	0	0	1	0
12:30	0	11	0	0	11	0	2	0	0	2	0	4	0	0	4	0
12:45	0	12	1	0	13	0	5	0	0	5	0	0	0	0	0	0
13:00	0	4	3	0	7	0	3	0	0	3	0	0	0	0	0	0
13:15	0	12	1	0	13	0	2	1	0	3	0	5	1	0	6	0
13:30	0	10	2	0	12	0	2	0	0	2	0	0	0	0	0	0
13:45	0	16	1	0	17	0	0	0	0	0	0	1	1	0	2	0
SUBTOTAL	0	132	12	0	144	0	27	3	0	30	0	15	6	0	21	0



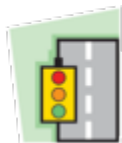
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 19, 2020

South Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	0	7	3	0	10	0	2	0	0	2	0	1	0	0	1	0
15:15	0	15	4	0	19	0	1	0	0	1	0	0	0	0	0	0
15:30	0	16	2	0	18	0	3	1	0	4	0	1	1	0	2	0
15:45	0	9	2	0	11	0	1	0	0	1	0	2	0	0	2	0
16:00	0	12	3	0	15	0	1	0	0	1	0	0	0	0	0	0
16:15	0	13	0	0	13	0	1	0	0	1	0	3	2	0	5	0
16:30	0	5	3	0	8	0	4	0	0	4	0	2	1	0	3	0
16:45	0	12	3	0	15	0	1	0	0	1	0	0	2	0	2	0
17:00	0	11	5	0	16	0	1	0	0	1	0	0	0	0	0	0
17:15	0	1	4	0	5	0	1	0	0	1	0	0	1	0	1	0
17:30	0	15	3	0	18	0	1	1	0	2	0	3	0	0	3	0
17:45	0	12	1	0	13	0	6	0	0	6	0	0	0	0	0	0
SUBTOTAL	0	128	33	0	161	0	23	2	0	25	0	12	7	0	19	0
GRAND TOTAL	0	287	48	0	335	0	63	7	0	70	0	31	18	0	49	0



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

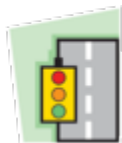
Intersection: White Oaks Rd & The Blvd

Municipality: Barrie

Count Date: Aug 19, 2020

East Approach - The Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0
07:15	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
07:30	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0
07:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:30	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:45	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	14	0	0	0	14	3	0	0	0	3	0	0	0	0	0	0



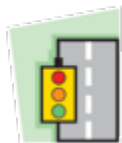
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 19, 2020

East Approach - The Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
11:15	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1
11:30	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
11:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
12:00	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	0
12:15	5	0	1	0	6	1	0	0	0	1	2	0	0	0	2	0
12:30	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
12:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
13:00	5	0	0	0	5	1	0	0	0	1	0	0	0	0	0	0
13:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	24	0	4	0	28	4	0	0	0	4	2	0	0	0	2	5



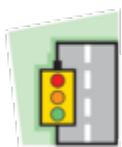
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 19, 2020

East Approach - The Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0
15:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	2	0	0	0	2	0	0	0	0	0	0	0	1	0	1	0
16:00	3	0	0	0	3	1	0	0	0	1	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
16:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:45	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:30	3	0	0	0	3	0	0	0	0	0	1	0	0	0	1	0
17:45	1	0	0	0	1	1	0	0	0	1	1	0	0	0	1	0
SUBTOTAL	14	0	0	0	14	4	0	0	0	4	7	0	1	0	8	1
GRAND TOTAL	52	0	4	0	56	11	0	0	0	11	9	0	1	0	10	6



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 07:45:00
To: 08:45:00

Intersection: White Oaks Rd & The Blvd
Site ID: 2001300121
Count Date: Aug 19, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: White Oaks Rd runs N/S

North Approach

	Out	In	Total
	20	15	35
	6	10	16
	3	2	5
Totals	29	27	56

White Oaks Rd

	3	0	0
	6	0	0
	20	0	0
Totals	29	0	0

East Approach

	Out	In	Total
	7	1	8
	0	1	1
	0	0	0
Totals	7	2	9

Peds: 2

Peds: 10



Peds: 0

Peds: 0

The Blvd

Totals			
	0	0	0
	0	0	0
	7	7	0

South Approach

	Out	In	Total
	16	27	43
	11	6	17
	2	3	5
Totals	29	36	65

White Oaks Rd

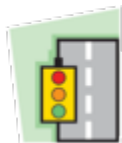
	27	2	0
	15	1	0
	10	1	0
	2	0	0
Totals	27	2	0

- Cars

- Trucks

- Bicycles

Comments



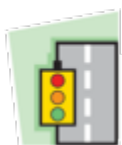
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: White Oaks Rd & The Blvd
Count Date: Aug 19, 2020
Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

	North Approach White Oaks Rd						South Approach White Oaks Rd						East Approach The Blvd						West Approach						Total Vehic es				
Start Time					Peds	Total					Peds	Total					Peds	Total					Peds	Total					
07:45	0	5		0	1	5		5	1	0	0	6	1		0	0	0	1		0	0	0	0	0	12				
08:00	0	8		0	0	8		4	0	0	0	4	0		0	0	0	0		0	0	0	12						
08:15	0	9		0	0	9		7	0	0	0	7	3		0	0	0	3		4	19								
08:30	0	7		0	1	7		11	1	0	0	12	3		0	0	0	3		6	22								
Grand Total	0	29		0	2	29		27	2	0	0	29	7		0	0	0	7		10	0		65						
Approach %	0	100		0	-	-		93.1	6.9	0	-	-	100		0	0	-	-		-	-								
Totals %	0	44.6		0		44.6		41.5	3.1	0		44.6	10.8		0	0		10.8		0									
PHF	0	0.81		0		0.81		0.61	0.5	0		0.6	0.58		0	0		0.58		0			0.74						
Cars	0	20		0		20		15	1	0		16	7		0	0		7		0			43						
% Cars	0	69		0		69		55.6	50	0		55.2	100		0	0		100		0			66.2						
Trucks	0	6		0		6		10	1	0		11	0		0	0		0		0			17						
% Trucks	0	20.7		0		20.7		37	50	0		37.9	0		0	0		0		0			26.2						
Bicycles	0	3		0		3		2	0	0		2	0		0	0		0		0			5						
% Bicycles	0	10.3		0		10.3		7.4	0	0		6.9	0		0	0		0		0			7.7						
Peds						2	-						0	-						0	-						10	-	12
% Peds						16.7	-						0	-						0	-						83.3	-	



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:00:00
To: 13:00:00

Intersection: White Oaks Rd & The Blvd

Site ID: 2001300121

Count Date: Aug 19, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: White Oaks Rd runs N/S

North Approach

	Out	In	Total
	41	51	92
	10	12	22
	3	5	8
Totals	54	68	122

White Oaks Rd

	3	0	0
	10	0	0
	40	1	0
Totals	53	1	0



Peds: 0

Peds: 9



Peds: 1

Peds: 0

	48	2	0
	12	0	0
	5	0	0
Totals	65	2	0

White Oaks Rd

East Approach

	Out	In	Total
	11	3	14
	3	0	3
	2	0	2
Totals	16	3	19

The Blvd

	Totals			
	0	0	0	0
	3	3	0	0
	13	8	3	2

South Approach

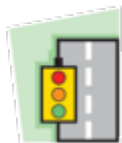
	Out	In	Total
	50	48	98
	12	13	25
	5	5	10
Totals	67	66	133

- Cars

- Trucks

- Bicycles

Comments



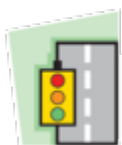
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: White Oaks Rd & The Blvd
Count Date: Aug 19, 2020
Period: 11:00 - 14:00

Peak Hour Data (12:00 - 13:00)

	North Approach White Oaks Rd						South Approach White Oaks Rd						East Approach The Blvd						West Approach						Total Vehicl es
Start Time					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
12:00	0	9		0	0	9		17	1	0	0	18	3		0	0	0	3		3		0	0	3	30
12:15	1	15		0	0	16		14	0	0	0	14	8		1	0	0	9		3		39			
12:30	0	16		0	0	16		17	0	0	0	17	1		2	0	0	3		1		36			
12:45	0	13		0	0	13		17	1	0	0	18	1		0	0	1	1		2		32			
Grand Total	1	53		0	0	54		65	2	0	0	67	13		3	0	1	16			9	0		137	
Approach %	1.9	98.1		0		-		97	3	0		-	81.3		18.8	0		-					-		
Totals %	0.7	38.7		0		39.4		47.4	1.5	0		48.9	9.5		2.2	0		11.7			0				
PHF	0.25	0.83		0		0.84		0.96	0.5	0		0.93	0.41		0.38	0		0.44			0			0.88	
Cars	1	40		0		41		48	2	0		50	8		3	0		11			0			102	
% Cars	100	75.5		0		75.9		73.8	100	0		74.6	61.5		100	0		68.8			0			74.5	
Trucks	0	10		0		10		12	0	0		12	3		0	0		3			0			25	
% Trucks	0	18.9		0		18.5		18.5	0	0		17.9	23.1		0	0		18.8			0			18.2	
Bicycles	0	3		0		3		5	0	0		5	2		0	0		2			0			10	
% Bicycles	0	5.7		0		5.6		7.7	0	0		7.5	15.4		0	0		12.5			0			7.3	
Peds					0	-					0	-					1	-				9	-	10	
% Peds					0	-					0	-					10	-				90	-		



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

From: 15:30:00
To: 16:30:00

Intersection: White Oaks Rd & The Blvd

Site ID: 2001300121

Count Date: Aug 19, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: White Oaks Rd runs N/S

North Approach

	Out	In	Total
	49	50	99
	7	6	13
	5	7	12
Totals	61	63	124

White Oaks Rd

	5	0	0
	7	0	0
	48	1	0
Totals	60	1	0

Peds: 0

Peds: 9



Peds: 0

Peds: 0

Totals	62	11	0
	50	7	0
	6	1	0
	6	3	0

White Oaks Rd

East Approach

	Out	In	Total
	5	8	13
	1	1	2
	4	3	7
Totals	10	12	22

The Blvd

Totals			
0	0	0	0
1	0	0	1
9	5	1	3

South Approach

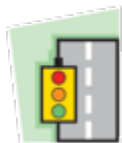
	Out	In	Total
	57	53	110
	7	8	15
	9	8	17
Totals	73	69	142

- Cars

- Trucks

- Bicycles

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: White Oaks Rd & The Blvd
Count Date: Aug 19, 2020
Period: 15:00 - 18:00

Peak Hour Data (15:30 - 16:30)

	North Approach White Oaks Rd						South Approach White Oaks Rd						East Approach The Blvd						West Approach						Total Vehic es				
Start Time					Peds	Total					Peds	Total					Peds	Total					Peds	Total					
15:30	0	14		0	0	14		20	4	0	0	24	0		0	0	0	0	0		2		38						
15:45	0	12		0	0	12		12	2	0	0	14	2		1	0	0	3	4		29								
16:00	1	20		0	0	21		13	3	0	0	16	4		0	0	0	4	2		41								
16:15	0	14		0	0	14		17	2	0	0	19	3		0	0	0	3	1		36								
Grand Total	1	60		0	0	61		62	11	0	0	73	9		1	0	0	10		9	0	144							
Approach %	1.6	98.4		0		-		84.9	15.1	0		-	90		10	0		-			-								
Totals %	0.7	41.7		0		42.4		43.1	7.6	0		50.7	6.3		0.7	0		6.9		0									
PHF	0.25	0.75		0		0.73		0.78	0.69	0		0.76	0.56		0.25	0		0.63		0		0.88							
Cars	1	48		0		49		50	7	0		57	5		0	0		5		0		111							
% Cars	100	80		0		80.3		80.6	63.6	0		78.1	55.6		0	0		50		0		77.1							
Trucks	0	7		0		7		6	1	0		7	1		0	0		1		0		15							
% Trucks	0	11.7		0		11.5		9.7	9.1	0		9.6	11.1		0	0		10		0		10.4							
Bicycles	0	5		0		5		6	3	0		9	3		1	0		4		0		18							
% Bicycles	0	8.3		0		8.2		9.7	27.3	0		12.3	33.3		100	0		40		0		12.5							
Peds						0	-						0	-						0	-						9	-	9
% Peds						0	-						0	-						0	-						100	-	

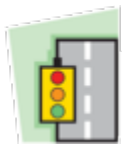


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #20-013 - City of Barrie

Intersection Count Report

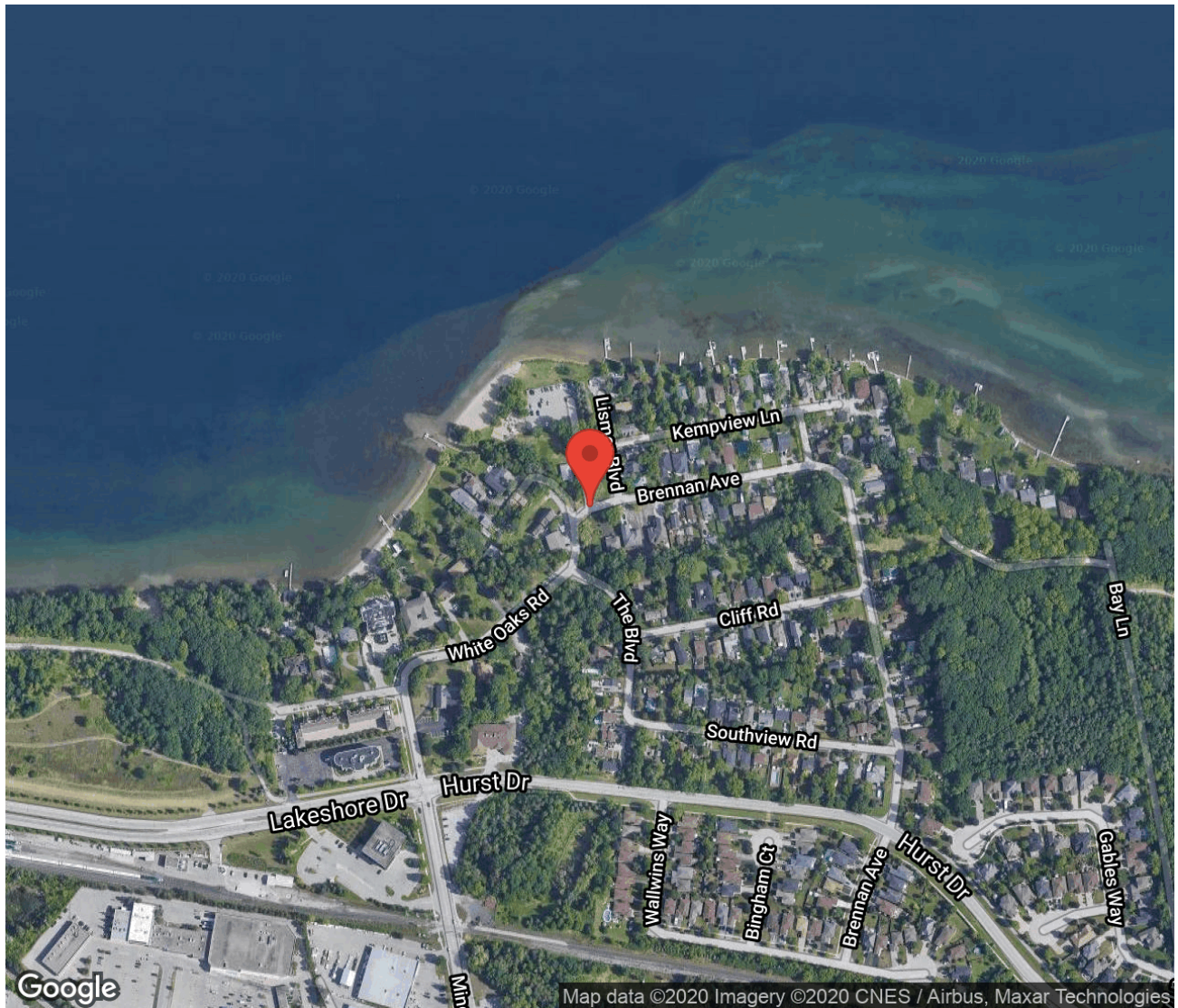
Intersection:	Brennan Ave & Minet's Point Park
Municipality:	Barrie
Count Date:	Aug 19, 2020
Site Code:	2001300122
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 11:00-14:00, 15:00-18:00
Weather:	Clear

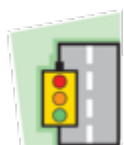


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Map

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020





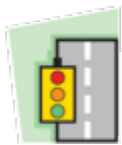
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020

Minet's Point Park - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	2	0	10	0	12	0	0	0	0	0	0	0
08:00 - 09:00	2	0	16	0	18	7	0	0	1	0	1	1
BREAK												
11:00 - 12:00	3	0	28	0	31	5	0	0	0	0	0	0
12:00 - 13:00	8	0	47	0	55	2	0	0	0	0	0	3
13:00 - 14:00	8	0	27	0	35	4	0	0	0	0	0	0
BREAK												
15:00 - 16:00	8	0	35	0	43	4	0	0	0	0	0	2
16:00 - 17:00	7	0	36	0	43	1	0	0	0	0	0	4
17:00 - 18:00	2	0	32	0	34	5	0	0	0	0	0	2
GRAND TOTAL	40	0	231	0	271	28	0	0	1	0	1	12



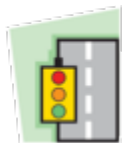
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020

Brennan Ave - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	0	5	4	0	9	0	17	3	0	0	20	4
08:00 - 09:00	0	12	0	0	12	0	17	4	0	1	22	13
BREAK												
11:00 - 12:00	0	10	4	0	14	1	34	20	0	0	54	12
12:00 - 13:00	1	11	5	0	17	0	44	25	0	0	69	1
13:00 - 14:00	0	24	2	0	26	1	36	15	0	0	51	2
BREAK												
15:00 - 16:00	0	18	5	0	23	0	37	13	0	0	50	0
16:00 - 17:00	0	14	5	0	19	2	29	25	0	0	54	2
17:00 - 18:00	0	16	2	0	18	0	29	20	0	0	49	4
GRAND TOTAL	1	110	27	0	138	4	243	125	0	1	369	38



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

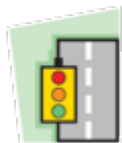
Intersection: Brennan Ave & Minet's Point Park

Municipality: Barrie

Count Date: Aug 19, 2020

North Approach - Minet's Point Park

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	0	3	0	3	0	0	1	0	1	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
07:30	1	0	1	0	2	0	0	1	0	1	0	0	0	0	0	0
07:45	0	0	3	0	3	1	0	0	0	1	0	0	0	0	0	0
08:00	0	0	3	0	3	0	0	2	0	2	0	0	1	0	1	0
08:15	0	0	2	0	2	0	0	1	0	1	0	0	0	0	0	2
08:30	1	0	3	0	4	1	0	1	0	2	0	0	0	0	0	4
08:45	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	2	0	18	0	20	2	0	6	0	8	0	0	2	0	2	7



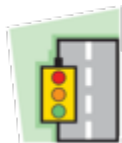
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020

North Approach - Minet's Point Park

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	2
11:15	2	0	7	0	9	0	0	0	0	0	0	0	0	0	0	0
11:30	1	0	12	0	13	0	0	0	0	0	0	0	0	0	0	2
11:45	0	0	4	0	4	0	0	0	0	0	0	0	1	0	1	1
12:00	1	0	6	0	7	0	0	4	0	4	0	0	1	0	1	0
12:15	0	0	9	0	9	0	0	3	0	3	3	0	0	0	3	0
12:30	0	0	10	0	10	0	0	2	0	2	2	0	1	0	3	2
12:45	2	0	11	0	13	0	0	0	0	0	0	0	0	0	0	0
13:00	1	0	5	0	6	0	0	0	0	0	2	0	0	0	2	0
13:15	2	0	7	0	9	0	0	1	0	1	0	0	0	0	0	2
13:30	1	0	3	0	4	1	0	1	0	2	0	0	2	0	2	1
13:45	1	0	5	0	6	0	0	2	0	2	0	0	1	0	1	1
SUBTOTAL	11	0	83	0	94	1	0	13	0	14	7	0	6	0	13	11



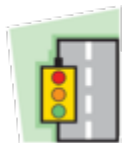
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020

North Approach - Minet's Point Park

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	3	0	4	0	7	0	0	1	0	1	0	0	1	0	1	0
15:15	4	0	3	0	7	0	0	2	0	2	0	0	1	0	1	2
15:30	1	0	8	0	9	0	0	2	0	2	0	0	0	0	0	0
15:45	0	0	10	0	10	0	0	2	0	2	0	0	1	0	1	2
16:00	2	0	12	0	14	0	0	1	0	1	0	0	0	0	0	1
16:15	1	0	10	0	11	0	0	0	0	0	1	0	2	0	3	0
16:30	2	0	2	0	4	1	0	1	0	2	0	0	0	0	0	0
16:45	0	0	6	0	6	0	0	1	0	1	0	0	1	0	1	0
17:00	1	0	5	0	6	0	0	0	0	0	0	0	0	0	0	1
17:15	0	0	11	0	11	0	0	1	0	1	0	0	0	0	0	0
17:30	0	0	4	0	4	0	0	0	0	0	0	0	2	0	2	1
17:45	1	0	7	0	8	0	0	2	0	2	0	0	0	0	0	3
SUBTOTAL	15	0	82	0	97	1	0	13	0	14	1	0	8	0	9	10
GRAND TOTAL	28	0	183	0	211	4	0	32	0	36	8	0	16	0	24	28



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

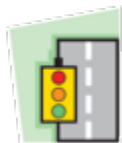
Intersection: Brennan Ave & Minet's Point Park

Municipality: Barrie

Count Date: Aug 19, 2020

East Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
07:30	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0
07:45	0	1	0	0	1	0	1	1	0	2	0	0	0	0	0	0
08:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
08:15	0	3	0	0	3	0	1	0	0	1	0	1	0	0	1	0
08:30	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	13	1	0	14	0	2	2	0	4	0	2	1	0	3	0



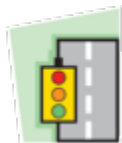
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020

East Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	0	2	2	0	4	0	1	0	0	1	0	0	0	0	0	1
11:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
11:30	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0
11:45	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0	0
12:00	0	1	0	0	1	0	2	1	0	3	0	0	0	0	0	0
12:15	0	1	0	0	1	1	4	1	0	6	0	0	0	0	0	0
12:30	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0
12:45	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0
13:00	0	2	1	0	3	0	1	0	0	1	0	0	0	0	0	0
13:15	0	5	0	0	5	0	2	0	0	2	0	3	0	0	3	1
13:30	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0
13:45	0	3	1	0	4	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	0	27	8	0	35	1	13	3	0	17	0	5	0	0	5	2



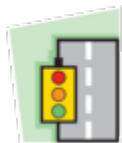
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020

East Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0
15:15	0	1	3	0	4	0	0	1	0	1	0	4	0	0	4	0
15:30	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
15:45	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0
16:00	0	2	5	0	7	0	2	0	0	2	0	1	0	0	1	0
16:15	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0
16:30	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
16:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
17:00	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	0
17:15	0	4	1	0	5	0	0	0	0	0	0	1	0	0	1	0
17:30	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	0
17:45	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	0	34	11	0	45	0	5	1	0	6	0	9	0	0	9	2
GRAND TOTAL	0	74	20	0	94	1	20	6	0	27	0	16	1	0	17	4



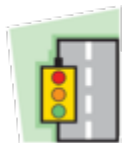
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020

West Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0
07:15	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	0
07:30	6	1	0	0	7	0	1	0	0	1	0	0	0	0	0	2
07:45	3	0	0	0	3	2	0	0	0	2	0	0	0	0	0	2
08:00	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	0
08:15	4	1	0	0	5	2	1	0	0	3	0	0	0	0	0	5
08:30	3	1	0	0	4	2	1	0	0	3	0	0	0	1	1	7
08:45	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	1
SUBTOTAL	24	4	0	0	28	9	3	0	0	12	1	0	0	1	2	17



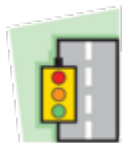
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020

West Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	9	4	0	0	13	1	2	0	0	3	1	1	0	0	2	4
11:15	7	2	0	0	9	0	1	0	0	1	0	3	0	0	3	3
11:30	4	3	0	0	7	0	1	0	0	1	0	0	0	0	0	3
11:45	10	1	0	0	11	1	1	0	0	2	1	1	0	0	2	2
12:00	10	2	0	0	12	1	3	0	0	4	0	1	0	0	1	1
12:15	7	3	0	0	10	0	3	0	0	3	1	0	0	0	1	0
12:30	11	4	0	0	15	1	1	0	0	2	4	0	0	0	4	0
12:45	8	6	0	0	14	1	2	0	0	3	0	0	0	0	0	0
13:00	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	0
13:15	7	4	0	0	11	1	2	0	0	3	2	3	0	0	5	1
13:30	8	3	0	0	11	2	0	0	0	2	0	0	0	0	0	1
13:45	12	2	0	0	14	0	0	0	0	0	1	0	0	0	1	0
SUBTOTAL	96	34	0	0	130	8	17	0	0	25	10	9	0	0	19	15



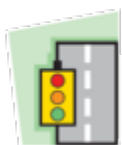
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 19, 2020

West Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	4	2	0	0	6	2	0	0	0	2	1	0	0	0	1	0
15:15	10	4	0	0	14	0	1	0	0	1	0	0	0	0	0	0
15:30	9	2	0	0	11	3	0	0	0	3	1	0	0	0	1	0
15:45	7	3	0	0	10	0	1	0	0	1	0	0	0	0	0	0
16:00	7	4	0	0	11	0	0	0	0	0	0	0	0	0	0	0
16:15	5	8	0	0	13	1	1	0	0	2	3	3	0	0	6	1
16:30	6	1	0	0	7	2	0	0	0	2	1	2	0	0	3	1
16:45	3	5	0	0	8	1	1	0	0	2	0	0	0	0	0	0
17:00	8	4	0	0	12	1	0	0	0	1	0	0	0	0	0	2
17:15	9	3	0	0	12	0	1	0	0	1	0	1	0	0	1	1
17:30	2	4	0	0	6	0	0	0	0	0	2	0	0	0	2	1
17:45	6	4	0	0	10	1	3	0	0	4	0	0	0	0	0	0
SUBTOTAL	76	44	0	0	120	11	8	0	0	19	8	6	0	0	14	6
GRAND TOTAL	196	82	0	0	278	28	28	0	0	56	19	15	0	1	35	38



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 07:45:00
To: 08:45:00

Intersection: Brennan Ave & Minet's Point Park

Site ID: 2001300122

Count Date: Aug 19, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Brennan Ave runs E/W

North Approach

	Out	In	Total
	12	12	24
	6	7	13
	1	1	2
Totals	19	20	39

Minet's Point Park

	1	0	0
	4	2	0
	11	1	0
Totals	16	3	0

East Approach

	Out	In	Total
	9	3	12
	3	5	8
	1	0	1
Totals	13	8	21

Brennan Ave

				Totals
	1	0	0	1
	1	6	12	19
	0	2	2	4

Peds: 14

Peds: 6



Peds: 0

Peds: 1

Brennan Ave

Totals			
	0	0	0
	1	0	1
	12	9	2

West Approach

	Out	In	Total
	14	20	34
	8	6	14
	2	3	5
Totals	24	29	53

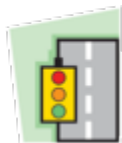
- Cars

- Trucks

- Bicycles

Comments





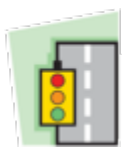
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Brennan Ave & Minet's Point Park
Count Date: Aug 19, 2020
Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Minet's Point Park						South Approach						East Approach Brennan Ave						West Approach Brennan Ave						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:45	1		3	0	0	4					0			2	1	0	0	3	5	0		0	2	5	12
08:00	0		6	0	0	6					1			2	0	0	0	2	3	0		0	0	3	11
08:15	0		3	0	2	3					0			5	0	0	0	5	6	2		0	5	8	16
08:30	2		4	0	4	6					0			3	0	0	0	3	5	2		1	7	8	17
Grand Total	3		16	0	6	19					1	0		12	1	0	0	13	19	4		1	14	24	56
Approach %	15.8		84.2	0	-	-					-	-		92.3	7.7	0	-	-	79.2	16.7		4.2	-	-	-
Totals %	5.4		28.6	0		33.9					0			21.4	1.8	0		23.2	33.9	7.1		1.8		42.9	
PHF	0.38		0.67	0		0.79					0			0.6	0.25	0		0.65	0.79	0.5		0.25		0.75	0.82
Cars	1		11	0		12					0			9	0	0		9	12	2		0		14	35
% Cars	33.3		68.8	0		63.2					0			75	0	0		69.2	63.2	50		0		58.3	62.5
Trucks	2		4	0		6					0			2	1	0		3	6	2		0		8	17
% Trucks	66.7		25	0		31.6					0			16.7	100	0		23.1	31.6	50		0		33.3	30.4
Bicycles	0		1	0		1					0			1	0	0		1	1	0		1		2	4
% Bicycles	0		6.3	0		5.3					0			8.3	0	0		7.7	5.3	0		100		8.3	7.1
Peds					6	-					1	-					0	-					14	-	21
% Peds					28.6	-					4.8	-					0	-					66.7	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:00:00
To: 13:00:00

Intersection: Brennan Ave & Minet's Point Park

Site ID: 2001300122

Count Date: Aug 19, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Brennan Ave runs E/W

North Approach

	Out	In	Total
	39	39	78
	9	5	14
	7	5	12
Totals	55	49	104

Minet's Point Park

	2	5	0
	9	0	0
	36	3	0
Totals	47	8	0

East Approach

	Out	In	Total
	7	18	25
	9	9	18
	1	6	7
Totals	17	33	50

Brennan Ave

				Totals
	0	0	0	0
	5	3	36	44
	1	9	15	25

Peds: 1

Peds: 2



Peds: 0

Peds: 3

Brennan Ave

Totals			
0	0	0	0
5	3	2	0
11	4	6	1

West Approach

	Out	In	Total
	51	40	91
	12	15	27
	6	3	9
Totals	69	58	127

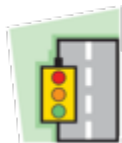
- Cars

- Trucks

- Bicycles

Comments





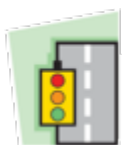
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Brennan Ave & Minet's Point Park
Count Date: Aug 19, 2020
Period: 11:00 - 14:00

Peak Hour Data (12:00 - 13:00)

Start Time	North Approach Minet's Point Park						South Approach						East Approach Brennan Ave						West Approach Brennan Ave						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
12:00	1		11	0	0	12					0			3	1	0	0	4	11	6		0	1	17	33
12:15	3		12	0	0	15					3			5	1	0	0	6	8	6		0	0	14	35
12:30	2		13	0	2	15					0			2	1	0	0	3	16	5		0	0	21	39
12:45	2		11	0	0	13					0			1	2	0	0	3	9	8		0	0	17	33
Grand Total	8		47	0	2	55					3	0		11	5	0	0	16	44	25		0	1	69	140
Approach %	14.5		85.5	0	-	-					-	-		68.8	31.3	0	-	-	63.8	36.2		0	-	-	-
Totals %	5.7		33.6	0		39.3					0			7.9	3.6	0		11.4	31.4	17.9		0		49.3	
PHF	0.67		0.9	0		0.92					0			0.55	0.63	0		0.67	0.69	0.78		0		0.82	0.9
Cars	3		36	0		39					0			4	3	0		7	36	15		0		51	97
% Cars	37.5		76.6	0		70.9					0			36.4	60	0		43.8	81.8	60		0		73.9	69.3
Trucks	0		9	0		9					0			6	2	0		8	3	9		0		12	29
% Trucks	0		19.1	0		16.4					0			54.5	40	0		50	6.8	36		0		17.4	20.7
Bicycles	5		2	0		7					0			1	0	0		1	5	1		0		6	14
% Bicycles	62.5		4.3	0		12.7					0			9.1	0	0		6.3	11.4	4		0		8.7	10
Peds					2	-					3	-					0	-					1	-	6
% Peds					33.3	-					50	-					0	-					16.7	-	



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

From: 15:30:00
To: 16:30:00

Intersection: Brennan Ave & Minet's Point Park

Site ID: 2001300122

Count Date: Aug 19, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Brennan Ave runs E/W

North Approach

	Out	In	Total
	44	34	78
	5	4	9
	4	4	8
Totals	53	42	95

Minet's Point Park

	3	1	0
	5	0	0
	40	4	0
Totals	48	5	0

East Approach

	Out	In	Total
	16	21	37
	3	2	5
	1	4	5
Totals	20	27	47

Brennan Ave

			Totals
0	0	0	0
4	4	28	36
3	2	17	22

Peds: 1

Peds: 3



Peds: 0

Peds: 5

Brennan Ave

Totals			
0	0	0	0
6	6	0	0
14	10	3	1

West Approach

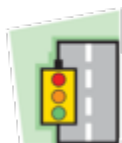
	Out	In	Total
	45	50	95
	6	8	14
	7	4	11
Totals	58	62	120

- Cars

- Trucks

- Bicycles

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Brennan Ave & Minet's Point Park
Count Date: Aug 19, 2020
Period: 15:00 - 18:00

Peak Hour Data (15:30 - 16:30)

Start Time	North Approach Minet's Point Park						South Approach						East Approach Brennan Ave						West Approach Brennan Ave						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
15:30	1		10	0	0	11					0			4	0	0	0	4	13	2		0	0	15	30
15:45	0		13	0	2	13					1			2	1	0	0	3	7	4		0	0	11	27
16:00	2		13	0	1	15					3			5	5	0	0	10	7	4		0	0	11	36
16:15	2		12	0	0	14					1			3	0	0	0	3	9	12		0	1	21	38
Grand Total	5		48	0	3	53					5	0		14	6	0	0	20	36	22		0	1	58	131
Approach %	9.4		90.6	0	-	-					-	-		70	30	0	-	-	62.1	37.9		0	-	-	-
Totals %	3.8		36.6	0	40.5						0			10.7	4.6	0	15.3		27.5	16.8		0		44.3	
PHF	0.63		0.92	0	0.88						0			0.7	0.3	0	0.5		0.69	0.46		0		0.69	0.86
Cars	4		40	0		44					0			10	6	0		16	28	17		0		45	105
% Cars	80		83.3	0		83					0			71.4	100	0		80	77.8	77.3		0		77.6	80.2
Trucks	0		5	0		5					0			3	0	0		3	4	2		0		6	14
% Trucks	0		10.4	0		9.4					0			21.4	0	0		15	11.1	9.1		0		10.3	10.7
Bicycles	1		3	0		4					0			1	0	0		1	4	3		0		7	12
% Bicycles	20		6.3	0		7.5					0			7.1	0	0		5	11.1	13.6		0		12.1	9.2
Peds					3	-					5	-					0	-					1	-	9
% Peds					33.3	-					55.6	-					0	-					11.1	-	

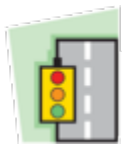


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #20-013 - City of Barrie

Intersection Count Report

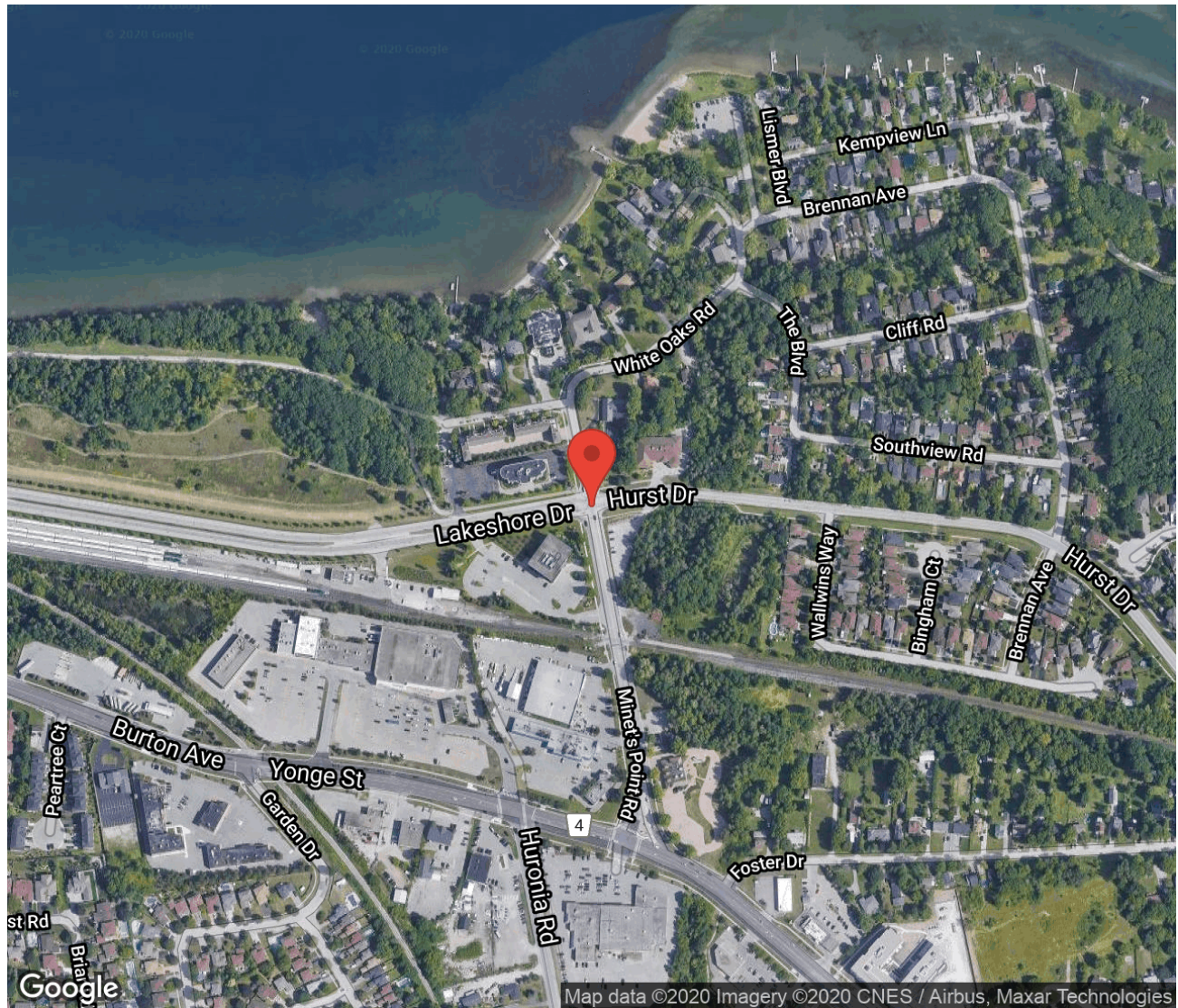
Intersection:	Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality:	Barrie
Count Date:	Aug 22, 2020
Site Code:	2001300123
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-19:00
Weather:	Clear

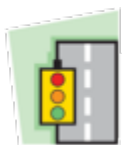


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Map

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020





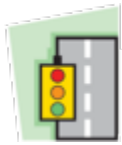
Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

Minet's Point Rd - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	0	12	9	0	21	2	107	13	18	0	138	0
08:00 - 09:00	1	26	16	0	43	6	184	21	36	0	241	0
09:00 - 10:00	10	26	28	0	64	2	306	33	48	0	387	3
10:00 - 11:00	7	48	28	0	83	5	367	41	71	0	479	4
11:00 - 12:00	6	31	38	0	75	4	431	43	59	0	533	1
12:00 - 13:00	13	42	49	0	104	2	410	43	78	0	531	0
13:00 - 14:00	15	29	38	0	82	2	457	46	85	0	588	2
14:00 - 15:00	10	31	46	0	87	1	420	44	72	0	536	0
15:00 - 16:00	10	48	54	0	112	0	358	55	58	0	471	0
16:00 - 17:00	8	36	36	0	80	1	281	40	57	0	378	1
17:00 - 18:00	11	40	30	0	81	2	244	44	57	0	345	0
18:00 - 19:00	9	30	42	0	81	3	239	28	40	0	307	1
GRAND TOTAL	100	399	414	0	913	30	3804	451	679	0	4934	12



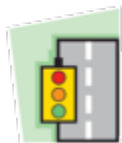
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

Hurst Dr - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	21	115	4	0	140	2	11	74	72	0	157	6
08:00 - 09:00	45	220	5	0	270	1	16	128	152	0	296	7
09:00 - 10:00	55	307	4	0	366	2	29	218	225	0	472	3
10:00 - 11:00	76	345	12	0	433	1	31	242	271	1	545	9
11:00 - 12:00	51	319	18	0	388	1	34	309	325	2	670	5
12:00 - 13:00	59	300	10	0	369	0	34	311	295	0	640	1
13:00 - 14:00	51	326	14	0	391	4	35	333	335	0	703	4
14:00 - 15:00	54	298	10	0	362	0	47	324	317	0	688	8
15:00 - 16:00	54	288	12	0	354	0	44	357	337	0	738	8
16:00 - 17:00	51	267	4	0	322	0	41	321	316	0	678	7
17:00 - 18:00	33	226	7	0	266	2	30	288	306	0	624	6
18:00 - 19:00	26	237	6	0	269	2	29	297	293	0	619	9
GRAND TOTAL	576	3248	106	0	3930	15	381	3202	3244	3	6830	73



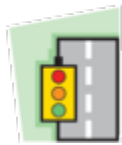
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

North Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	2	0	0	2	0	1	0	0	1	0	0	2	0	2	1
07:15	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	1
07:30	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0
07:45	0	3	3	0	6	0	0	1	0	1	0	1	0	0	1	0
08:00	0	4	3	0	7	0	0	1	0	1	0	1	1	0	2	0
08:15	0	5	2	0	7	0	1	0	0	1	0	0	0	0	0	2
08:30	1	4	6	0	11	0	2	0	0	2	0	0	0	0	0	2
08:45	0	7	3	0	10	0	2	0	0	2	0	0	0	0	0	2
09:00	2	2	4	0	8	0	2	1	0	3	3	1	0	0	4	0
09:15	0	4	2	0	6	0	0	3	0	3	2	0	1	0	3	2
09:30	1	9	6	0	16	0	2	3	0	5	0	0	1	0	1	0
09:45	1	6	2	0	9	0	0	4	0	4	1	0	1	0	2	0
10:00	1	7	2	0	10	0	1	1	0	2	0	1	0	0	1	5
10:15	2	19	4	0	25	1	1	2	0	4	0	1	0	0	1	0
10:30	1	8	7	0	16	0	3	1	0	4	1	0	0	0	1	0
10:45	1	7	8	0	16	0	0	3	0	3	0	0	0	0	0	0
11:00	1	8	4	0	13	0	3	4	0	7	0	0	2	0	2	2
11:15	0	1	6	0	7	0	1	1	0	2	0	2	0	0	2	2
11:30	3	6	13	0	22	0	1	0	0	1	0	0	1	0	1	0
11:45	1	7	4	0	12	1	1	3	0	5	0	1	0	0	1	0
12:00	2	6	10	0	18	0	1	0	0	1	2	1	0	0	3	0



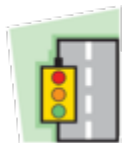
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

North Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:15	2	6	5	0	13	0	2	6	0	8	0	0	0	0	0	0
12:30	2	8	13	0	23	0	2	3	0	5	2	3	0	0	5	0
12:45	1	10	10	0	21	1	3	2	0	6	1	0	0	0	1	2
13:00	4	5	7	0	16	0	0	2	0	2	0	0	0	0	0	0
13:15	3	8	9	0	20	0	1	2	0	3	2	2	0	0	4	2
13:30	1	6	10	0	17	0	0	0	0	0	0	1	0	0	1	0
13:45	4	6	8	0	18	0	0	0	0	0	1	0	0	0	1	0
14:00	3	5	7	0	15	0	2	5	0	7	0	0	0	0	0	0
14:15	2	5	10	0	17	0	2	2	0	4	1	1	1	0	3	0
14:30	3	10	6	0	19	0	0	3	0	3	0	0	0	0	0	1
14:45	1	6	10	0	17	0	0	2	0	2	0	0	0	0	0	0
15:00	0	11	13	0	24	0	0	3	0	3	0	0	0	0	0	0
15:15	4	15	7	0	26	0	1	1	0	2	2	1	0	0	3	0
15:30	2	9	16	0	27	0	1	1	0	2	0	1	0	0	1	0
15:45	1	6	9	0	16	0	1	3	0	4	1	2	1	0	4	0
16:00	2	8	6	0	16	1	1	0	0	2	0	1	0	0	1	1
16:15	1	7	9	0	17	0	0	1	0	1	0	0	0	0	0	0
16:30	4	11	11	0	26	0	1	0	0	1	0	0	0	0	0	0
16:45	0	7	7	0	14	0	0	2	0	2	0	0	0	0	0	0
17:00	2	8	2	0	12	0	1	1	0	2	0	0	0	0	0	0
17:15	3	7	8	0	18	0	1	0	0	1	0	0	0	0	0	1



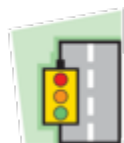
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

North Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	0	13	8	0	21	0	1	0	0	1	0	0	2	0	2	1
17:45	5	8	9	0	22	1	1	0	0	2	0	0	0	0	0	0
18:00	2	7	10	0	19	0	0	3	0	3	1	1	0	0	2	0
18:15	1	4	8	0	13	0	0	0	0	0	1	0	0	0	1	2
18:30	3	9	9	0	21	0	3	1	0	4	0	1	0	0	1	1
18:45	1	5	10	0	16	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	74	329	329	0	732	5	46	72	0	123	21	24	13	0	58	30
GRAND TOTAL	74	329	329	0	732	5	46	72	0	123	21	24	13	0	58	30



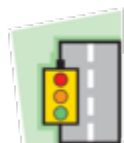
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

South Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	22	2	1	0	25	5	0	1	0	6	0	0	0	0	0	0
07:15	23	2	3	0	28	3	0	1	0	4	0	0	0	0	0	0
07:30	27	6	7	0	40	3	1	0	0	4	1	0	0	0	1	0
07:45	21	1	5	0	27	2	1	0	0	3	0	0	0	0	0	0
08:00	31	3	5	0	39	3	1	1	0	5	1	1	1	0	3	0
08:15	38	4	9	0	51	3	0	0	0	3	1	3	1	0	5	0
08:30	42	3	8	0	53	9	0	2	0	11	0	0	0	0	0	0
08:45	44	4	8	0	56	12	0	1	0	13	0	2	0	0	2	0
09:00	57	10	6	0	73	19	1	2	0	22	0	0	0	0	0	2
09:15	60	8	7	0	75	13	3	3	0	19	0	0	0	0	0	0
09:30	66	3	16	0	85	8	0	2	0	10	0	0	0	0	0	0
09:45	70	6	9	0	85	13	2	3	0	18	0	0	0	0	0	1
10:00	65	4	16	0	85	6	1	6	0	13	0	2	0	0	2	2
10:15	85	8	12	0	105	14	2	3	0	19	0	0	0	0	0	1
10:30	84	4	17	0	105	6	2	2	0	10	0	0	0	0	0	0
10:45	89	15	14	0	118	15	3	1	0	19	3	0	0	0	3	1
11:00	100	5	15	0	120	12	0	0	0	12	0	1	0	0	1	1
11:15	99	7	14	0	120	11	1	3	0	15	0	0	0	0	0	0
11:30	88	8	11	0	107	14	2	2	0	18	1	2	0	0	3	0
11:45	93	15	12	0	120	12	2	2	0	16	1	0	0	0	1	0
12:00	96	12	17	0	125	12	0	2	0	14	0	2	0	0	2	0



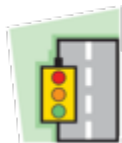
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

South Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:15	97	10	19	0	126	21	1	3	0	25	0	1	0	0	1	0
12:30	69	6	17	0	92	9	2	2	0	13	0	0	0	0	0	0
12:45	98	9	14	0	121	8	0	4	0	12	0	0	0	0	0	0
13:00	87	8	20	0	115	11	1	4	0	16	0	0	0	0	0	0
13:15	94	7	22	0	123	12	1	2	0	15	0	2	0	0	2	2
13:30	127	17	12	0	156	11	1	3	0	15	0	0	0	0	0	0
13:45	104	8	22	0	134	11	1	0	0	12	0	0	0	0	0	0
14:00	98	7	18	0	123	17	1	3	0	21	0	1	0	0	1	0
14:15	101	12	15	0	128	10	3	2	0	15	0	0	0	0	0	0
14:30	100	7	17	0	124	9	1	3	0	13	0	3	0	0	3	0
14:45	79	8	12	0	99	6	1	2	0	9	0	0	0	0	0	0
15:00	78	11	6	0	95	18	1	0	0	19	0	3	0	0	3	0
15:15	67	10	16	0	93	11	3	3	0	17	0	1	0	0	1	0
15:30	74	16	11	0	101	17	1	4	0	22	1	0	0	0	1	0
15:45	78	7	14	0	99	13	1	4	0	18	1	1	0	0	2	0
16:00	70	6	16	0	92	12	0	1	0	13	0	2	0	0	2	0
16:15	58	10	15	0	83	1	1	3	0	5	0	0	0	0	0	1
16:30	66	8	13	0	87	5	1	1	0	7	0	0	0	0	0	0
16:45	63	10	6	0	79	5	2	2	0	9	1	0	0	0	1	0
17:00	67	12	17	0	96	2	1	1	0	4	0	0	0	0	0	0
17:15	60	9	15	0	84	4	0	1	0	5	1	1	0	0	2	0



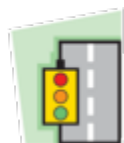
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

South Approach - Minet's Point Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	46	13	7	0	66	3	0	1	0	4	2	0	0	0	2	0
17:45	57	7	13	0	77	2	1	2	0	5	0	0	0	0	0	0
18:00	50	8	8	0	66	6	0	2	0	8	0	0	0	0	0	0
18:15	65	6	8	0	79	9	2	1	0	12	0	0	0	0	0	0
18:30	58	6	6	0	70	3	0	0	0	3	0	1	0	0	1	0
18:45	43	4	14	0	61	5	1	1	0	7	0	0	0	0	0	1
SUBTOTAL	3354	372	585	0	4311	436	50	92	0	578	14	29	2	0	45	12
GRAND TOTAL	3354	372	585	0	4311	436	50	92	0	578	14	29	2	0	45	12



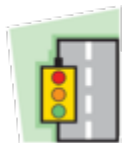
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	3	11	0	0	14	0	2	0	0	2	0	0	0	0	0	1
07:15	2	19	1	0	22	0	2	0	0	2	0	2	0	0	2	0
07:30	7	27	1	0	35	1	9	0	0	10	0	2	1	0	3	0
07:45	7	37	1	0	45	1	1	0	0	2	0	3	0	0	3	1
08:00	5	34	0	0	39	2	11	0	0	13	1	3	0	0	4	0
08:15	6	41	0	0	47	1	5	0	0	6	0	3	0	0	3	0
08:30	13	41	0	0	54	2	13	0	0	15	0	1	1	0	2	1
08:45	14	56	4	0	74	1	4	0	0	5	0	8	0	0	8	0
09:00	8	48	1	0	57	3	16	0	0	19	0	5	0	0	5	1
09:15	12	60	0	0	72	4	12	0	0	16	0	0	0	0	0	1
09:30	16	69	1	0	86	2	13	0	0	15	0	0	2	0	2	0
09:45	9	74	0	0	83	1	6	0	0	7	0	4	0	0	4	0
10:00	13	66	1	0	80	7	9	0	0	16	0	3	0	0	3	1
10:15	18	70	0	0	88	3	14	0	0	17	0	3	4	0	7	0
10:30	19	70	3	0	92	1	13	0	0	14	0	1	3	0	4	0
10:45	13	78	1	0	92	2	17	0	0	19	0	1	0	0	1	0
11:00	14	57	0	0	71	2	10	1	0	13	0	0	0	0	0	1
11:15	9	54	2	0	65	1	18	1	0	20	0	0	2	0	2	0
11:30	11	83	3	0	97	1	15	1	0	17	0	3	2	0	5	0
11:45	12	64	4	0	80	1	13	0	0	14	0	2	2	0	4	0
12:00	15	67	2	0	84	0	14	0	0	14	0	0	1	0	1	0



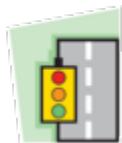
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:15	13	51	1	0	65	3	9	0	0	12	0	3	0	0	3	0
12:30	11	73	2	0	86	2	11	1	0	14	0	4	2	0	6	0
12:45	14	56	0	0	70	1	10	0	0	11	0	2	1	0	3	0
13:00	11	69	0	0	80	3	12	1	0	16	0	0	0	0	0	0
13:15	10	64	4	0	78	1	12	0	0	13	0	2	0	0	2	3
13:30	10	76	3	0	89	2	15	0	0	17	0	0	0	0	0	1
13:45	12	68	2	0	82	2	7	1	0	10	0	1	3	0	4	0
14:00	15	77	2	0	94	2	6	0	0	8	0	1	0	0	1	0
14:15	14	64	3	0	81	1	9	1	0	11	0	0	1	0	1	0
14:30	9	69	2	0	80	3	12	0	0	15	0	1	0	0	1	0
14:45	10	51	1	0	62	0	8	0	0	8	0	0	0	0	0	0
15:00	10	74	2	0	86	3	13	1	0	17	0	1	1	0	2	0
15:15	9	59	0	0	68	6	8	0	0	14	0	1	1	0	2	0
15:30	8	50	5	0	63	2	8	0	0	10	0	0	0	0	0	0
15:45	15	61	2	0	78	1	13	0	0	14	0	0	0	0	0	0
16:00	16	65	0	0	81	5	12	0	0	17	1	1	0	0	2	0
16:15	6	68	1	0	75	1	3	0	0	4	0	0	0	0	0	0
16:30	11	59	0	0	70	1	4	0	0	5	0	0	0	0	0	0
16:45	8	44	2	0	54	2	11	1	0	14	0	0	0	0	0	0
17:00	6	60	0	0	66	1	4	0	0	5	0	1	0	0	1	0
17:15	4	48	4	0	56	5	8	0	0	13	0	1	0	0	1	0



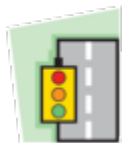
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	7	48	0	0	55	1	7	0	0	8	0	0	1	0	1	1
17:45	7	44	1	0	52	2	5	0	0	7	0	0	1	0	1	1
18:00	5	54	1	0	60	1	7	1	0	9	0	0	0	0	0	0
18:15	5	47	2	0	54	1	9	0	0	10	0	0	0	0	0	1
18:30	7	51	0	0	58	1	13	0	0	14	0	2	0	0	2	1
18:45	5	50	2	0	57	1	4	0	0	5	0	0	0	0	0	0
SUBTOTAL	484	2726	67	0	3277	90	457	10	0	557	2	65	29	0	96	15
GRAND TOTAL	484	2726	67	0	3277	90	457	10	0	557	2	65	29	0	96	15



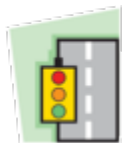
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

West Approach - Lakeshore Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	2	9	8	0	19	1	3	4	0	8	0	0	0	0	0	0
07:15	0	17	14	0	31	2	2	2	0	6	0	1	0	0	1	3
07:30	3	15	14	0	32	0	1	4	0	5	0	0	0	0	0	2
07:45	2	21	25	0	48	1	4	1	0	6	0	1	0	0	1	1
08:00	2	20	27	0	49	3	6	3	0	12	0	0	0	0	0	3
08:15	1	23	26	0	50	0	5	3	0	8	0	1	0	0	1	1
08:30	4	24	39	0	67	1	6	5	0	12	0	3	0	0	3	0
08:45	5	35	44	0	84	0	5	5	0	10	0	0	0	0	0	3
09:00	4	40	35	0	79	1	17	3	0	21	0	1	0	0	1	3
09:15	5	45	46	0	96	3	10	9	0	22	0	0	0	0	0	0
09:30	8	48	48	0	104	1	10	21	0	32	0	2	0	0	2	0
09:45	7	39	55	0	101	0	5	8	0	13	0	1	0	0	1	0
10:00	2	44	66	0	112	1	8	11	0	20	0	1	0	0	1	5
10:15	9	38	60	1	108	3	9	5	0	17	0	0	0	0	0	2
10:30	9	65	56	0	130	1	19	8	0	28	0	0	0	0	0	0
10:45	5	50	58	0	113	1	7	7	0	15	0	1	0	0	1	2
11:00	3	56	56	0	115	2	7	5	0	14	0	1	0	0	1	0
11:15	7	63	73	0	143	1	16	12	0	29	1	2	1	0	4	2
11:30	11	59	59	0	129	2	10	14	0	26	0	2	0	0	2	0
11:45	4	78	93	2	177	3	15	12	0	30	0	0	0	0	0	3
12:00	6	70	63	0	139	1	15	14	0	30	0	0	0	0	0	0



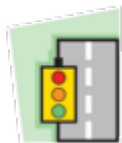
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

West Approach - Lakeshore Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:15	6	72	68	0	146	0	5	5	0	10	0	0	0	0	0	0
12:30	10	70	64	0	144	3	9	6	0	18	0	1	1	0	2	0
12:45	6	62	72	0	140	2	7	2	0	11	0	0	0	0	0	1
13:00	8	75	73	0	156	1	11	16	0	28	0	0	1	0	1	0
13:15	9	73	60	0	142	0	6	17	0	23	2	3	1	0	6	2
13:30	5	69	72	0	146	0	13	7	0	20	0	1	0	0	1	1
13:45	9	69	84	0	162	1	12	4	0	17	0	1	0	0	1	1
14:00	6	59	77	0	142	3	5	10	0	18	0	0	0	0	0	4
14:15	14	68	69	0	151	2	14	7	0	23	0	0	0	0	0	1
14:30	10	74	75	0	159	2	10	13	0	25	0	0	0	0	0	1
14:45	8	84	62	0	154	2	10	4	0	16	0	0	0	0	0	2
15:00	8	84	68	0	160	2	11	7	0	20	0	1	0	0	1	1
15:15	8	70	74	0	152	3	10	7	0	20	0	0	0	0	0	0
15:30	11	78	93	0	182	2	14	5	0	21	0	0	0	0	0	5
15:45	10	77	71	0	158	0	12	12	0	24	0	0	0	0	0	2
16:00	11	59	71	0	141	2	12	12	0	26	0	0	0	0	0	3
16:15	12	80	76	0	168	1	14	11	0	26	0	0	0	0	0	3
16:30	5	70	67	0	142	0	5	12	0	17	0	0	0	0	0	1
16:45	9	75	57	0	141	1	6	10	0	17	0	0	0	0	0	0
17:00	7	76	67	0	150	0	8	4	0	12	0	0	0	0	0	3
17:15	5	47	81	0	133	1	13	9	0	23	0	0	0	0	0	1



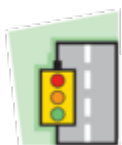
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Municipality: Barrie
Count Date: Aug 22, 2020

West Approach - Lakeshore Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	13	65	68	0	146	0	11	4	0	15	0	0	0	0	0	0
17:45	4	60	67	0	131	0	8	6	0	14	0	0	0	0	0	2
18:00	6	80	69	0	155	0	13	8	0	21	0	0	0	0	0	3
18:15	6	67	66	0	139	0	5	9	0	14	0	0	0	0	0	0
18:30	5	57	70	0	132	4	8	8	0	20	0	0	0	0	0	4
18:45	6	59	54	0	119	2	8	9	0	19	0	0	0	0	0	2
SUBTOTAL	316	2738	2860	3	5917	62	440	380	0	882	3	24	4	0	31	73
GRAND TOTAL	316	2738	2860	3	5917	62	440	380	0	882	3	24	4	0	31	73



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 10:00:00

One Hour Peak

From: 09:00:00
To: 10:00:00

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd

Site ID: 2001300123

Count Date: Aug 22, 2020

Weather conditions:

** Signalized Intersection **

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	39	53	92
	15	11	26
	10	2	12
Totals	64	66	130

Minet's Point Rd

	3	1	6	0
	11	4	0	0
	14	21	4	0
Totals	28	26	10	0

East Approach

	Out	In	Total
	298	214	512
	57	52	109
	11	10	21
Totals	366	276	642

Lakeshore Dr

				Totals
	0	0	0	0
	0	5	24	29
	4	42	172	218
	0	41	184	225

Peds: 2



Peds: 3

Peds: 2

Peds: 3

Hurst Dr

Totals			
	0	0	0
	4	2	0
	307	251	47
	55	45	10

West Approach

	Out	In	Total
	380	518	898
	88	111	199
	4	12	16
Totals	472	641	1113

Totals				
	306	33	48	0
	253	27	38	0
	53	6	10	0
	0	0	0	0

Minet's Point Rd

South Approach

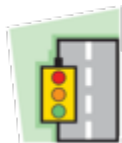
	Out	In	Total
	318	250	568
	69	55	124
	0	1	1
Totals	387	306	693

- Cars

- Trucks

- Bicycles

Comments



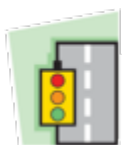
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
Count Date: Aug 22, 2020
Period: 07:00 - 10:00

Peak Hour Data (09:00 - 10:00)

	North Approach Minet's Point Rd						South Approach Minet's Point Rd						East Approach Hurst Dr						West Approach Lakeshore Dr						Total Vehic es	
Start Time					Peds	Total					Peds	Total					Peds	Total					Peds	Total		
09:00	5	5	5	0	0	15	76	11	8	0	2	95	11	69	1	0	1	81	5	58	38	0	3	101	292	
09:15	2	4	6	0	2	12	73	11	10	0	0	94	16	72	0	0	1	88	8	55	55	0	0	118	312	
09:30	1	11	10	0	0	22	74	3	18	0	0	95	18	82	3	0	0	103	9	60	69	0	0	138	358	
09:45	2	6	7	0	0	15	83	8	12	0	1	103	10	84	0	0	0	94	7	45	63	0	0	115	327	
Grand Total	10	26	28	0	2	64	306	33	48	0	3	387	55	307	4	0	2	366	29	218	225	0	3	472	1289	
Approach %	15.6	40.6	43.8	0	-	-	79.1	8.5	12.4	0	-	-	15	83.9	1.1	0	-	-	6.1	46.2	47.7	0	-	-	-	
Totals %	0.8	2	2.2	0	-	5	23.7	2.6	3.7	0	-	30	4.3	23.8	0.3	0	-	28.4	2.2	16.9	17.5	0	-	36.6	-	
PHF	0.5	0.59	0.7	0	-	0.73	0.92	0.75	0.67	0	-	0.94	0.76	0.91	0.33	0	-	0.89	0.81	0.91	0.82	0	-	0.86	0.9	
Cars	4	21	14	0	-	39	253	27	38	0	-	318	45	251	2	0	-	298	24	172	184	0	-	380	1035	
% Cars	40	80.8	50	0	-	60.9	82.7	81.8	79.2	0	-	82.2	81.8	81.8	50	0	-	81.4	82.8	78.9	81.8	0	-	80.5	80.3	
Trucks	0	4	11	0	-	15	53	6	10	0	-	69	10	47	0	0	-	57	5	42	41	0	-	88	229	
% Trucks	0	15.4	39.3	0	-	23.4	17.3	18.2	20.8	0	-	17.8	18.2	15.3	0	0	-	15.6	17.2	19.3	18.2	0	-	18.6	17.8	
Bicycles	6	1	3	0	-	10	0	0	0	0	-	0	0	9	2	0	-	11	0	4	0	0	-	4	25	
% Bicycles	60	3.8	10.7	0	-	15.6	0	0	0	0	-	0	0	2.9	50	0	-	3	0	1.8	0	0	-	0.8	1.9	
Peds	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	3	-	-	10
% Peds	-	-	-	-	20	-	-	-	-	-	30	-	-	-	-	-	20	-	-	-	-	-	30	-	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 10:00:00
To: 14:00:00

One Hour Peak

From: 13:00:00
To: 14:00:00

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd

Site ID: 2001300123

Count Date: Aug 22, 2020

Weather conditions:

** Signalized Intersection **

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	71	80	151
	5	8	13
	6	7	13
Totals	82	95	177

Minet's Point Rd

	0	3	3	0
	4	1	0	0
	34	25	12	0
Totals	38	29	15	0

East Approach

	Out	In	Total
	329	374	703
	56	51	107
	6	8	14
Totals	391	433	824

Lakeshore Dr

				Totals
	0	0	0	0
	2	2	31	35
	5	42	286	333
	2	44	289	335

Peds: 2

Peds: 4



Peds: 4

Peds: 2

Hurst Dr

Totals			
0	0	0	0
14	9	2	3
326	277	46	3
51	43	8	0

West Approach

	Out	In	Total
	606	723	1329
	88	95	183
	9	3	12
Totals	703	821	1524

				
Totals	457	46	85	0
	412	40	76	0
	45	4	9	0
	0	2	0	0

Minet's Point Rd

South Approach

	Out	In	Total
	528	357	885
	58	53	111
	2	5	7
Totals	588	415	1003

- Cars

- Trucks

- Bicycles

Comments

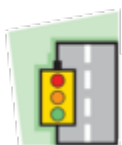


Peak Hour Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
 Count Date: Aug 22, 2020
 Period: 10:00 - 14:00

Peak Hour Data (13:00 - 14:00)

Start Time	North Approach Minet's Point Rd						South Approach Minet's Point Rd						East Approach Hurst Dr						West Approach Lakeshore Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
13:00	4	5	9	0	0	18	98	9	24	0	0	131	14	81	1	0	0	96	9	86	90	0	0	185	430
13:15	5	11	11	0	2	27	106	10	24	0	2	140	11	78	4	0	3	93	11	82	78	0	2	171	431
13:30	1	7	10	0	0	18	138	18	15	0	0	171	12	91	3	0	1	106	5	83	79	0	1	167	462
13:45	5	6	8	0	0	19	115	9	22	0	0	146	14	76	6	0	0	96	10	82	88	0	1	180	441
Grand Total	15	29	38	0	2	82	457	46	85	0	2	588	51	326	14	0	4	391	35	333	335	0	4	703	1764
Approach %	18.3	35.4	46.3	0	-	-	77.7	7.8	14.5	0	-	-	13	83.4	3.6	0	-	-	5	47.4	47.7	0	-	-	-
Totals %	0.9	1.6	2.2	0	-	4.6	25.9	2.6	4.8	0	-	33.3	2.9	18.5	0.8	0	-	22.2	2	18.9	19	0	-	39.9	-
PHF	0.75	0.66	0.86	0	-	0.76	0.83	0.64	0.89	0	-	0.86	0.91	0.9	0.58	0	-	0.92	0.8	0.97	0.93	0	-	0.95	0.95
Cars	12	25	34	0	-	71	412	40	76	0	-	528	43	277	9	0	-	329	31	286	289	0	-	606	1534
% Cars	80	86.2	89.5	0	-	86.6	90.2	87	89.4	0	-	89.8	84.3	85	64.3	0	-	84.1	88.6	85.9	86.3	0	-	86.2	87
Trucks	0	1	4	0	-	5	45	4	9	0	-	58	8	46	2	0	-	56	2	42	44	0	-	88	207
% Trucks	0	3.4	10.5	0	-	6.1	9.8	8.7	10.6	0	-	9.9	15.7	14.1	14.3	0	-	14.3	5.7	12.6	13.1	0	-	12.5	11.7
Bicycles	3	3	0	0	-	6	0	2	0	0	-	2	0	3	3	0	-	6	2	5	2	0	-	9	23
% Bicycles	20	10.3	0	0	-	7.3	0	4.3	0	0	-	0.3	0	0.9	21.4	0	-	1.5	5.7	1.5	0.6	0	-	1.3	1.3
Peds	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	4	-	-	-	-	-	4	-	12
% Peds	-	-	-	-	16.7	-	-	-	-	-	16.7	-	-	-	-	-	33.3	-	-	-	-	-	33.3	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 14:00:00
To: 19:00:00

One Hour Peak

From: 15:00:00
To: 16:00:00

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd

Site ID: 2001300123

Count Date: Aug 22, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	93	90	183
	11	14	25
	8	7	15
Totals	112	111	223

Minet's Point Rd

	1	4	3	0
	8	3	0	0
	45	41	7	0
Totals	54	48	10	0

East Approach

	Out	In	Total
	295	363	658
	55	58	113
	4	4	8
Totals	354	425	779

Lakeshore Dr

				Totals
	0	0	0	0
	0	7	37	44
	1	47	309	357
	0	31	306	337

Peds: 8



Peds: 0

Peds: 0

Hurst Dr

Totals			
	0	0	0
	12	9	1
	288	244	42
	54	42	12

West Approach

	Out	In	Total
	652	586	1238
	85	109	194
	1	5	6
Totals	738	700	1438

Totals				
	358	55	58	0
	297	44	47	0
	59	6	11	0
	2	5	0	0

Minet's Point Rd

South Approach

	Out	In	Total
	388	389	777
	76	46	122
	7	4	11
Totals	471	439	910

- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

Intersection: Lakeshore Dr-Hurst Dr & Minet's Point Rd
 Count Date: Aug 22, 2020
 Period: 14:00 - 19:00

Peak Hour Data (15:00 - 16:00)

Start Time	North Approach Minet's Point Rd						South Approach Minet's Point Rd						East Approach Hurst Dr						West Approach Lakeshore Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
15:00	0	11	16	0	0	27	96	15	6	0	0	117	13	88	4	0	0	105	10	96	75	0	1	181	430
15:15	6	17	8	0	0	31	78	14	19	0	0	111	15	68	1	0	0	84	11	80	81	0	0	172	398
15:30	2	11	17	0	0	30	92	17	15	0	0	124	10	58	5	0	0	73	13	92	98	0	5	203	430
15:45	2	9	13	0	0	24	92	9	18	0	0	119	16	74	2	0	0	92	10	89	83	0	2	182	417
Grand Total	10	48	54	0	0	112	358	55	58	0	0	471	54	288	12	0	0	354	44	357	337	0	8	738	1675
Approach %	8.9	42.9	48.2	0	-	-	76	11.7	12.3	0	-	-	15.3	81.4	3.4	0	-	-	6	48.4	45.7	0	-	-	-
Totals %	0.6	2.9	3.2	0	-	6.7	21.4	3.3	3.5	0	-	28.1	3.2	17.2	0.7	0	-	21.1	2.6	21.3	20.1	0	-	44.1	-
PHF	0.42	0.71	0.79	0	-	0.9	0.93	0.81	0.76	0	-	0.95	0.84	0.82	0.6	0	-	0.84	0.85	0.93	0.86	0	-	0.91	0.97
Cars	7	41	45	0	-	93	297	44	47	0	-	388	42	244	9	0	-	295	37	309	306	0	-	652	1428
% Cars	70	85.4	83.3	0	-	83	83	80	81	0	-	82.4	77.8	84.7	75	0	-	83.3	84.1	86.6	90.8	0	-	88.3	85.3
Trucks	0	3	8	0	-	11	59	6	11	0	-	76	12	42	1	0	-	55	7	47	31	0	-	85	227
% Trucks	0	6.3	14.8	0	-	9.8	16.5	10.9	19	0	-	16.1	22.2	14.6	8.3	0	-	15.5	15.9	13.2	9.2	0	-	11.5	13.6
Bicycles	3	4	1	0	-	8	2	5	0	0	-	7	0	2	2	0	-	4	0	1	0	0	-	1	20
% Bicycles	30	8.3	1.9	0	-	7.1	0.6	9.1	0	0	-	1.5	0	0.7	16.7	0	-	1.1	0	0.3	0	0	-	0.1	1.2
Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	8	-	8
% Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	100	-	-

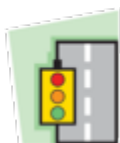


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #20-013 - City of Barrie

Intersection Count Report

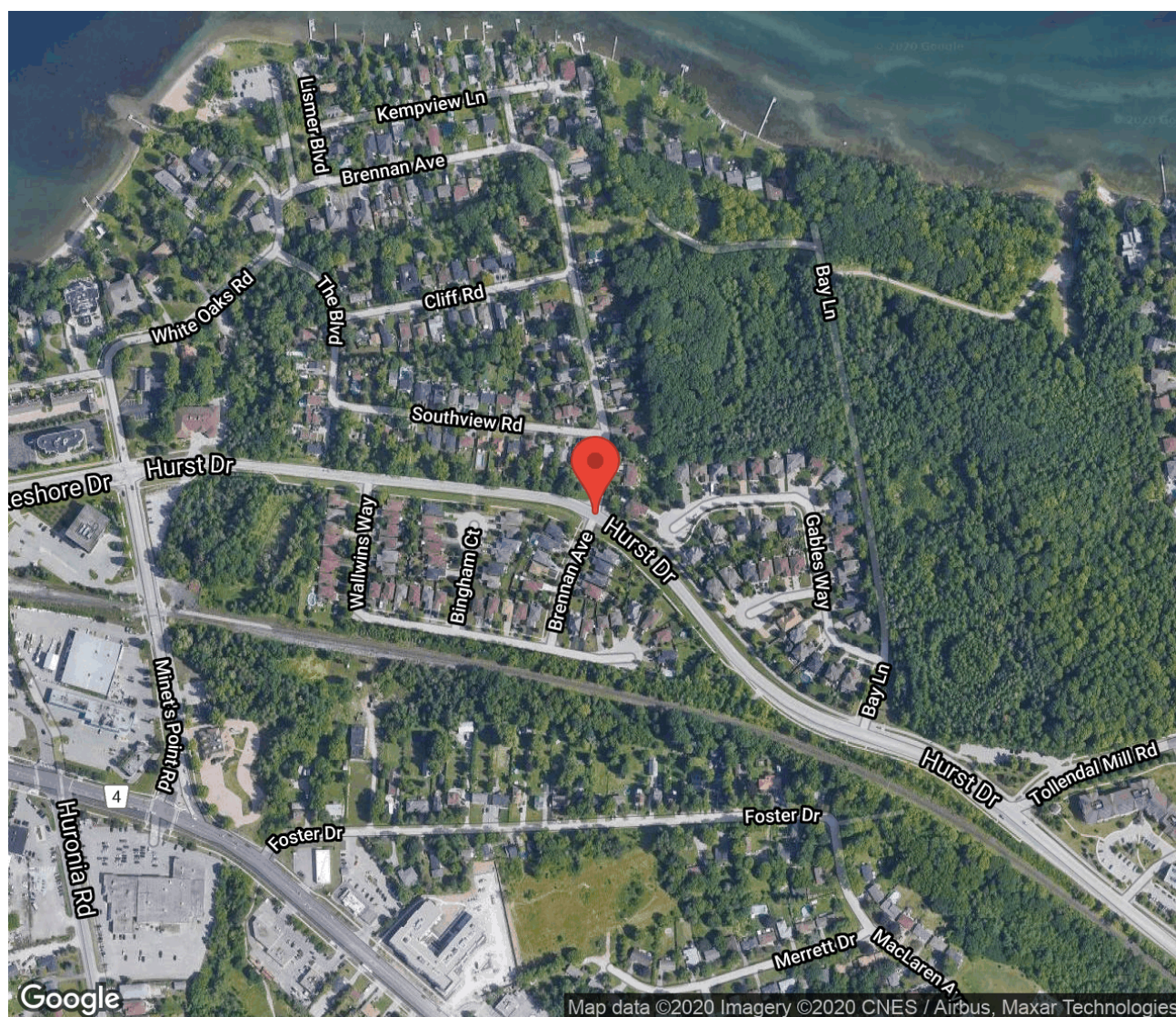
Intersection:	Hurst Dr & Brennan Ave
Municipality:	Barrie
Count Date:	Aug 22, 2020
Site Code:	2001300124
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-19:00
Weather:	Clear

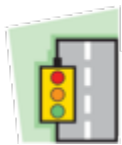


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Map

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020





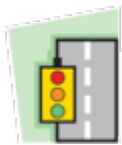
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

Brennan Ave - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	8	0	8	0	16	3	3	0	0	0	3	3
08:00 - 09:00	19	0	10	0	29	3	2	0	1	0	3	3
09:00 - 10:00	26	1	26	0	53	3	7	2	1	0	10	2
10:00 - 11:00	22	1	14	0	37	4	2	2	3	0	7	0
11:00 - 12:00	23	1	13	0	37	0	0	1	9	0	10	1
12:00 - 13:00	19	1	15	0	35	0	6	2	5	0	13	0
13:00 - 14:00	30	2	17	0	49	2	1	1	7	0	9	2
14:00 - 15:00	21	1	9	0	31	1	4	0	4	0	8	0
15:00 - 16:00	16	0	10	0	26	1	3	0	5	0	8	0
16:00 - 17:00	14	1	8	0	23	3	4	0	0	0	4	0
17:00 - 18:00	17	0	10	0	27	0	2	0	5	0	7	0
18:00 - 19:00	25	0	4	0	29	0	0	1	2	0	3	0
GRAND TOTAL	240	8	144	0	392	20	34	9	42	0	85	11



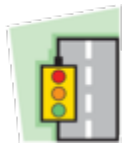
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

Hurst Dr - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	0	128	6	0	134	3	20	78	0	0	98	2
08:00 - 09:00	2	254	22	0	278	2	6	146	1	0	153	2
09:00 - 10:00	3	327	19	0	349	2	23	240	2	0	265	3
10:00 - 11:00	5	412	26	0	443	1	25	283	4	0	312	5
11:00 - 12:00	4	363	10	0	377	1	9	362	3	0	374	1
12:00 - 13:00	3	345	22	0	370	0	23	380	2	0	405	0
13:00 - 14:00	3	375	21	0	399	3	18	403	3	0	424	0
14:00 - 15:00	4	344	22	0	370	0	9	387	4	0	400	0
15:00 - 16:00	3	343	17	0	363	0	8	411	3	0	422	1
16:00 - 17:00	5	320	12	0	337	0	5	382	4	0	391	0
17:00 - 18:00	6	264	7	0	277	3	10	338	2	0	350	1
18:00 - 19:00	2	254	6	0	262	0	9	309	0	0	318	1
GRAND TOTAL	40	3729	190	0	3959	15	165	3719	28	0	3912	16



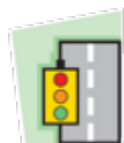
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TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

North Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	3
07:15	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0
07:45	1	0	4	0	5	1	0	0	0	1	1	0	0	0	1	0
08:00	4	0	2	0	6	2	0	0	0	2	2	0	0	0	2	0
08:15	2	0	1	0	3	0	0	0	0	0	1	0	0	0	1	1
08:30	5	0	2	0	7	0	0	1	0	1	2	0	0	0	2	1
08:45	1	0	4	0	5	0	0	0	0	0	0	0	0	0	0	1
09:00	2	0	5	0	7	1	0	3	0	4	2	0	0	0	2	0
09:15	1	0	3	0	4	2	0	2	0	4	0	0	0	0	0	3
09:30	7	0	5	0	12	1	0	2	0	3	3	0	0	0	3	0
09:45	4	1	4	0	9	1	0	2	0	3	2	0	0	0	2	0
10:00	4	0	2	0	6	1	0	2	0	3	0	0	0	0	0	2
10:15	2	0	1	0	3	0	0	0	0	0	1	0	0	0	1	1
10:30	5	0	4	0	9	2	0	2	0	4	0	1	0	0	1	1
10:45	4	0	2	0	6	3	0	1	0	4	0	0	0	0	0	0
11:00	4	1	2	0	7	0	0	0	0	0	2	0	0	0	2	0
11:15	4	0	1	0	5	0	0	2	0	2	0	0	0	0	0	0
11:30	1	0	3	0	4	1	0	2	0	3	1	0	0	0	1	0
11:45	8	0	2	0	10	0	0	1	0	1	2	0	0	0	2	0
12:00	5	0	5	0	10	0	0	0	0	0	2	0	0	0	2	0



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

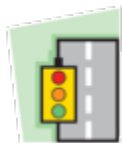
Intersection: Hurst Dr & Brennan Ave

Municipality: Barrie

Count Date: Aug 22, 2020

North Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
12:15	4	0	3	0	7	1	0	1	0	2	0	1	0	0	1	0
12:30	3	0	3	0	6	0	0	0	0	0	0	0	0	0	0	0
12:45	3	0	2	0	5	1	0	1	0	2	0	0	0	0	0	0
13:00	5	0	4	0	9	0	0	2	0	2	0	0	0	0	0	2
13:15	2	1	4	0	7	0	0	1	0	1	8	0	0	0	8	0
13:30	4	0	2	0	6	1	0	1	0	2	2	0	0	0	2	0
13:45	6	1	3	0	10	0	0	0	0	0	2	0	0	0	2	0
14:00	8	0	3	0	11	0	0	0	0	0	1	0	0	0	1	0
14:15	3	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0
14:30	4	1	3	0	8	0	0	0	0	0	0	0	0	0	0	0
14:45	3	0	2	0	5	1	0	0	0	1	1	0	0	0	1	1
15:00	3	0	3	0	6	0	0	2	0	2	0	0	0	0	0	0
15:15	1	0	1	0	2	1	0	0	0	1	1	0	0	0	1	0
15:30	2	0	2	0	4	1	0	0	0	1	2	0	0	0	2	1
15:45	2	0	1	0	3	2	0	1	0	3	1	0	0	0	1	0
16:00	5	0	3	0	8	0	0	1	0	1	0	0	0	0	0	3
16:15	3	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0
16:30	2	0	2	0	4	1	0	0	0	1	2	0	0	0	2	0
16:45	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	0
17:00	4	0	1	0	5	0	0	0	0	0	4	0	0	0	4	0
17:15	2	0	3	0	5	0	0	1	0	1	0	0	0	0	0	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave

Municipality: Barrie

Count Date: Aug 22, 2020

North Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
17:30	3	0	3	0	6	0	0	0	0	0	0	0	0	0	0	0
17:45	4	0	1	0	5	0	0	1	0	1	0	0	0	0	0	0
18:00	3	0	1	0	4	0	0	1	0	1	2	0	0	0	2	0
18:15	8	0	1	0	9	1	0	0	0	1	2	0	0	0	2	0
18:30	3	0	0	0	3	0	0	0	0	0	1	0	0	0	1	0
18:45	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	165	5	111	0	281	25	1	33	0	59	50	2	0	0	52	20
GRAND TOTAL	165	5	111	0	281	25	1	33	0	59	50	2	0	0	52	20



Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

Count Date: Aug 22, 2020

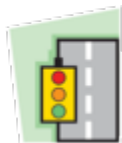
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Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

Count Date: Aug 22, 2020

[illegible]



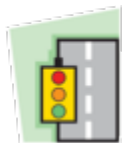
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

South Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
17:45	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0
18:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	30	7	31	0	68	4	2	4	0	10	0	0	7	0	7	11
GRAND TOTAL	30	7	31	0	68	4	2	4	0	10	0	0	7	0	7	11



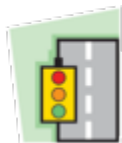
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	0	11	2	0	13	0	2	0	0	2	0	0	0	0	0	1
07:15	0	23	0	0	23	0	2	1	0	3	0	3	0	0	3	1
07:30	0	33	0	0	33	0	10	1	0	11	0	3	0	0	3	0
07:45	0	35	2	0	37	0	3	0	0	3	0	3	0	0	3	1
08:00	0	35	4	0	39	0	14	0	0	14	0	2	1	0	3	0
08:15	0	42	5	0	47	0	5	0	0	5	2	4	2	0	8	0
08:30	0	58	3	0	61	0	13	0	0	13	0	1	1	0	2	0
08:45	0	65	4	0	69	0	6	1	0	7	0	9	1	0	10	2
09:00	1	47	4	0	52	1	16	3	0	20	0	5	0	0	5	2
09:15	0	67	3	0	70	0	11	1	0	12	0	0	0	0	0	0
09:30	0	81	1	0	82	1	15	3	0	19	0	1	2	0	3	0
09:45	0	75	1	0	76	0	5	1	0	6	0	4	0	0	4	0
10:00	0	78	4	0	82	0	15	1	0	16	1	4	2	0	7	1
10:15	0	92	2	0	94	0	13	0	0	13	0	6	0	0	6	0
10:30	3	81	7	0	91	0	13	3	0	16	0	4	2	0	6	0
10:45	1	85	3	0	89	0	19	1	0	20	0	2	1	0	3	0
11:00	1	73	1	0	75	0	9	2	0	11	1	2	0	0	3	1
11:15	0	60	4	0	64	0	16	0	0	16	0	0	2	0	2	0
11:30	1	96	1	0	98	1	16	0	0	17	0	5	0	0	5	0
11:45	0	70	0	0	70	0	12	0	0	12	0	4	0	0	4	0
12:00	0	79	3	0	82	0	15	0	0	15	0	2	1	0	3	0



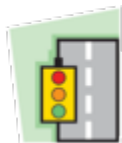
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:15	1	60	8	0	69	0	11	1	0	12	0	1	1	0	2	0
12:30	0	81	4	0	85	0	11	0	0	11	0	6	0	0	6	0
12:45	2	66	2	0	70	0	10	2	0	12	0	3	0	0	3	0
13:00	0	75	2	0	77	0	15	0	0	15	0	0	1	0	1	3
13:15	1	70	5	0	76	0	10	0	0	10	0	2	0	0	2	0
13:30	2	88	3	0	93	0	17	0	0	17	0	0	3	0	3	0
13:45	0	83	4	0	87	0	11	0	0	11	0	4	3	0	7	0
14:00	0	82	4	0	86	0	9	0	0	9	0	0	0	0	0	0
14:15	0	69	7	0	76	0	13	1	0	14	1	1	0	0	2	0
14:30	1	83	4	0	88	0	13	0	0	13	0	1	1	0	2	0
14:45	2	66	4	0	72	0	7	1	0	8	0	0	0	0	0	0
15:00	0	82	4	0	86	1	13	0	0	14	0	3	0	0	3	0
15:15	0	62	2	0	64	0	11	1	0	12	0	1	2	0	3	0
15:30	0	71	1	0	72	0	8	0	0	8	0	0	0	0	0	0
15:45	2	78	3	0	83	0	13	1	0	14	0	1	3	0	4	0
16:00	2	74	3	0	79	0	16	0	0	16	0	1	2	0	3	0
16:15	0	74	2	0	76	0	6	1	0	7	0	0	0	0	0	0
16:30	0	73	3	0	76	0	3	0	0	3	1	0	0	0	1	0
16:45	1	60	1	0	62	1	13	0	0	14	0	0	0	0	0	0
17:00	1	66	0	0	67	0	5	0	0	5	0	0	0	0	0	0
17:15	1	54	2	0	57	0	13	0	0	13	0	1	1	0	2	1



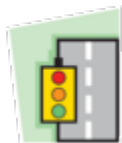
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	2	49	0	0	51	0	7	0	0	7	0	3	0	0	3	1
17:45	2	61	3	0	66	0	5	0	0	5	0	0	1	0	1	1
18:00	0	55	1	0	56	0	8	0	0	8	0	0	0	0	0	0
18:15	0	50	4	0	54	0	9	0	0	9	0	0	0	0	0	0
18:30	1	62	0	0	63	0	11	0	0	11	0	2	0	0	2	0
18:45	0	51	1	0	52	1	6	0	0	7	0	0	0	0	0	0
SUBTOTAL	28	3131	131	0	3290	6	504	26	0	536	6	94	33	0	133	15
GRAND TOTAL	28	3131	131	0	3290	6	504	26	0	536	6	94	33	0	133	15



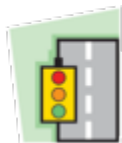
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Hurst Dr & Brennan Ave
Municipality: Barrie
Count Date: Aug 22, 2020

West Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	0	9	0	0	9	0	3	0	0	3	0	0	0	0	0	2
07:15	11	19	0	0	30	0	2	0	0	2	0	1	0	0	1	0
07:30	7	13	0	0	20	0	2	0	0	2	0	0	0	0	0	0
07:45	2	24	0	0	26	0	4	0	0	4	0	1	0	0	1	0
08:00	2	26	0	0	28	0	4	0	0	4	0	0	1	0	1	0
08:15	1	28	0	0	29	0	5	0	0	5	0	1	0	0	1	1
08:30	0	29	0	0	29	1	8	0	0	9	0	1	0	0	1	0
08:45	2	36	0	0	38	0	7	0	0	7	0	1	0	0	1	1
09:00	4	40	1	0	45	1	18	0	0	19	0	3	0	0	3	0
09:15	5	41	0	0	46	1	11	0	0	12	0	5	0	0	5	0
09:30	9	51	1	0	61	1	12	0	0	13	0	0	0	0	0	1
09:45	2	51	0	0	53	0	8	0	0	8	0	0	0	0	0	2
10:00	9	49	0	0	58	3	11	0	0	14	0	1	0	0	1	0
10:15	4	50	3	0	57	0	11	0	0	11	0	0	0	0	0	3
10:30	6	72	1	0	79	1	18	0	0	19	0	1	0	0	1	0
10:45	2	61	0	0	63	0	8	0	0	8	0	1	0	0	1	2
11:00	2	71	1	0	74	0	8	0	0	8	0	0	0	0	0	0
11:15	3	71	0	0	74	1	16	0	0	17	0	4	0	0	4	0
11:30	2	72	1	0	75	1	14	0	0	15	0	2	0	0	2	1
11:45	0	87	1	0	88	0	17	0	0	17	0	0	0	0	0	0
12:00	7	82	0	0	89	1	16	0	0	17	0	3	0	0	3	0



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

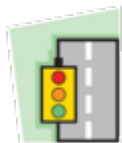
Intersection: Hurst Dr & Brennan Ave

Municipality: Barrie

Count Date: Aug 22, 2020

West Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
12:15	5	90	1	0	96	2	9	0	0	11	0	0	0	0	0	0
12:30	3	83	1	0	87	2	7	0	0	9	0	0	0	0	0	0
12:45	2	77	0	0	79	1	12	0	0	13	0	1	0	0	1	0
13:00	3	86	2	0	91	0	18	0	0	18	0	1	0	0	1	0
13:15	5	87	0	0	92	1	7	0	0	8	0	3	0	0	3	0
13:30	3	76	1	0	80	0	16	0	0	16	0	1	0	0	1	0
13:45	6	92	0	0	98	0	14	0	0	14	0	2	0	0	2	0
14:00	1	73	0	0	74	0	8	0	0	8	0	0	0	0	0	0
14:15	3	80	1	0	84	1	12	0	0	13	0	2	0	0	2	0
14:30	4	88	2	0	94	0	14	0	0	14	0	0	0	0	0	0
14:45	0	97	1	0	98	0	13	0	0	13	0	0	0	0	0	0
15:00	1	89	0	0	90	0	10	0	0	10	0	1	0	0	1	0
15:15	1	81	0	0	82	0	13	0	0	13	0	2	0	0	2	0
15:30	2	90	1	0	93	1	20	0	0	21	0	0	0	0	0	0
15:45	3	84	1	0	88	0	18	1	0	19	0	3	0	0	3	1
16:00	2	67	0	0	69	0	12	0	0	12	0	0	0	0	0	0
16:15	2	94	1	0	97	0	18	0	0	18	0	0	0	0	0	0
16:30	0	90	1	0	91	0	1	0	0	1	0	0	0	0	0	0
16:45	1	92	2	0	95	0	8	0	0	8	0	0	0	0	0	0
17:00	3	90	0	0	93	1	8	0	0	9	0	0	0	0	0	1
17:15	3	63	0	0	66	0	13	0	0	13	0	0	0	0	0	0



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

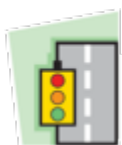
Intersection: Hurst Dr & Brennan Ave

Municipality: Barrie

Count Date: Aug 22, 2020

West Approach - Hurst Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
17:30	0	68	1	0	69	0	8	0	0	8	0	0	0	0	0	0
17:45	3	77	1	0	81	0	11	0	0	11	0	0	0	0	0	0
18:00	1	82	0	0	83	0	14	0	0	14	0	0	0	0	0	0
18:15	4	69	0	0	73	0	5	0	0	5	0	2	0	0	2	1
18:30	0	62	0	0	62	1	7	0	0	8	0	0	0	0	0	0
18:45	2	62	0	0	64	1	6	0	0	7	0	0	0	0	0	0
SUBTOTAL	143	3171	26	0	3340	22	505	1	0	528	0	43	1	0	44	16
GRAND TOTAL	143	3171	26	0	3340	22	505	1	0	528	0	43	1	0	44	16



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 10:00:00

One Hour Peak

From: 09:00:00
To: 10:00:00

Intersection: Hurst Dr & Brennan Ave

Site ID: 2001300124

Count Date: Aug 22, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	32	30	62
	14	12	26
	7	2	9
Totals	53	44	97

Brennan Ave

	0	0	7	0
	9	0	5	0
	17	1	14	0
Totals	26	1	26	0

East Approach

	Out	In	Total
	280	198	478
	57	54	111
	12	15	27
Totals	349	267	616

Hurst Dr

				Totals
	0	0	0	0
	0	3	20	23
	8	49	183	240
	0	0	2	2

Peds: 3



Peds: 2

Peds: 2

Hurst Dr

Totals			
	0	0	0
	19	9	8
	327	270	47
	3	1	2

West Approach

	Out	In	Total
	205	293	498
	52	57	109
	8	10	18
Totals	265	360	625

Totals				
	7	2	1	0
	6	1	1	0
	1	1	0	0
	0	0	0	0

Brennan Ave

South Approach

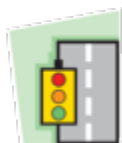
	Out	In	Total
	8	4	12
	2	2	4
	0	0	0
Totals	10	6	16

- Cars

- Trucks

- Bicycles

Comments



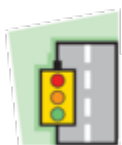
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Hurst Dr & Brennan Ave
Count Date: Aug 22, 2020
Period: 07:00 - 10:00

Peak Hour Data (09:00 - 10:00)

Start Time	North Approach Brennan Ave						South Approach Brennan Ave						East Approach Hurst Dr						West Approach Hurst Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
09:00	5	0	8	0	0	13	4	1	0	0	2	5	2	68	7	0	2	77	5	61	1	0	0	67	162
09:15	3	0	5	0	3	8	1	1	0	0	0	2	0	78	4	0	0	82	6	57	0	0	0	63	155
09:30	11	0	7	0	0	18	2	0	0	0	0	2	1	97	6	0	0	104	10	63	1	0	1	74	198
09:45	7	1	6	0	0	14	0	0	1	0	0	1	0	84	2	0	0	86	2	59	0	0	2	61	162
Grand Total	26	1	26	0	3	53	7	2	1	0	2	10	3	327	19	0	2	349	23	240	2	0	3	265	677
Approach %	49.1	1.9	49.1	0	-	-	70	20	10	0	-	-	0.9	93.7	5.4	0	-	-	8.7	90.6	0.8	0	-	-	-
Totals %	3.8	0.1	3.8	0	-	7.8	1	0.3	0.1	0	-	1.5	0.4	48.3	2.8	0	-	51.6	3.4	35.5	0.3	0	-	39.1	-
PHF	0.59	0.25	0.81	0	-	0.74	0.44	0.5	0.25	0	-	0.5	0.38	0.84	0.68	0	-	0.84	0.58	0.95	0.5	0	-	0.9	0.85
Cars	14	1	17	0	-	32	6	1	1	0	-	8	1	270	9	0	-	280	20	183	2	0	-	205	525
% Cars	53.8	100	65.4	0	-	60.4	85.7	50	100	0	-	80	33.3	82.6	47.4	0	-	80.2	87	76.3	100	0	-	77.4	77.5
Trucks	5	0	9	0	-	14	1	1	0	0	-	2	2	47	8	0	-	57	3	49	0	0	-	52	125
% Trucks	19.2	0	34.6	0	-	26.4	14.3	50	0	0	-	20	66.7	14.4	42.1	0	-	16.3	13	20.4	0	0	-	19.6	18.5
Bicycles	7	0	0	0	-	7	0	0	0	0	-	0	0	10	2	0	-	12	0	8	0	0	-	8	27
% Bicycles	26.9	0	0	0	-	13.2	0	0	0	0	-	0	0	3.1	10.5	0	-	3.4	0	3.3	0	0	-	3	4
Peds	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	3	-	10
% Peds	-	-	-	-	30	-	-	-	-	-	20	-	-	-	-	-	20	-	-	-	-	-	30	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 10:00:00
To: 14:00:00

One Hour Peak

From: 13:00:00
To: 14:00:00

Intersection: Hurst Dr & Brennan Ave

Site ID: 2001300124

Count Date: Aug 22, 2020

Weather conditions:

** Unsignalized Intersection **

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	32	31	63
	5	2	7
	12	7	19
Totals	49	40	89

Brennan Ave

	0	0	12	0
	4	0	1	0
	13	2	17	0
Totals	17	2	30	0

East Approach

	Out	In	Total
	333	365	698
	53	56	109
	13	19	32
Totals	399	440	839

Hurst Dr

				Totals
	0	0	0	0
	0	1	17	18
	7	55	341	403
	0	0	3	3

Peds: 2



Peds: 0

Peds: 3

Peds: 2

Hurst Dr

Totals			
	0	0	0
	21	14	0
	375	316	53
	3	3	0

West Approach

	Out	In	Total
	361	330	691
	56	57	113
	7	6	13
Totals	424	393	817

Totals				
	1	0	7	0
	0	1	0	0
	0	0	0	0

Brennan Ave

South Approach

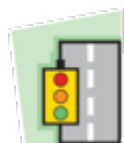
	Out	In	Total
	8	8	16
	1	0	1
	0	0	0
Totals	9	8	17

- Cars

- Trucks

- Bicycles

Comments



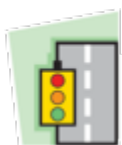
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Hurst Dr & Brennan Ave
Count Date: Aug 22, 2020
Period: 10:00 - 14:00

Peak Hour Data (13:00 - 14:00)

Start Time	North Approach Brennan Ave						South Approach Brennan Ave						East Approach Hurst Dr						West Approach Hurst Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
13:00	5	0	6	0	2	11	1	0	2	0	2	3	0	90	3	0	3	93	3	105	2	0	0	110	217
13:15	10	1	5	0	0	16	0	0	1	0	0	1	1	82	5	0	0	88	6	97	0	0	0	103	208
13:30	7	0	3	0	0	10	0	0	2	0	0	2	2	105	6	0	0	113	3	93	1	0	0	97	222
13:45	8	1	3	0	0	12	0	1	2	0	0	3	0	98	7	0	0	105	6	108	0	0	0	114	234
Grand Total	30	2	17	0	2	49	1	1	7	0	2	9	3	375	21	0	3	399	18	403	3	0	0	424	881
Approach %	61.2	4.1	34.7	0	-	-	11.1	11.1	77.8	0	-	-	0.8	94	5.3	0	-	-	4.2	95	0.7	0	-	-	-
Totals %	3.4	0.2	1.9	0	-	5.6	0.1	0.1	0.8	0	-	1	0.3	42.6	2.4	0	-	45.3	2	45.7	0.3	0	-	48.1	-
PHF	0.75	0.5	0.71	0	-	0.77	0.25	0.25	0.88	0	-	0.75	0.38	0.89	0.75	0	-	0.88	0.75	0.93	0.38	0	-	0.93	0.94
Cars	17	2	13	0	-	32	1	0	7	0	-	8	3	316	14	0	-	333	17	341	3	0	-	361	734
% Cars	56.7	100	76.5	0	-	65.3	100	0	100	0	-	88.9	100	84.3	66.7	0	-	83.5	94.4	84.6	100	0	-	85.1	83.3
Trucks	1	0	4	0	-	5	0	1	0	0	-	1	0	53	0	0	-	53	1	55	0	0	-	56	115
% Trucks	3.3	0	23.5	0	-	10.2	0	100	0	0	-	11.1	0	14.1	0	0	-	13.3	5.6	13.6	0	0	-	13.2	13.1
Bicycles	12	0	0	0	-	12	0	0	0	0	-	0	0	6	7	0	-	13	0	7	0	0	-	7	32
% Bicycles	40	0	0	0	-	24.5	0	0	0	0	-	0	0	1.6	33.3	0	-	3.3	0	1.7	0	0	-	1.7	3.6
Peds	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	0	-	7
% Peds	-	-	-	-	28.6	-	-	-	-	-	28.6	-	-	-	-	-	42.9	-	-	-	-	-	0	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 14:00:00
To: 19:00:00

One Hour Peak

From: 14:15:00
To: 15:15:00

Intersection: Hurst Dr & Brennan Ave

Site ID: 2001300124

Count Date: Aug 22, 2020

Weather conditions:

** Unsignalized Intersection **

Major Road: Hurst Dr runs E/W

North Approach

	Out	In	Total
	23	27	50
	3	3	6
	1	1	2
Totals	27	31	58

Brennan Ave

	0	0	1	0
	2	0	1	0
	9	1	13	0
Totals	11	1	15	0

East Approach

	Out	In	Total
	322	370	692
	49	52	101
	7	4	11
Totals	378	426	804

Hurst Dr

				Totals
	0	0	0	0
	0	1	8	9
	3	49	354	406
	0	0	4	4

Peds: 1



Peds: 0

Peds: 0

Peds: 0

Hurst Dr

Totals			
	0	0	0
	22	19	2
	351	300	46
	5	3	1

West Approach

	Out	In	Total
	366	312	678
	50	48	98
	3	5	8
Totals	419	365	784

Totals				
	3	0	3	0
	0	0	2	0
	0	0	0	0

Brennan Ave

South Approach

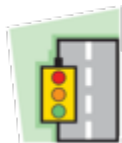
	Out	In	Total
	6	8	14
	2	1	3
	0	1	1
Totals	8	10	18

- Cars

- Trucks

- Bicycles

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Hurst Dr & Brennan Ave
Count Date: Aug 22, 2020
Period: 14:00 - 19:00

Peak Hour Data (14:15 - 15:15)

Start Time	North Approach Brennan Ave						South Approach Brennan Ave						East Approach Hurst Dr						West Approach Hurst Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
14:15	3	0	1	0	0	4	1	0	0	0	0	1	1	83	8	0	0	92	4	94	1	0	0	99	196
14:30	4	1	3	0	0	8	2	0	3	0	0	5	1	97	5	0	0	103	4	102	2	0	0	108	224
14:45	5	0	2	0	1	7	0	0	1	0	0	1	2	73	5	0	0	80	0	110	1	0	0	111	199
15:00	3	0	5	0	0	8	0	0	1	0	0	1	1	98	4	0	0	103	1	100	0	0	0	101	213
Grand Total	15	1	11	0	1	27	3	0	5	0	0	8	5	351	22	0	0	378	9	406	4	0	0	419	832
Approach %	55.6	3.7	40.7	0	-	-	37.5	0	62.5	0	-	-	1.3	92.9	5.8	0	-	-	2.1	96.9	1	0	-	-	-
Totals %	1.8	0.1	1.3	0	-	3.2	0.4	0	0.6	0	-	1	0.6	42.2	2.6	0	-	45.4	1.1	48.8	0.5	0	-	50.4	-
PHF	0.75	0.25	0.55	0	-	0.84	0.38	0	0.42	0	-	0.4	0.63	0.9	0.69	0	-	0.92	0.56	0.92	0.5	0	-	0.94	0.93
Cars	13	1	9	0	-	23	3	0	3	0	-	6	3	300	19	0	-	322	8	354	4	0	-	366	717
% Cars	86.7	100	81.8	0	-	85.2	100	0	60	0	-	75	60	85.5	86.4	0	-	85.2	88.9	87.2	100	0	-	87.4	86.2
Trucks	1	0	2	0	-	3	0	0	2	0	-	2	1	46	2	0	-	49	1	49	0	0	-	50	104
% Trucks	6.7	0	18.2	0	-	11.1	0	0	40	0	-	25	20	13.1	9.1	0	-	13	11.1	12.1	0	0	-	11.9	12.5
Bicycles	1	0	0	0	-	1	0	0	0	0	-	0	1	5	1	0	-	7	0	3	0	0	-	3	11
% Bicycles	6.7	0	0	0	-	3.7	0	0	0	0	-	0	20	1.4	4.5	0	-	1.9	0	0.7	0	0	-	0.7	1.3
Peds	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	1
% Peds	-	-	-	-	100	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-

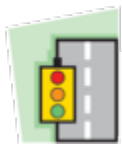


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #20-013 - City of Barrie

Intersection Count Report

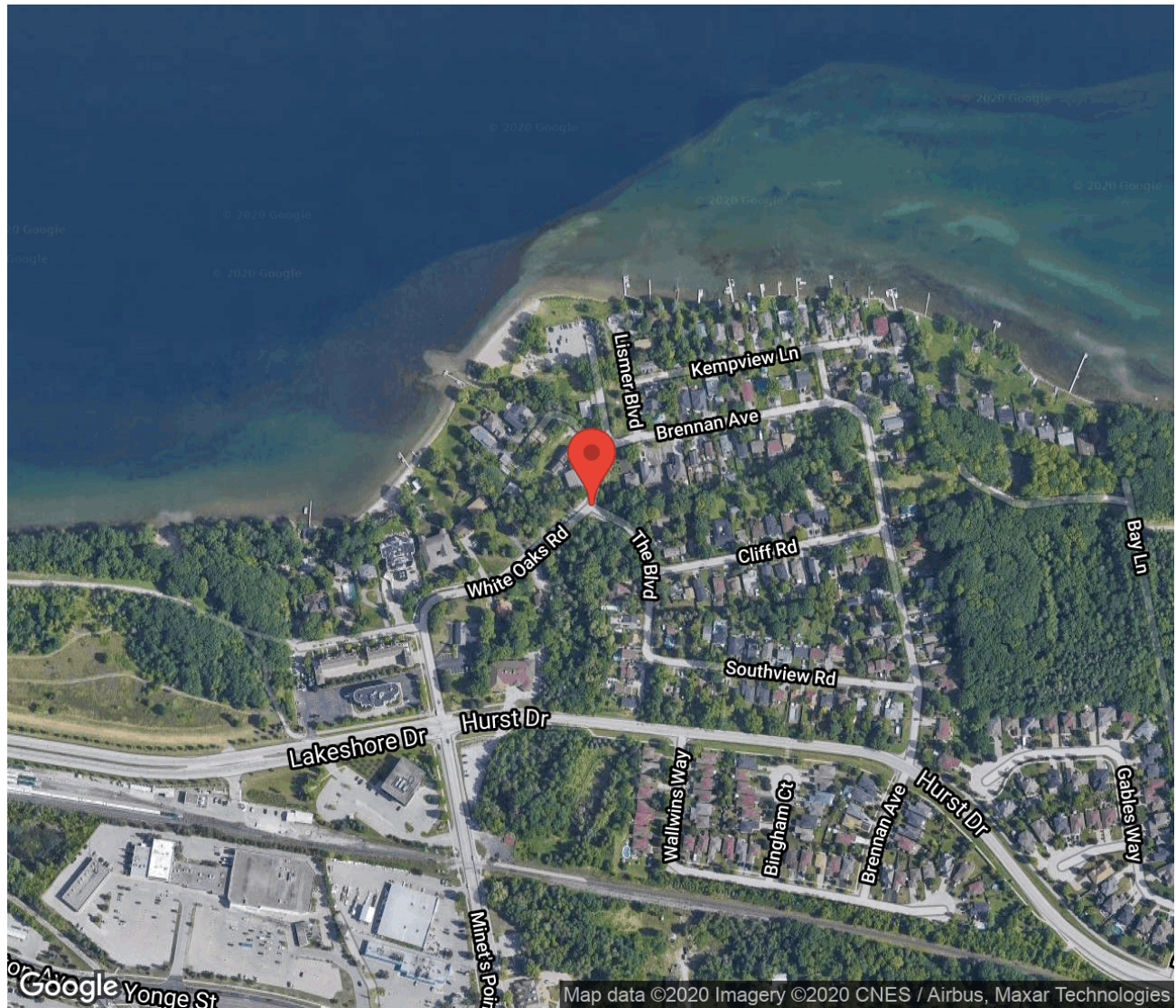
Intersection:	White Oaks Rd & The Blvd
Municipality:	Barrie
Count Date:	Aug 22, 2020
Site Code:	2001300125
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-19:00
Weather:	Clear

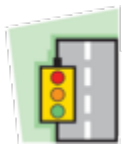


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Map

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020





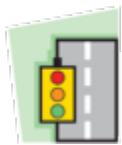
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

White Oaks Rd - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	1	10	0	0	11	0	0	22	3	0	25	0
08:00 - 09:00	0	27	0	0	27	4	0	26	5	0	31	0
09:00 - 10:00	3	35	0	0	38	3	0	55	10	0	65	2
10:00 - 11:00	2	50	0	0	52	0	0	57	3	0	60	0
11:00 - 12:00	3	50	0	0	53	0	0	66	11	0	77	0
12:00 - 13:00	3	68	0	0	71	0	0	66	6	0	72	4
13:00 - 14:00	3	59	0	0	62	1	0	72	12	0	84	1
14:00 - 15:00	1	65	0	0	66	0	0	79	10	0	89	3
15:00 - 16:00	2	79	0	0	81	8	0	78	7	0	85	0
16:00 - 17:00	0	62	0	0	62	6	0	63	10	0	73	5
17:00 - 18:00	1	58	0	0	59	1	0	50	15	0	65	0
18:00 - 19:00	0	60	0	0	60	2	0	51	8	0	59	2
GRAND TOTAL	19	623	0	0	642	25	0	685	100	0	785	17



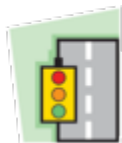
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

The Blvd - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	6	0	0	0	6	1	0	0	0	0	0	6
08:00 - 09:00	18	0	3	0	21	2	0	0	0	0	0	24
09:00 - 10:00	16	0	2	0	18	0	0	0	0	0	0	22
10:00 - 11:00	17	0	1	0	18	0	0	0	0	0	0	20
11:00 - 12:00	8	0	0	0	8	2	0	0	0	0	0	9
12:00 - 13:00	19	0	1	0	20	0	0	0	0	0	0	4
13:00 - 14:00	11	0	2	0	13	0	0	0	0	0	0	9
14:00 - 15:00	6	0	2	0	8	1	0	0	0	0	0	10
15:00 - 16:00	12	0	0	0	12	1	0	0	0	0	0	18
16:00 - 17:00	8	0	1	0	9	0	0	0	0	0	0	13
17:00 - 18:00	14	0	2	0	16	0	0	0	0	0	0	9
18:00 - 19:00	4	0	0	0	4	1	0	0	0	0	0	15
GRAND TOTAL	139	0	14	0	153	8	0	0	0	0	0	159



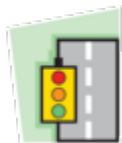
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

North Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0
07:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	0
07:45	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:00	0	8	0	0	8	0	0	0	0	0	0	1	0	0	1	0
08:15	0	3	0	0	3	0	1	0	0	1	0	1	0	0	1	0
08:30	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	1
08:45	0	4	0	0	4	0	1	0	0	1	0	2	0	0	2	3
09:00	0	6	0	0	6	1	0	0	0	1	0	0	0	0	0	1
09:15	1	4	0	0	5	0	2	0	0	2	0	3	0	0	3	2
09:30	0	6	0	0	6	0	2	0	0	2	0	5	0	0	5	0
09:45	0	5	0	0	5	1	1	0	0	2	0	1	0	0	1	0
10:00	2	5	0	0	7	0	2	0	0	2	0	2	0	0	2	0
10:15	0	15	0	0	15	0	2	0	0	2	0	0	0	0	0	0
10:30	0	12	0	0	12	0	3	0	0	3	0	2	0	0	2	0
10:45	0	5	0	0	5	0	1	0	0	1	0	1	0	0	1	0
11:00	1	9	0	0	10	0	4	0	0	4	0	3	0	0	3	0
11:15	0	9	0	0	9	0	1	0	0	1	0	0	0	0	0	0
11:30	1	13	0	0	14	0	0	0	0	0	0	0	0	0	0	0
11:45	1	6	0	0	7	0	4	0	0	4	0	1	0	0	1	0
12:00	1	10	0	0	11	0	1	0	0	1	0	0	0	0	0	0



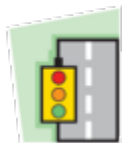
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

North Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:15	1	6	0	0	7	0	5	0	0	5	0	1	0	0	1	0
12:30	1	21	0	0	22	0	4	0	0	4	0	2	0	0	2	0
12:45	0	15	0	0	15	0	3	0	0	3	0	0	0	0	0	0
13:00	1	10	0	0	11	0	1	0	0	1	0	0	0	0	0	1
13:15	0	17	0	0	17	0	2	0	0	2	0	0	0	0	0	0
13:30	2	12	0	0	14	0	0	0	0	0	0	0	0	0	0	0
13:45	0	12	0	0	12	0	0	0	0	0	0	5	0	0	5	0
14:00	0	12	0	0	12	0	6	0	0	6	0	0	0	0	0	0
14:15	0	13	0	0	13	0	3	0	0	3	0	1	0	0	1	0
14:30	1	16	0	0	17	0	3	0	0	3	0	0	0	0	0	0
14:45	0	10	0	0	10	0	0	0	0	0	0	1	0	0	1	0
15:00	0	11	0	0	11	0	2	0	0	2	0	2	0	0	2	0
15:15	1	19	0	0	20	0	2	0	0	2	0	1	0	0	1	0
15:30	0	19	0	0	19	0	1	0	0	1	0	3	0	0	3	8
15:45	0	15	0	0	15	1	3	0	0	4	0	1	0	0	1	0
16:00	0	13	0	0	13	0	1	0	0	1	0	0	0	0	0	2
16:15	0	15	0	0	15	0	1	0	0	1	0	1	0	0	1	0
16:30	0	14	0	0	14	0	2	0	0	2	0	0	0	0	0	0
16:45	0	10	0	0	10	0	1	0	0	1	0	4	0	0	4	4
17:00	0	9	0	0	9	0	1	0	0	1	0	1	0	0	1	0
17:15	0	9	0	0	9	0	1	0	0	1	0	2	0	0	2	1



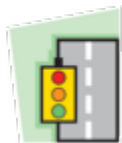
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

North Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	0	13	0	0	13	0	1	0	0	1	0	0	0	0	0	0
17:45	1	19	0	0	20	0	2	0	0	2	0	0	0	0	0	0
18:00	0	14	0	0	14	0	3	0	0	3	0	0	0	0	0	0
18:15	0	9	0	0	9	0	0	0	0	0	0	1	0	0	1	1
18:30	0	17	0	0	17	0	3	0	0	3	0	0	0	0	0	1
18:45	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	16	496	0	0	512	3	77	0	0	80	0	50	0	0	50	25
GRAND TOTAL	16	496	0	0	512	3	77	0	0	80	0	50	0	0	50	25



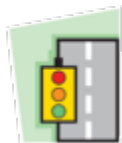
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

South Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0
07:15	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0
07:30	0	9	2	0	11	0	1	0	0	1	0	0	0	0	0	0
07:45	0	4	0	0	4	0	1	1	0	2	0	0	0	0	0	0
08:00	0	2	1	0	3	0	3	0	0	3	0	0	2	0	2	0
08:15	0	5	0	0	5	0	0	0	0	0	0	1	1	0	2	0
08:30	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0
08:45	0	7	1	0	8	0	1	0	0	1	0	0	0	0	0	0
09:00	0	9	1	0	10	0	3	0	0	3	0	3	2	0	5	0
09:15	0	10	0	0	10	0	5	0	0	5	0	3	0	0	3	0
09:30	0	7	2	0	9	0	2	0	0	2	0	1	1	0	2	2
09:45	0	10	1	0	11	0	2	0	0	2	0	0	3	0	3	0
10:00	0	4	0	0	4	0	2	0	0	2	0	0	0	0	0	0
10:15	0	14	1	0	15	0	4	0	0	4	0	0	1	0	1	0
10:30	0	15	0	0	15	0	1	0	0	1	0	1	0	0	1	0
10:45	0	14	0	0	14	0	1	1	0	2	0	1	0	0	1	0
11:00	0	5	0	0	5	0	2	0	0	2	0	3	2	0	5	0
11:15	0	10	3	0	13	0	1	0	0	1	0	0	0	0	0	0
11:30	0	16	2	0	18	0	3	2	0	5	0	0	0	0	0	0
11:45	0	17	2	0	19	0	3	0	0	3	0	6	0	0	6	0
12:00	0	17	1	0	18	0	1	0	0	1	0	0	0	0	0	2



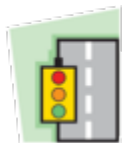
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

South Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:15	0	17	0	0	17	0	1	1	0	2	0	2	0	0	2	2
12:30	0	9	2	0	11	0	5	0	0	5	0	0	0	0	0	0
12:45	0	12	2	0	14	0	2	0	0	2	0	0	0	0	0	0
13:00	0	9	1	0	10	0	2	0	0	2	0	1	3	0	4	1
13:15	0	15	1	0	16	0	0	1	0	1	0	6	0	0	6	0
13:30	0	18	1	0	19	0	0	1	0	1	0	0	2	0	2	0
13:45	0	14	2	0	16	0	3	0	0	3	0	4	0	0	4	0
14:00	0	10	2	0	12	0	4	0	0	4	0	1	0	0	1	0
14:15	0	19	3	0	22	0	5	0	0	5	0	0	0	0	0	3
14:30	0	17	1	0	18	0	4	0	0	4	0	0	0	0	0	0
14:45	0	14	3	0	17	0	3	0	0	3	0	2	1	0	3	0
15:00	0	14	1	0	15	0	3	0	0	3	0	0	1	0	1	0
15:15	0	9	0	0	9	0	5	1	0	6	0	2	0	0	2	0
15:30	0	27	1	0	28	0	4	0	0	4	0	4	0	0	4	0
15:45	0	10	2	0	12	0	0	0	0	0	0	0	1	0	1	0
16:00	0	15	2	0	17	0	1	1	0	2	0	0	0	0	0	0
16:15	0	17	1	0	18	0	1	1	0	2	0	1	0	0	1	0
16:30	0	12	2	0	14	0	1	0	0	1	0	0	0	0	0	1
16:45	0	12	3	0	15	0	2	0	0	2	0	1	0	0	1	4
17:00	0	16	2	0	18	0	0	0	0	0	0	1	2	0	3	0
17:15	0	7	5	0	12	0	1	0	0	1	0	2	0	0	2	0



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

South Approach - White Oaks Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
17:30	0	18	3	0	21	0	0	0	0	0	0	0	0	0	0	0
17:45	0	3	3	0	6	0	1	0	0	1	0	1	0	0	1	0
18:00	0	8	2	0	10	0	0	1	0	1	0	5	0	0	5	0
18:15	0	13	1	0	14	0	2	0	0	2	0	2	0	0	2	1
18:30	0	8	0	0	8	0	2	0	0	2	0	0	1	0	1	0
18:45	0	9	3	0	12	0	2	0	0	2	0	0	0	0	0	1
SUBTOTAL	0	537	66	0	603	0	94	11	0	105	0	54	23	0	77	17
GRAND TOTAL	0	537	66	0	603	0	94	11	0	105	0	54	23	0	77	17



Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

Count Date: Aug 22, 2020

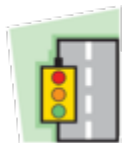
[illegible]



Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

Count Date: Aug 22, 2020

[illegible]



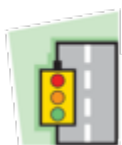
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: White Oaks Rd & The Blvd
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - The Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
17:45	1	0	0	0	1	0	0	0	0	0	2	0	0	0	2	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:30	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	99	0	10	0	109	24	0	0	0	24	16	0	4	0	20	8
GRAND TOTAL	99	0	10	0	109	24	0	0	0	24	16	0	4	0	20	8



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 10:00:00

One Hour Peak

From: 09:00:00
To: 10:00:00

Intersection: White Oaks Rd & The Blvd

Site ID: 2001300125

Count Date: Aug 22, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: White Oaks Rd runs N/S

North Approach

	Out	In	Total
	22	37	59
	7	12	19
	9	8	17
Totals	38	57	95

White Oaks Rd

	9	0	0
	5	2	0
	21	1	0
Totals	35	3	0



Peds: 3

East Approach

	Out	In	Total
	11	5	16
	6	2	8
	1	6	7
Totals	18	13	31

The Blvd

Totals			
	0	0	0
	2	1	1
	16	10	6

Peds: 22



Peds: 0

Peds: 2

Totals			
	36	4	0
	12	0	0
	7	6	0
Totals	55	10	0

White Oaks Rd

South Approach

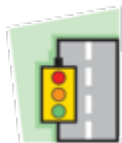
	Out	In	Total
	40	31	71
	12	11	23
	13	9	22
Totals	65	51	116

- Cars

- Trucks

- Bicycles

Comments



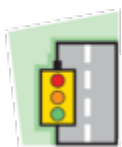
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: White Oaks Rd & The Blvd
Count Date: Aug 22, 2020
Period: 07:00 - 10:00

Peak Hour Data (09:00 - 10:00)

	North Approach White Oaks Rd						South Approach White Oaks Rd						East Approach The Blvd						West Approach						Total Vehicl es	
Start Time					Peds	Total					Peds	Total					Peds	Total					Peds	Total		
09:00	1	6		0	1	7		15	3	0	0	18	3		1	0	0	0	4					5		29
09:15	1	9		0	2	10		18	0	0	0	18	3		0	0	0	3	6					31		
09:30	0	13		0	0	13		10	3	0	2	13	8		1	0	0	9	4					35		
09:45	1	7		0	0	8		12	4	0	0	16	2		0	0	0	2	7					26		
Grand Total	3	35		0	3	38		55	10	0	2	65	16		2	0	0	18					22	0	121	
Approach %	7.9	92.1		0		-		84.6	15.4	0		-	88.9		11.1	0		-					-			
Totals %	2.5	28.9		0		31.4		45.5	8.3	0		53.7	13.2		1.7	0		14.9					0			
PHF	0.75	0.67		0		0.73		0.76	0.63	0		0.9	0.5		0.5	0		0.5					0		0.86	
Cars	1	21		0		22		36	4	0		40	10		1	0		11					0		73	
% Cars	33.3	60		0		57.9		65.5	40	0		61.5	62.5		50	0		61.1					0		60.3	
Trucks	2	5		0		7		12	0	0		12	6		0	0		6					0		25	
% Trucks	66.7	14.3		0		18.4		21.8	0	0		18.5	37.5		0	0		33.3					0		20.7	
Bicycles	0	9		0		9		7	6	0		13	0		1	0		1					0		23	
% Bicycles	0	25.7		0		23.7		12.7	60	0		20	0		50	0		5.6					0		19	
Peds					3	-					2	-					0	-					22	-	27	
% Peds					11.1	-					7.4	-					0	-					81.5	-		



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 10:00:00
To: 14:00:00

One Hour Peak

From: 11:45:00
To: 12:45:00

Intersection: White Oaks Rd & The Blvd

Site ID: 2001300125

Count Date: Aug 22, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: White Oaks Rd runs N/S

North Approach

	Out	In	Total
	47	61	108
	14	10	24
	4	8	12
Totals	65	79	144

White Oaks Rd

	4	0	0
	14	0	0
	43	4	0
Totals	61	4	0

East Approach

	Out	In	Total
	12	9	21
	3	1	4
	0	0	0
Totals	15	10	25

Peds: 0

Peds: 4



Peds: 0

Peds: 4

The Blvd

Totals			
	0	0	0
	1	1	0
	14	11	3

Totals			
	60	5	0
	10	1	0
	8	0	0

South Approach

	Out	In	Total
	65	54	119
	11	17	28
	8	4	12
Totals	84	75	159

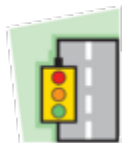
White Oaks Rd

- Cars

- Trucks

- Bicycles

Comments



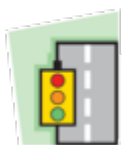
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: White Oaks Rd & The Blvd
Count Date: Aug 22, 2020
Period: 10:00 - 14:00

Peak Hour Data (11:45 - 12:45)

	North Approach White Oaks Rd						South Approach White Oaks Rd						East Approach The Blvd						West Approach						Total Vehic es				
Start Time					Peds	Total					Peds	Total					Peds	Total					Peds	Total					
11:45	1	11		0	0	12		26	2	0	0	28	1		0	0	0	1		2		41							
12:00	1	11		0	0	12		18	1	0	2	19	2		1	0	0	3		1		34							
12:15	1	12		0	0	13		20	1	0	2	21	7		0	0	0	7		0		41							
12:30	1	27		0	0	28		14	2	0	0	16	4		0	0	0	4		1		48							
Grand Total	4	61		0	0	65		78	6	0	4	84	14		1	0	0	15		4	0	164							
Approach %	6.2	93.8		0		-		92.9	7.1	0		-	93.3		6.7	0		-			-								
Totals %	2.4	37.2		0		39.6		47.6	3.7	0		51.2	8.5		0.6	0		9.1		0									
PHF	1	0.56		0		0.58		0.75	0.75	0		0.75	0.5		0.25	0		0.54		0		0.85							
Cars	4	43		0		47		60	5	0		65	11		1	0		12		0		124							
% Cars	100	70.5		0		72.3		76.9	83.3	0		77.4	78.6		100	0		80		0		75.6							
Trucks	0	14		0		14		10	1	0		11	3		0	0		3		0		28							
% Trucks	0	23		0		21.5		12.8	16.7	0		13.1	21.4		0	0		20		0		17.1							
Bicycles	0	4		0		4		8	0	0		8	0		0	0		0		0		12							
% Bicycles	0	6.6		0		6.2		10.3	0	0		9.5	0		0	0		0		0		7.3							
Peds						0	-						4	-						0	-						4	-	8
% Peds						0	-						50	-						0	-						50	-	



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 14:00:00
To: 19:00:00

One Hour Peak

From: 14:45:00
To: 15:45:00

Intersection: White Oaks Rd & The Blvd

Site ID: 2001300125

Count Date: Aug 22, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: White Oaks Rd runs N/S

North Approach

	Out	In	Total
	60	64	124
	5	15	20
	7	8	15
Totals	72	87	159

White Oaks Rd

	7	0	0
	5	0	0
	59	1	0
Totals	71	1	0



Peds: 8

Peds: 19



Peds: 1

Peds: 0

	87	8	0
	15	1	0
	8	2	0
Totals	87	8	0

White Oaks Rd

East Approach

	Out	In	Total
	10	6	16
	3	1	4
	0	2	2
Totals	13	9	22

The Blvd

	Totals			
	0	0	0	0
	0	0	0	0
	13	10	3	0

South Approach

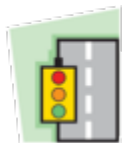
	Out	In	Total
	69	69	138
	16	8	24
	10	7	17
Totals	95	84	179

- Cars

- Trucks

- Bicycles

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: White Oaks Rd & The Blvd
Count Date: Aug 22, 2020
Period: 14:00 - 19:00

Peak Hour Data (14:45 - 15:45)

	North Approach White Oaks Rd						South Approach White Oaks Rd						East Approach The Blvd						West Approach						Total Vehic es
Start Time					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
14:45	0	11		0	0	11		19	4	0	0	23	4		0	0	0	4		3		38			
15:00	0	15		0	0	15		17	2	0	0	19	5		0	0	1	5		6		39			
15:15	1	22		0	0	23		16	1	0	0	17	2		0	0	0	2		5		42			
15:30	0	23		0	8	23		35	1	0	0	36	2		0	0	0	2		5		61			
Grand Total	1	71		0	8	72		87	8	0	0	95	13		0	0	1	13		19	0	180			
Approach %	1.4	98.6		0		-		91.6	8.4	0		-	100		0	0		-			-				
Totals %	0.6	39.4		0		40		48.3	4.4	0		52.8	7.2		0	0		7.2		0					
PHF	0.25	0.77		0		0.78		0.62	0.5	0		0.66	0.65		0	0		0.65		0		0.74			
Cars	1	59		0		60		64	5	0		69	10		0	0		10		0		139			
% Cars	100	83.1		0		83.3		73.6	62.5	0		72.6	76.9		0	0		76.9		0		77.2			
Trucks	0	5		0		5		15	1	0		16	3		0	0		3		0		24			
% Trucks	0	7		0		6.9		17.2	12.5	0		16.8	23.1		0	0		23.1		0		13.3			
Bicycles	0	7		0		7		8	2	0		10	0		0	0		0		0		17			
% Bicycles	0	9.9		0		9.7		9.2	25	0		10.5	0		0	0		0		0		9.4			
Peds					8	-					0	-					1	-			19	-	28		
% Peds					28.6	-					0	-					3.6	-			67.9	-			

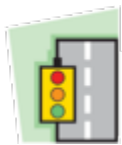


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #20-013 - City of Barrie

Intersection Count Report

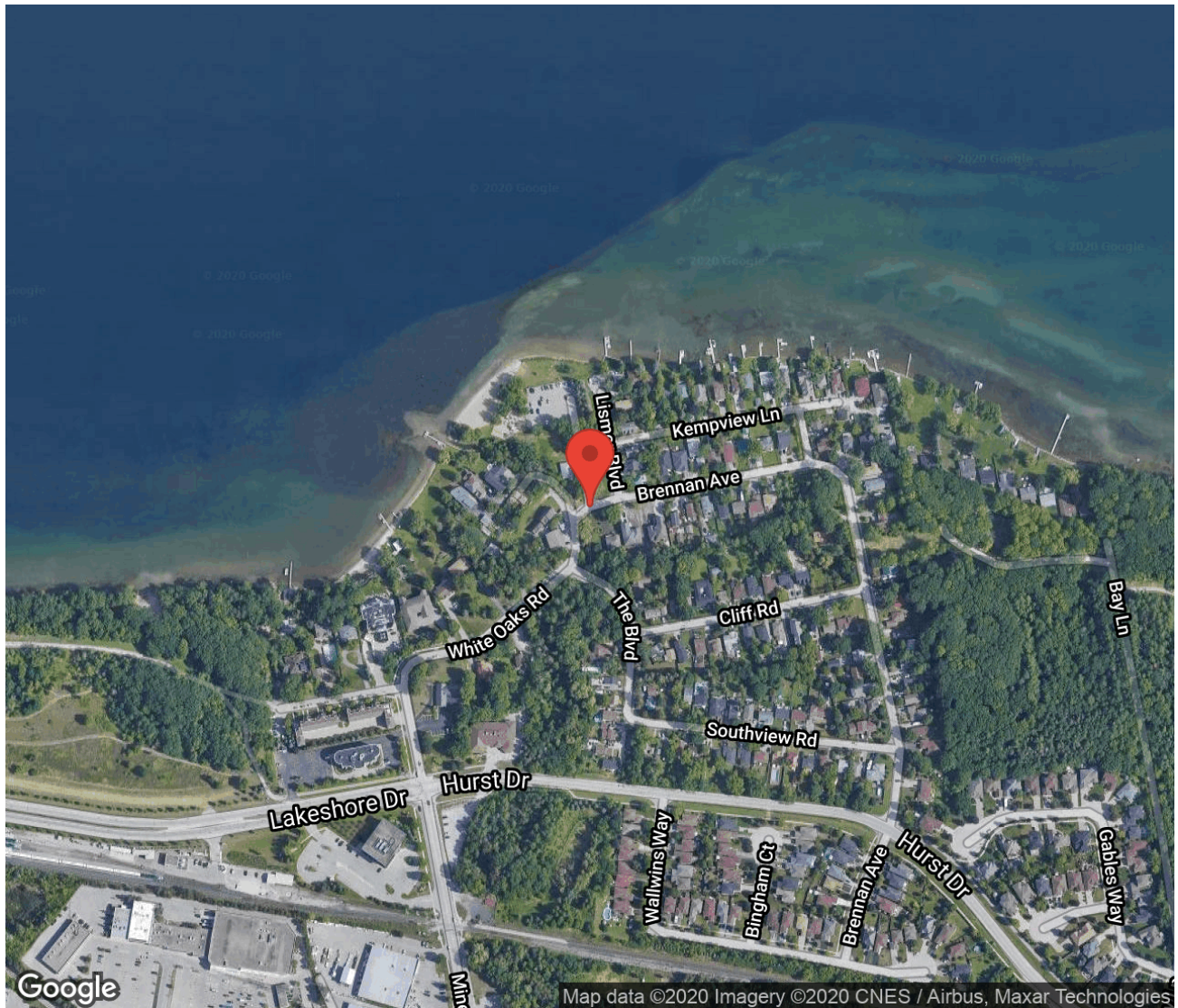
Intersection:	Brennan Ave & Minet's Point Park
Municipality:	Barrie
Count Date:	Aug 22, 2020
Site Code:	2001300126
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-19:00
Weather:	Clear

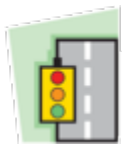


Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Traffic Count Map

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020





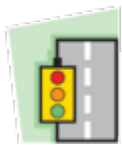
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

Minet's Point Park - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	2	0	6	0	8	0	0	0	0	0	0	0
08:00 - 09:00	2	0	19	0	21	0	0	0	0	0	0	0
09:00 - 10:00	7	0	22	0	29	0	0	0	0	0	0	0
10:00 - 11:00	6	0	28	0	34	0	0	0	0	0	0	0
11:00 - 12:00	7	0	34	0	41	0	0	0	0	0	0	0
12:00 - 13:00	11	0	48	0	59	0	0	0	0	0	0	0
13:00 - 14:00	3	0	33	1	37	0	0	0	0	0	0	0
14:00 - 15:00	17	0	43	0	60	0	0	0	0	0	0	0
15:00 - 16:00	7	0	65	0	72	0	0	0	0	0	0	0
16:00 - 17:00	11	0	57	0	68	0	0	0	0	0	0	0
17:00 - 18:00	7	0	50	0	57	0	0	0	0	0	0	0
18:00 - 19:00	12	0	51	0	63	0	0	0	0	0	0	0
GRAND TOTAL	92	0	456	1	549	0	0	0	0	0	0	0



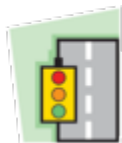
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

Brennan Ave - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	0	3	5	0	8	1	19	2	0	0	21	0
08:00 - 09:00	0	6	2	1	9	0	18	7	0	0	25	2
09:00 - 10:00	0	13	1	0	14	0	47	9	0	0	56	1
10:00 - 11:00	0	24	13	0	37	0	27	25	0	0	52	0
11:00 - 12:00	0	16	3	0	19	0	47	18	0	0	65	0
12:00 - 13:00	0	19	12	0	31	0	45	20	0	0	65	0
13:00 - 14:00	0	24	8	0	32	0	39	33	0	0	72	0
14:00 - 15:00	0	20	15	0	35	0	52	31	0	0	83	2
15:00 - 16:00	0	14	11	0	25	0	52	21	0	1	74	4
16:00 - 17:00	0	10	6	0	16	0	53	12	0	0	65	2
17:00 - 18:00	0	11	8	0	19	0	37	18	0	0	55	0
18:00 - 19:00	0	7	7	0	14	2	38	14	0	0	52	3
GRAND TOTAL	0	167	91	1	259	3	474	210	0	1	685	14



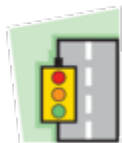
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

North Approach - Minet's Point Park

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2	0
07:45	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0
08:00	1	0	6	0	7	0	0	1	0	1	0	0	0	0	0	0
08:15	0	0	3	0	3	1	0	0	0	1	0	0	1	0	1	0
08:30	0	0	3	0	3	0	0	0	0	0	0	0	1	0	1	0
08:45	0	0	3	0	3	0	0	1	0	1	0	0	0	0	0	0
09:00	0	0	3	0	3	1	0	0	0	1	0	0	0	0	0	0
09:15	1	0	3	0	4	1	0	2	0	3	0	0	3	0	3	0
09:30	0	0	6	0	6	0	0	1	0	1	3	0	0	0	3	0
09:45	1	0	4	0	5	0	0	0	0	0	0	0	0	0	0	0
10:00	2	0	3	0	5	0	0	2	0	2	0	0	0	0	0	0
10:15	1	0	10	0	11	0	0	2	0	2	0	0	0	0	0	0
10:30	0	0	4	0	4	0	0	2	0	2	0	0	0	0	0	0
10:45	2	0	3	0	5	1	0	1	0	2	0	0	1	0	1	0
11:00	2	0	8	0	10	0	0	1	0	1	0	0	3	0	3	0
11:15	2	0	5	0	7	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0
11:45	1	0	3	0	4	0	0	4	0	4	2	0	0	0	2	0
12:00	1	0	6	0	7	0	0	1	0	1	0	0	0	0	0	0



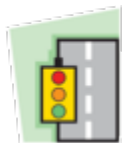
Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

North Approach - Minet's Point Park

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
12:15	2	0	6	0	8	0	0	1	0	1	1	0	0	0	1	0
12:30	3	0	15	0	18	0	0	4	0	4	0	0	2	0	2	0
12:45	4	0	10	0	14	0	0	3	0	3	0	0	0	0	0	0
13:00	0	0	7	0	7	0	0	0	0	0	1	0	0	0	1	0
13:15	1	0	9	0	10	0	0	1	0	1	0	0	0	0	0	0
13:30	1	0	6	0	7	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	10	0	10	0	0	0	1	1	0	0	0	0	0	0
14:00	4	0	8	0	12	0	0	5	0	5	0	0	0	0	0	0
14:15	1	0	9	0	10	0	0	2	0	2	0	0	1	0	1	0
14:30	6	0	8	0	14	0	0	1	0	1	0	0	0	0	0	0
14:45	5	0	8	0	13	0	0	1	0	1	1	0	0	0	1	0
15:00	0	0	11	0	11	2	0	1	0	3	0	0	2	0	2	0
15:15	1	0	12	0	13	0	0	2	0	2	0	0	1	0	1	0
15:30	1	0	18	0	19	0	0	2	0	2	0	0	2	0	2	0
15:45	3	0	10	0	13	0	0	3	0	3	0	0	1	0	1	0
16:00	1	0	11	0	12	0	0	1	0	1	0	0	0	0	0	0
16:15	1	0	14	0	15	0	0	1	0	1	0	0	0	0	0	0
16:30	3	0	14	0	17	0	0	2	0	2	2	0	0	0	2	0
16:45	3	0	8	0	11	1	0	2	0	3	0	0	4	0	4	0
17:00	1	0	7	0	8	0	0	1	0	1	2	0	1	0	3	0
17:15	1	0	8	0	9	0	0	1	0	1	0	0	1	0	1	0



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Data

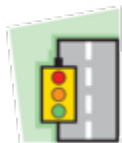
Intersection: Brennan Ave & Minet's Point Park

Municipality: Barrie

Count Date: Aug 22, 2020

North Approach - Minet's Point Park

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
17:30	2	0	12	0	14	0	0	0	0	0	0	0	0	0	0	0
17:45	1	0	18	0	19	0	0	1	0	1	0	0	0	0	0	0
18:00	5	0	13	0	18	0	0	0	0	0	0	0	0	0	0	0
18:15	5	0	5	0	10	0	0	0	0	0	0	0	0	0	0	0
18:30	1	0	17	0	18	0	0	3	0	3	0	0	1	0	1	0
18:45	1	0	12	0	13	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	71	0	374	0	445	8	0	56	1	65	13	0	26	0	39	0
GRAND TOTAL	71	0	374	0	445	8	0	56	1	65	13	0	26	0	39	0



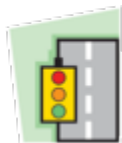
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
07:30	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1
08:00	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0
08:15	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0
08:30	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
08:45	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0
09:00	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0
09:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
09:30	0	1	0	0	1	0	1	0	0	1	0	4	0	0	4	0
09:45	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0
10:00	0	4	4	0	8	0	1	0	0	1	0	2	0	0	2	0
10:15	0	5	1	0	6	0	0	1	0	1	0	2	0	0	2	0
10:30	0	6	2	0	8	0	0	0	0	0	0	0	0	0	0	0
10:45	0	3	5	0	8	0	1	0	0	1	0	0	0	0	0	0
11:00	0	2	1	0	3	0	1	0	0	1	0	0	0	0	0	0
11:15	0	2	1	0	3	0	1	0	0	1	0	0	0	0	0	0
11:30	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	0
11:45	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	0
12:00	0	3	2	0	5	0	0	1	0	1	0	0	1	0	1	0



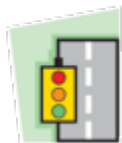
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
12:15	0	1	3	0	4	0	4	0	0	4	0	1	0	0	1	0
12:30	0	5	3	0	8	0	0	0	0	0	0	0	0	0	0	0
12:45	0	5	2	0	7	0	0	0	0	0	0	0	0	0	0	0
13:00	0	3	1	0	4	0	2	0	0	2	0	0	0	0	0	0
13:15	0	5	3	0	8	0	1	0	0	1	0	0	0	0	0	0
13:30	0	8	3	0	11	0	0	0	0	0	0	0	0	0	0	0
13:45	0	2	1	0	3	0	0	0	0	0	0	3	0	0	3	0
14:00	0	4	3	0	7	0	1	0	0	1	0	0	0	0	0	0
14:15	0	4	5	0	9	0	1	0	0	1	0	0	0	0	0	0
14:30	0	7	0	0	7	0	1	0	0	1	0	0	0	0	0	0
14:45	0	1	5	0	6	0	0	1	0	1	0	1	1	0	2	0
15:00	0	3	3	0	6	0	1	0	0	1	0	0	0	0	0	0
15:15	0	4	1	0	5	0	0	0	0	0	0	0	2	0	2	0
15:30	0	2	3	0	5	0	0	1	0	1	0	0	0	0	0	0
15:45	0	3	1	0	4	0	1	0	0	1	0	0	0	0	0	0
16:00	0	5	2	0	7	0	0	0	0	0	0	0	0	0	0	0
16:15	0	1	2	0	3	0	0	0	0	0	0	2	0	0	2	0
16:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
16:45	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0
17:00	0	2	1	0	3	0	0	0	0	0	0	1	0	0	1	0
17:15	0	2	2	0	4	0	0	0	0	0	0	1	0	0	1	0



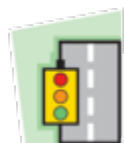
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

East Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0
17:45	0	1	5	0	6	0	2	0	0	2	0	0	0	0	0	0
18:00	0	1	5	0	6	0	1	0	0	1	0	0	0	0	0	2
18:15	0	2	2	0	4	0	0	0	0	0	0	0	0	0	0	0
18:30	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
18:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	123	81	1	205	0	22	6	0	28	0	22	4	0	26	3
GRAND TOTAL	0	123	81	1	205	0	22	6	0	28	0	22	4	0	26	3



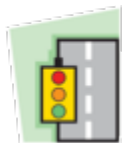
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

West Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	2	1	0	0	3	1	0	0	0	1	0	0	0	0	0	0
07:15	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	8	0	0	0	8	1	0	0	0	1	0	1	0	0	1	0
07:45	4	0	0	0	4	1	0	0	0	1	0	0	0	0	0	0
08:00	1	1	0	0	2	1	2	0	0	3	0	0	0	0	0	2
08:15	4	0	0	0	4	0	0	0	0	0	1	0	0	0	1	0
08:30	4	1	0	0	5	1	0	0	0	1	0	0	0	0	0	0
08:45	6	2	0	0	8	0	0	0	0	0	0	1	0	0	1	0
09:00	9	1	0	0	10	1	1	0	0	2	3	0	0	0	3	0
09:15	7	2	0	0	9	5	0	0	0	5	3	0	0	0	3	0
09:30	7	2	0	0	9	0	1	0	0	1	1	1	0	0	2	1
09:45	8	1	0	0	9	3	0	0	0	3	0	0	0	0	0	0
10:00	0	3	0	0	3	2	0	0	0	2	0	0	0	0	0	0
10:15	7	8	0	0	15	1	3	0	0	4	0	0	0	0	0	0
10:30	8	2	0	0	10	2	0	0	0	2	0	1	0	0	1	0
10:45	6	7	0	0	13	0	1	0	0	1	1	0	0	0	1	0
11:00	4	2	0	0	6	1	1	0	0	2	3	0	0	0	3	0
11:15	7	1	0	0	8	0	1	0	0	1	0	0	0	0	0	0
11:30	14	3	0	0	17	2	0	0	0	2	0	0	0	0	0	0
11:45	11	5	0	0	16	2	1	0	0	3	3	4	0	0	7	0
12:00	11	6	0	0	17	0	1	0	0	1	0	0	0	0	0	0



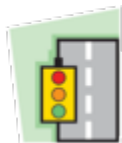
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

West Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:15	11	5	0	0	16	0	1	0	0	1	2	0	0	0	2	0
12:30	5	3	0	0	8	4	1	0	0	5	0	0	0	0	0	0
12:45	10	3	0	0	13	2	0	0	0	2	0	0	0	0	0	0
13:00	7	3	0	0	10	0	2	0	0	2	1	0	0	0	1	0
13:15	7	8	0	0	15	0	0	0	0	0	0	5	0	0	5	0
13:30	11	8	0	0	19	0	0	0	0	0	0	1	0	0	1	0
13:45	11	3	0	0	14	2	1	0	0	3	0	2	0	0	2	0
14:00	5	6	0	0	11	3	1	0	0	4	1	1	0	0	2	1
14:15	13	9	0	0	22	2	2	0	0	4	0	0	0	0	0	1
14:30	14	4	0	0	18	3	0	0	0	3	0	0	0	0	0	0
14:45	10	4	0	0	14	1	2	0	0	3	0	2	0	0	2	0
15:00	8	5	0	0	13	2	1	0	0	3	0	0	0	0	0	0
15:15	5	2	0	0	7	3	2	0	0	5	2	0	0	0	2	2
15:30	19	7	0	1	27	3	0	0	0	3	1	2	0	0	3	0
15:45	9	2	0	0	11	0	0	0	0	0	0	0	0	0	0	2
16:00	12	3	0	0	15	1	0	0	0	1	0	0	0	0	0	1
16:15	13	5	0	0	18	0	0	0	0	0	2	1	0	0	3	1
16:30	10	2	0	0	12	1	0	0	0	1	0	0	0	0	0	0
16:45	11	1	0	0	12	2	0	0	0	2	1	0	0	0	1	0
17:00	10	6	0	0	16	1	0	0	0	1	1	0	0	0	1	0
17:15	6	4	0	0	10	1	0	0	0	1	2	0	0	0	2	0



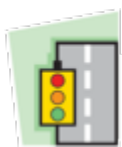
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Brennan Ave & Minet's Point Park
Municipality: Barrie
Count Date: Aug 22, 2020

West Approach - Brennan Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
17:30	11	6	0	0	17	0	0	0	0	0	0	1	0	0	1	0
17:45	4	0	0	0	4	0	1	0	0	1	1	0	0	0	1	0
18:00	7	0	0	0	7	0	0	0	0	0	3	2	0	0	5	0
18:15	9	3	0	0	12	2	0	0	0	2	0	2	0	0	2	2
18:30	9	1	0	0	10	1	1	0	0	2	0	0	0	0	0	0
18:45	7	3	0	0	10	0	2	0	0	2	0	0	0	0	0	1
SUBTOTAL	384	154	0	1	539	58	29	0	0	87	32	27	0	0	59	14
GRAND TOTAL	384	154	0	1	539	58	29	0	0	87	32	27	0	0	59	14



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 10:00:00

One Hour Peak

From: 09:00:00
To: 10:00:00

Intersection: Brennan Ave & Minet's Point Park

Site ID: 2001300126

Count Date: Aug 22, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Brennan Ave runs E/W

North Approach

	Out	In	Total
	18	31	49
	5	10	15
	6	7	13
Totals	29	48	77

Minet's Point Park

	3	3	0
	3	2	0
	16	2	0
Totals	22	7	0

East Approach

	Out	In	Total
	5	8	13
	3	4	7
	6	4	10
Totals	14	16	30

Brennan Ave

			Totals
0	0	0	0
7	9	31	47
1	2	6	9

Peds: 1

Peds: 0



Peds: 0

Peds: 0

Brennan Ave

Totals			
0	0	0	0
1	0	1	0
13	5	2	6

West Approach

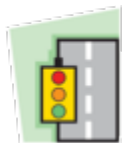
	Out	In	Total
	37	21	58
	11	5	16
	8	9	17
Totals	56	35	91

- Cars

- Trucks

- Bicycles

Comments



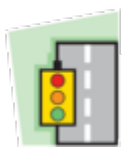
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Brennan Ave & Minet's Point Park
Count Date: Aug 22, 2020
Period: 07:00 - 10:00

Peak Hour Data (09:00 - 10:00)

Start Time	North Approach Minet's Point Park						South Approach						East Approach Brennan Ave						West Approach Brennan Ave						Total Vehicles
	←	↑	→	↺	Peds	Total	←	↑	→	↺	Peds	Total	←	↑	→	↺	Peds	Total	←	↑	→	↺	Peds	Total	
09:00	1		3	0	0	4					0			2	1	0	0	3	13	2		0	0	15	22
09:15	2		8	0	0	10					0			2	0	0	0	2	15	2		0	0	17	29
09:30	3		7	0	0	10					0			6	0	0	0	6	8	4		0	1	12	28
09:45	1		4	0	0	5					0			3	0	0	0	3	11	1		0	0	12	20
Grand Total	7		22	0	0	29					0	0		13	1	0	0	14	47	9		0	1	56	99
Approach %	24.1		75.9	0	-	-					-	-		92.9	7.1	0	-	-	83.9	16.1		0	-	-	-
Totals %	7.1		22.2	0	-	29.3					0	-		13.1	1	0	-	14.1	47.5	9.1		0	-	56.6	-
PHF	0.58		0.69	0	-	0.73					0	-		0.54	0.25	0	-	0.58	0.78	0.56		0	-	0.82	0.85
Cars	2		16	0	-	18					0	-		5	0	0	-	5	31	6		0	-	37	60
% Cars	28.6		72.7	0	-	62.1					0	-		38.5	0	0	-	35.7	66	66.7		0	-	66.1	60.6
Trucks	2		3	0	-	5					0	-		2	1	0	-	3	9	2		0	-	11	19
% Trucks	28.6		13.6	0	-	17.2					0	-		15.4	100	0	-	21.4	19.1	22.2		0	-	19.6	19.2
Bicycles	3		3	0	-	6					0	-		6	0	0	-	6	7	1		0	-	8	20
% Bicycles	42.9		13.6	0	-	20.7					0	-		46.2	0	0	-	42.9	14.9	11.1		0	-	14.3	20.2
Peds					0	-					0	-						0					1	-	1
% Peds					0	-					0	-						0					100	-	-



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 10:00:00
To: 14:00:00

One Hour Peak

From: 11:45:00
To: 12:45:00

Intersection: Brennan Ave & Minet's Point Park

Site ID: 2001300126

Count Date: Aug 22, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Brennan Ave runs E/W

North Approach

	Out	In	Total
	37	46	83
	10	7	17
	5	6	11
Totals	52	59	111

Minet's Point Park

	2	3	0
	10	0	0
	30	7	0
Totals	42	10	0

East Approach

	Out	In	Total
	21	26	47
	5	4	9
	3	7	10
Totals	29	37	66

Brennan Ave

				Totals
	0	0	0	0
	5	6	38	49
	4	4	19	27

Peds: 0

Peds: 0



Peds: 0

Brennan Ave

Totals			
0	0	0	0
10	8	1	1
19	13	4	2

West Approach

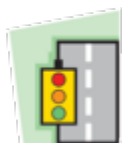
	Out	In	Total
	57	43	100
	10	14	24
	9	4	13
Totals	76	61	137

- Cars

- Trucks

- Bicycles

Comments



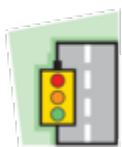
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Brennan Ave & Minet's Point Park
Count Date: Aug 22, 2020
Period: 10:00 - 14:00

Peak Hour Data (11:45 - 12:45)

Start Time	North Approach Minet's Point Park						South Approach						East Approach Brennan Ave						West Approach Brennan Ave						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
11:45	3		7	0	0	10					0			5	0	0	0	5	16	10		0	0	26	41
12:00	1		7	0	0	8					0			3	4	0	0	7	11	7		0	0	18	33
12:15	3		7	0	0	10					0			6	3	0	0	9	13	6		0	0	19	38
12:30	3		21	0	0	24					0			5	3	0	0	8	9	4		0	0	13	45
Grand Total	10		42	0	0	52					0	0		19	10	0	0	29	49	27		0	0	76	157
Approach %	19.2		80.8	0	-	-					-	-		65.5	34.5	0	-	-	64.5	35.5		0	-	-	-
Totals %	6.4		26.8	0		33.1					0			12.1	6.4	0		18.5	31.2	17.2		0		48.4	
PHF	0.83		0.5	0		0.54					0			0.79	0.63	0		0.81	0.77	0.68		0		0.73	0.87
Cars	7		30	0		37					0			13	8	0		21	38	19		0		57	115
% Cars	70		71.4	0		71.2					0			68.4	80	0		72.4	77.6	70.4		0		75	73.2
Trucks	0		10	0		10					0			4	1	0		5	6	4		0		10	25
% Trucks	0		23.8	0		19.2					0			21.1	10	0		17.2	12.2	14.8		0		13.2	15.9
Bicycles	3		2	0		5					0			2	1	0		3	5	4		0		9	17
% Bicycles	30		4.8	0		9.6					0			10.5	10	0		10.3	10.2	14.8		0		11.8	10.8
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	



Ontario Traffic Inc.

TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Diagram

Specified Period

From: 14:00:00
To: 19:00:00

One Hour Peak

From: 14:45:00
To: 15:45:00

Intersection: Brennan Ave & Minet's Point Park

Site ID: 2001300126

Count Date: Aug 22, 2020

Weather conditions:

**** Unsignalized Intersection ****

Major Road: Brennan Ave runs E/W

North Approach

	Out	In	Total
	56	54	110
	8	11	19
	6	6	12
Totals	70	71	141

Minet's Point Park

	5	1	0
	6	2	0
	49	7	0
Totals	60	10	0

East Approach

	Out	In	Total
	22	25	47
	3	7	10
	4	5	9
Totals	29	37	66

Brennan Ave

				Totals
	0	0	1	1
	3	9	42	54
	4	5	18	27

Peds: 2

Peds: 0



Peds: 0

Peds: 0

Brennan Ave

Totals			
0	0	0	0
17	12	2	3
12	10	1	1

West Approach

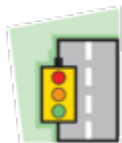
	Out	In	Total
	61	60	121
	14	7	21
	7	6	13
Totals	82	73	155

- Cars

- Trucks

- Bicycles

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Brennan Ave & Minet's Point Park
Count Date: Aug 22, 2020
Period: 14:00 - 19:00

Peak Hour Data (14:45 - 15:45)

Start Time	North Approach Minet's Point Park						South Approach						East Approach Brennan Ave						West Approach Brennan Ave						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
14:45	6		9	0	0	15					0			2	7	0	0	9	11	8		0	0	19	43
15:00	2		14	0	0	16					0			4	3	0	0	7	10	6		0	0	16	39
15:15	1		15	0	0	16					0			4	3	0	0	7	10	4		0	2	14	37
15:30	1		22	0	0	23					0			2	4	0	0	6	23	9		1	0	33	62
Grand Total	10		60	0	0	70					0	0		12	17	0	0	29	54	27		1	2	82	181
Approach %	14.3		85.7	0	-	-					-	-		41.4	58.6	0	-	-	65.9	32.9		1.2	-	-	-
Totals %	5.5		33.1	0	-	38.7					0	-		6.6	9.4	0	-	16	29.8	14.9		0.6	-	45.3	-
PHF	0.42		0.68	0	-	0.76					0	-		0.75	0.61	0	-	0.81	0.59	0.75		0.25	-	0.62	0.73
Cars	7		49	0	-	56					0	-		10	12	0	-	22	42	18		1	-	61	139
% Cars	70		81.7	0	-	80					0	-		83.3	70.6	0	-	75.9	77.8	66.7		100	-	74.4	76.8
Trucks	2		6	0	-	8					0	-		1	2	0	-	3	9	5		0	-	14	25
% Trucks	20		10	0	-	11.4					0	-		8.3	11.8	0	-	10.3	16.7	18.5		0	-	17.1	13.8
Bicycles	1		5	0	-	6					0	-		1	3	0	-	4	3	4		0	-	7	17
% Bicycles	10		8.3	0	-	8.6					0	-		8.3	17.6	0	-	13.8	5.6	14.8		0	-	8.5	9.4
Peds					0	-					0	-						0				2	-	2	-
% Peds					0	-					0	-						0				100	-	-	-

Accu-Traffic Inc

Morning Peak Diagram	Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Barrie Site #: 1402300031 Intersection: Lakeshore Dr & Minets Point Rd TFR File #: 1 Count date: 10-Jul-14	Weather conditions: Person(s) who counted:	
** Signalized Intersection **	Major Road: Lakeshore Dr runs W/E	

North Leg Total: 112 North Entering: 46 North Peds: 4 Peds Cross: ☒	<table style="margin: auto;"> <tr> <td>Cyclists</td><td>0</td><td>3</td><td>2</td><td>5</td></tr> <tr> <td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr> <td>Cars</td><td>23</td><td>18</td><td>0</td><td>41</td></tr> <tr> <td>Totals</td><td>23</td><td>21</td><td>2</td><td></td></tr> </table>	Cyclists	0	3	2	5	Trucks	0	0	0	0	Cars	23	18	0	41	Totals	23	21	2		 <table style="margin: auto;"> <tr> <td>Cyclists</td><td>4</td></tr> <tr> <td>Trucks</td><td>3</td></tr> <tr> <td>Cars</td><td>59</td></tr> <tr> <td>Totals</td><td>66</td></tr> </table>	Cyclists	4	Trucks	3	Cars	59	Totals	66	East Leg Total: 854 East Entering: 592 East Peds: 0 Peds Cross: ☒
Cyclists	0	3	2	5																											
Trucks	0	0	0	0																											
Cars	23	18	0	41																											
Totals	23	21	2																												
Cyclists	4																														
Trucks	3																														
Cars	59																														
Totals	66																														

Cyclists	Trucks	Cars	Totals
5	13	912	930

Minets Point Rd

Lakeshore Dr

Cars	Trucks	Cyclists	Totals
5	1	1	7
508	8	5	521
61	3	0	64
574	12	6	

Cyclists	Trucks	Cars	Totals
0	2	35	37
1	8	214	223
3	14	218	235
4	24	467	

Minets Point Rd

Hurst Dr

Peds Cross: ☒	Cars 297
West Peds: 4	Trucks 17
West Entering: 495	Cyclists 6
West Leg Total: 1425	Totals 320

Cars	381	19	33	433
Trucks	5	0	4	9
Cyclists	0	3	0	3
Totals	386	22	37	

Peds Cross: ☒
South Peds: 1
South Entering: 445
South Leg Total: 765

Comments

Accu-Traffic Inc

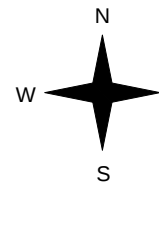
Mid-day Peak Diagram	Specified Period From: 11:00:00 To: 14:00:00	One Hour Peak From: 12:15:00 To: 13:15:00
Municipality: Barrie Site #: 1402300031 Intersection: Lakeshore Dr & Minets Point Rd TFR File #: 1 Count date: 10-Jul-14	Weather conditions: Person(s) who counted:	
** Signalized Intersection **	Major Road: Lakeshore Dr runs W/E	

North Leg Total: 208 North Entering: 91 North Peds: 3 Peds Cross: ☒	<table style="margin: auto;"> <tr> <td>Cyclists</td><td>0</td><td>3</td><td>1</td><td>4</td></tr> <tr> <td>Trucks</td><td>0</td><td>2</td><td>0</td><td>2</td></tr> <tr> <td>Cars</td><td>30</td><td>45</td><td>10</td><td>85</td></tr> <tr> <td>Totals</td><td>30</td><td>50</td><td>11</td><td></td></tr> </table>	Cyclists	0	3	1	4	Trucks	0	2	0	2	Cars	30	45	10	85	Totals	30	50	11		<table style="margin: auto;"> <tr> <td>Cyclists</td><td>3</td></tr> <tr> <td>Trucks</td><td>2</td></tr> <tr> <td>Cars</td><td>112</td></tr> <tr> <td>Totals</td><td>117</td></tr> </table>	Cyclists	3	Trucks	2	Cars	112	Totals	117	East Leg Total: 858 East Entering: 373 East Peds: 4 Peds Cross: ☒
Cyclists	0	3	1	4																											
Trucks	0	2	0	2																											
Cars	30	45	10	85																											
Totals	30	50	11																												
Cyclists	3																														
Trucks	2																														
Cars	112																														
Totals	117																														

Cyclists	Trucks	Cars	Totals
4	13	669	686

← Lakeshore Dr

Cyclists	Trucks	Cars	Totals
1	1	51	53
4	9	361	374
0	11	345	356
5	21	757	



N
W E
S

Minets Point Rd

Cars	Trucks	Cyclists	Totals
11	1	0	12
278	8	2	288
68	3	2	73
357	12	4	

← Hurst Dr

Cars	Trucks	Cyclists	Totals
464	16	5	485

Peds Cross: ☒ West Peds: 13 West Entering: 783 West Leg Total: 1469	<table style="margin: auto;"> <tr> <td>Cars</td><td>458</td></tr> <tr> <td>Trucks</td><td>16</td></tr> <tr> <td>Cyclists</td><td>5</td></tr> <tr> <td>Totals</td><td>479</td></tr> </table>	Cars	458	Trucks	16	Cyclists	5	Totals	479	<table style="margin: auto;"> <tr> <td>Cars</td><td>361</td><td>50</td><td>93</td><td>504</td></tr> <tr> <td>Trucks</td><td>5</td><td>0</td><td>7</td><td>12</td></tr> <tr> <td>Cyclists</td><td>2</td><td>2</td><td>0</td><td>4</td></tr> <tr> <td>Totals</td><td>368</td><td>52</td><td>100</td><td></td></tr> </table>	Cars	361	50	93	504	Trucks	5	0	7	12	Cyclists	2	2	0	4	Totals	368	52	100		Peds Cross: ☒ South Peds: 2 South Entering: 520 South Leg Total: 999
Cars	458																														
Trucks	16																														
Cyclists	5																														
Totals	479																														
Cars	361	50	93	504																											
Trucks	5	0	7	12																											
Cyclists	2	2	0	4																											
Totals	368	52	100																												

Comments

Accu-Traffic Inc

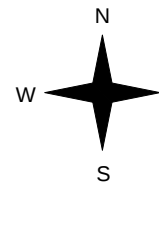
Afternoon Peak Diagram	Specified Period From: 15:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Barrie Site #: 1402300031 Intersection: Lakeshore Dr & Minets Point Rd TFR File #: 1 Count date: 10-Jul-14	Weather conditions: Person(s) who counted:	
** Signalized Intersection **	Major Road: Lakeshore Dr runs W/E	

North Leg Total: 1511 North Entering: 795 North Peds: 8 Peds Cross: ⚡	<table border="1" style="margin: auto;"> <tr><td>Cyclists</td><td>1</td><td>3</td><td>10</td><td>14</td></tr> <tr><td>Trucks</td><td>3</td><td>0</td><td>5</td><td>8</td></tr> <tr><td>Cars</td><td>166</td><td>25</td><td>582</td><td>773</td></tr> <tr><td>Totals</td><td>170</td><td>28</td><td>597</td><td></td></tr> </table>	Cyclists	1	3	10	14	Trucks	3	0	5	8	Cars	166	25	582	773	Totals	170	28	597		<table border="1" style="margin: auto;"> <tr><td>Cyclists</td><td>13</td></tr> <tr><td>Trucks</td><td>5</td></tr> <tr><td>Cars</td><td>698</td></tr> <tr><td>Totals</td><td>716</td></tr> </table>	Cyclists	13	Trucks	5	Cars	698	Totals	716	East Leg Total: 1736 East Entering: 741 East Peds: 21 Peds Cross: ⚡
Cyclists	1	3	10	14																											
Trucks	3	0	5	8																											
Cars	166	25	582	773																											
Totals	170	28	597																												
Cyclists	13																														
Trucks	5																														
Cars	698																														
Totals	716																														

Cyclists	Trucks	Cars	Totals
8	37	421	466

Lakeshore Dr

Cyclists	Trucks	Cars	Totals
0	3	208	211
8	11	370	389
0	5	18	23
8	19	596	



Minets Point Rd

Minets Point Rd

Cars	Trucks	Cyclists	Totals
482	2	7	491
228	13	7	248
1	0	1	2
711	15	15	

Hurst Dr

Cars	Trucks	Cyclists	Totals
960	16	19	995

Peds Cross: ⚡ West Peds: 10 West Entering: 623 West Leg Total: 1089	<table border="1" style="margin: auto;"> <tr><td>Cars</td><td>44</td></tr> <tr><td>Trucks</td><td>5</td></tr> <tr><td>Cyclists</td><td>4</td></tr> <tr><td>Totals</td><td>53</td></tr> </table>	Cars	44	Trucks	5	Cyclists	4	Totals	53	<table border="1" style="margin: auto;"> <tr><td>Cars</td><td>27</td><td>8</td><td>8</td><td>43</td></tr> <tr><td>Trucks</td><td>21</td><td>0</td><td>0</td><td>21</td></tr> <tr><td>Cyclists</td><td>0</td><td>6</td><td>1</td><td>7</td></tr> <tr><td>Totals</td><td>48</td><td>14</td><td>9</td><td></td></tr> </table>	Cars	27	8	8	43	Trucks	21	0	0	21	Cyclists	0	6	1	7	Totals	48	14	9		Peds Cross: ⚡ South Peds: 10 South Entering: 71 South Leg Total: 124
Cars	44																														
Trucks	5																														
Cyclists	4																														
Totals	53																														
Cars	27	8	8	43																											
Trucks	21	0	0	21																											
Cyclists	0	6	1	7																											
Totals	48	14	9																												

Comments

Accu-Traffic Inc

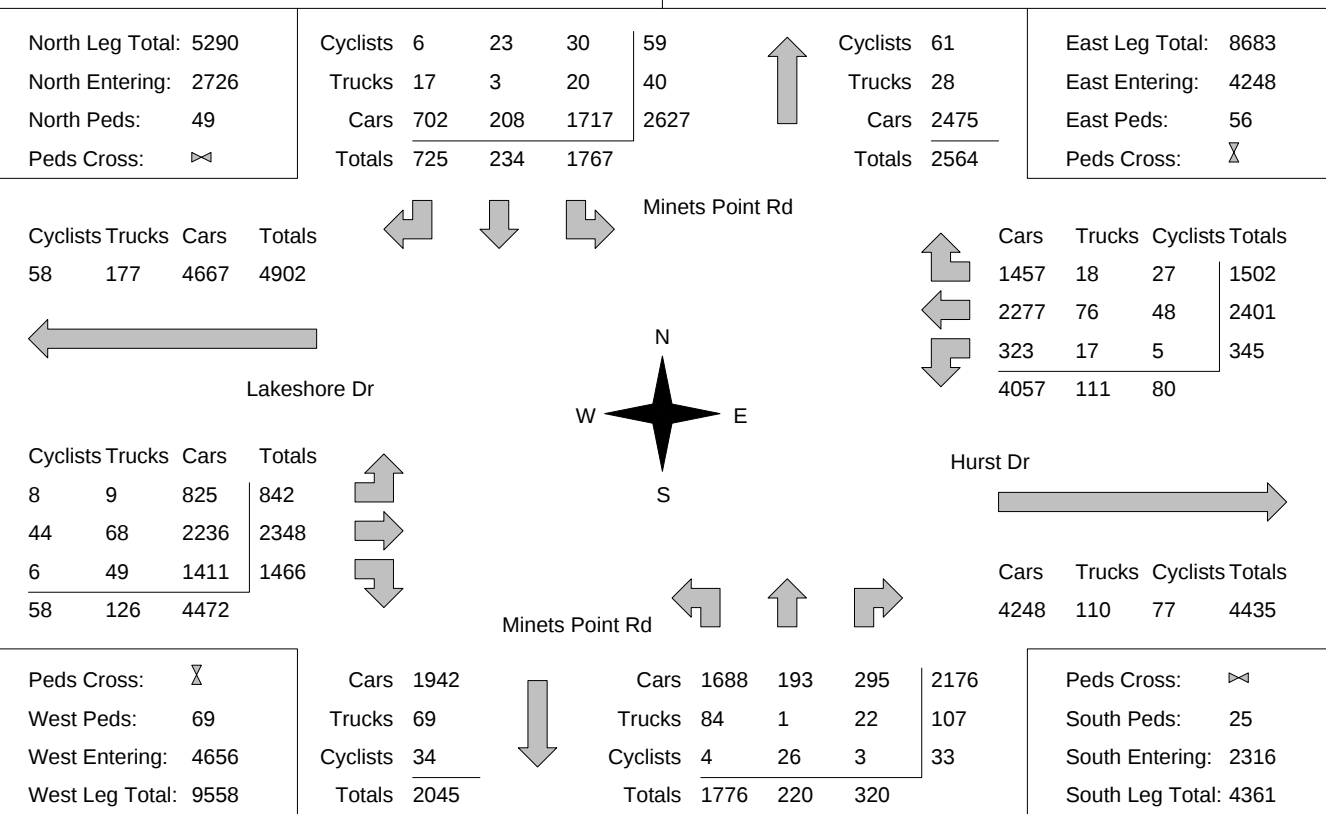
Total Count Diagram

Municipality: Barrie
Site #: 1402300031
Intersection: Lakeshore Dr & Minets Point Rd
TFR File #: 1
Count date: 10-Jul-14

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Lakeshore Dr runs W/E



Comments

Accu-Traffic Inc

Traffic Count Summary

Intersection	Lakeshore Dr & Minets Point Rd					Count Date	10-Jul-14		Municipality	Barrie			
North Approach Totals						North/South Total Approaches	South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds		Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	1	21	18	40	3	318	8:00:00	237	20	21	278	0	
9:00:00	2	21	23	46	4	491	9:00:00	386	22	37	445	1	
11:00:00	0	0	1	1	2	9	11:00:00	8	0	0	8	0	
12:00:00	4	40	33	77	2	529	12:00:00	329	50	73	452	0	
13:00:00	11	48	28	87	3	574	13:00:00	341	52	94	487	5	
14:00:00	7	41	45	93	2	572	14:00:00	357	47	75	479	0	
15:00:00	0	0	1	1	0	6	15:00:00	3	0	2	5	0	
16:00:00	588	10	236	834	7	876	16:00:00	32	7	3	42	3	
17:00:00	574	18	168	760	16	805	17:00:00	35	6	4	45	7	
18:00:00	574	35	169	778	10	853	18:00:00	48	16	11	75	8	
Totals:						5033	1776 220 320 2316 24						
East Approach Totals						East/West Total Approaches	West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds		Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	33	345	7	385	3	774	8:00:00	14	191	184	389	4	
9:00:00	64	521	7	592	0	1087	9:00:00	37	223	235	495	4	
11:00:00	0	5	0	5	0	10	11:00:00	1	0	4	5	0	
12:00:00	92	275	16	383	1	1039	12:00:00	44	288	324	656	16	
13:00:00	82	293	12	387	4	1150	13:00:00	50	373	340	763	10	
14:00:00	64	285	5	354	0	1059	14:00:00	56	321	328	705	13	
15:00:00	2	0	0	2	0	8	15:00:00	0	0	6	6	0	
16:00:00	3	216	472	691	16	1176	16:00:00	231	248	6	485	1	
17:00:00	3	219	479	701	13	1227	17:00:00	202	318	6	526	11	
18:00:00	2	242	495	739	19	1355	18:00:00	203	380	33	616	10	
Totals:						8885	838 2342 1466 4646 69						
Calculated Values for Traffic Crossing Major Street													
Hours Ending:	8:00	9:00	12:00	13:00			14:00	16:00	17:00	18:00			
Crossing Values:	266	414	400	418			424	647	651	686			

Accu-Traffic Inc

Count Date: 10-Jul-14 Site #: 1402300031

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	6	6	6	6	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	0	0	7	1	9	3	0	0	0	0	0	0	0	0	1	1	0	0	2	1
7:45:00	1	1	13	6	12	3	0	0	0	0	0	0	0	0	1	0	0	0	3	1
8:00:00	1	0	20	7	18	6	0	0	0	0	0	0	0	0	1	0	0	0	3	0
8:15:00	1	0	23	3	24	6	0	0	0	0	0	0	0	0	2	1	0	0	5	2
8:30:00	1	0	29	6	31	7	0	0	0	0	0	0	0	0	2	0	0	0	5	0
8:45:00	1	0	33	4	38	7	0	0	0	0	0	0	1	1	2	0	0	0	7	2
9:00:00	1	0	38	5	41	3	0	0	0	0	0	0	2	1	4	2	0	0	7	0
9:15:00	1	0	38	0	42	1	0	0	0	0	0	0	2	0	4	0	0	0	9	2
11:00:00	1	0	38	0	42	0	0	0	0	0	0	0	2	0	4	0	0	0	9	0
11:15:00	1	0	47	9	51	9	0	0	0	0	0	0	2	0	5	1	0	0	9	0
11:30:00	3	2	55	8	60	9	0	0	0	0	1	1	2	0	5	0	0	0	9	0
11:45:00	4	1	70	15	66	6	0	0	0	0	2	1	2	0	8	3	0	0	11	2
12:00:00	5	1	74	4	72	6	0	0	0	0	3	1	2	0	8	0	0	0	11	0
12:15:00	8	3	82	8	82	10	0	0	0	0	3	0	2	0	8	0	0	0	11	0
12:30:00	12	4	94	12	88	6	0	0	1	1	3	0	2	0	11	3	0	0	11	0
12:45:00	12	0	107	13	94	6	0	0	1	0	3	0	2	0	11	0	0	0	11	0
13:00:00	15	3	117	10	100	6	0	0	2	1	3	0	3	1	11	0	0	0	14	3
13:15:00	18	3	127	10	112	12	0	0	2	0	3	0	3	0	11	0	0	0	14	0
13:30:00	18	0	135	8	123	11	0	0	2	0	3	0	3	0	11	0	0	0	15	1
13:45:00	20	2	144	9	136	13	0	0	2	0	3	0	3	0	13	2	1	1	16	1
14:00:00	22	2	155	11	144	8	0	0	3	1	3	0	3	0	13	0	1	0	16	0
14:15:00	22	0	155	0	145	1	0	0	3	0	3	0	3	0	13	0	1	0	16	0
15:00:00	22	0	155	0	145	0	0	0	3	0	3	0	3	0	13	0	1	0	16	0
15:15:00	155	133	155	0	197	52	2	2	3	0	5	2	4	1	13	0	1	0	18	2
15:30:00	289	134	159	4	256	59	7	5	3	0	6	1	7	3	14	1	3	2	19	1
15:45:00	424	135	162	3	309	53	7	0	3	0	8	2	11	4	15	1	3	0	19	0
16:00:00	593	169	163	1	372	63	7	0	3	0	9	1	13	2	15	0	4	1	23	4
16:15:00	734	141	166	3	412	40	9	2	3	0	12	3	13	0	18	3	4	0	28	5
16:30:00	875	141	173	7	465	53	10	1	3	0	14	2	18	5	18	0	4	0	30	2
16:45:00	1013	138	173	0	500	35	14	4	3	0	14	0	19	1	19	1	4	0	39	9
17:00:00	1149	136	176	3	534	34	16	2	3	0	15	1	22	3	20	1	4	0	39	0
17:15:00	1296	147	185	9	573	39	18	2	3	0	15	0	25	3	21	1	5	1	39	0
17:30:00	1460	164	192	7	618	45	18	0	3	0	17	2	27	2	21	0	5	0	46	7
17:45:00	1595	135	198	6	666	48	19	1	3	0	17	0	29	2	22	1	5	0	47	1
18:00:00	1711	116	208	10	699	33	20	1	3	0	17	0	30	1	23	1	6	1	49	2
18:15:00	1717	6	208	0	702	3	20	0	3	0	17	0	30	0	23	0	6	0	49	0
18:15:15	1717	0	208	0	702	0	20	0	3	0	17	0	30	0	23	0	6	0	49	0

Accu-Traffic Inc

Count Date: 10-Jul-14 Site #: 1402300031

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	6	6	51	51	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	10	4	121	70	1	0	1	0	4	4	0	0	0	0	2	2	0	0	1	0
7:45:00	17	7	223	102	1	0	2	1	6	2	0	0	0	0	2	0	0	0	3	2
8:00:00	31	14	333	110	6	5	2	0	8	2	0	0	0	0	4	2	1	1	3	0
8:15:00	40	9	436	103	8	2	3	1	8	0	0	0	0	0	6	2	1	0	3	0
8:30:00	52	12	590	154	10	2	3	0	11	3	0	0	0	0	7	1	1	0	3	0
8:45:00	73	21	712	122	11	1	4	1	14	3	1	1	0	0	8	1	2	1	3	0
9:00:00	92	19	841	129	11	0	5	1	16	2	1	0	0	0	9	1	2	0	3	0
9:15:00	92	0	846	5	11	0	5	0	16	0	1	0	0	0	9	0	2	0	3	0
11:00:00	92	0	846	0	11	0	5	0	16	0	1	0	0	0	9	0	2	0	3	0
11:15:00	113	21	909	63	15	4	7	2	18	2	3	2	0	0	14	5	2	0	3	0
11:30:00	136	23	966	57	15	0	7	0	21	3	3	0	0	0	17	3	3	1	3	0
11:45:00	158	22	1023	57	16	1	9	2	23	2	3	0	0	0	17	0	5	2	3	0
12:00:00	180	22	1103	80	20	4	9	0	26	3	3	0	0	0	17	0	7	2	4	1
12:15:00	206	26	1168	65	21	1	10	1	29	3	3	0	1	1	19	2	7	0	4	0
12:30:00	223	17	1236	68	25	4	11	1	34	5	3	0	1	0	19	0	7	0	4	0
12:45:00	245	22	1295	59	28	3	11	0	36	2	3	0	3	2	19	0	7	0	5	1
13:00:00	257	12	1382	87	31	3	11	0	37	1	4	1	3	0	20	1	7	0	8	3
13:15:00	274	17	1446	64	32	1	13	2	37	0	4	0	3	0	21	1	7	0	8	0
13:30:00	284	10	1523	77	32	0	14	1	40	3	4	0	3	0	21	0	7	0	8	0
13:45:00	298	14	1574	51	32	0	16	2	40	0	5	1	3	0	22	1	7	0	8	0
14:00:00	315	17	1656	82	35	3	17	1	43	3	5	0	3	0	25	3	7	0	8	0
14:15:00	317	2	1656	0	35	0	17	0	43	0	5	0	3	0	25	0	7	0	8	0
15:00:00	317	0	1656	0	35	0	17	0	43	0	5	0	3	0	25	0	7	0	8	0
15:15:00	317	0	1711	55	155	120	17	0	47	4	8	3	3	0	25	0	9	2	13	5
15:30:00	318	1	1760	49	248	93	17	0	49	2	9	1	3	0	26	1	10	1	17	4
15:45:00	318	0	1801	41	356	108	17	0	53	4	12	3	3	0	30	4	10	0	24	7
16:00:00	320	2	1849	48	493	137	17	0	58	5	12	0	3	0	33	3	14	4	24	0
16:15:00	320	0	1906	57	612	119	17	0	58	0	13	1	3	0	34	1	14	0	27	3
16:30:00	321	1	1950	44	721	109	17	0	61	3	13	0	3	0	35	1	15	1	27	0
16:45:00	322	1	1999	49	840	119	17	0	63	2	16	3	4	1	38	3	16	1	33	6
17:00:00	322	0	2048	49	965	125	17	0	69	6	16	0	4	0	42	4	17	1	37	4
17:15:00	322	0	2110	62	1061	96	17	0	72	3	16	0	4	0	42	0	21	4	46	9
17:30:00	323	1	2168	58	1189	128	17	0	74	2	17	1	4	0	44	2	21	0	47	1
17:45:00	323	0	2227	59	1322	133	17	0	76	2	18	1	5	1	45	1	23	2	54	7
18:00:00	323	0	2277	50	1448	126	17	0	76	0	18	0	5	0	48	3	27	4	56	2
18:15:00	323	0	2277	0	1457	9	17	0	76	0	18	0	5	0	48	0	27	0	56	0
18:15:15	323	0	2277	0	1457	0	17	0	76	0	18	0	5	0	48	0	27	0	56	0

Accu-Traffic Inc

Count Date: 10-Jul-14 Site #: 1402300031

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	33	33	4	4	2	2	0	0	0	0	1	1	0	0	1	1	0	0	0	0
7:30:00	90	57	6	2	6	4	1	1	0	0	1	0	0	0	1	0	0	0	0	0
7:45:00	151	61	9	3	12	6	2	1	0	0	2	1	0	0	1	0	0	0	0	0
8:00:00	233	82	18	9	19	7	3	1	0	0	2	0	1	1	2	1	0	0	0	0
8:15:00	309	76	25	7	24	5	4	1	0	0	4	2	1	0	2	0	0	0	0	0
8:30:00	411	102	27	2	33	9	6	2	0	0	4	0	1	0	5	3	0	0	0	0
8:45:00	521	110	32	5	44	11	7	1	0	0	6	2	1	0	5	0	0	0	0	0
9:00:00	614	93	37	5	52	8	8	1	0	0	6	0	1	0	5	0	0	0	1	1
9:15:00	621	7	37	0	52	0	9	1	0	0	6	0	1	0	5	0	0	0	1	0
11:00:00	621	0	37	0	52	0	9	0	0	0	6	0	1	0	5	0	0	0	1	0
11:15:00	687	66	49	12	68	16	9	0	0	0	8	2	1	0	6	1	0	0	1	0
11:30:00	744	57	62	13	79	11	11	2	0	0	8	0	1	0	6	0	0	0	1	0
11:45:00	850	106	75	13	96	17	11	0	0	0	12	4	1	0	6	0	0	0	1	0
12:00:00	946	96	86	11	118	22	13	2	0	0	12	0	1	0	6	0	1	1	1	0
12:15:00	1015	69	97	11	136	18	14	1	1	1	12	0	1	0	6	0	2	1	4	3
12:30:00	1090	75	111	14	159	23	18	4	1	0	14	2	1	0	6	0	2	0	6	2
12:45:00	1180	90	126	15	188	29	18	0	1	0	15	1	1	0	6	0	2	0	6	0
13:00:00	1281	101	137	11	207	19	18	0	1	0	16	1	2	1	6	0	2	0	6	0
13:15:00	1376	95	147	10	229	22	19	1	1	0	19	3	3	1	8	2	2	0	6	0
13:30:00	1454	78	156	9	243	14	19	0	1	0	19	0	3	0	8	0	2	0	6	0
13:45:00	1551	97	169	13	257	14	19	0	1	0	21	2	3	0	8	0	2	0	6	0
14:00:00	1635	84	179	10	276	19	20	1	1	0	22	1	3	0	11	3	2	0	6	0
14:15:00	1638	3	179	0	278	2	20	0	1	0	22	0	3	0	11	0	2	0	6	0
15:00:00	1638	0	179	0	278	0	20	0	1	0	22	0	3	0	11	0	2	0	6	0
15:15:00	1638	0	179	0	278	0	27	7	1	0	22	0	3	0	12	1	2	0	7	1
15:30:00	1639	1	180	1	279	1	34	7	1	0	22	0	3	0	12	0	2	0	7	0
15:45:00	1642	3	180	0	280	1	37	3	1	0	22	0	3	0	14	2	2	0	7	0
16:00:00	1645	3	181	1	281	1	44	7	1	0	22	0	4	1	16	2	2	0	9	2
16:15:00	1648	3	181	0	281	0	47	3	1	0	22	0	4	0	16	0	2	0	9	0
16:30:00	1652	4	182	1	284	3	55	8	1	0	22	0	4	0	17	1	2	0	10	1
16:45:00	1656	4	183	1	284	0	57	2	1	0	22	0	4	0	18	1	2	0	13	3
17:00:00	1661	5	184	1	285	1	63	6	1	0	22	0	4	0	19	1	2	0	16	3
17:15:00	1664	3	184	0	287	2	69	6	1	0	22	0	4	0	22	3	3	1	17	1
17:30:00	1672	8	185	1	290	3	74	5	1	0	22	0	4	0	24	2	3	0	19	2
17:45:00	1683	11	191	6	292	2	78	4	1	0	22	0	4	0	24	0	3	0	23	4
18:00:00	1688	5	193	2	295	3	84	6	1	0	22	0	4	0	26	2	3	0	24	1
18:15:00	1688	0	193	0	295	0	84	0	1	0	22	0	4	0	26	0	3	0	25	1
18:15:15	1688	0	193	0	295	0	84	0	1	0	22	0	4	0	26	0	3	0	25	0

Accu-Traffic Inc

Count Date: 10-Jul-14 Site #: 1402300031

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	3	3	38	38	31	31	0	0	1	1	2	2	0	0	0	0	0	0	0	0
7:30:00	7	4	80	42	73	42	0	0	8	7	2	0	0	0	1	1	0	0	2	2
7:45:00	9	2	133	53	127	54	0	0	10	2	3	1	0	0	2	1	0	0	4	2
8:00:00	14	5	177	44	180	53	0	0	12	2	4	1	0	0	2	0	0	0	4	0
8:15:00	22	8	245	68	227	47	0	0	14	2	10	6	0	0	2	0	1	1	6	2
8:30:00	27	5	290	45	272	45	1	1	18	4	15	5	0	0	2	0	2	1	6	0
8:45:00	34	7	318	28	334	62	1	0	18	0	17	2	0	0	2	0	2	0	7	1
9:00:00	49	15	391	73	398	64	2	1	20	2	18	1	0	0	3	1	3	1	8	1
9:15:00	50	1	391	0	401	3	2	0	20	0	19	1	0	0	3	0	3	0	8	0
11:00:00	50	0	391	0	401	0	2	0	20	0	19	0	0	0	3	0	3	0	8	0
11:15:00	64	14	450	59	482	81	2	0	24	4	21	2	0	0	3	0	3	0	9	1
11:30:00	71	7	512	62	561	79	2	0	26	2	21	0	0	0	4	1	5	2	11	2
11:45:00	77	6	602	90	650	89	3	1	26	0	21	0	0	0	4	0	5	0	20	9
12:00:00	93	16	668	66	721	71	3	0	29	3	21	0	0	0	5	1	5	0	24	4
12:15:00	104	11	741	73	801	80	3	0	29	0	21	0	0	0	8	3	5	0	25	1
12:30:00	115	11	855	114	890	89	3	0	31	2	22	1	1	1	11	3	5	0	26	1
12:45:00	125	10	932	77	973	83	3	0	32	1	25	3	1	0	12	1	5	0	26	0
13:00:00	141	16	1029	97	1054	81	4	1	34	2	28	3	1	0	12	0	5	0	34	8
13:15:00	155	14	1102	73	1146	92	4	0	38	4	32	4	1	0	12	0	5	0	38	4
13:30:00	168	13	1157	55	1224	78	4	0	41	3	35	3	3	2	13	1	5	0	38	0
13:45:00	176	8	1241	84	1300	76	5	1	43	2	36	1	3	0	15	2	6	1	44	6
14:00:00	194	18	1336	95	1371	71	5	0	45	2	38	2	3	0	15	0	6	0	47	3
14:15:00	194	0	1336	0	1377	6	5	0	45	0	38	0	3	0	15	0	6	0	47	0
15:00:00	194	0	1336	0	1377	0	5	0	45	0	38	0	3	0	15	0	6	0	47	0
15:15:00	276	82	1409	73	1377	0	5	0	48	3	38	0	3	0	17	2	6	0	47	0
15:30:00	319	43	1440	31	1377	0	5	0	50	2	39	1	4	1	24	7	6	0	48	1
15:45:00	365	46	1497	57	1378	1	5	0	53	3	40	1	5	1	26	2	6	0	48	0
16:00:00	421	56	1562	65	1379	1	6	1	53	0	42	2	6	1	29	3	6	0	48	0
16:15:00	469	48	1624	62	1379	0	6	0	53	0	42	0	7	1	30	1	6	0	52	4
16:30:00	515	46	1698	74	1380	1	6	0	55	2	43	1	7	0	31	1	6	0	54	2
16:45:00	569	54	1769	71	1382	2	6	0	57	2	43	0	7	0	34	3	6	0	57	3
17:00:00	622	53	1867	98	1383	1	6	0	58	1	44	1	7	0	37	3	6	0	59	2
17:15:00	680	58	1967	100	1387	4	6	0	59	1	45	1	7	0	37	0	6	0	63	4
17:30:00	729	49	2062	95	1394	7	6	0	64	5	48	3	7	0	40	3	6	0	66	3
17:45:00	777	48	2139	77	1400	6	9	3	68	4	48	0	7	0	42	2	6	0	67	1
18:00:00	821	44	2230	91	1411	11	9	0	68	0	49	1	8	1	44	2	6	0	69	2
18:15:00	825	4	2236	6	1411	0	9	0	68	0	49	0	8	0	44	0	6	0	69	0
18:15:15	825	0	2236	0	1411	0	9	0	68	0	49	0	8	0	44	0	6	0	69	0

Appendix B: 2020 Traffic Operations

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	237	261	42	392	7	274	18	33	3	22	19
Future Volume (vph)	25	237	261	42	392	7	274	18	33	3	22	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.92		1.00	1.00		1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3261		1770	3529		1770	1863	1583		1747	
Flt Permitted	0.50	1.00		0.44	1.00		0.73	1.00	1.00		0.99	
Satd. Flow (perm)	931	3261		823	3529		1352	1863	1583		1737	
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)	27	258	284	46	426	8	298	20	36	3	24	21
RTOR Reduction (vph)	0	128	0	0	1	0	0	0	25	0	15	0
Lane Group Flow (vph)	27	414	0	46	433	0	298	20	11	0	33	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	33.0	33.0		33.0	33.0		18.1	18.1	18.1		18.1	
Effective Green, g (s)	33.0	33.0		33.0	33.0		18.1	18.1	18.1		18.1	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.30	0.30	0.30		0.30	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	511	1790		451	1937		407	561	476		523	
v/s Ratio Prot		c0.13			0.12			0.01				
v/s Ratio Perm	0.03			0.06			c0.22		0.01		0.02	
v/c Ratio	0.05	0.23		0.10	0.22		0.73	0.04	0.02		0.06	
Uniform Delay, d1	6.3	7.0		6.5	7.0		18.8	14.8	14.8		15.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.2	0.3		0.5	0.3		6.7	0.0	0.0		0.1	
Delay (s)	6.5	7.3		6.9	7.2		25.5	14.9	14.8		15.0	
Level of Service	A	A		A	A		C	B	B		B	
Approach Delay (s)		7.3			7.2			23.8			15.0	
Approach LOS		A			A			C			B	
Intersection Summary												
HCM 2000 Control Delay	11.5			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.41											
Actuated Cycle Length (s)	60.1			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	52.2%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	256	3	1	435	4	6	0	6	7	0	10
Future Volume (Veh/h)	7	256	3	1	435	4	6	0	6	7	0	10
Sign Control		Free			Free			Stop			Stop	
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)	8	278	3	1	473	4	7	0	7	8	0	11
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	477			281			545	774	140	639	774	238
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	477			281			545	774	140	639	774	238
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			98	100	99	98	100	99
cM capacity (veh/h)	1082			1278			413	325	882	356	325	763
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	147	142	238	240	14	19						
Volume Left	8	0	1	0	7	8						
Volume Right	0	3	0	4	7	11						
cSH	1082	1700	1278	1700	562	515						
Volume to Capacity	0.01	0.08	0.00	0.14	0.02	0.04						
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.6	0.9						
Control Delay (s)	0.5	0.0	0.0	0.0	11.6	12.3						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.3		0.0		11.6	12.3						
Approach LOS					B	B						
Intersection Summary												
Average Delay				0.6								
Intersection Capacity Utilization				22.8%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

8: White Oaks Rd/Brennan Ave

10-09-2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	4	23	0	28
Future Volume (Veh/h)	0	1	4	23	0	28
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	1	4	25	0	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				354		
pX, platoon unblocked						
vC, conflicting volume	48	15	30			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48	15	30			
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)	959	1065	1583			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	29	30			
Volume Left	0	4	0			
Volume Right	1	0	30			
cSH	1065	1583	1700			
Volume to Capacity	0.00	0.00	0.02			
Queue Length 95th (m)	0.0	0.1	0.0			
Control Delay (s)	8.4	1.0	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.4	1.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		14.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: White Oaks Rd & The Blvd

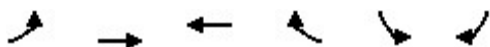
10-09-2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	27	2	0	29
Future Volume (Veh/h)	7	0	27	2	0	29
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)	8	0	29	2	0	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			303			
pX, platoon unblocked						
vC, conflicting volume	62	30			31	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	62	30			31	
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			100	
cM capacity (veh/h)	944	1044			1582	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	8	31	32			
Volume Left	8	0	0			
Volume Right	0	2	0			
cSH	944	1700	1582			
Volume to Capacity	0.01	0.02	0.00			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s)	8.8	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	8.8	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			13.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Brennan Ave & Minets Point Park

10-09-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	4	12	1	3	16
Future Volume (Veh/h)	19	4	12	1	3	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	4	13	1	3	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)		401				
pX, platoon unblocked						
vC, conflicting volume	14				60	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14				60	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1604				935	1067
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	25	14	20			
Volume Left	21	0	3			
Volume Right	0	1	17			
cSH	1604	1700	1045			
Volume to Capacity	0.01	0.01	0.02			
Queue Length 95th (m)	0.3	0.0	0.5			
Control Delay (s)	6.1	0.0	8.5			
Lane LOS	A		A			
Approach Delay (s)	6.1	0.0	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay			5.5			
Intersection Capacity Utilization			17.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	508	434	55	347	8	435	47	86	16	33	27
Future Volume (vph)	38	508	434	55	347	8	435	47	86	16	33	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.93		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	3295		1770	3527		1770	1863	1583		1756	
Flt Permitted	0.52	1.00		0.18	1.00		0.70	1.00	1.00		0.96	
Satd. Flow (perm)	973	3295		343	3527		1311	1863	1583		1696	
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)	41	552	472	60	377	9	473	51	93	17	36	29
RTOR Reduction (vph)	0	213	0	0	2	0	0	0	56	0	17	0
Lane Group Flow (vph)	41	811	0	60	384	0	473	51	37	0	65	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	31.6	31.6		31.6	31.6		26.8	26.8	26.8		26.8	
Effective Green, g (s)	31.6	31.6		31.6	31.6		26.8	26.8	26.8		26.8	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.40	0.40	0.40		0.40	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	456	1544		160	1653		521	740	629		674	
v/s Ratio Prot		c0.25			0.11			0.03				
v/s Ratio Perm	0.04			0.17			c0.36		0.02		0.04	
v/c Ratio	0.09	0.53		0.38	0.23		0.91	0.07	0.06		0.10	
Uniform Delay, d1	9.9	12.6		11.5	10.7		19.1	12.6	12.5		12.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		0.95	
Incremental Delay, d2	0.4	1.3		6.6	0.3		19.5	0.0	0.0		0.1	
Delay (s)	10.3	13.9		18.1	11.0		38.6	12.6	12.6		12.2	
Level of Service	B	B		B	B		D	B	B		B	
Approach Delay (s)		13.8			12.0			32.5			12.2	
Approach LOS		B			B			C			B	
Intersection Summary												
HCM 2000 Control Delay	18.6			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.70											
Actuated Cycle Length (s)	67.4			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	74.2%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	542	2	2	473	18	1	1	6	16	0	10
Future Volume (Veh/h)	19	542	2	2	473	18	1	1	6	16	0	10
Sign Control		Free			Free			Stop			Stop	
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	589	2	2	514	20	1	1	7	17	0	11
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	534			591			904	1170	296	872	1161	267
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	534			591			904	1170	296	872	1161	267
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			100	99	99	93	100	98
cM capacity (veh/h)	1030			981			225	187	701	237	190	731
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	316	296	259	277	9	28						
Volume Left	21	0	2	0	1	17						
Volume Right	0	2	0	20	7	11						
cSH	1030	1700	981	1700	455	323						
Volume to Capacity	0.02	0.17	0.00	0.16	0.02	0.09						
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.5	2.3						
Control Delay (s)	0.8	0.0	0.1	0.0	13.1	17.2						
Lane LOS	A		A		B	C						
Approach Delay (s)	0.4		0.0		13.1	17.2						
Approach LOS					B	C						
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			40.6%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: White Oaks Rd/Brennan Ave

10-09-2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	5	58	61	0
Future Volume (Veh/h)	0	1	5	58	61	0
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	1	5	63	66	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)				354		
pX, platoon unblocked						
vC, conflicting volume	139	66	66			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	139	66	66			
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)	851	998	1536			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	68	66			
Volume Left	0	5	0			
Volume Right	1	0	0			
cSH	998	1536	1700			
Volume to Capacity	0.00	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	0.0			
Control Delay (s)	8.6	0.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.6	0.6	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization		17.2%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: White Oaks Rd & The Blvd

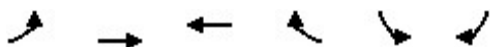
10-09-2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	1	62	11	1	61
Future Volume (Veh/h)	9	1	62	11	1	61
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)	10	1	67	12	1	66
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			303			
pX, platoon unblocked						
vC, conflicting volume	141	73			79	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	141	73			79	
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			100	
cM capacity (veh/h)	851	989			1519	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	11	79	67			
Volume Left	10	0	1			
Volume Right	1	12	0			
cSH	862	1700	1519			
Volume to Capacity	0.01	0.05	0.00			
Queue Length 95th (m)	0.3	0.0	0.0			
Control Delay (s)	9.2	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s)	9.2	0.0	0.1			
Approach LOS	A					
Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		14.0%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

12: Brennan Ave & Minets Point Park

10-09-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	22	14	6	5	47
Future Volume (Veh/h)	36	22	14	6	5	47
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	24	15	7	5	51
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		401				
pX, platoon unblocked						
vC, conflicting volume	22				120	18
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22				120	18
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	95
cM capacity (veh/h)	1593				854	1060
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	63	22	56			
Volume Left	39	0	5			
Volume Right	0	7	51			
cSH	1593	1700	1037			
Volume to Capacity	0.02	0.01	0.05			
Queue Length 95th (m)	0.6	0.0	1.4			
Control Delay (s)	4.6	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	4.6	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			5.5			
Intersection Capacity Utilization			19.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	357	337	54	288	12	358	55	58	10	48	54
Future Volume (vph)	44	357	337	54	288	12	358	55	58	10	48	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3282		1770	3518		1770	1863	1583		1733	
Flt Permitted	0.55	1.00		0.32	1.00		0.73	1.00	1.00		0.98	
Satd. Flow (perm)	1033	3282		589	3518		1368	1863	1583		1708	
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)	48	388	366	59	313	13	389	60	63	11	52	59
RTOR Reduction (vph)	0	181	0	0	4	0	0	0	41	0	38	0
Lane Group Flow (vph)	48	573	0	59	322	0	389	60	22	0	84	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	31.8	31.8		31.8	31.8		22.1	22.1	22.1		22.1	
Effective Green, g (s)	31.8	31.8		31.8	31.8		22.1	22.1	22.1		22.1	
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.35	0.35	0.35		0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	522	1659		297	1778		480	654	556		600	
v/s Ratio Prot		c0.17			0.09			0.03				
v/s Ratio Perm	0.05			0.10			c0.28		0.01		0.05	
v/c Ratio	0.09	0.35		0.20	0.18		0.81	0.09	0.04		0.14	
Uniform Delay, d1	8.1	9.3		8.5	8.5		18.5	13.7	13.4		13.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		0.98	
Incremental Delay, d2	0.3	0.6		1.5	0.2		10.0	0.1	0.0		0.1	
Delay (s)	8.4	9.9		10.0	8.7		28.5	13.7	13.4		13.8	
Level of Service	A	A		B	A		C	B	B		B	
Approach Delay (s)		9.8			8.9			24.9			13.8	
Approach LOS		A			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			14.1			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			62.9			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			62.6%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	406	4	5	351	22	3	0	5	15	1	11
Future Volume (Veh/h)	9	406	4	5	351	22	3	0	5	15	1	11
Sign Control		Free			Free			Stop			Stop	
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)	10	441	4	5	382	24	3	0	5	16	1	12
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	406			445			676	879	222	650	869	203
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	406			445			676	879	222	650	869	203
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			99	100	99	95	100	99
cM capacity (veh/h)	1149			1112			330	281	781	349	285	804
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	230	224	196	215	8	29						
Volume Left	10	0	5	0	3	16						
Volume Right	0	4	0	24	5	12						
cSH	1149	1700	1112	1700	516	451						
Volume to Capacity	0.01	0.13	0.00	0.13	0.02	0.06						
Queue Length 95th (m)	0.2	0.0	0.1	0.0	0.4	1.6						
Control Delay (s)	0.4	0.0	0.3	0.0	12.1	13.5						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.2		0.1		12.1	13.5						
Approach LOS					B	B						
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			27.8%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: White Oaks Rd/Brennan Ave

10-09-2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			T	T	L
Traffic Volume (veh/h)	0	1	6	81	72	0
Future Volume (Veh/h)	0	1	6	81	72	0
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	1	7	88	78	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)				354		
pX, platoon unblocked						
vC, conflicting volume	180	78	78			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	180	78	78			
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)	806	983	1520			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	95	78			
Volume Left	0	7	0			
Volume Right	1	0	0			
cSH	983	1520	1700			
Volume to Capacity	0.00	0.00	0.05			
Queue Length 95th (m)	0.0	0.1	0.0			
Control Delay (s)	8.7	0.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.7	0.6	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			19.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: White Oaks Rd & The Blvd

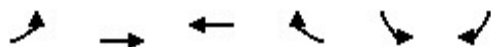
10-09-2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	0	87	8	1	71
Future Volume (Veh/h)	13	0	87	8	1	71
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)	14	0	95	9	1	77
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			303			
pX, platoon unblocked						
vC, conflicting volume	178	100			104	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	178	100			104	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	811	956			1488	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	14	104	78			
Volume Left	14	0	1			
Volume Right	0	9	0			
cSH	811	1700	1488			
Volume to Capacity	0.02	0.06	0.00			
Queue Length 95th (m)	0.4	0.0	0.0			
Control Delay (s)	9.5	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s)	9.5	0.0	0.1			
Approach LOS	A					
Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		15.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

12: Brennan Ave & Minets Point Park

10-09-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	↰
Traffic Volume (veh/h)	54	27	12	17	10	60
Future Volume (Veh/h)	54	27	12	17	10	60
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	29	13	18	11	65
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		401				
pX, platoon unblocked						
vC, conflicting volume	31				169	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	31				169	22
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				99	94
cM capacity (veh/h)	1582				791	1055
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	88	31	76			
Volume Left	59	0	11			
Volume Right	0	18	65			
cSH	1582	1700	1006			
Volume to Capacity	0.04	0.02	0.08			
Queue Length 95th (m)	0.9	0.0	2.0			
Control Delay (s)	5.0	0.0	8.9			
Lane LOS	A		A			
Approach Delay (s)	5.0	0.0	8.9			
Approach LOS			A			
Intersection Summary						
Average Delay			5.7			
Intersection Capacity Utilization			22.0%	ICU Level of Service		A
Analysis Period (min)			15			

GENERAL INFORMATION

Analyst	David Perks	Jurisdiction/Area	City of Barrie	Date	09 Oct 2020
Agency or Company	Tatham Engineering	East-West Street	Hurst Drive		
Analysis Period	2041 - Do Nothing	North-South Street	Brennan Drive		
Flow Conditions	Restricted flow (urban)	Major Street	East-West		
T Intersection	No	Approach Lanes per Direction	4		
		Hours of Traffic Volume Data	8 hours		
Additional Comments					

TRAFFIC & PEDESTRIAN VOLUMES

Hour of Data Hour Ending	Hour 1 8:00	Hour 2 9:00	Hour 3 12:00	Hour 4 13:00	Hour 5 14:00	Hour 6 16:00	Hour 7 17:00	Hour 8 18:00	AM + PM 4
MAJOR STREET									
Eastbound right	1	4	1	1	1	6	2	1	
thru	285	592	506	616	597	726	1254	724	
left	7	9	20	25	19	19	23	31	
Westbound right	7	5	20	28	15	20	22	22	
thru	509	1007	535	565	579	585	1095	551	
left	1	1	6	1	1	4	2	7	
MINOR STREET									
Northbound right	1	7	6	3	0	4	7	2	
thru	0	0	2	0	0	1	1	0	
left	1	7	1	1	4	2	1	1	
Southbound right	9	12	12	9	12	11	12	9	
thru	0	0	1	1	0	0	0	1	
left	12	9	21	19	22	12	20	22	
PEDESTRIANS									
crossing MAJOR street	3	2	0	1	1	0	2	2	
crossing MINOR street	9	3	7	7	5	1	0	4	
APPROACH VOLUMES									
major	812	1617	1090	1236	1213	1360	2399	1337	
minor	23	36	43	33	39	31	42	35	
TOTAL	835	1653	1133	1269	1251	1391	2441	1372	
CROSSING VOLUMES									
TOTAL	16	18	24	22	28	15	24	26	
note 1	13	16	22	20	27	14	21	23	
note 2	0	0	2	1	0	1	1	1	
note 3	0	0	0	0	0	0	0	0	
3a	no	no	no	no	no	no	no	no	
3b	no	yes	no	no	no	no	yes	no	
note 4	3	2	0	1	1	0	2	2	

NOTES

Traffic crossing MAJOR street defined as:

note 1: Left turns from both minor street approaches

note 2: The heaviest through volume from the minor street

note 3: 50% of the heavier left turn movement from the major street when both of the following are met:

3a: the left turn volume > 120

3b: the left turn volume + opposing volume > 720

note 4: Pedestrians crossing the major street

ACCIDENT HISTORY

Reportable accidents over the past 36 months susceptible to correction by a traffic signal.	months 1 to 12	-
	months 13 to 24	-
	months 25 to 36	-

GENERAL INFORMATION														
Analyst	David Perks			Jurisdiction/Area	City of Barrie			Date	09 Oct 2020					
Agency or Company	Tatham Engineering			East-West Street	Hurst Drive									
Analysis Period	2041 - Do Nothing			North-South Street	Brennan Drive									
Flow Conditions	Restricted flow (urban)			Major Street	Hurst Drive									
T Intersection	No			Approach Lanes per Direction	4									
Additional Comments				Hours of Traffic Volume Data	8 hours									
JUSTIFICATION 1 - MINIMUM VEHICLE VOLUME														
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance				
		Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8					
1A	TOTAL TRAFFIC VOLUME ENTERING INTERSECTION (vph) (2 way Total)	835	1653	1133	1269	1251	1391	2441	1372	100%	80%+	Average Compliance		
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)	93%	100%	100%	100%	100%	100%	100%	100%	100%	7	8	99%	
1B	TRAFFIC VOLUME ON MINOR STREET (vph) (2 way Total)	23	36	43	33	39	31	42	35	100%	80%+	Average Compliance		
	COMPLIANCE % $\frac{VOL \times 100}{170}$ OR $\frac{VOL \times 100}{255}$ (full intersection) (tee intersection)	14%	21%	25%	19%	23%	18%	25%	21%	0	0	21%		
(RESTRICTED FLOW)		BOTH 1A AND 1B 100% FULFILLED EACH OF 8 HOURS										NO		
SIGNAL JUSTIFICATION 1:		LESSER OF 1A OR 1B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO		
JUSTIFICATION 2 - DELAY TO CROSS TRAFFIC														
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance				
		Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8					
2A	MAIN ROAD TRAFFIC VOLUME (vph) (2 way Total)	812	1617	1090	1236	1213	1360	2399	1337	100%	80%+	Average Compliance		
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)	90%	100%	100%	100%	100%	100%	100%	100%	7	8	99%		
2B	CROSSING TRAFFIC VOLUME (vph) (2 way Total)	16	18	24	22	28	15	24	26	100%	80%+	Average Compliance		
	COMPLIANCE % $\frac{VOL \times 100}{75}$	22%	24%	32%	29%	37%	21%	32%	35%	0	0	29%		
(RESTRICTED FLOW)		BOTH 2A AND 2B 100% FULFILLED EACH OF 8 HOURS										NO		
SIGNAL JUSTIFICATION 2:		LESSER OF 2A OR 2B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO		
JUSTIFICATION 3 - COLLISION EXPERIENCE														
A. Number of reportable collisions susceptible to prevention by a traffic signal.								Preceding Months	Number of Collisions	% Fulfillment				
								1 - 12	-	-				
								13 - 24	-	-				
								25 - 36	-	-				
								annual average	-	-				
B. Adequate trial of less restrictive remedies has failed to reduce collision frequency.								☐	YES	☐	NO	n/a		
C. Either Justification 1 (Minimum Vehicular Volume) or Justification 2 (Delay to Cross Traffic) satisfied to 80% or more.								☐	YES	☐	NO	n/a		
SIGNAL JUSTIFICATION 3:								ALL OF 3A, 3B & 3C FULFILLED TO 100%?				NO		
JUSTIFICATION 4 - COMBINATION JUSTIFICATION														
JUSTIFICATION SATISFIED 80% OR MORE								Two Justifications Satisfied 80% or more						
Justification 1	-	Minimum Vehicle Volume	NO						NO					
Justification 2	-	Delay to Cross Traffic	NO											
Justification 3	-	Collision Experience	-											
JUSTIFICATION SUMMARY														
ARE TRAFFIC SIGNALS JUSTIFIED FOR THE INTERSECTION IN QUESTION?								NO						

GENERAL INFORMATION

Analyst	David Perks	Jurisdiction/Area	City of Barrie	Date	09 Oct 2020
Agency or Company	Tatham Engineering	East-West Street	Hurst Drive		
Analysis Period	2041 - Do Nothing	North-South Street	Brennan Drive		
Flow Conditions	Restricted flow (urban)	Major Street	East-West		
T Intersection	No	Approach Lanes per Direction	1		
		Hours of Traffic Volume Data	8 hours		
Additional Comments					

TRAFFIC & PEDESTRIAN VOLUMES

Hour of Data Hour Ending	Hour 1 8:00	Hour 2 9:00	Hour 3 12:00	Hour 4 13:00	Hour 5 14:00	Hour 6 16:00	Hour 7 17:00	Hour 8 18:00	AM + PM 4
MAJOR STREET									
Eastbound right	1	4	1	1	1	6	2	1	
thru	285	592	506	616	597	726	1254	724	
left	7	9	20	25	19	19	23	31	
Westbound right	7	5	20	28	15	20	22	22	
thru	509	1007	535	565	579	585	1095	551	
left	1	1	6	1	1	4	2	7	
MINOR STREET									
Northbound right	1	7	6	3	0	4	7	2	
thru	0	0	2	0	0	1	1	0	
left	1	7	1	1	4	2	1	1	
Southbound right	9	12	12	9	12	11	12	9	
thru	0	0	1	1	0	0	0	1	
left	12	9	21	19	22	12	20	22	
PEDESTRIANS									
crossing MAJOR street	3	2	0	1	1	0	2	2	
crossing MINOR street	9	3	7	7	5	1	0	4	
APPROACH VOLUMES									
major	812	1617	1090	1236	1213	1360	2399	1337	
minor	23	36	43	33	39	31	42	35	
TOTAL	835	1653	1133	1269	1251	1391	2441	1372	
CROSSING VOLUMES									
TOTAL	16	18	24	22	28	15	24	26	
note 1	13	16	22	20	27	14	21	23	
note 2	0	0	2	1	0	1	1	1	
note 3	0	0	0	0	0	0	0	0	
3a	no	no	no	no	no	no	no	no	
3b	no	yes	no	no	no	no	yes	no	
note 4	3	2	0	1	1	0	2	2	

NOTES

Traffic crossing MAJOR street defined as:

note 1: Left turns from both minor street approaches

note 2: The heaviest through volume from the minor street

note 3: 50% of the heavier left turn movement from the major street when both of the following are met:

3a: the left turn volume > 120

3b: the left turn volume + opposing volume > 720

note 4: Pedestrians crossing the major street

ACCIDENT HISTORY

Reportable accidents over the past 36 months susceptible to correction by a traffic signal.	months 1 to 12	-
	months 13 to 24	-
	months 25 to 36	-

GENERAL INFORMATION														
Analyst	David Perks			Jurisdiction/Area	City of Barrie			Date	09 Oct 2020					
Agency or Company	Tatham Engineering			East-West Street	Hurst Drive									
Analysis Period	2041 - Do Nothing			North-South Street	Brennan Drive									
Flow Conditions	Restricted flow (urban)			Major Street	Hurst Drive									
T Intersection	No			Approach Lanes per Direction	1									
Hours of Traffic Volume Data				Hours of Traffic Volume Data	8 hours									
Additional Comments														
JUSTIFICATION 1 - MINIMUM VEHICLE VOLUME														
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance				
		Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8					
1A	TOTAL TRAFFIC VOLUME ENTERING INTERSECTION (vph) (2 way Total)	835	1653	1133	1269	1251	1391	2441	1372	100%	80%+	Average Compliance		
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)	100%	100%	100%	100%	100%	100%	100%	100%	100%	8	8	100%	
1B	TRAFFIC VOLUME ON MINOR STREET (vph) (2 way Total)	23	36	43	33	39	31	42	35	100%	80%+	Average Compliance		
	COMPLIANCE % $\frac{VOL \times 100}{170}$ OR $\frac{VOL \times 100}{255}$ (full intersection) (tee intersection)	14%	21%	25%	19%	23%	18%	25%	21%	0	0	21%		
(RESTRICTED FLOW)		BOTH 1A AND 1B 100% FULFILLED EACH OF 8 HOURS										NO		
SIGNAL JUSTIFICATION 1:		LESSER OF 1A OR 1B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO		
JUSTIFICATION 2 - DELAY TO CROSS TRAFFIC														
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance				
		Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8					
2A	MAIN ROAD TRAFFIC VOLUME (vph) (2 way Total)	812	1617	1090	1236	1213	1360	2399	1337	100%	80%+	Average Compliance		
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)	100%	100%	100%	100%	100%	100%	100%	100%	8	8	100%		
2B	CROSSING TRAFFIC VOLUME (vph) (2 way Total)	16	18	24	22	28	15	24	26	100%	80%+	Average Compliance		
	COMPLIANCE % $\frac{VOL \times 100}{75}$	22%	24%	32%	29%	37%	21%	32%	35%	0	0	29%		
(RESTRICTED FLOW)		BOTH 2A AND 2B 100% FULFILLED EACH OF 8 HOURS										NO		
SIGNAL JUSTIFICATION 2:		LESSER OF 2A OR 2B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO		
JUSTIFICATION 3 - COLLISION EXPERIENCE														
A. Number of reportable collisions susceptible to prevention by a traffic signal.								Preceding Months	Number of Collisions	% Fulfillment				
								1 - 12	-	-				
								13 - 24	-	-				
								25 - 36	-	-				
								annual average	-	-				
B. Adequate trial of less restrictive remedies has failed to reduce collision frequency.								☐	YES	☐	NO	n/a		
C. Either Justification 1 (Minimum Vehicular Volume) or Justification 2 (Delay to Cross Traffic) satisfied to 80% or more.								☐	YES	☐	NO	n/a		
SIGNAL JUSTIFICATION 3:								ALL OF 3A, 3B & 3C FULFILLED TO 100%?				NO		
JUSTIFICATION 4 - COMBINATION JUSTIFICATION														
JUSTIFICATION SATISFIED 80% OR MORE								Two Justifications Satisfied 80% or more						
Justification 1	-	Minimum Vehicle Volume	NO						NO					
Justification 2	-	Delay to Cross Traffic	NO											
Justification 3	-	Collision Experience	-											
JUSTIFICATION SUMMARY														
ARE TRAFFIC SIGNALS JUSTIFIED FOR THE INTERSECTION IN QUESTION?								NO						

Appendix C: Alternative Solutions



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK (TO REMAIN UNALTERED)

MINET'S POINT PARK

LISMER BLVD.

KEMPVIEW LN.

BRENNAN AVE.

BRENNAN AVE. CULVERT CROSSING:
3650mm x 1500mm CONC. BOX CULVERT
(CAPACITY = 10.4cms; 1:2 YEAR PEAK
FLOW)

THE BOULEVARD CULVERT CROSSING: 1800mm x 1070mm CSPA
CULVERT (CAPACITY = 3.4cms; < 1:2 YEAR PEAK FLOW)

WHITE OAKS RD.

THE BLVD.

CLIFF RD.



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- ██████████ STUDY AREA
- 250.00 - EX CONTOUR
- ██████████ PROPOSED PROPERTY ACQUISITION
- ██████████ ROAD TO BE REMOVED
- ██████████ PROPOSED TRANSPORTATION LINKAGE
- ██████████ WHISKEY CREEK



WHISKEY CREEK DRAINAGE IMPROVEMENTS

ALTERNATIVE 1 – DO NOTHING ("EXISTING CONDITIONS")

SCALE: 1:1500

DRAWN: JGH

DATE: SEPT./20

DWG. No.

ALT-1

JOB NO. 120114



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK WATERCOURSE
IMPROVEMENTS: TO CONVEY
1:100-YEAR RETURN FREQUENCY
DESIGN STORM PEAK FLOW
(CAPACITY = 52.6cms)

MINET'S POINT PARK

REGRADE WHISKEY CREEK
@ 0.0% (INV. 218.00)

EXISTING WASHROOM/GENERATOR
BUILDING TO BE RELOCATED.

LISMER BLVD.

KEMPVIEW LN.

EXISTING ENTRANCE TO BE RELOCATED
TO LISMER BLVD.

BRENNAN AVE.

7 BRENNAN AVE

EXISTING RESIDENTIAL DWELLING TO
BE REMOVED.

REGRADE WHISKEY
CREEK @ 0.7%

BRENNAN AVE. CULVERT CROSSING:
REMOVE AND REPLACE EX. CULVERT
WITH A 11000mm x 2000mm CONC.
SPAN STRUCTURE DESIGNED TO
CONVEY THE 1:100-YEAR RETURN
FREQUENCY DESIGN STORM PEAK
FLOW (CAPACITY = 52.5cms)

THE BOULEVARD CULVERT CROSSING:
REMOVE AND REPLACE EX. CULVERT
WITH A 11000mm x 2400mm CONC.
SPAN STRUCTURE DESIGNED TO
CONVEY THE 1:100-YEAR RETURN
FREQUENCY DESIGN STORM PEAK
FLOW (CAPACITY = 52.3cms)

WHITE OAKS RD.

THE BLVD.

199 THE BOULEVARD

CLIFF RD.



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- STUDY AREA
- 250.00 - EX CONTOUR
- PROPOSED PROPERTY ACQUISITION
- ROAD TO BE REMOVED
- PROPOSED TRANSPORTATION LINKAGE
- WHISKEY CREEK

PROPERTY ACQUISITION:

- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)



WHISKEY CREEK DRAINAGE IMPROVEMENTS

ALTERNATIVE 2 – CULVERT/WATERCOURSE IMPROVEMENTS
TO CONVEY 1:100-YEAR DESIGN STORM

DWG. No.

ALT-2

SCALE: 1:1500

DRAWN: JGH

DATE: SEPT./20

JOB NO. 120114



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK WATERCOURSE IMPROVEMENTS: LOW FLOW CHANNEL WHERE FEASIBLE (6m WIDE x 0.4m DEEP BANKFULL CHANNEL) USING NATURAL CHANNEL DESIGN PRINCIPLES TO CONVEY BASEFLOW AND FLOODPLAIN IMPROVEMENTS TO CONVEY 1:10-YEAR RETURN FREQUENCY DESIGN STORM PEAK FLOW (27.4 cms)

MINET'S POINT PARK

REGRADE WHISKEY CREEK @ 0.4%

MINET'S POINT PUMP STATION

LISMER BLDV.

KEMPVIEW LN.

BRENNAN AVE.

7 BRENNAN AVE

EXISTING RESIDENTIAL DWELLING TO BE REMOVED

REGRADE WHISKEY CREEK @ 0.4%

199 THE BOULEVARD

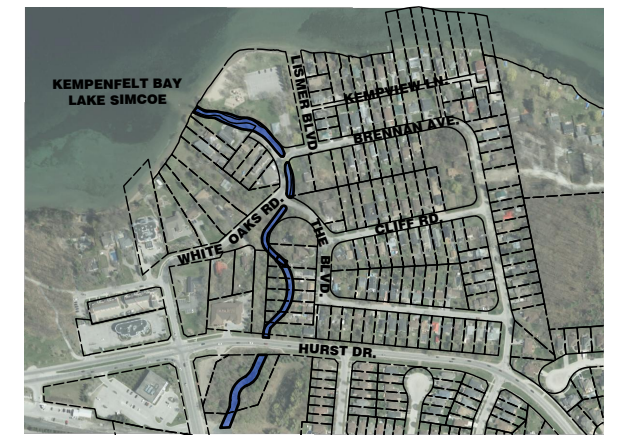
WHITE OAKS RD.

THE BLVD.

CLIFF RD.

BRENNAN AVE CULVERT CROSSING: REMOVE AND REPLACE EX. CULVERT WITH 9800 mm x 1650 mm CONC. SPAN STRUCTURE DESIGNED TO CONVEY 1:10-YEAR RETURN FREQUENCY DESIGN STORM PEAK FLOW (27.4 cms)

THE BOULEVARD CULVERT CROSSING: REMOVE AND REPLACE EX. CULVERT WITH 7300 mm x 1950 mm CONC. SPAN STRUCTURE DESIGNED TO CONVEY 1:10-YEAR RETURN FREQUENCY DESIGN STORM PEAK FLOW (27.3 cms)



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- █ STUDY AREA
- 250.00 - EX CONTOUR
- PROPOSED PROPERTY ACQUISITION
- █ ROAD TO BE REMOVED
- █ PROPOSED TRANSPORTATION LINKAGE
- WHISKEY CREEK

PROPERTY ACQUISITION:

- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)



WHISKEY CREEK DRAINAGE IMPROVEMENTS

ALTERNATIVE 3 - CULVERT/WATERCOURSE IMPROVEMENTS TO CONVEY LESS THAN 1:100-YEAR DESIGN STORM

SCALE: 1:1500

DRAWN: JGH

DATE: SEPT./20

DWG. No.

ALT-3A

JOB NO. 120114



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK WATERCOURSE IMPROVEMENTS: LOW FLOW CHANNEL WHERE FEASIBLE (6m WIDE x 0.4m DEEP BANKFULL CHANNEL) USING NATURAL CHANNEL DESIGN PRINCIPLES TO CONVEY BASEFLOW AND FLOODPLAIN IMPROVEMENTS TO CONVEY 1:50-YEAR RETURN FREQUENCY DESIGN STORM PEAK FLOW (42.3 cms)

REGRADE WHISKEY CREEK @ 0.4%

MINET'S POINT PUMP STATION

BRENNAN AVE CULVERT CROSSING: REMOVE AND REPLACE EX. CULVERT WITH 13400 mm x 1650 mm CONC. SPAN STRUCTURE DESIGNED TO CONVEY 1:50-YEAR RETURN FREQUENCY DESIGN STORM PEAK FLOW (42.1 cms)

THE BOULEVARD CULVERT CROSSING: REMOVE AND REPLACE EX. CULVERT WITH 11000 mm x 1950 mm CONC. SPAN STRUCTURE DESIGNED TO CONVEY 1:50-YEAR RETURN FREQUENCY DESIGN STORM PEAK FLOW (42.0 cms)

WHITE OAKS RD.

LISMER BLDV.

KEMPVIEW LN.

BRENNAN AVE.

7 BRENNAN AVE

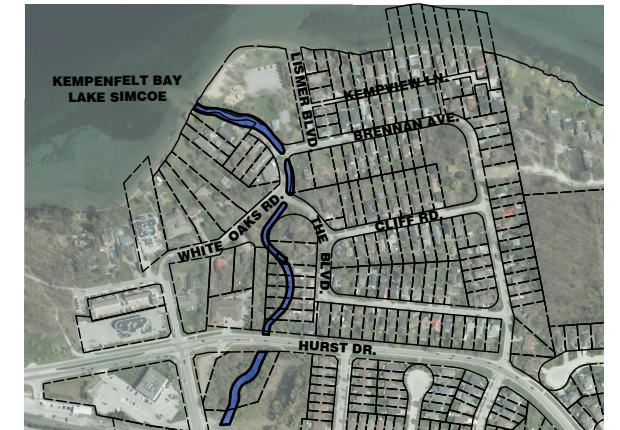
EXISTING RESIDENTIAL DWELLING TO BE REMOVED

REGRADE WHISKEY CREEK @ 0.4%

199 THE BOULEVARD

THE BLVD.

CLIFF RD.



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- STUDY AREA
- EX CONTOUR
- PROPOSED PROPERTY ACQUISITION
- ROAD TO BE REMOVED
- PROPOSED TRANSPORTATION LINKAGE
- WHISKEY CREEK

PROPERTY ACQUISITION:

- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)



WHISKEY CREEK DRAINAGE IMPROVEMENTS

ALTERNATIVE 3 - CULVERT/WATERCOURSE IMPROVEMENTS TO CONVEY LESS THAN 1:100-YEAR DESIGN STORM

SCALE: 1:1500

DRAWN: JGH

DATE: SEPT./20

DWG. No.

ALT-3B

JOB NO. 120114



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK WATERCOURSE IMPROVEMENTS: LOW FLOW CHANNEL WHERE FEASIBLE (6m WIDE x 0.4m DEEP BANKFULL CHANNEL) USING NATURAL CHANNEL DESIGN TO CONVEY BASEFLOW AND FLOODPLAIN IMPROVEMENTS TO CONVEY 1:10-YEAR RETURN FREQUENCY DESIGN STORM PEAK FLOW (27.4 cms)

MINET'S POINT PARK

REGRADE WHISKEY CREEK
@ 0.4%

MINET'S POINT
PUMP STATION

WHISKEY CREEK

REMOVE SECTION OF BRENNAN AVE.
DAYLIGHTING WATERCOURSE

THE BOULEVARD CULVERT CROSSING:
REMOVE AND REPLACE EX. CULVERT
WITH 7300 mm x 1950 mm CONC.
SPAN STRUCTURE DESIGNED TO
CONVEY 1:10-YEAR RETURN
FREQUENCY DESIGN STORM PEAK FLOW
(27.3cms)

LISMER BLDV.

KEMPVIEW LN.

BRENNAN AVE.

25m PEDESTRIAN BRIDGE

7 BRENNAN AVE

REGRADE WHISKEY CREEK
@ 0.4%

199 THE BOULEVARD

WHITE OAKS RD.

THE BLDV.

CLIFF RD.



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- ████████ STUDY AREA
- 250.00 - EX CONTOUR
- PROPOSED PROPERTY ACQUISITION
- ████████ ROAD TO BE REMOVED
- ████████ PROPOSED TRANSPORTATION LINKAGE
- WHISKEY CREEK

PROPERTY ACQUISITION:

- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)



WHISKEY CREEK DRAINAGE IMPROVEMENTS		
ALTERNATIVE 4A – REMOVE BRENNAN AVENUE AT WHISKEY CREEK		
SCALE: 1:1500	DRAWN: JGH	DATE: SEPT./20

DWG. No.
ALT-4A
JOB NO. 120114



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK WATERCOURSE
IMPROVEMENTS: LOW FLOW CHANNEL WHERE
FEASIBLE (6m WIDE x 0.4m DEEP BANKFULL
CHANNEL) USING NATURAL CHANNEL DESIGN
TO CONVEY BASEFLOW AND FLOODPLAIN
IMPROVEMENTS TO CONVEY 1:10-YEAR
RETURN FREQUENCY DESIGN STORM PEAK
FLOW (27.4 cms)

MINET'S POINT PARK

REGRADE WHISKEY CREEK
@ 0.4%

MINET'S POINT
PUMP STATION

WHISKEY CREEK

REMOVE SECTION OF BRENNAN AVE.
DAYLIGHTING WATERCOURSE

THE BOULEVARD CULVERT CROSSING:
REMOVE AND REPLACE EX. CULVERT
WITH 7300 mm x 1950 mm CONC.
SPAN STRUCTURE DESIGNED TO
CONVEY 1:10-YEAR RETURN
FREQUENCY DESIGN STORM PEAK FLOW
(27.3cms)

LISMER BLDV.

KEMPVIEW LN.

BRENNAN AVE.

25m PEDESTRIAN BRIDGE

7 BRENNAN AVE

REGRADE WHISKEY CREEK
@ 0.4%

199 THE BOULEVARD

WHITE OAKS RD.

THE BLDV.

CLIFF RD.



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- STUDY AREA
- 250.00 - EX CONTOUR
- PROPOSED PROPERTY ACQUISITION
- ROAD TO BE REMOVED
- PROPOSED TRANSPORTATION LINKAGE
- WHISKEY CREEK

PROPERTY ACQUISITION:

- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)



WHISKEY CREEK DRAINAGE IMPROVEMENTS

ALTERNATIVE 4B – REMOVE BRENNAN AVE. AT WHISKEY
CREEK AND CONNECT BRENNAN AVE. AND THE BOULEVARD

SCALE: 1:1500

DRAWN: JGH

DATE: SEPT./20

JOB NO. 120114

DWG. No.

ALT-4B



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK WATERCOURSE IMPROVEMENTS: LOW FLOW CHANNEL WHERE FEASIBLE (6m WIDE x 0.4m DEEP BANKFULL CHANNEL) USING NATURAL CHANNEL DESIGN TO CONVEY BASEFLOW AND FLOODPLAIN IMPROVEMENTS TO CONVEY 1:10-YEAR RETURN FREQUENCY DESIGN STORM PEAK FLOW (27.4 cms)

REGRADE WHISKEY CREEK @ 0.4%

MINET'S POINT PUMP STATION

WHISKEY CREEK

10.0m

BRENNAN AVE CULVERT CROSSING: REMOVE AND REPLACE EX. CULVERT WITH 9800 mm x 1650 mm CONC. SPAN STRUCTURE DESIGNED TO CONVEY 1:10-YEAR RETURN FREQUENCY DESIGN STORM PEAK FLOW (27.4cms)

15m PEDESTRIAN BRIDGE

REMOVE SECTION OF THE BOULEVARD DAYLIGHTING WATERCOURSE

7 BRENNAN AVE

EXISTING RESIDENTIAL DWELLING TO BE REMOVED

REGRADE WHISKEY CREEK @ 0.4%

199 THE BOULEVARD

VEHICLE TURN AROUND

WHITE OAKS RD.

THE BLVD.

LISMER BLVD.

KEMPVIEW LN.

BRENNAN AVE.

CLIFF RD.



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- ████████ STUDY AREA
- 250.00 - EX CONTOUR
- ████████ PROPOSED PROPERTY ACQUISITION
- ████████ ROAD TO BE REMOVED
- ████████ PROPOSED TRANSPORTATION LINKAGE
- ████████ WHISKEY CREEK

PROPERTY ACQUISITION:

- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)



WHISKEY CREEK DRAINAGE IMPROVEMENTS		
ALTERNATIVE 5A – REMOVE THE BOULEVARD AT WHISKEY CREEK		
SCALE: 1:1500	DRAWN: JGH	DATE: SEPT./20

DWG. No.
ALT-5A
JOB NO. 120114



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK WATERCOURSE
IMPROVEMENTS: LOW FLOW CHANNEL WHERE
FEASIBLE (6m WIDE x 0.4m DEEP BANKFULL
CHANNEL) USING NATURAL CHANNEL DESIGN
TO CONVEY BASEFLOW AND FLOODPLAIN
IMPROVEMENTS TO CONVEY 1:10-YEAR
RETURN FREQUENCY DESIGN STORM PEAK
FLOW (27.4 cms)

BRENNAN AVE CULVERT CROSSING:
REMOVE AND REPLACE EX. CULVERT WITH
9800 mm x 1650 mm CONC. SPAN
STRUCTURE DESIGNED TO CONVEY
1:10-YEAR RETURN FREQUENCY DESIGN
STORM PEAK FLOW (27.4cms)

REMOVE SECTION OF THE BOULEVARD
DAYLIGHTING WATERCOURSE

MINET'S POINT PARK

REGRADE WHISKEY CREEK
@ 0.4%

MINET'S POINT
PUMP STATION

WHISKEY CREEK

REGRADE WHISKEY CREEK
@ 0.4%

15m PEDESTRIAN BRIDGE

WHITE OAKS RD.

LISMER BLDV.

KEMPVIEW LN.

BRENNAN AVE.

7 BRENNAN AVE

EXISTING RESIDENTIAL DWELLING TO
BE REMOVED

199 THE BOULEVARD

THE BLDV.

CLIFF RD.



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- ████████ STUDY AREA
- 250.00 - EX CONTOUR
- PROPOSED PROPERTY ACQUISITION
- ████████ ROAD TO BE REMOVED
- ████████ PROPOSED TRANSPORTATION LINKAGE
- WHISKEY CREEK

PROPERTY ACQUISITION:

- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)



WHISKEY CREEK DRAINAGE IMPROVEMENTS

ALTERNATIVE 5B - REMOVE THE BOULEVARD AT WHISKEY
CREEK AND CONNECT BRENNAN AVE. AND THE BOULEVARD

SCALE: 1:1500 DRAWN: JGH DATE: SEPT./20 JOB NO. 120114

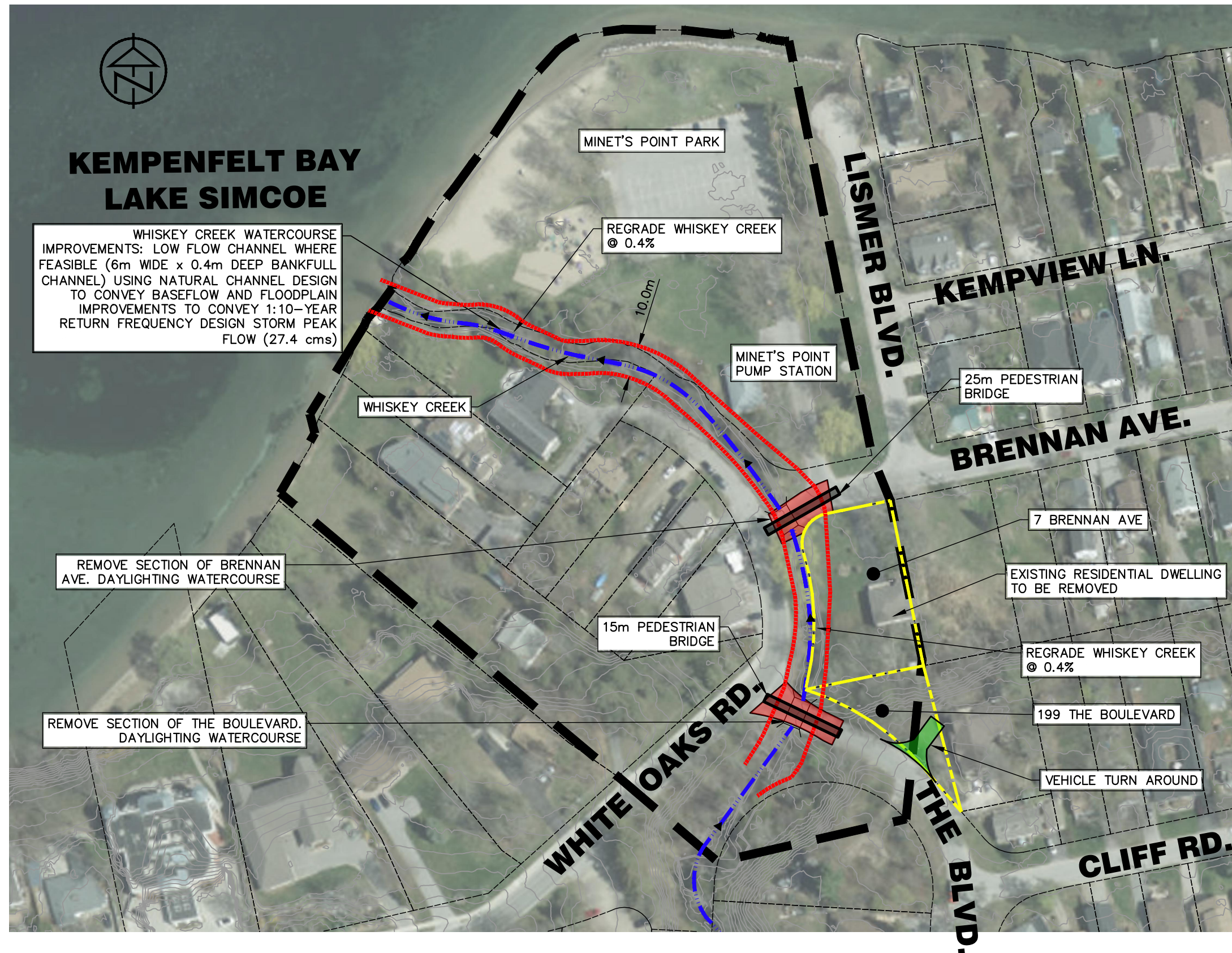
DWG. No.

ALT-5B



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK WATERCOURSE
IMPROVEMENTS: LOW FLOW CHANNEL WHERE
FEASIBLE (6m WIDE x 0.4m DEEP BANKFULL
CHANNEL) USING NATURAL CHANNEL DESIGN
TO CONVEY BASEFLOW AND FLOODPLAIN
IMPROVEMENTS TO CONVEY 1:10-YEAR
RETURN FREQUENCY DESIGN STORM PEAK
FLOW (27.4 cms)



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- STUDY AREA
- 250.00 - EX CONTOUR
- PROPOSED PROPERTY ACQUISITION
- ROAD TO BE REMOVED
- PROPOSED TRANSPORTATION LINKAGE
- WHISKEY CREEK

PROPERTY ACQUISITION:

- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)



WHISKEY CREEK DRAINAGE IMPROVEMENTS

ALTERNATIVE 6A – REMOVE BRENNAN AVE. AND THE
BOULEVARD AT WHISKEY CREEK

DWG. No.

ALT-6A

SCALE: 1:1500

DRAWN: JGH

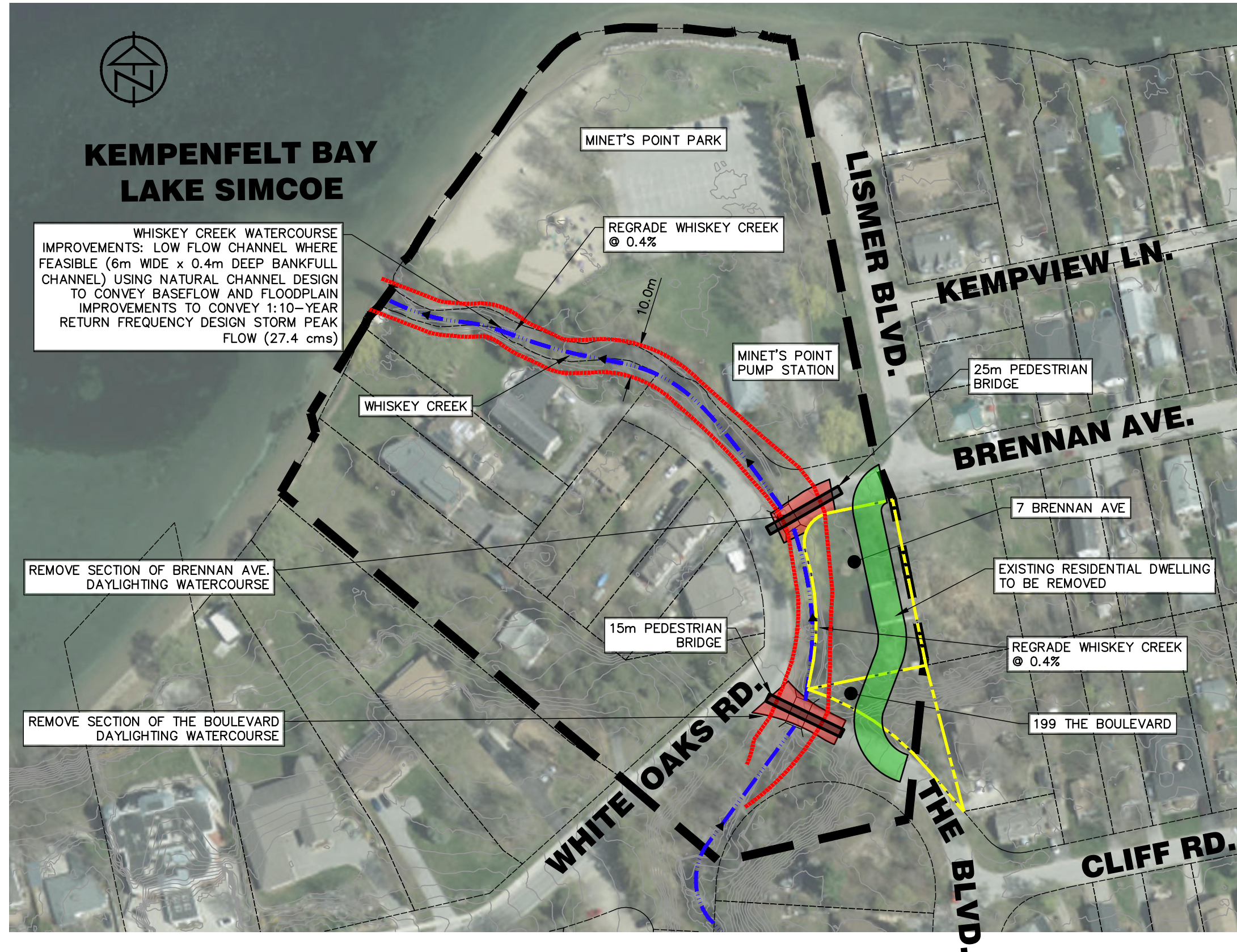
DATE: SEPT./20

JOB NO. 120114



KEMPENFELT BAY LAKE SIMCOE

WHISKEY CREEK WATERCOURSE
IMPROVEMENTS: LOW FLOW CHANNEL WHERE
FEASIBLE (6m WIDE x 0.4m DEEP BANKFULL
CHANNEL) USING NATURAL CHANNEL DESIGN
TO CONVEY BASEFLOW AND FLOODPLAIN
IMPROVEMENTS TO CONVEY 1:10-YEAR
RETURN FREQUENCY DESIGN STORM PEAK
FLOW (27.4 cms)



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- ████████ STUDY AREA
- 250.00 - EX CONTOUR
- ████████ PROPOSED PROPERTY ACQUISITION
- ████████ ROAD TO BE REMOVED
- ████████ PROPOSED TRANSPORTATION LINKAGE
- ████████ WHISKEY CREEK

PROPERTY ACQUISITION:

- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)



**WHISKEY CREEK
DRAINAGE IMPROVEMENTS**
ALTERNATIVE 6B - REMOVE BRENNAN AVE. AND THE
BOULEVARD AT WHISKEY CREEK AND CONNECT BRENNAN
AVE. AND THE BOULEVARD

DWG. No.

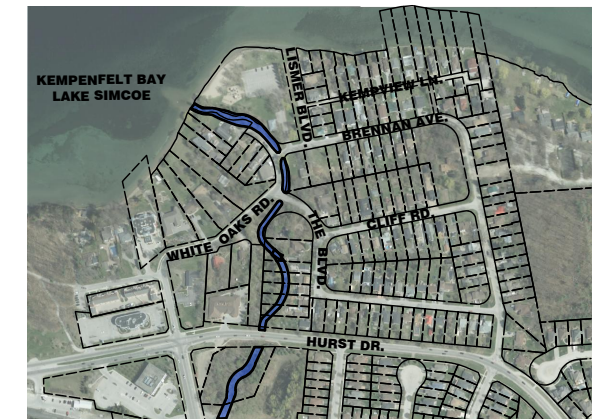
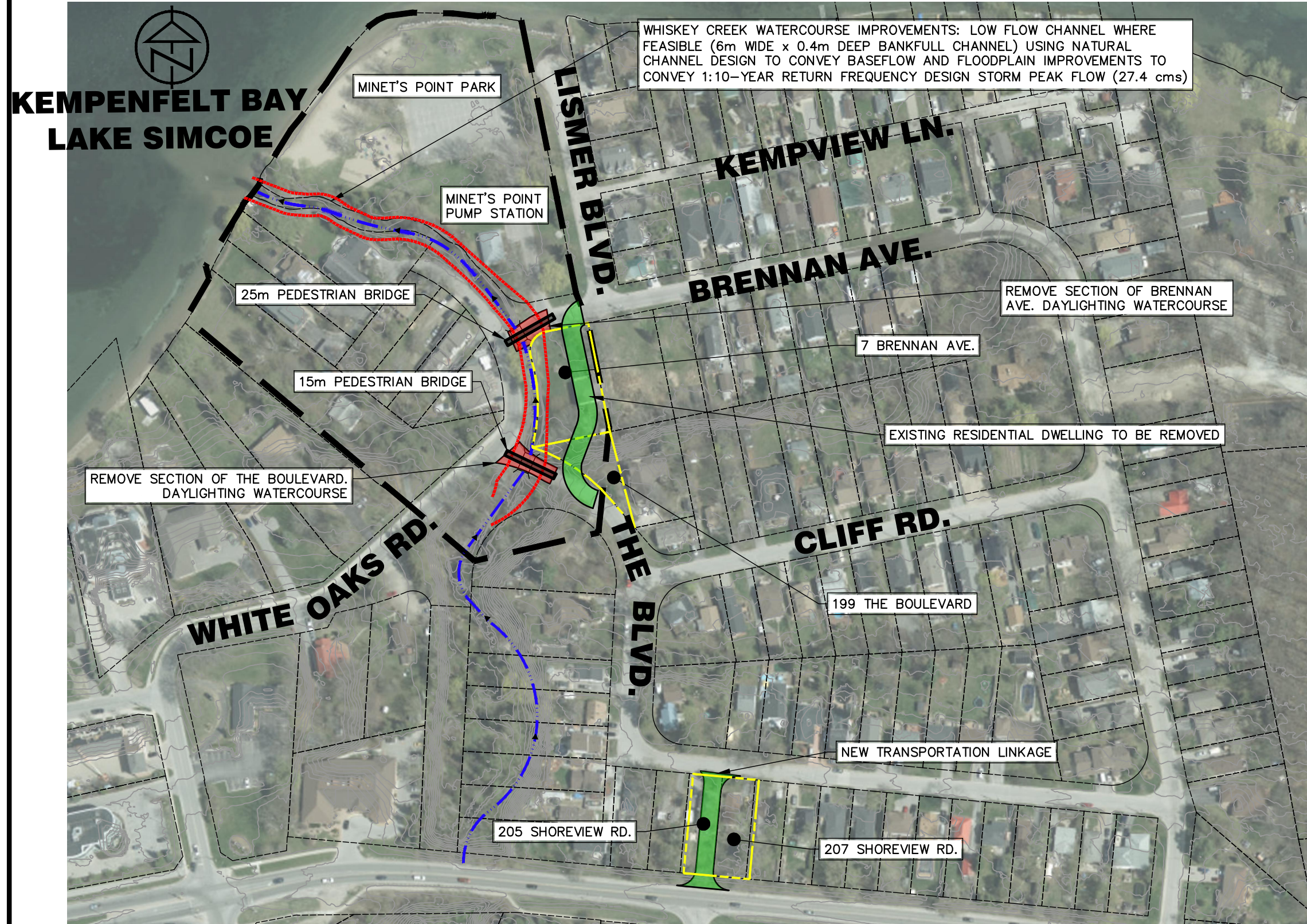
ALT-6B

SCALE: 1:1500

DRAWN: JGH

DATE: SEPT./20

JOB NO. 120114



KEY PLAN

LEGEND	
-----	EX. PROPERTY LINE
████████	STUDY AREA
- 250.00 -	EX CONTOUR
-----	PROPOSED PROPERTY ACQUISITION
████████	ROAD TO BE REMOVED
████████	PROPOSED TRANSPORTATION LINKAGE
-----	WHISKEY CREEK

PROPERTY ACQUISITION:

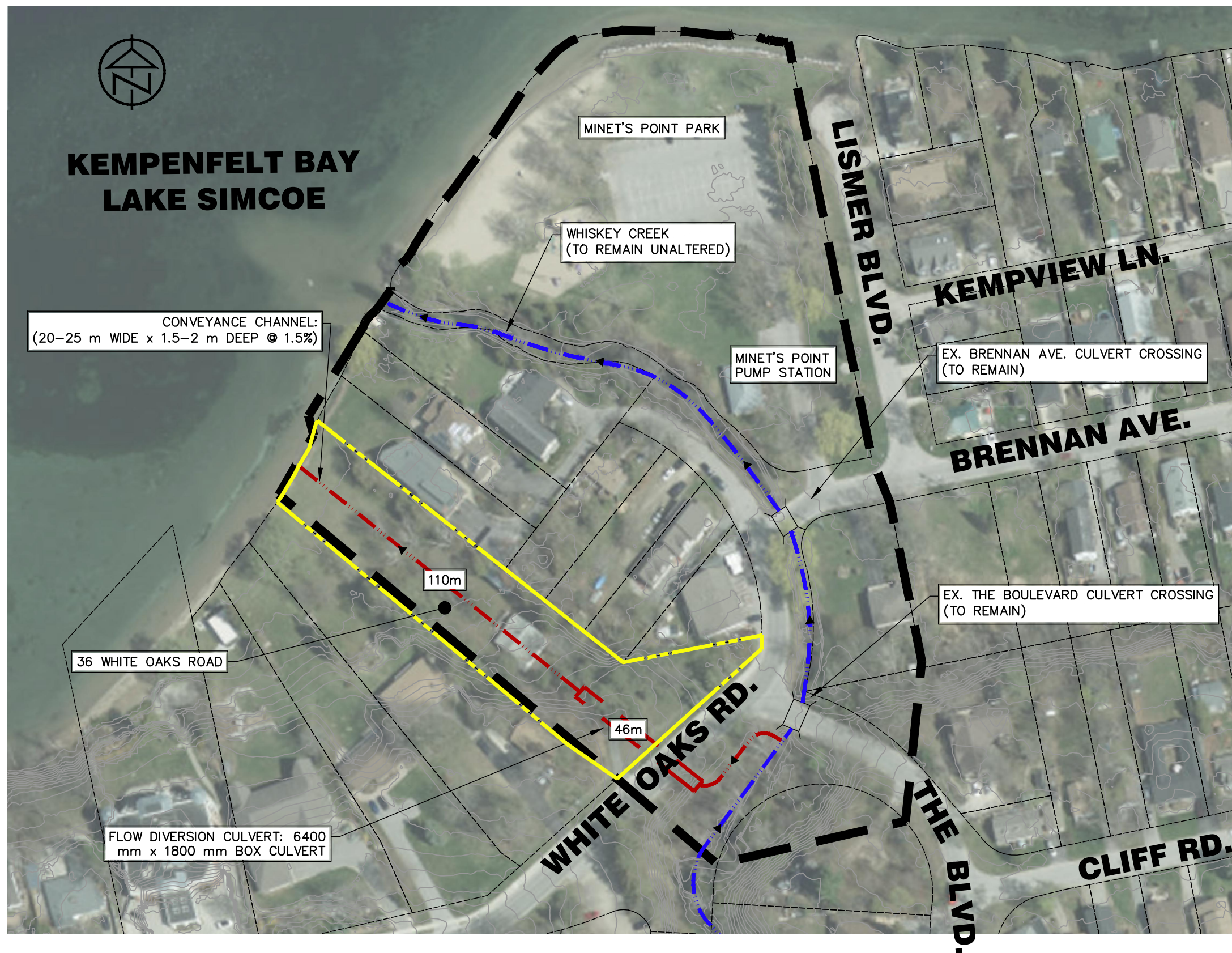
- A) 7 BRENNAN AVE.
- B) 199 THE BOULEVARD (PORTION OF)
- C) 207 SHOREVIEW RD.
- D) 205 SHOREVIEW RD.



**WHISKEY CREEK
DRAINAGE IMPROVEMENTS**
ALTERNATIVE 6C – REMOVE BRENNAN AVE. AND THE BOULEVARD AT WHISKEY CREEK AND CONNECT BRENNAN AVE. AND THE BOULEVARD AND NEW CONNECTION TO

DWG. No.
ALT-6C

SCALE: 1:2000 DRAWN: JGH DATE: SEPT./20 JOB NO. 120114



KEY PLAN

LEGEND

- EX. PROPERTY LINE
- STUDY AREA
- 250.00 - EX CONTOUR
- PROPOSED PROPERTY ACQUISITION
- ROAD TO BE REMOVED
- PROPOSED TRANSPORTATION LINKAGE
- WHISKEY CREEK

PROPERTY ACQUISITION:
A) 36 WHITE OAKS ROAD



**WHISKEY CREEK
 DRAINAGE IMPROVEMENTS**
 ALTERNATIVE 7 - ADDITIONAL CONVEYANCE ROUTE (FLOW
 DIVERSION) THROUGH 26 WHITE OAKS ROAD

DWG. No.

ALT-7

SCALE: 1:1500

DRAWN: JGH

DATE: SEPT./20

JOB NO. 120114

Appendix D: Alternative 1 - 2041 Traffic Operations

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	350	291	47	744	8	306	20	37	3	25	21
Future Volume (vph)	28	350	291	47	744	8	306	20	37	3	25	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.93		1.00	1.00		1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3298		1770	3533		1770	1863	1583		1749	
Flt Permitted	0.29	1.00		0.36	1.00		0.72	1.00	1.00		0.99	
Satd. Flow (perm)	546	3298		666	3533		1346	1863	1583		1737	
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)	30	380	316	51	809	9	333	22	40	3	27	23
RTOR Reduction (vph)	0	172	0	0	2	0	0	0	27	0	15	0
Lane Group Flow (vph)	30	524	0	51	816	0	333	22	13	0	38	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	19.7	19.7		19.7	19.7		14.5	14.5	14.5		14.5	
Effective Green, g (s)	19.7	19.7		19.7	19.7		14.5	14.5	14.5		14.5	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.34	0.34	0.34		0.34	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	248	1503		303	1611		451	625	531		583	
v/s Ratio Prot		0.16			c0.23			0.01				
v/s Ratio Perm	0.05			0.08			c0.25		0.01		0.02	
v/c Ratio	0.12	0.35		0.17	0.51		0.74	0.04	0.03		0.06	
Uniform Delay, d1	6.8	7.6		6.9	8.3		12.7	9.6	9.6		9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		0.97	
Incremental Delay, d2	1.0	0.6		1.2	1.1		6.2	0.0	0.0		0.0	
Delay (s)	7.8	8.2		8.1	9.5		18.9	9.7	9.6		9.5	
Level of Service	A	A		A	A		B	A	A		A	
Approach Delay (s)		8.2			9.4			17.4			9.5	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay	10.5			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.60											
Actuated Cycle Length (s)	43.2			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	59.9%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	750	484	61	659	9	485	52	96	18	37	30
Future Volume (vph)	42	750	484	61	659	9	485	52	96	18	37	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	3331		1770	3532		1770	1863	1583		1755	
Flt Permitted	0.31	1.00		0.13	1.00		0.70	1.00	1.00		0.95	
Satd. Flow (perm)	571	3331		237	3532		1298	1863	1583		1688	
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)	46	815	526	66	716	10	527	57	104	20	40	33
RTOR Reduction (vph)	0	150	0	0	2	0	0	0	57	0	19	0
Lane Group Flow (vph)	46	1191	0	66	724	0	527	57	47	0	74	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	31.5	31.5		31.5	31.5		29.3	29.3	29.3		29.3	
Effective Green, g (s)	31.5	31.5		31.5	31.5		29.3	29.3	29.3		29.3	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.42	0.42	0.42		0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	257	1503		106	1593		544	782	664		708	
v/s Ratio Prot		c0.36			0.21			0.03				
v/s Ratio Perm	0.08			0.28			c0.41		0.03		0.04	
v/c Ratio	0.18	0.79		0.62	0.45		0.97	0.07	0.07		0.10	
Uniform Delay, d1	11.4	16.4		14.6	13.2		19.8	12.1	12.1		12.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		0.93	
Incremental Delay, d2	1.5	4.4		24.5	0.9		30.4	0.0	0.0		0.1	
Delay (s)	13.0	20.7		39.1	14.2		50.2	12.2	12.2		11.6	
Level of Service	B	C		D	B		D	B	B		B	
Approach Delay (s)		20.5			16.2			41.3			11.6	
Approach LOS		C			B			D			B	
Intersection Summary												
HCM 2000 Control Delay			23.9			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			69.8			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			85.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1029	2	2	898	20	1	1	7	18	0	11
Future Volume (Veh/h)	21	1029	2	2	898	20	1	1	7	18	0	11
Sign Control		Free			Free			Stop			Stop	
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)	23	1118	2	2	976	22	1	1	8	20	0	12
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	998			1120			1669	2167	560	1604	2157	499
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	998			1120			1669	2167	560	1604	2157	499
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			98	98	98	70	100	98
cM capacity (veh/h)	689			619			60	45	472	66	45	517
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	582	561	490	510	10	32						
Volume Left	23	0	2	0	1	20						
Volume Right	0	2	0	22	8	12						
cSH	689	1700	619	1700	178	98						
Volume to Capacity	0.03	0.33	0.00	0.30	0.06	0.33						
Queue Length 95th (m)	0.8	0.0	0.1	0.0	1.4	10.1						
Control Delay (s)	0.9	0.0	0.1	0.0	26.4	58.4						
Lane LOS	A		A		D	F						
Approach Delay (s)	0.5		0.0		26.4	58.4						
Approach LOS					D	F						
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			56.3%	ICU Level of Service				B				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: White Oaks Rd/Brennan Ave

10-09-2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	6	65	68	0
Future Volume (Veh/h)	0	1	6	65	68	0
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	1	7	71	74	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)				354		
pX, platoon unblocked						
vC, conflicting volume	159	74	74			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	159	74	74			
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)	828	988	1526			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	78	74			
Volume Left	0	7	0			
Volume Right	1	0	0			
cSH	988	1526	1700			
Volume to Capacity	0.00	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	0.0			
Control Delay (s)	8.6	0.7	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.6	0.7	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization		18.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: White Oaks Rd & The Blvd

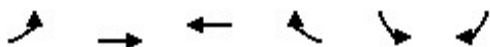
10-09-2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	1	69	12	1	68
Future Volume (Veh/h)	10	1	69	12	1	68
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)	11	1	75	13	1	74
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			303			
pX, platoon unblocked						
vC, conflicting volume	158	82			88	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158	82			88	
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			100	
cM capacity (veh/h)	833	978			1508	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	12	88	75			
Volume Left	11	0	1			
Volume Right	1	13	0			
cSH	844	1700	1508			
Volume to Capacity	0.01	0.05	0.00			
Queue Length 95th (m)	0.3	0.0	0.0			
Control Delay (s)	9.3	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s)	9.3	0.0	0.1			
Approach LOS	A					
Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		14.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

12: Brennan Ave & Minets Point Park

10-09-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Traffic Volume (veh/h)	40	25	16	7	6	52
Future Volume (Veh/h)	40	25	16	7	6	52
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	27	17	8	7	57
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		401				
pX, platoon unblocked						
vC, conflicting volume	25				134	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	25				134	21
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				99	95
cM capacity (veh/h)	1589				836	1056
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	70	25	64			
Volume Left	43	0	7			
Volume Right	0	8	57			
cSH	1589	1700	1027			
Volume to Capacity	0.03	0.01	0.06			
Queue Length 95th (m)	0.7	0.0	1.6			
Control Delay (s)	4.6	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	4.6	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			5.5			
Intersection Capacity Utilization		20.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	527	376	60	547	13	399	61	65	11	54	60
Future Volume (vph)	49	527	376	60	547	13	399	61	65	11	54	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3318		1770	3527		1770	1863	1583		1735	
Flt Permitted	0.38	1.00		0.21	1.00		0.71	1.00	1.00		0.98	
Satd. Flow (perm)	715	3318		387	3527		1323	1863	1583		1710	
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)	53	573	409	65	595	14	434	66	71	12	59	65
RTOR Reduction (vph)	0	173	0	0	2	0	0	0	44	0	40	0
Lane Group Flow (vph)	53	809	0	65	607	0	434	66	27	0	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	31.7	31.7		31.7	31.7		24.9	24.9	24.9		24.9	
Effective Green, g (s)	31.7	31.7		31.7	31.7		24.9	24.9	24.9		24.9	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.38	0.38	0.38		0.38	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	345	1603		187	1704		502	707	600		649	
v/s Ratio Prot		c0.24			0.17			0.04				
v/s Ratio Perm	0.07			0.17			c0.33		0.02		0.06	
v/c Ratio	0.15	0.50		0.35	0.36		0.86	0.09	0.04		0.15	
Uniform Delay, d1	9.5	11.6		10.5	10.6		18.8	13.1	12.8		13.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		0.98	
Incremental Delay, d2	0.9	1.1		5.0	0.6		14.4	0.1	0.0		0.1	
Delay (s)	10.4	12.7		15.6	11.2		33.2	13.1	12.9		13.2	
Level of Service	B	B		B	B		C	B	B		B	
Approach Delay (s)		12.6			11.6			28.3			13.2	
Approach LOS		B			B			C			B	
Intersection Summary												
HCM 2000 Control Delay	16.1			HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	65.6			Sum of lost time (s)					9.0			
Intersection Capacity Utilization	70.8%			ICU Level of Service					C			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	771	4	6	666	25	3	0	6	17	1	12
Future Volume (Veh/h)	10	771	4	6	666	25	3	0	6	17	1	12
Sign Control		Free			Free			Stop			Stop	
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)	11	838	4	7	724	27	3	0	7	18	1	13
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	751			842			1252	1627	421	1200	1616	376
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	751			842			1252	1627	421	1200	1616	376
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			98	100	99	87	99	98
cM capacity (veh/h)	854			789			123	99	581	137	101	622
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	430	423	369	389	10	32						
Volume Left	11	0	7	0	3	18						
Volume Right	0	4	0	27	7	13						
cSH	854	1700	789	1700	275	197						
Volume to Capacity	0.01	0.25	0.01	0.23	0.04	0.16						
Queue Length 95th (m)	0.3	0.0	0.2	0.0	0.9	4.5						
Control Delay (s)	0.4	0.0	0.3	0.0	18.6	26.8						
Lane LOS	A		A		C	D						
Approach Delay (s)	0.2		0.1		18.6	26.8						
Approach LOS					C	D						
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			38.5%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: White Oaks Rd/Brennan Ave

10-09-2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	7	90	80	0
Future Volume (Veh/h)	0	1	7	90	80	0
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	1	8	98	87	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)				354		
pX, platoon unblocked						
vC, conflicting volume	201	87	87			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	201	87	87			
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)	783	971	1509			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	106	87			
Volume Left	0	8	0			
Volume Right	1	0	0			
cSH	971	1509	1700			
Volume to Capacity	0.00	0.01	0.05			
Queue Length 95th (m)	0.0	0.1	0.0			
Control Delay (s)	8.7	0.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.7	0.6	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		20.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: White Oaks Rd & The Blvd

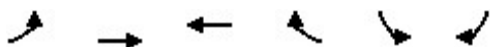
10-09-2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	0	97	9	1	79
Future Volume (Veh/h)	15	0	97	9	1	79
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	105	10	1	86
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			303			
pX, platoon unblocked						
vC, conflicting volume	198	110			115	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198	110			115	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	790	943			1474	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	16	115	87			
Volume Left	16	0	1			
Volume Right	0	10	0			
cSH	790	1700	1474			
Volume to Capacity	0.02	0.07	0.00			
Queue Length 95th (m)	0.5	0.0	0.0			
Control Delay (s)	9.7	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s)	9.7	0.0	0.1			
Approach LOS	A					
Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		15.7%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

12: Brennan Ave & Minets Point Park

10-09-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	↩
Traffic Volume (veh/h)	60	30	13	19	11	67
Future Volume (Veh/h)	60	30	13	19	11	67
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	33	14	21	12	73
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		401				
pX, platoon unblocked						
vC, conflicting volume	35				188	24
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	35				188	24
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				98	93
cM capacity (veh/h)	1576				769	1052
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	98	35	85			
Volume Left	65	0	12			
Volume Right	0	21	73			
cSH	1576	1700	1000			
Volume to Capacity	0.04	0.02	0.09			
Queue Length 95th (m)	1.0	0.0	2.2			
Control Delay (s)	5.0	0.0	8.9			
Lane LOS	A		A			
Approach Delay (s)	5.0	0.0	8.9			
Approach LOS			A			
Intersection Summary						
Average Delay			5.7			
Intersection Capacity Utilization			23.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	426	322	52	907	9	338	22	41	4	27	23
Future Volume (vph)	31	426	322	52	907	9	338	22	41	4	27	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3311		1770	3534		1770	1863	1583		1748	
Flt Permitted	0.22	1.00		0.29	1.00		0.72	1.00	1.00		0.99	
Satd. Flow (perm)	404	3311		544	3534		1340	1863	1583		1737	
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)	34	463	350	57	986	10	367	24	45	4	29	25
RTOR Reduction (vph)	0	170	0	0	1	0	0	0	30	0	16	0
Lane Group Flow (vph)	34	643	0	57	995	0	367	24	15	0	42	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	32.1	32.1		32.1	32.1		21.2	21.2	21.2		21.2	
Effective Green, g (s)	32.1	32.1		32.1	32.1		21.2	21.2	21.2		21.2	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.34	0.34	0.34		0.34	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	208	1705		280	1820		455	633	538		591	
v/s Ratio Prot		0.19			c0.28			0.01				
v/s Ratio Perm	0.08			0.10			c0.27		0.01		0.02	
v/c Ratio	0.16	0.38		0.20	0.55		0.81	0.04	0.03		0.07	
Uniform Delay, d1	8.0	9.1		8.2	10.2		18.7	13.7	13.7		13.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		0.93	
Incremental Delay, d2	1.7	0.6		1.6	1.2		10.1	0.0	0.0		0.1	
Delay (s)	9.7	9.7		9.8	11.4		28.7	13.8	13.7		13.0	
Level of Service	A	A		A	B		C	B	B		B	
Approach Delay (s)		9.7			11.3			26.4			13.0	
Approach LOS		A			B			C			B	
Intersection Summary												
HCM 2000 Control Delay			13.5			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			62.3			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			66.2%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	592	4	1	1007	5	7	0	7	9	0	12
Future Volume (Veh/h)	9	592	4	1	1007	5	7	0	7	9	0	12
Sign Control		Free			Free			Stop			Stop	
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)	10	643	4	1	1095	5	8	0	8	10	0	13
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	1100			647			1228	1767	324	1449	1766	550
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1100			647			1228	1767	324	1449	1766	550
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			94	100	99	89	100	97
cM capacity (veh/h)	630			934			129	81	672	90	81	479
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	332	326	548	552	16	23						
Volume Left	10	0	1	0	8	10						
Volume Right	0	4	0	5	8	13						
cSH	630	1700	934	1700	216	166						
Volume to Capacity	0.02	0.19	0.00	0.33	0.07	0.14						
Queue Length 95th (m)	0.4	0.0	0.0	0.0	1.9	3.8						
Control Delay (s)	0.5	0.0	0.0	0.0	23.0	30.2						
Lane LOS	A		A		C	D						
Approach Delay (s)	0.3		0.0		23.0	30.2						
Approach LOS					C	D						
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			38.7%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: White Oaks Rd/Brennan Ave

10-09-2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	5	28	35	0
Future Volume (Veh/h)	0	1	5	28	35	0
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	1	5	30	38	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)				354		
pX, platoon unblocked						
vC, conflicting volume	78	38	38			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	78	38	38			
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)	922	1034	1572			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	35	38			
Volume Left	0	5	0			
Volume Right	1	0	0			
cSH	1034	1572	1700			
Volume to Capacity	0.00	0.00	0.02			
Queue Length 95th (m)	0.0	0.1	0.0			
Control Delay (s)	8.5	1.1	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.5	1.1	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		15.7%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: White Oaks Rd & The Blvd

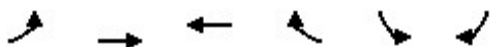
10-09-2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	0	33	2	0	36
Future Volume (Veh/h)	9	0	33	2	0	36
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)	10	0	36	2	0	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			303			
pX, platoon unblocked						
vC, conflicting volume	76	37			38	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	76	37			38	
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			100	
cM capacity (veh/h)	927	1035			1572	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	10	38	39			
Volume Left	10	0	0			
Volume Right	0	2	0			
cSH	927	1700	1572			
Volume to Capacity	0.01	0.02	0.00			
Queue Length 95th (m)	0.3	0.0	0.0			
Control Delay (s)	8.9	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	8.9	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			13.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Brennan Ave & Minets Point Park

10-09-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	5	15	1	4	20
Future Volume (Veh/h)	23	5	15	1	4	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	5	16	1	4	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		401				
pX, platoon unblocked						
vC, conflicting volume	17				72	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	17				72	16
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	98
cM capacity (veh/h)	1600				918	1063
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	30	17	26			
Volume Left	25	0	4			
Volume Right	0	1	22			
cSH	1600	1700	1037			
Volume to Capacity	0.02	0.01	0.03			
Queue Length 95th (m)	0.4	0.0	0.6			
Control Delay (s)	6.1	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	6.1	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay			5.6			
Intersection Capacity Utilization			18.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	914	535	68	803	10	536	58	106	20	41	33
Future Volume (vph)	47	914	535	68	803	10	536	58	106	20	41	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	3343		1770	3533		1770	1863	1583		1756	
Flt Permitted	0.23	1.00		0.13	1.00		0.75	1.00	1.00		0.95	
Satd. Flow (perm)	429	3343		237	3533		1391	1863	1583		1686	
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)	51	993	582	74	873	11	583	63	115	22	45	36
RTOR Reduction (vph)	0	121	0	0	1	0	0	0	33	0	21	0
Lane Group Flow (vph)	51	1454	0	74	883	0	583	63	82	0	82	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	31.5	31.5		31.5	31.5		29.5	29.5	29.5		29.5	
Effective Green, g (s)	31.5	31.5		31.5	31.5		29.5	29.5	29.5		29.5	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.42	0.42	0.42		0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	193	1504		106	1589		586	785	667		710	
v/s Ratio Prot		c0.43			0.25			0.03				
v/s Ratio Perm	0.12			0.31			c0.42		0.05		0.05	
v/c Ratio	0.26	0.97		0.70	0.56		0.99	0.08	0.12		0.12	
Uniform Delay, d1	12.0	18.7		15.4	14.1		20.2	12.1	12.4		12.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		0.93	
Incremental Delay, d2	3.3	16.5		31.8	1.4		35.7	0.0	0.1		0.1	
Delay (s)	15.3	35.3		47.3	15.5		55.8	12.2	12.4		11.6	
Level of Service	B	D		D	B		E	B	B		B	
Approach Delay (s)		34.6			18.0			45.7			11.6	
Approach LOS		C			B			D			B	
Intersection Summary												
HCM 2000 Control Delay			31.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			94.2%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1254	2	2	1095	22	1	1	7	20	0	12
Future Volume (Veh/h)	23	1254	2	2	1095	22	1	1	7	20	0	12
Sign Control		Free			Free			Stop			Stop	
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)	25	1363	2	2	1190	24	1	1	8	22	0	13
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	1214			1365			2026	2632	682	1946	2621	607
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1214			1365			2026	2632	682	1946	2621	607
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			97	95	98	38	100	97
cM capacity (veh/h)	570			499			32	22	392	35	23	439
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	706	684	597	619	10	35						
Volume Left	25	0	2	0	1	22						
Volume Right	0	2	0	24	8	13						
cSH	570	1700	499	1700	103	54						
Volume to Capacity	0.04	0.40	0.00	0.36	0.10	0.65						
Queue Length 95th (m)	1.1	0.0	0.1	0.0	2.5	21.1						
Control Delay (s)	1.2	0.0	0.1	0.0	43.7	154.0						
Lane LOS	A		A		E	F						
Approach Delay (s)	0.6		0.1		43.7	154.0						
Approach LOS					E	F						
Intersection Summary												
Average Delay	2.6											
Intersection Capacity Utilization	64.6%			ICU Level of Service			C					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

8: White Oaks Rd/Brennan Ave

10-09-2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	6	71	75	0
Future Volume (Veh/h)	0	1	6	71	75	0
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	1	7	77	82	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)				354		
pX, platoon unblocked						
vC, conflicting volume	173	82	82			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	173	82	82			
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)	813	978	1515			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	84	82			
Volume Left	0	7	0			
Volume Right	1	0	0			
cSH	978	1515	1700			
Volume to Capacity	0.00	0.00	0.05			
Queue Length 95th (m)	0.0	0.1	0.0			
Control Delay (s)	8.7	0.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.7	0.6	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization		18.7%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: White Oaks Rd & The Blvd

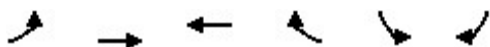
10-09-2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	1	76	14	1	75
Future Volume (Veh/h)	11	1	76	14	1	75
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	1	83	15	1	82
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			303			
pX, platoon unblocked						
vC, conflicting volume	174	90			98	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174	90			98	
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			100	
cM capacity (veh/h)	815	967			1495	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	13	98	83			
Volume Left	12	0	1			
Volume Right	1	15	0			
cSH	825	1700	1495			
Volume to Capacity	0.02	0.06	0.00			
Queue Length 95th (m)	0.4	0.0	0.0			
Control Delay (s)	9.4	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s)	9.4	0.0	0.1			
Approach LOS	A					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			14.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Brennan Ave & Minets Point Park

10-09-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	27	17	7	6	59
Future Volume (Veh/h)	44	27	17	7	6	59
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	29	18	8	7	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		401				
pX, platoon unblocked						
vC, conflicting volume	26				147	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	26				147	22
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				99	94
cM capacity (veh/h)	1588				820	1055
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	77	26	71			
Volume Left	48	0	7			
Volume Right	0	8	64			
cSH	1588	1700	1026			
Volume to Capacity	0.03	0.02	0.07			
Queue Length 95th (m)	0.7	0.0	1.8			
Control Delay (s)	4.7	0.0	8.8			
Lane LOS	A		A			
Approach Delay (s)	4.7	0.0	8.8			
Approach LOS			A			
Intersection Summary						
Average Delay			5.6			
Intersection Capacity Utilization			21.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	642	415	67	666	15	441	68	71	12	59	67
Future Volume (vph)	54	642	415	67	666	15	441	68	71	12	59	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3331		1770	3528		1770	1863	1583		1733	
Flt Permitted	0.30	1.00		0.14	1.00		0.69	1.00	1.00		0.98	
Satd. Flow (perm)	568	3331		256	3528		1286	1863	1583		1708	
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)	59	698	451	73	724	16	479	74	77	13	64	73
RTOR Reduction (vph)	0	147	0	0	2	0	0	0	46	0	43	0
Lane Group Flow (vph)	59	1002	0	73	738	0	479	74	31	0	107	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	31.6	31.6		31.6	31.6		27.6	27.6	27.6		27.6	
Effective Green, g (s)	31.6	31.6		31.6	31.6		27.6	27.6	27.6		27.6	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.40	0.40	0.40		0.40	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	263	1543		118	1634		520	753	640		691	
v/s Ratio Prot		c0.30			0.21			0.04				
v/s Ratio Perm	0.10			0.29			c0.37		0.02		0.06	
v/c Ratio	0.22	0.65		0.62	0.45		0.92	0.10	0.05		0.15	
Uniform Delay, d1	11.0	14.0		13.8	12.4		19.3	12.6	12.3		12.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		0.98	
Incremental Delay, d2	2.0	2.1		21.9	0.9		21.8	0.1	0.0		0.1	
Delay (s)	12.9	16.2		35.7	13.3		41.1	12.6	12.4		12.7	
Level of Service	B	B		D	B		D	B	B		B	
Approach Delay (s)		16.0			15.3			34.2			12.7	
Approach LOS		B			B			C			B	
Intersection Summary												
HCM 2000 Control Delay			19.7			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			68.2			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			82.5%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	939	5	6	812	27	4	0	6	18	1	14
Future Volume (Veh/h)	11	939	5	6	812	27	4	0	6	18	1	14
Sign Control		Free			Free			Stop			Stop	
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)	12	1021	5	7	883	29	4	0	7	20	1	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)												
pX, platoon unblocked												
vC, conflicting volume	912			1026			1518	1974	513	1453	1962	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	912			1026			1518	1974	513	1453	1962	456
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			95	100	99	77	98	97
cM capacity (veh/h)	743			673			77	60	506	88	61	551
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	522	516	448	470	11	36						
Volume Left	12	0	7	0	4	20						
Volume Right	0	5	0	29	7	15						
cSH	743	1700	673	1700	167	133						
Volume to Capacity	0.02	0.30	0.01	0.28	0.07	0.27						
Queue Length 95th (m)	0.4	0.0	0.3	0.0	1.7	8.2						
Control Delay (s)	0.5	0.0	0.3	0.0	28.1	41.7						
Lane LOS	A		A		D	E						
Approach Delay (s)	0.2		0.1		28.1	41.7						
Approach LOS						D	E					
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			43.9%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: White Oaks Rd/Brennan Ave

10-09-2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	7	100	89	0
Future Volume (Veh/h)	0	1	7	100	89	0
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	1	8	109	97	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)				354		
pX, platoon unblocked						
vC, conflicting volume	222	97	97			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	97	97			
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)	762	959	1496			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1	117	97			
Volume Left	0	8	0			
Volume Right	1	0	0			
cSH	959	1496	1700			
Volume to Capacity	0.00	0.01	0.06			
Queue Length 95th (m)	0.0	0.1	0.0			
Control Delay (s)	8.8	0.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.8	0.5	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			21.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: White Oaks Rd & The Blvd

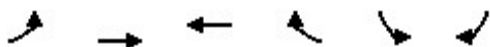
10-09-2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	0	107	10	1	89
Future Volume (Veh/h)	16	0	107	10	1	89
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)	17	0	116	11	1	97
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			303			
pX, platoon unblocked						
vC, conflicting volume	220	122			127	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	220	122			127	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	767	930			1459	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	17	127	98			
Volume Left	17	0	1			
Volume Right	0	11	0			
cSH	767	1700	1459			
Volume to Capacity	0.02	0.07	0.00			
Queue Length 95th (m)	0.5	0.0	0.0			
Control Delay (s)	9.8	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s)	9.8	0.0	0.1			
Approach LOS	A					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			16.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

12: Brennan Ave & Minets Point Park

10-09-2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	67	33	15	21	12	74
Future Volume (Veh/h)	67	33	15	21	12	74
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	73	36	16	23	13	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		401				
pX, platoon unblocked						
vC, conflicting volume	39				210	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				210	28
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				98	92
cM capacity (veh/h)	1571				743	1048
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	109	39	93			
Volume Left	73	0	13			
Volume Right	0	23	80			
cSH	1571	1700	991			
Volume to Capacity	0.05	0.02	0.09			
Queue Length 95th (m)	1.2	0.0	2.5			
Control Delay (s)	5.1	0.0	9.0			
Lane LOS	A		A			
Approach Delay (s)	5.1	0.0	9.0			
Approach LOS			A			
Intersection Summary						
Average Delay			5.8			
Intersection Capacity Utilization			24.0%		ICU Level of Service	
Analysis Period (min)			15			
			A			

HCM Signalized Intersection Capacity Analysis

4: Hurst Dr

10/09/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	592	4	1	1007	5	7	0	7	9	0	12
Future Volume (vph)	9	592	4	1	1007	5	7	0	7	9	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frt		1.00			1.00			0.93			0.92	
Flt Protected		1.00			1.00			0.98			0.98	
Satd. Flow (prot)		3533			1862			1695			1684	
Flt Permitted		0.94			1.00			0.92			0.92	
Satd. Flow (perm)		3319			1861			1594			1590	
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	643	4	1	1095	5	8	0	8	10	0	13
RTOR Reduction (vph)	0	1	0	0	0	0	0	12	0	0	15	0
Lane Group Flow (vph)	0	656	0	0	1101	0	0	4	0	0	8	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		47.2			47.2			18.7			18.7	
Effective Green, g (s)		47.2			47.2			18.7			18.7	
Actuated g/C Ratio		0.63			0.63			0.25			0.25	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		2091			1172			397			396	
v/s Ratio Prot												
v/s Ratio Perm		0.20			0.59			0.00			0.01	
v/c Ratio		0.31			0.94			0.01			0.02	
Uniform Delay, d1		6.4			12.5			21.1			21.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			13.9			0.0			0.1	
Delay (s)		6.5			26.5			21.2			21.3	
Level of Service		A			C			C			C	
Approach Delay (s)		6.5			26.5			21.2			21.3	
Approach LOS		A			C			C			C	
Intersection Summary												
HCM 2000 Control Delay		19.1			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.68										
Actuated Cycle Length (s)		74.9			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		65.8%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: Hurst Dr

10/09/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	1254	2	2	1095	22	1	1	7	20	0	12
Future Volume (vph)	23	1254	2	2	1095	22	1	1	7	20	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		1.00			1.00			0.89			0.95	
Flt Protected		1.00			1.00			1.00			0.97	
Satd. Flow (prot)		3535			3528			1653			1715	
Flt Permitted		0.92			0.95			0.99			0.88	
Satd. Flow (perm)		3250			3364			1641			1561	
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	1363	2	2	1190	24	1	1	8	22	0	13
RTOR Reduction (vph)	0	0	0	0	2	0	0	5	0	0	18	0
Lane Group Flow (vph)	0	1390	0	0	1214	0	0	5	0	0	17	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		28.8			28.8			18.6			18.6	
Effective Green, g (s)		28.8			28.8			18.6			18.6	
Actuated g/C Ratio		0.51			0.51			0.33			0.33	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1659			1717			541			514	
v/s Ratio Prot												
v/s Ratio Perm		c0.43			0.36			0.00			c0.01	
v/c Ratio		0.84			0.71			0.01			0.03	
Uniform Delay, d1		11.8			10.6			12.7			12.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.9			1.4			0.0			0.1	
Delay (s)		15.7			11.9			12.7			12.9	
Level of Service		B			B			B			B	
Approach Delay (s)		15.7			11.9			12.7			12.9	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay		13.9			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.52										
Actuated Cycle Length (s)		56.4			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		65.4%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: Hurst Dr

10/09/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	939	5	6	812	27	4	0	6	18	1	14
Future Volume (vph)	11	939	5	6	812	27	4	0	6	18	1	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.91			0.94	
Flt Protected		1.00			1.00			0.98			0.97	
Satd. Flow (prot)		1860			1854			1672			1710	
Flt Permitted		0.99			0.99			0.95			0.89	
Satd. Flow (perm)		1841			1842			1611			1564	
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)	12	1021	5	7	883	29	4	0	7	20	1	15
RTOR Reduction (vph)	0	0	0	0	2	0	0	8	0	0	11	0
Lane Group Flow (vph)	0	1038	0	0	917	0	0	3	0	0	25	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.4			42.4			18.7			18.7	
Effective Green, g (s)		42.4			42.4			18.7			18.7	
Actuated g/C Ratio		0.60			0.60			0.27			0.27	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1113			1114			429			417	
v/s Ratio Prot												
v/s Ratio Perm		c0.56			0.50			0.00			c0.02	
v/c Ratio		0.93			0.82			0.01			0.06	
Uniform Delay, d1		12.5			10.9			18.9			19.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		13.7			5.0			0.0			0.3	
Delay (s)		26.2			16.0			18.9			19.4	
Level of Service		C			B			B			B	
Approach Delay (s)		26.2			16.0			18.9			19.4	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM 2000 Control Delay		21.3			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		70.1			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		68.7%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Appendix E: Alternative 4A - 2041 Traffic Operations

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	433	322	52	915	5	338	22	41	1	27	16
Future Volume (vph)	24	433	322	52	915	5	338	22	41	1	27	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3313		1770	3537		1770	1863	1583		1770	
Flt Permitted	0.21	1.00		0.29	1.00		0.73	1.00	1.00		1.00	
Satd. Flow (perm)	390	3313		532	3537		1353	1863	1583		1766	
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)	26	471	350	57	995	5	367	24	45	1	29	17
RTOR Reduction (vph)	0	196	0	0	1	0	0	0	29	0	11	0
Lane Group Flow (vph)	26	625	0	57	999	0	367	24	16	0	36	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	19.1	19.1		19.1	19.1		15.2	15.2	15.2		15.2	
Effective Green, g (s)	19.1	19.1		19.1	19.1		15.2	15.2	15.2		15.2	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.35	0.35	0.35		0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	172	1461		234	1560		474	653	555		619	
v/s Ratio Prot		0.19			c0.28			0.01				
v/s Ratio Perm	0.07			0.11			c0.27		0.01		0.02	
v/c Ratio	0.15	0.43		0.24	0.64		0.77	0.04	0.03		0.06	
Uniform Delay, d1	7.2	8.3		7.6	9.4		12.5	9.2	9.2		9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.9	0.9		2.5	2.0		7.7	0.0	0.0		0.0	
Delay (s)	9.1	9.3		10.0	11.5		20.2	9.3	9.2		9.3	
Level of Service	A	A		B	B		C	A	A		A	
Approach Delay (s)		9.3			11.4			18.5			9.3	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			43.3			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			66.3%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	592	4	1	1007	9	7	0	7	11	0	20
Future Volume (Veh/h)	16	592	4	1	1007	9	7	0	7	11	0	20
Sign Control		Free			Free			Stop			Stop	
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)	17	643	4	1	1095	10	8	0	8	12	0	22
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	1105			647			1250	1786	324	1466	1783	552
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1105			647			1250	1786	324	1466	1783	552
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			93	100	99	86	100	95
cM capacity (veh/h)	628			934			121	78	672	86	79	477
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	338	326	548	558	16	34						
Volume Left	17	0	1	0	8	12						
Volume Right	0	4	0	10	8	22						
cSH	628	1700	934	1700	204	184						
Volume to Capacity	0.03	0.19	0.00	0.33	0.08	0.18						
Queue Length 95th (m)	0.7	0.0	0.0	0.0	2.0	5.3						
Control Delay (s)	0.9	0.0	0.0	0.0	24.1	29.0						
Lane LOS	A		A		C	D						
Approach Delay (s)	0.5		0.0		24.1	29.0						
Approach LOS					C	D						
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			38.8%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	928	535	84	816	4	536	40	124	4	24	20
Future Volume (vph)	32	928	535	84	816	4	536	40	124	4	24	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.95		1.00	1.00		1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3345		1770	3537		1770	1863	1583		1750	
Flt Permitted	0.23	1.00		0.15	1.00		0.72	1.00	1.00		0.99	
Satd. Flow (perm)	431	3345		281	3537		1347	1863	1583		1737	
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)	35	1009	582	91	887	4	583	43	135	4	26	22
RTOR Reduction (vph)	0	137	0	0	1	0	0	0	30	0	13	0
Lane Group Flow (vph)	35	1454	0	91	890	0	583	43	105	0	39	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	26.5	26.5		26.5	26.5		24.5	24.5	24.5		24.5	
Effective Green, g (s)	26.5	26.5		26.5	26.5		24.5	24.5	24.5		24.5	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.41	0.41	0.41		0.41	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	190	1477		124	1562		550	760	646		709	
v/s Ratio Prot		c0.43			0.25			0.02				
v/s Ratio Perm	0.08			0.32			c0.43		0.07		0.02	
v/c Ratio	0.18	0.98		0.73	0.57		1.06	0.06	0.16		0.05	
Uniform Delay, d1	10.2	16.5		13.8	12.5		17.8	10.8	11.2		10.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.1	20.0		31.7	1.5		55.3	0.0	0.1		0.0	
Delay (s)	12.3	36.6		45.5	14.0		73.0	10.8	11.4		10.8	
Level of Service	B	D		D	B		E	B	B		B	
Approach Delay (s)		36.0			16.9			58.6			10.8	
Approach LOS		D			B			E			B	
Intersection Summary												
HCM 2000 Control Delay			35.2			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			95.1%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	1254	2	2	1095	28	1	1	7	36	0	42
Future Volume (Veh/h)	56	1254	2	2	1095	28	1	1	7	36	0	42
Sign Control		Free			Free			Stop			Stop	
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)	61	1363	2	2	1190	30	1	1	8	39	0	46
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	1220			1365			2131	2710	682	2021	2696	610
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1220			1365			2131	2710	682	2021	2696	610
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			100			96	95	98	0	100	89
cM capacity (veh/h)	567			499			23	18	392	29	19	437
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	742	684	597	625	10	85						
Volume Left	61	0	2	0	1	39						
Volume Right	0	2	0	30	8	46						
cSH	567	1700	499	1700	85	59						
Volume to Capacity	0.11	0.40	0.00	0.37	0.12	1.44						
Queue Length 95th (m)	2.9	0.0	0.1	0.0	3.1	59.9						
Control Delay (s)	3.0	0.0	0.1	0.0	53.2	385.9						
Lane LOS	A		A		F	F						
Approach Delay (s)	1.6		0.1		53.2	385.9						
Approach LOS					F	F						
Intersection Summary												
Average Delay			13.0									
Intersection Capacity Utilization			88.8%	ICU Level of Service				E				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	662	415	86	688	4	441	43	96	4	40	45
Future Volume (vph)	34	662	415	86	688	4	441	43	96	4	40	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3335		1770	3536		1770	1863	1583		1731	
Flt Permitted	0.31	1.00		0.15	1.00		0.78	1.00	1.00		0.99	
Satd. Flow (perm)	583	3335		275	3536		1447	1863	1583		1724	
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)	37	720	451	93	748	4	479	47	104	4	43	49
RTOR Reduction (vph)	0	149	0	0	1	0	0	0	66	0	31	0
Lane Group Flow (vph)	37	1022	0	93	751	0	479	47	38	0	65	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	31.5	31.5		31.5	31.5		23.2	23.2	23.2		23.2	
Effective Green, g (s)	31.5	31.5		31.5	31.5		23.2	23.2	23.2		23.2	
Actuated g/C Ratio	0.49	0.49		0.49	0.49		0.36	0.36	0.36		0.36	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	288	1649		135	1748		527	678	576		627	
v/s Ratio Prot		0.31			0.21			0.03				
v/s Ratio Perm	0.06			c0.34			c0.33		0.02		0.04	
v/c Ratio	0.13	0.62		0.69	0.43		0.91	0.07	0.07		0.10	
Uniform Delay, d1	8.7	11.7		12.3	10.3		19.2	13.2	13.2		13.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.9	1.8		25.0	0.8		19.4	0.0	0.0		0.1	
Delay (s)	9.6	13.5		37.4	11.1		38.7	13.3	13.2		13.5	
Level of Service	A	B		D	B		D	B	B		B	
Approach Delay (s)		13.4			14.0			32.6			13.5	
Approach LOS		B			B			C			B	
Intersection Summary												
HCM 2000 Control Delay			17.9			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			63.7			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			78.7%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	939	5	6	812	38	4	0	6	26	1	54
Future Volume (Veh/h)	21	939	5	6	812	38	4	0	6	26	1	54
Sign Control		Free			Free			Stop			Stop	
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)	23	1021	5	7	883	41	4	0	7	28	1	59
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	924			1026			1584	2008	513	1481	1990	462
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	924			1026			1584	2008	513	1481	1990	462
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			94	100	99	66	98	89
cM capacity (veh/h)	735			673			62	56	506	83	58	547
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	534	516	448	482	11	88						
Volume Left	23	0	7	0	4	28						
Volume Right	0	5	0	41	7	59						
cSH	735	1700	673	1700	141	190						
Volume to Capacity	0.03	0.30	0.01	0.28	0.08	0.46						
Queue Length 95th (m)	0.8	0.0	0.3	0.0	2.0	17.6						
Control Delay (s)	0.9	0.0	0.3	0.0	32.8	39.2						
Lane LOS	A		A		D	E						
Approach Delay (s)	0.4		0.1		32.8	39.2						
Approach LOS					D	E						
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			53.6%	ICU Level of Service				A				
Analysis Period (min)			15									

Appendix F: Alternative 4B - 2041 Traffic Operations

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	426	322	52	907	9	338	22	41	4	27	23
Future Volume (vph)	31	426	322	52	907	9	338	22	41	4	27	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3311		1770	3534		1770	1863	1583		1748	
Flt Permitted	0.21	1.00		0.29	1.00		0.72	1.00	1.00		0.99	
Satd. Flow (perm)	390	3311		538	3534		1340	1863	1583		1734	
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)	34	463	350	57	986	10	367	24	45	4	29	25
RTOR Reduction (vph)	0	196	0	0	2	0	0	0	29	0	16	0
Lane Group Flow (vph)	34	617	0	57	994	0	367	24	16	0	42	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	19.1	19.1		19.1	19.1		15.4	15.4	15.4		15.4	
Effective Green, g (s)	19.1	19.1		19.1	19.1		15.4	15.4	15.4		15.4	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.35	0.35	0.35		0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	171	1453		236	1551		474	659	560		613	
v/s Ratio Prot		0.19			c0.28			0.01				
v/s Ratio Perm	0.09			0.11			c0.27		0.01		0.02	
v/c Ratio	0.20	0.42		0.24	0.64		0.77	0.04	0.03		0.07	
Uniform Delay, d1	7.5	8.4		7.7	9.5		12.5	9.2	9.2		9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.6	0.9		2.4	2.0		7.7	0.0	0.0		0.0	
Delay (s)	10.1	9.3		10.1	11.6		20.2	9.2	9.2		9.3	
Level of Service	B	A		B	B		C	A	A		A	
Approach Delay (s)		9.4			11.5			18.5			9.3	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.0			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			43.5			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			66.2%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	592	4	1	1007	5	7	0	7	9	0	12
Future Volume (Veh/h)	9	592	4	1	1007	5	7	0	7	9	0	12
Sign Control		Free			Free			Stop			Stop	
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)	10	643	4	1	1095	5	8	0	8	10	0	13
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	1100			647			1228	1767	324	1449	1766	550
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1100			647			1228	1767	324	1449	1766	550
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			94	100	99	89	100	97
cM capacity (veh/h)	630			934			129	81	672	90	81	479
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	332	326	548	552	16	23						
Volume Left	10	0	1	0	8	10						
Volume Right	0	4	0	5	8	13						
cSH	630	1700	934	1700	216	166						
Volume to Capacity	0.02	0.19	0.00	0.33	0.07	0.14						
Queue Length 95th (m)	0.4	0.0	0.0	0.0	1.9	3.8						
Control Delay (s)	0.5	0.0	0.0	0.0	23.0	30.2						
Lane LOS	A		A		C	D						
Approach Delay (s)	0.3		0.0		23.0	30.2						
Approach LOS					C	D						
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			38.7%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	914	535	68	803	10	536	58	106	20	41	33
Future Volume (vph)	47	914	535	68	803	10	536	58	106	20	41	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	3343		1770	3533		1770	1863	1583		1756	
Flt Permitted	0.23	1.00		0.13	1.00		0.75	1.00	1.00		0.95	
Satd. Flow (perm)	429	3343		237	3533		1391	1863	1583		1686	
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)	51	993	582	74	873	11	583	63	115	22	45	36
RTOR Reduction (vph)	0	121	0	0	1	0	0	0	33	0	21	0
Lane Group Flow (vph)	51	1454	0	74	883	0	583	63	82	0	82	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	31.5	31.5		31.5	31.5		29.5	29.5	29.5		29.5	
Effective Green, g (s)	31.5	31.5		31.5	31.5		29.5	29.5	29.5		29.5	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.42	0.42	0.42		0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	193	1504		106	1589		586	785	667		710	
v/s Ratio Prot		c0.43			0.25			0.03				
v/s Ratio Perm	0.12			0.31			c0.42		0.05		0.05	
v/c Ratio	0.26	0.97		0.70	0.56		0.99	0.08	0.12		0.12	
Uniform Delay, d1	12.0	18.7		15.4	14.1		20.2	12.1	12.4		12.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	3.3	16.5		31.8	1.4		35.7	0.0	0.1		0.1	
Delay (s)	15.3	35.3		47.3	15.5		55.8	12.2	12.4		12.4	
Level of Service	B	D		D	B		E	B	B		B	
Approach Delay (s)		34.6			18.0			45.7			12.4	
Approach LOS		C			B			D			B	
Intersection Summary												
HCM 2000 Control Delay			31.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			94.2%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1254	2	2	1095	22	1	1	7	20	0	12
Future Volume (Veh/h)	23	1254	2	2	1095	22	1	1	7	20	0	12
Sign Control		Free			Free			Stop			Stop	
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)	25	1363	2	2	1190	24	1	1	8	22	0	13
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	1214			1365			2026	2632	682	1946	2621	607
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1214			1365			2026	2632	682	1946	2621	607
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			97	95	98	38	100	97
cM capacity (veh/h)	570			499			32	22	392	35	23	439
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	706	684	597	619	10	35						
Volume Left	25	0	2	0	1	22						
Volume Right	0	2	0	24	8	13						
cSH	570	1700	499	1700	103	54						
Volume to Capacity	0.04	0.40	0.00	0.36	0.10	0.65						
Queue Length 95th (m)	1.1	0.0	0.1	0.0	2.5	21.1						
Control Delay (s)	1.2	0.0	0.1	0.0	43.7	154.0						
Lane LOS	A		A		E	F						
Approach Delay (s)	0.6		0.1		43.7	154.0						
Approach LOS					E	F						
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			64.6%	ICU Level of Service				C				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	642	415	67	666	15	441	68	71	12	59	67
Future Volume (vph)	54	642	415	67	666	15	441	68	71	12	59	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3331		1770	3528		1770	1863	1583		1733	
Flt Permitted	0.32	1.00		0.22	1.00		0.77	1.00	1.00		0.98	
Satd. Flow (perm)	588	3331		414	3528		1430	1863	1583		1705	
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)	59	698	451	73	724	16	479	74	77	13	64	73
RTOR Reduction (vph)	0	230	0	0	4	0	0	0	47	0	45	0
Lane Group Flow (vph)	59	919	0	73	736	0	479	74	30	0	105	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		17.0	17.0	17.0		17.0	
Effective Green, g (s)	18.0	18.0		18.0	18.0		17.0	17.0	17.0		17.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.39	0.39	0.39		0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	240	1362		169	1443		552	719	611		658	
v/s Ratio Prot		c0.28			0.21			0.04				
v/s Ratio Perm	0.10			0.18			c0.33		0.02		0.06	
v/c Ratio	0.25	0.67		0.43	0.51		0.87	0.10	0.05		0.16	
Uniform Delay, d1	8.5	10.6		9.3	9.7		12.5	8.6	8.4		8.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.4	2.7		7.9	1.3		13.5	0.1	0.0		0.1	
Delay (s)	11.0	13.3		17.2	11.0		26.0	8.7	8.5		8.9	
Level of Service	B	B		B	B		C	A	A		A	
Approach Delay (s)		13.2			11.6			21.8			8.9	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			14.4			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			44.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			82.5%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	939	5	6	812	27	4	0	6	8	1	14
Future Volume (Veh/h)	11	939	5	6	812	27	4	0	6	8	1	14
Sign Control		Free			Free			Stop			Stop	
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)	12	1021	5	7	883	29	4	0	7	9	1	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)												
pX, platoon unblocked												
vC, conflicting volume	912			1026			1518	1974	513	1453	1962	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	912			1026			1518	1974	513	1453	1962	456
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			95	100	99	90	98	97
cM capacity (veh/h)	743			673			77	60	506	88	61	551
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	522	516	448	470	11	25						
Volume Left	12	0	7	0	4	9						
Volume Right	0	5	0	29	7	15						
cSH	743	1700	673	1700	167	172						
Volume to Capacity	0.02	0.30	0.01	0.28	0.07	0.15						
Queue Length 95th (m)	0.4	0.0	0.3	0.0	1.7	4.0						
Control Delay (s)	0.5	0.0	0.3	0.0	28.1	29.5						
Lane LOS	A		A		D	D						
Approach Delay (s)	0.2		0.1		28.1	29.5						
Approach LOS					D	D						
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			43.9%	ICU Level of Service				A				
Analysis Period (min)			15									

Appendix G: Alternative 5A - 2041 Traffic Operations

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	428	322	56	911	8	338	21	42	3	23	20
Future Volume (vph)	30	428	322	56	911	8	338	21	42	3	23	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3311		1770	3534		1770	1863	1583		1747	
Flt Permitted	0.21	1.00		0.29	1.00		0.72	1.00	1.00		0.99	
Satd. Flow (perm)	390	3311		537	3534		1349	1863	1583		1735	
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)	33	465	350	61	990	9	367	23	46	3	25	22
RTOR Reduction (vph)	0	196	0	0	1	0	0	0	30	0	14	0
Lane Group Flow (vph)	33	619	0	61	998	0	367	23	16	0	36	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	19.1	19.1		19.1	19.1		15.3	15.3	15.3		15.3	
Effective Green, g (s)	19.1	19.1		19.1	19.1		15.3	15.3	15.3		15.3	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.35	0.35	0.35		0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	171	1457		236	1555		475	656	558		611	
v/s Ratio Prot		0.19			c0.28			0.01				
v/s Ratio Perm	0.08			0.11			c0.27		0.01		0.02	
v/c Ratio	0.19	0.42		0.26	0.64		0.77	0.04	0.03		0.06	
Uniform Delay, d1	7.4	8.4		7.7	9.5		12.5	9.2	9.2		9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.5	0.9		2.6	2.0		7.6	0.0	0.0		0.0	
Delay (s)	9.9	9.3		10.3	11.5		20.1	9.2	9.2		9.3	
Level of Service	A	A		B	B		C	A	A		A	
Approach Delay (s)		9.3			11.5			18.4			9.3	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			43.4			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			66.2%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	592	4	1	1007	5	7	0	7	9	0	20
Future Volume (Veh/h)	11	592	4	1	1007	5	7	0	7	9	0	20
Sign Control		Free			Free			Stop			Stop	
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)	12	643	4	1	1095	5	8	0	8	10	0	22
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	1100			647			1240	1771	324	1453	1770	550
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1100			647			1240	1771	324	1453	1770	550
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			94	100	99	89	100	95
cM capacity (veh/h)	630			934			123	81	672	89	81	479
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	334	326	548	552	16	32						
Volume Left	12	0	1	0	8	10						
Volume Right	0	4	0	5	8	22						
cSH	630	1700	934	1700	209	202						
Volume to Capacity	0.02	0.19	0.00	0.33	0.08	0.16						
Queue Length 95th (m)	0.5	0.0	0.0	0.0	2.0	4.4						
Control Delay (s)	0.6	0.0	0.0	0.0	23.7	26.2						
Lane LOS	A		A		C	D						
Approach Delay (s)	0.3		0.0		23.7	26.2						
Approach LOS					C	D						
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			38.7%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	919	535	73	807	9	536	51	113	17	36	29
Future Volume (vph)	41	919	535	73	807	9	536	51	113	17	36	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	3344		1770	3533		1770	1863	1583		1755	
Flt Permitted	0.23	1.00		0.11	1.00		0.75	1.00	1.00		0.96	
Satd. Flow (perm)	424	3344		203	3533		1397	1863	1583		1695	
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)	45	999	582	79	877	10	583	55	123	18	39	32
RTOR Reduction (vph)	0	105	0	0	1	0	0	0	34	0	18	0
Lane Group Flow (vph)	45	1476	0	79	886	0	583	55	89	0	71	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	36.7	36.7		36.7	36.7		34.3	34.3	34.3		34.3	
Effective Green, g (s)	36.7	36.7		36.7	36.7		34.3	34.3	34.3		34.3	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.43	0.43	0.43		0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	194	1534		93	1620		598	798	678		726	
v/s Ratio Prot		c0.44			0.25			0.03				
v/s Ratio Perm	0.11			0.39			c0.42		0.06		0.04	
v/c Ratio	0.23	0.96		0.85	0.55		0.97	0.07	0.13		0.10	
Uniform Delay, d1	13.1	21.0		19.2	15.6		22.4	13.5	13.8		13.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.8	15.6		58.6	1.3		30.3	0.0	0.1		0.1	
Delay (s)	15.9	36.6		77.8	17.0		52.7	13.5	13.9		13.7	
Level of Service	B	D		E	B		D	B	B		B	
Approach Delay (s)		36.0			21.9			43.6			13.7	
Approach LOS		D			C			D			B	
Intersection Summary												
HCM 2000 Control Delay			33.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			94.3%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1254	2	2	1095	23	1	1	7	22	0	21
Future Volume (Veh/h)	36	1254	2	2	1095	23	1	1	7	22	0	21
Sign Control		Free			Free			Stop			Stop	
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)	39	1363	2	2	1190	25	1	1	8	24	0	23
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	1215			1365			2064	2661	682	1974	2650	608
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1215			1365			2064	2661	682	1974	2650	608
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			96	95	98	27	100	95
cM capacity (veh/h)	570			499			28	21	392	33	21	439
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	720	684	597	620	10	47						
Volume Left	39	0	2	0	1	24						
Volume Right	0	2	0	25	8	23						
cSH	570	1700	499	1700	96	60						
Volume to Capacity	0.07	0.40	0.00	0.36	0.10	0.78						
Queue Length 95th (m)	1.8	0.0	0.1	0.0	2.7	27.6						
Control Delay (s)	1.9	0.0	0.1	0.0	46.8	168.7						
Lane LOS	A		A		E	F						
Approach Delay (s)	1.0		0.1		46.8	168.7						
Approach LOS					E	F						
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			75.2%		ICU Level of Service				D			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	646	415	73	674	14	441	63	76	11	52	59
Future Volume (vph)	50	646	415	73	674	14	441	63	76	11	52	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3332		1770	3529		1770	1863	1583		1734	
Flt Permitted	0.30	1.00		0.14	1.00		0.70	1.00	1.00		0.98	
Satd. Flow (perm)	560	3332		261	3529		1298	1863	1583		1709	
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)	54	702	451	79	733	15	479	68	83	12	57	64
RTOR Reduction (vph)	0	125	0	0	2	0	0	0	49	0	38	0
Lane Group Flow (vph)	54	1028	0	79	746	0	479	68	34	0	95	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	36.8	36.8		36.8	36.8		31.0	31.0	31.0		31.0	
Effective Green, g (s)	36.8	36.8		36.8	36.8		31.0	31.0	31.0		31.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.40	0.40	0.40		0.40	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	268	1596		125	1690		523	751	638		689	
v/s Ratio Prot		c0.31			0.21			0.04				
v/s Ratio Perm	0.10			0.30			c0.37		0.02		0.06	
v/c Ratio	0.20	0.64		0.63	0.44		0.92	0.09	0.05		0.14	
Uniform Delay, d1	11.5	15.1		14.9	13.2		21.7	14.2	14.0		14.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.7	2.0		21.8	0.8		20.7	0.1	0.0		0.1	
Delay (s)	13.2	17.1		36.8	14.1		42.4	14.2	14.0		14.6	
Level of Service	B	B		D	B		D	B	B		B	
Approach Delay (s)		16.9			16.2			35.6			14.6	
Approach LOS		B			B			D			B	
Intersection Summary												
HCM 2000 Control Delay	20.8			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.77											
Actuated Cycle Length (s)	76.8			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	77.7%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	939	5	6	812	28	4	0	6	20	1	28
Future Volume (Veh/h)	20	939	5	6	812	28	4	0	6	20	1	28
Sign Control		Free			Free			Stop			Stop	
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)	22	1021	5	7	883	30	4	0	7	22	1	30
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	913			1026			1554	1994	513	1474	1982	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	913			1026			1554	1994	513	1474	1982	456
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			94	100	99	74	98	95
cM capacity (veh/h)	742			673			70	57	506	84	58	551
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	532	516	448	472	11	53						
Volume Left	22	0	7	0	4	22						
Volume Right	0	5	0	30	7	30						
cSH	742	1700	673	1700	154	159						
Volume to Capacity	0.03	0.30	0.01	0.28	0.07	0.33						
Queue Length 95th (m)	0.7	0.0	0.3	0.0	1.8	10.8						
Control Delay (s)	0.8	0.0	0.3	0.0	30.1	38.4						
Lane LOS	A		A		D	E						
Approach Delay (s)	0.4		0.1		30.1	38.4						
Approach LOS						D	E					
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			50.8%	ICU Level of Service				A				
Analysis Period (min)			15									

Appendix H: Alternative 5B - 2041 Traffic Operations

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	426	322	52	907	9	338	22	41	4	27	23
Future Volume (vph)	31	426	322	52	907	9	338	22	41	4	27	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3311		1770	3534		1770	1863	1583		1748	
Flt Permitted	0.22	1.00		0.29	1.00		0.72	1.00	1.00		0.99	
Satd. Flow (perm)	404	3311		544	3534		1340	1863	1583		1737	
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)	34	463	350	57	986	10	367	24	45	4	29	25
RTOR Reduction (vph)	0	170	0	0	1	0	0	0	30	0	16	0
Lane Group Flow (vph)	34	643	0	57	995	0	367	24	15	0	42	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	32.1	32.1		32.1	32.1		21.2	21.2	21.2		21.2	
Effective Green, g (s)	32.1	32.1		32.1	32.1		21.2	21.2	21.2		21.2	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.34	0.34	0.34		0.34	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	208	1705		280	1820		455	633	538		591	
v/s Ratio Prot		0.19			c0.28			0.01				
v/s Ratio Perm	0.08			0.10			c0.27		0.01		0.02	
v/c Ratio	0.16	0.38		0.20	0.55		0.81	0.04	0.03		0.07	
Uniform Delay, d1	8.0	9.1		8.2	10.2		18.7	13.7	13.7		13.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.7	0.6		1.6	1.2		10.1	0.0	0.0		0.1	
Delay (s)	9.7	9.7		9.8	11.4		28.7	13.8	13.7		13.9	
Level of Service	A	A		A	B		C	B	B		B	
Approach Delay (s)		9.7			11.3			26.4			13.9	
Approach LOS		A			B			C			B	
Intersection Summary												
HCM 2000 Control Delay			13.5			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			62.3			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			66.2%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	592	4	1	1007	5	7	0	7	9	0	12
Future Volume (Veh/h)	9	592	4	1	1007	5	7	0	7	9	0	12
Sign Control		Free			Free			Stop			Stop	
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)	10	643	4	1	1095	5	8	0	8	10	0	13
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	1100			647			1228	1767	324	1449	1766	550
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1100			647			1228	1767	324	1449	1766	550
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			94	100	99	89	100	97
cM capacity (veh/h)	630			934			129	81	672	90	81	479
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	332	326	548	552	16	23						
Volume Left	10	0	1	0	8	10						
Volume Right	0	4	0	5	8	13						
cSH	630	1700	934	1700	216	166						
Volume to Capacity	0.02	0.19	0.00	0.33	0.07	0.14						
Queue Length 95th (m)	0.4	0.0	0.0	0.0	1.9	3.8						
Control Delay (s)	0.5	0.0	0.0	0.0	23.0	30.2						
Lane LOS	A		A		C	D						
Approach Delay (s)	0.3		0.0		23.0	30.2						
Approach LOS					C	D						
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			38.7%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	914	535	68	803	10	536	58	106	20	41	33
Future Volume (vph)	47	914	535	68	803	10	536	58	106	20	41	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	3343		1770	3533		1770	1863	1583		1756	
Flt Permitted	0.23	1.00		0.13	1.00		0.75	1.00	1.00		0.95	
Satd. Flow (perm)	429	3343		237	3533		1391	1863	1583		1686	
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)	51	993	582	74	873	11	583	63	115	22	45	36
RTOR Reduction (vph)	0	121	0	0	1	0	0	0	33	0	21	0
Lane Group Flow (vph)	51	1454	0	74	883	0	583	63	82	0	82	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	31.5	31.5		31.5	31.5		29.5	29.5	29.5		29.5	
Effective Green, g (s)	31.5	31.5		31.5	31.5		29.5	29.5	29.5		29.5	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.42	0.42	0.42		0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	193	1504		106	1589		586	785	667		710	
v/s Ratio Prot		c0.43			0.25			0.03				
v/s Ratio Perm	0.12			0.31			c0.42		0.05		0.05	
v/c Ratio	0.26	0.97		0.70	0.56		0.99	0.08	0.12		0.12	
Uniform Delay, d1	12.0	18.7		15.4	14.1		20.2	12.1	12.4		12.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	3.3	16.5		31.8	1.4		35.7	0.0	0.1		0.1	
Delay (s)	15.3	35.3		47.3	15.5		55.8	12.2	12.4		12.4	
Level of Service	B	D		D	B		E	B	B		B	
Approach Delay (s)		34.6			18.0			45.7			12.4	
Approach LOS		C			B			D			B	
Intersection Summary												
HCM 2000 Control Delay			31.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			94.2%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1254	2	2	1095	22	1	1	7	20	0	12
Future Volume (Veh/h)	23	1254	2	2	1095	22	1	1	7	20	0	12
Sign Control		Free			Free			Stop			Stop	
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)	25	1363	2	2	1190	24	1	1	8	22	0	13
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	1214			1365			2026	2632	682	1946	2621	607
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1214			1365			2026	2632	682	1946	2621	607
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			97	95	98	38	100	97
cM capacity (veh/h)	570			499			32	22	392	35	23	439
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	706	684	597	619	10	35						
Volume Left	25	0	2	0	1	22						
Volume Right	0	2	0	24	8	13						
cSH	570	1700	499	1700	103	54						
Volume to Capacity	0.04	0.40	0.00	0.36	0.10	0.65						
Queue Length 95th (m)	1.1	0.0	0.1	0.0	2.5	21.1						
Control Delay (s)	1.2	0.0	0.1	0.0	43.7	154.0						
Lane LOS	A		A		E	F						
Approach Delay (s)	0.6		0.1		43.7	154.0						
Approach LOS					E	F						
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			64.6%	ICU Level of Service				C				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	642	415	67	666	15	441	68	71	12	59	67
Future Volume (vph)	54	642	415	67	666	15	441	68	71	12	59	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3331		1770	3528		1770	1863	1583		1733	
Flt Permitted	0.32	1.00		0.22	1.00		0.77	1.00	1.00		0.98	
Satd. Flow (perm)	588	3331		414	3528		1430	1863	1583		1705	
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)	59	698	451	73	724	16	479	74	77	13	64	73
RTOR Reduction (vph)	0	230	0	0	4	0	0	0	47	0	45	0
Lane Group Flow (vph)	59	919	0	73	736	0	479	74	30	0	105	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		17.0	17.0	17.0		17.0	
Effective Green, g (s)	18.0	18.0		18.0	18.0		17.0	17.0	17.0		17.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.39	0.39	0.39		0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	240	1362		169	1443		552	719	611		658	
v/s Ratio Prot		c0.28			0.21			0.04				
v/s Ratio Perm	0.10			0.18			c0.33		0.02		0.06	
v/c Ratio	0.25	0.67		0.43	0.51		0.87	0.10	0.05		0.16	
Uniform Delay, d1	8.5	10.6		9.3	9.7		12.5	8.6	8.4		8.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.4	2.7		7.9	1.3		13.5	0.1	0.0		0.1	
Delay (s)	11.0	13.3		17.2	11.0		26.0	8.7	8.5		8.9	
Level of Service	B	B		B	B		C	A	A		A	
Approach Delay (s)		13.2			11.6			21.8			8.9	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			14.4			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			44.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			82.5%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	939	5	6	812	27	4	0	6	18	1	14
Future Volume (Veh/h)	11	939	5	6	812	27	4	0	6	18	1	14
Sign Control		Free			Free			Stop			Stop	
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)	12	1021	5	7	883	29	4	0	7	20	1	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)												
pX, platoon unblocked												
vC, conflicting volume	912			1026			1518	1974	513	1453	1962	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	912			1026			1518	1974	513	1453	1962	456
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			95	100	99	77	98	97
cM capacity (veh/h)	743			673			77	60	506	88	61	551
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	522	516	448	470	11	36						
Volume Left	12	0	7	0	4	20						
Volume Right	0	5	0	29	7	15						
cSH	743	1700	673	1700	167	133						
Volume to Capacity	0.02	0.30	0.01	0.28	0.07	0.27						
Queue Length 95th (m)	0.4	0.0	0.3	0.0	1.7	8.2						
Control Delay (s)	0.5	0.0	0.3	0.0	28.1	41.7						
Lane LOS	A		A		D	E						
Approach Delay (s)	0.2		0.1		28.1	41.7						
Approach LOS					D	E						
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			43.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Appendix I: Alternative 6A - 2041 Traffic Operations

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	442	322	73	926	4	338	11	52	1	6	5
Future Volume (vph)	15	442	322	73	926	4	338	11	52	1	6	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3315		1770	3537		1770	1863	1583		1759	
Flt Permitted	0.21	1.00		0.28	1.00		0.75	1.00	1.00		0.99	
Satd. Flow (perm)	390	3315		526	3537		1395	1863	1583		1748	
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)	16	480	350	79	1007	4	367	12	57	1	7	5
RTOR Reduction (vph)	0	195	0	0	1	0	0	0	37	0	3	0
Lane Group Flow (vph)	16	635	0	79	1010	0	367	12	20	0	10	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	19.1	19.1		19.1	19.1		15.0	15.0	15.0		15.0	
Effective Green, g (s)	19.1	19.1		19.1	19.1		15.0	15.0	15.0		15.0	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.35	0.35	0.35		0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	172	1469		233	1567		485	648	550		608	
v/s Ratio Prot		0.19			c0.29			0.01				
v/s Ratio Perm	0.04			0.15			c0.26		0.01		0.01	
v/c Ratio	0.09	0.43		0.34	0.64		0.76	0.02	0.04		0.02	
Uniform Delay, d1	7.0	8.3		7.9	9.4		12.4	9.2	9.3		9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.1	0.9		3.9	2.1		6.6	0.0	0.0		0.0	
Delay (s)	8.0	9.2		11.8	11.4		19.1	9.2	9.3		9.2	
Level of Service	A	A		B	B		B	A	A		A	
Approach Delay (s)		9.2			11.4			17.5			9.2	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			43.1			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			66.5%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	592	4	1	1007	9	7	0	7	12	0	53
Future Volume (Veh/h)	35	592	4	1	1007	9	7	0	7	12	0	53
Sign Control		Free			Free			Stop			Stop	
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)	38	643	4	1	1095	10	8	0	8	13	0	58
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	1105			647			1328	1828	324	1508	1825	552
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1105			647			1328	1828	324	1508	1825	552
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			92	100	99	83	100	88
cM capacity (veh/h)	628			934			95	71	672	78	72	477
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	360	326	548	558	16	71						
Volume Left	38	0	1	0	8	13						
Volume Right	0	4	0	10	8	58						
cSH	628	1700	934	1700	166	247						
Volume to Capacity	0.06	0.19	0.00	0.33	0.10	0.29						
Queue Length 95th (m)	1.5	0.0	0.0	0.0	2.5	9.2						
Control Delay (s)	1.9	0.0	0.0	0.0	29.0	25.4						
Lane LOS	A		A		D	D						
Approach Delay (s)	1.0		0.0		29.0	25.4						
Approach LOS					D	D						
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			53.4%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	948	535	105	834	3	536	15	149	2	3	3
Future Volume (vph)	12	948	535	105	834	3	536	15	149	2	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.95		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	3348		1770	3537		1770	1863	1583		1747	
Flt Permitted	0.23	1.00		0.13	1.00		0.75	1.00	1.00		0.97	
Satd. Flow (perm)	430	3348		244	3537		1402	1863	1583		1724	
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)	13	1030	582	114	907	3	583	16	162	2	3	3
RTOR Reduction (vph)	0	121	0	0	1	0	0	0	35	0	2	0
Lane Group Flow (vph)	13	1491	0	114	909	0	583	16	127	0	6	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	30.5	30.5		30.5	30.5		25.5	25.5	25.5		25.5	
Effective Green, g (s)	30.5	30.5		30.5	30.5		25.5	25.5	25.5		25.5	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.39	0.39	0.39		0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	201	1570		114	1659		550	730	621		676	
v/s Ratio Prot		0.45			0.26			0.01				
v/s Ratio Perm	0.03			c0.47			c0.42		0.08		0.00	
v/c Ratio	0.06	0.95		1.00	0.55		1.06	0.02	0.20		0.01	
Uniform Delay, d1	9.4	16.5		17.2	12.3		19.8	12.1	13.0		12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.6	13.5		84.3	1.3		55.3	0.0	0.2		0.0	
Delay (s)	10.1	30.1		101.5	13.6		75.0	12.1	13.2		12.1	
Level of Service	B	C		F	B		E	B	B		B	
Approach Delay (s)		29.9			23.4			60.5			12.1	
Approach LOS		C			C			E			B	
Intersection Summary												
HCM 2000 Control Delay			34.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			96.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	1254	2	2	1095	29	1	1	7	38	0	80
Future Volume (Veh/h)	101	1254	2	2	1095	29	1	1	7	38	0	80
Sign Control		Free			Free			Stop			Stop	
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)	110	1363	2	2	1190	32	1	1	8	41	0	87
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	1222			1365			2270	2810	682	2120	2795	611
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1222			1365			2270	2810	682	2120	2795	611
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	81			100			93	93	98	0	100	80
cM capacity (veh/h)	566			499			15	14	392	23	15	437
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	792	684	597	627	10	128						
Volume Left	110	0	2	0	1	41						
Volume Right	0	2	0	32	8	87						
cSH	566	1700	499	1700	64	63						
Volume to Capacity	0.19	0.40	0.00	0.37	0.16	2.02						
Queue Length 95th (m)	5.7	0.0	0.1	0.0	4.2	96.4						
Control Delay (s)	5.4	0.0	0.1	0.0	72.0	613.6						
Lane LOS	A		A		F	F						
Approach Delay (s)	2.9		0.1		72.0	613.6						
Approach LOS					F	F						
Intersection Summary												
Average Delay			29.5									
Intersection Capacity Utilization			92.6%		ICU Level of Service				F			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	686	415	111	717	3	441	13	126	3	14	16
Future Volume (vph)	11	686	415	111	717	3	441	13	126	3	14	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3339		1770	3537		1770	1863	1583		1733	
Flt Permitted	0.29	1.00		0.22	1.00		0.73	1.00	1.00		0.99	
Satd. Flow (perm)	542	3339		414	3537		1368	1863	1583		1720	
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)	12	746	451	121	779	3	479	14	137	3	15	17
RTOR Reduction (vph)	0	199	0	0	1	0	0	0	56	0	10	0
Lane Group Flow (vph)	12	998	0	121	781	0	479	14	81	0	25	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		17.2	17.2	17.2		17.2	
Effective Green, g (s)	18.0	18.0		18.0	18.0		17.2	17.2	17.2		17.2	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.39	0.39	0.39		0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	220	1359		168	1440		532	724	616		669	
v/s Ratio Prot		c0.30			0.22			0.01				
v/s Ratio Perm	0.02			0.29			c0.35		0.05		0.01	
v/c Ratio	0.05	0.73		0.72	0.54		0.90	0.02	0.13		0.04	
Uniform Delay, d1	7.9	11.1		11.0	10.0		12.7	8.3	8.7		8.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	3.6		23.3	1.5		18.3	0.0	0.1		0.0	
Delay (s)	8.4	14.6		34.3	11.4		30.9	8.3	8.8		8.4	
Level of Service	A	B		C	B		C	A	A		A	
Approach Delay (s)		14.6			14.5			25.6			8.4	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			17.0			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			44.2			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			80.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	939	5	6	812	39	4	0	6	28	1	109
Future Volume (Veh/h)	109	939	5	6	812	39	4	0	6	28	1	109
Sign Control		Free			Free			Stop			Stop	
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)	118	1021	5	7	883	42	4	0	7	30	1	118
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	925			1026			1834	2198	513	1672	2180	462
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	925			1026			1834	2198	513	1672	2180	462
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	84			99			87	100	99	44	97	78
cM capacity (veh/h)	734			673			32	37	506	54	38	546
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	628	516	448	484	11	149						
Volume Left	118	0	7	0	4	30						
Volume Right	0	5	0	42	7	118						
cSH	734	1700	673	1700	78	186						
Volume to Capacity	0.16	0.30	0.01	0.28	0.14	0.80						
Queue Length 95th (m)	4.6	0.0	0.3	0.0	3.7	44.1						
Control Delay (s)	4.1	0.0	0.3	0.0	58.3	74.3						
Lane LOS	A		A		F	F						
Approach Delay (s)	2.2		0.1		58.3	74.3						
Approach LOS						F	F					
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			72.3%	ICU Level of Service				C				
Analysis Period (min)			15									

Appendix J: Alternative 6B - 2041 Traffic Operations

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	442	322	73	926	4	338	11	52	1	6	5
Future Volume (vph)	15	442	322	73	926	4	338	11	52	1	6	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3315		1770	3537		1770	1863	1583		1759	
Flt Permitted	0.21	1.00		0.28	1.00		0.75	1.00	1.00		0.99	
Satd. Flow (perm)	390	3315		526	3537		1395	1863	1583		1748	
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)	16	480	350	79	1007	4	367	12	57	1	7	5
RTOR Reduction (vph)	0	195	0	0	1	0	0	0	37	0	3	0
Lane Group Flow (vph)	16	635	0	79	1010	0	367	12	20	0	10	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	19.1	19.1		19.1	19.1		15.0	15.0	15.0		15.0	
Effective Green, g (s)	19.1	19.1		19.1	19.1		15.0	15.0	15.0		15.0	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.35	0.35	0.35		0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	172	1469		233	1567		485	648	550		608	
v/s Ratio Prot		0.19			c0.29			0.01				
v/s Ratio Perm	0.04			0.15			c0.26		0.01		0.01	
v/c Ratio	0.09	0.43		0.34	0.64		0.76	0.02	0.04		0.02	
Uniform Delay, d1	7.0	8.3		7.9	9.4		12.4	9.2	9.3		9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.1	0.9		3.9	2.1		6.6	0.0	0.0		0.0	
Delay (s)	8.0	9.2		11.8	11.4		19.1	9.2	9.3		9.2	
Level of Service	A	A		B	B		B	A	A		A	
Approach Delay (s)		9.2			11.4			17.5			9.2	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			43.1			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			66.5%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	592	4	1	1007	9	7	0	7	12	0	53
Future Volume (Veh/h)	35	592	4	1	1007	9	7	0	7	12	0	53
Sign Control		Free			Free			Stop			Stop	
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)	38	643	4	1	1095	10	8	0	8	13	0	58
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	1105			647			1328	1828	324	1508	1825	552
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1105			647			1328	1828	324	1508	1825	552
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			92	100	99	83	100	88
cM capacity (veh/h)	628			934			95	71	672	78	72	477
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	360	326	548	558	16	71						
Volume Left	38	0	1	0	8	13						
Volume Right	0	4	0	10	8	58						
cSH	628	1700	934	1700	166	247						
Volume to Capacity	0.06	0.19	0.00	0.33	0.10	0.29						
Queue Length 95th (m)	1.5	0.0	0.0	0.0	2.5	9.2						
Control Delay (s)	1.9	0.0	0.0	0.0	29.0	25.4						
Lane LOS	A		A		D	D						
Approach Delay (s)	1.0		0.0		29.0	25.4						
Approach LOS					D	D						
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			53.4%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	948	535	105	834	3	536	15	149	2	3	3
Future Volume (vph)	12	948	535	105	834	3	536	15	149	2	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.95		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	3348		1770	3537		1770	1863	1583		1747	
Flt Permitted	0.23	1.00		0.13	1.00		0.75	1.00	1.00		0.97	
Satd. Flow (perm)	430	3348		244	3537		1402	1863	1583		1724	
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)	13	1030	582	114	907	3	583	16	162	2	3	3
RTOR Reduction (vph)	0	121	0	0	1	0	0	0	35	0	2	0
Lane Group Flow (vph)	13	1491	0	114	909	0	583	16	127	0	6	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	30.5	30.5		30.5	30.5		25.5	25.5	25.5		25.5	
Effective Green, g (s)	30.5	30.5		30.5	30.5		25.5	25.5	25.5		25.5	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.39	0.39	0.39		0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	201	1570		114	1659		550	730	621		676	
v/s Ratio Prot		0.45			0.26			0.01				
v/s Ratio Perm	0.03			c0.47			c0.42		0.08		0.00	
v/c Ratio	0.06	0.95		1.00	0.55		1.06	0.02	0.20		0.01	
Uniform Delay, d1	9.4	16.5		17.2	12.3		19.8	12.1	13.0		12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.6	13.5		84.3	1.3		55.3	0.0	0.2		0.0	
Delay (s)	10.1	30.1		101.5	13.6		75.0	12.1	13.2		12.1	
Level of Service	B	C		F	B		E	B	B		B	
Approach Delay (s)		29.9			23.4			60.5			12.1	
Approach LOS		C			C			E			B	
Intersection Summary												
HCM 2000 Control Delay			34.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			96.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	1254	2	2	1095	29	1	1	7	38	0	80
Future Volume (Veh/h)	101	1254	2	2	1095	29	1	1	7	38	0	80
Sign Control		Free			Free			Stop			Stop	
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)	110	1363	2	2	1190	32	1	1	8	41	0	87
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	1222			1365			2270	2810	682	2120	2795	611
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1222			1365			2270	2810	682	2120	2795	611
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	81			100			93	93	98	0	100	80
cM capacity (veh/h)	566			499			15	14	392	23	15	437
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	792	684	597	627	10	128						
Volume Left	110	0	2	0	1	41						
Volume Right	0	2	0	32	8	87						
cSH	566	1700	499	1700	64	63						
Volume to Capacity	0.19	0.40	0.00	0.37	0.16	2.02						
Queue Length 95th (m)	5.7	0.0	0.1	0.0	4.2	96.4						
Control Delay (s)	5.4	0.0	0.1	0.0	72.0	613.6						
Lane LOS	A		A		F	F						
Approach Delay (s)	2.9		0.1		72.0	613.6						
Approach LOS					F	F						
Intersection Summary												
Average Delay			29.5									
Intersection Capacity Utilization			92.6%		ICU Level of Service				F			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	686	415	111	717	3	441	13	126	3	14	16
Future Volume (vph)	11	686	415	111	717	3	441	13	126	3	14	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3339		1770	3537		1770	1863	1583		1733	
Flt Permitted	0.29	1.00		0.22	1.00		0.73	1.00	1.00		0.99	
Satd. Flow (perm)	542	3339		414	3537		1368	1863	1583		1720	
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)	12	746	451	121	779	3	479	14	137	3	15	17
RTOR Reduction (vph)	0	199	0	0	1	0	0	0	56	0	10	0
Lane Group Flow (vph)	12	998	0	121	781	0	479	14	81	0	25	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		17.2	17.2	17.2		17.2	
Effective Green, g (s)	18.0	18.0		18.0	18.0		17.2	17.2	17.2		17.2	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.39	0.39	0.39		0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	220	1359		168	1440		532	724	616		669	
v/s Ratio Prot		c0.30			0.22			0.01				
v/s Ratio Perm	0.02			0.29			c0.35		0.05		0.01	
v/c Ratio	0.05	0.73		0.72	0.54		0.90	0.02	0.13		0.04	
Uniform Delay, d1	7.9	11.1		11.0	10.0		12.7	8.3	8.7		8.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	3.6		23.3	1.5		18.3	0.0	0.1		0.0	
Delay (s)	8.4	14.6		34.3	11.4		30.9	8.3	8.8		8.4	
Level of Service	A	B		C	B		C	A	A		A	
Approach Delay (s)		14.6			14.5			25.6			8.4	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			17.0			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			44.2			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			80.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

10-09-2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	939	5	6	812	39	4	0	6	28	1	109
Future Volume (Veh/h)	109	939	5	6	812	39	4	0	6	28	1	109
Sign Control		Free			Free			Stop			Stop	
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)	118	1021	5	7	883	42	4	0	7	30	1	118
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	925			1026			1834	2198	513	1672	2180	462
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	925			1026			1834	2198	513	1672	2180	462
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	84			99			87	100	99	44	97	78
cM capacity (veh/h)	734			673			32	37	506	54	38	546
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	628	516	448	484	11	149						
Volume Left	118	0	7	0	4	30						
Volume Right	0	5	0	42	7	118						
cSH	734	1700	673	1700	78	186						
Volume to Capacity	0.16	0.30	0.01	0.28	0.14	0.80						
Queue Length 95th (m)	4.6	0.0	0.3	0.0	3.7	44.1						
Control Delay (s)	4.1	0.0	0.3	0.0	58.3	74.3						
Lane LOS	A		A		F	F						
Approach Delay (s)	2.2		0.1		58.3	74.3						
Approach LOS					F	F						
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			72.3%		ICU Level of Service		C					
Analysis Period (min)			15									

Appendix K: Alternative 6C - 2041 Traffic Operations

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

2041 Alternative 6C
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	442	322	73	926	4	338	11	52	1	6	5
Future Volume (vph)	15	442	322	73	926	4	338	11	52	1	6	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3315		1770	3537		1770	1863	1583		1759	
Flt Permitted	0.21	1.00		0.28	1.00		0.75	1.00	1.00		0.99	
Satd. Flow (perm)	390	3315		526	3537		1395	1863	1583		1748	
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)	16	480	350	79	1007	4	367	12	57	1	7	5
RTOR Reduction (vph)	0	195	0	0	1	0	0	0	37	0	3	0
Lane Group Flow (vph)	16	635	0	79	1010	0	367	12	20	0	10	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	19.1	19.1		19.1	19.1		15.0	15.0	15.0		15.0	
Effective Green, g (s)	19.1	19.1		19.1	19.1		15.0	15.0	15.0		15.0	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.35	0.35	0.35		0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	172	1469		233	1567		485	648	550		608	
v/s Ratio Prot		0.19			c0.29			0.01				
v/s Ratio Perm	0.04			0.15			c0.26		0.01		0.01	
v/c Ratio	0.09	0.43		0.34	0.64		0.76	0.02	0.04		0.02	
Uniform Delay, d1	7.0	8.3		7.9	9.4		12.4	9.2	9.3		9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.1	0.9		3.9	2.1		6.6	0.0	0.0		0.0	
Delay (s)	8.0	9.2		11.8	11.4		19.1	9.2	9.3		9.2	
Level of Service	A	A		B	B		B	A	A		A	
Approach Delay (s)		9.2			11.4			17.5			9.2	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.7			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			43.1			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			66.5%			ICU Level of Service			C			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

2041 Alternative 6C
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	592	4	1	1007	5	7	0	7	9	0	6
Future Volume (Veh/h)	4	592	4	1	1007	5	7	0	7	9	0	6
Sign Control		Free			Free			Stop			Stop	
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	643	4	1	1095	5	8	0	8	10	0	7
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	1100			647			1210	1755	324	1437	1754	550
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1100			647			1210	1755	324	1437	1754	550
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			94	100	99	89	100	99
cM capacity (veh/h)	630			934			136	84	672	92	84	479
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	326	326	548	552	16	17						
Volume Left	4	0	1	0	8	10						
Volume Right	0	4	0	5	8	7						
cSH	630	1700	934	1700	226	138						
Volume to Capacity	0.01	0.19	0.00	0.33	0.07	0.12						
Queue Length 95th (m)	0.2	0.0	0.0	0.0	1.8	3.3						
Control Delay (s)	0.2	0.0	0.0	0.0	22.2	34.7						
Lane LOS	A		A		C	D						
Approach Delay (s)	0.1		0.0		22.2	34.7						
Approach LOS					C	D						
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			38.7%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: Wallwins Way/New Road & Hurst Dr

2041 Alternative 6C
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	453	10	5	947	4	10	0	5	3	0	46
Future Volume (Veh/h)	31	453	10	5	947	4	10	0	5	3	0	46
Sign Control		Free			Free			Stop			Stop	
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)	34	492	11	5	1029	4	11	0	5	3	0	50
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		230										
pX, platoon unblocked												
vC, conflicting volume	1033			503			1140	1608	252	1360	1612	516
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1033			503			1140	1608	252	1360	1612	516
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			92	100	99	97	100	90
cM capacity (veh/h)	668			1058			134	98	748	102	98	504
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	280	257	520	518	16	53						
Volume Left	34	0	5	0	11	3						
Volume Right	0	11	0	4	5	50						
cSH	668	1700	1058	1700	181	412						
Volume to Capacity	0.05	0.15	0.00	0.30	0.09	0.13						
Queue Length 95th (m)	1.3	0.0	0.1	0.0	2.3	3.5						
Control Delay (s)	1.9	0.0	0.1	0.0	26.8	15.0						
Lane LOS	A		A		D	C						
Approach Delay (s)	1.0		0.1		26.8	15.0						
Approach LOS					D	C						
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			47.7%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

2041 Alternative 6C
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	948	535	105	834	3	536	15	149	2	3	3
Future Volume (vph)	12	948	535	105	834	3	536	15	149	2	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.95		1.00	1.00		1.00	1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1770	3348		1770	3537		1770	1863	1583		1747	
Flt Permitted	0.23	1.00		0.13	1.00		0.75	1.00	1.00		0.97	
Satd. Flow (perm)	430	3348		244	3537		1402	1863	1583		1724	
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)	13	1030	582	114	907	3	583	16	162	2	3	3
RTOR Reduction (vph)	0	121	0	0	1	0	0	0	35	0	2	0
Lane Group Flow (vph)	13	1491	0	114	909	0	583	16	127	0	6	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	30.5	30.5		30.5	30.5		25.5	25.5	25.5		25.5	
Effective Green, g (s)	30.5	30.5		30.5	30.5		25.5	25.5	25.5		25.5	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.39	0.39	0.39		0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	201	1570		114	1659		550	730	621		676	
v/s Ratio Prot		0.45			0.26			0.01				
v/s Ratio Perm	0.03			c0.47			c0.42		0.08		0.00	
v/c Ratio	0.06	0.95		1.00	0.55		1.06	0.02	0.20		0.01	
Uniform Delay, d1	9.4	16.5		17.2	12.3		19.8	12.1	13.0		12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.6	13.5		84.3	1.3		55.3	0.0	0.2		0.0	
Delay (s)	10.1	30.1		101.5	13.6		75.0	12.1	13.2		12.1	
Level of Service	B	C		F	B		E	B	B		B	
Approach Delay (s)		29.9			23.4			60.5			12.1	
Approach LOS		C			C			E			B	
Intersection Summary												
HCM 2000 Control Delay			34.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			96.8%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

2041 Alternative 6C
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	1254	2	2	1095	22	1	1	7	20	0	6
Future Volume (Veh/h)	12	1254	2	2	1095	22	1	1	7	20	0	6
Sign Control		Free			Free			Stop			Stop	
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)	13	1363	2	2	1190	24	1	1	8	22	0	7
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	1214			1365			1996	2608	682	1922	2597	607
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1214			1365			1996	2608	682	1922	2597	607
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			97	96	98	42	100	98
cM capacity (veh/h)	570			499			34	24	392	38	24	439
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	694	684	597	619	10	29						
Volume Left	13	0	2	0	1	22						
Volume Right	0	2	0	24	8	7						
cSH	570	1700	499	1700	109	48						
Volume to Capacity	0.02	0.40	0.00	0.36	0.09	0.60						
Queue Length 95th (m)	0.6	0.0	0.1	0.0	2.4	18.5						
Control Delay (s)	0.6	0.0	0.1	0.0	41.5	157.8						
Lane LOS	A		A		E	F						
Approach Delay (s)	0.3		0.1		41.5	157.8						
Approach LOS					E	F						
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			56.4%	ICU Level of Service					B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: Wallwins Way/New Road & Hurst Dr

2041 Alternative 6C
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1000	10	5	857	7	10	0	5	18	0	74
Future Volume (Veh/h)	89	1000	10	5	857	7	10	0	5	18	0	74
Sign Control		Free			Free			Stop			Stop	
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)	97	1087	11	5	932	8	11	0	5	20	0	80
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)		231										
pX, platoon unblocked				0.70			0.70	0.70	0.70	0.70	0.70	
vC, conflicting volume	940			1098			1842	2236	549	1688	2238	470
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	940			291			1352	1913	0	1132	1915	470
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	87			99			81	100	99	80	100	85
cM capacity (veh/h)	725			890			58	41	761	98	41	540
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	640	554	471	474	16	100						
Volume Left	97	0	5	0	11	20						
Volume Right	0	11	0	8	5	80						
cSH	725	1700	890	1700	82	285						
Volume to Capacity	0.13	0.33	0.01	0.28	0.20	0.35						
Queue Length 95th (m)	3.7	0.0	0.1	0.0	5.4	12.2						
Control Delay (s)	3.4	0.0	0.2	0.0	59.5	24.3						
Lane LOS	A		A		F	C						
Approach Delay (s)	1.8		0.1		59.5	24.3						
Approach LOS					F	C						
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			70.1%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Minet's Point Rd & Lakeshore Dr/Hurst Dr

2041 Alternative 6C
Saturday Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	686	415	111	717	3	441	13	126	3	14	16
Future Volume (vph)	11	686	415	111	717	3	441	13	126	3	14	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1770	3339		1770	3537		1770	1863	1583		1733	
Flt Permitted	0.29	1.00		0.22	1.00		0.73	1.00	1.00		0.99	
Satd. Flow (perm)	542	3339		414	3537		1368	1863	1583		1720	
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)	12	746	451	121	779	3	479	14	137	3	15	17
RTOR Reduction (vph)	0	199	0	0	1	0	0	0	56	0	10	0
Lane Group Flow (vph)	12	998	0	121	781	0	479	14	81	0	25	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		17.2	17.2	17.2		17.2	
Effective Green, g (s)	18.0	18.0		18.0	18.0		17.2	17.2	17.2		17.2	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.39	0.39	0.39		0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	220	1359		168	1440		532	724	616		669	
v/s Ratio Prot		c0.30			0.22			0.01				
v/s Ratio Perm	0.02			0.29			c0.35		0.05		0.01	
v/c Ratio	0.05	0.73		0.72	0.54		0.90	0.02	0.13		0.04	
Uniform Delay, d1	7.9	11.1		11.0	10.0		12.7	8.3	8.7		8.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	3.6		23.3	1.5		18.3	0.0	0.1		0.0	
Delay (s)	8.4	14.6		34.3	11.4		30.9	8.3	8.8		8.4	
Level of Service	A	B		C	B		C	A	A		A	
Approach Delay (s)		14.6			14.5			25.6			8.4	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			17.0			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			44.2			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			80.8%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Hurst Dr & Brennan Ave

2041 Alternative 6C
Saturday Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	939	5	6	812	27	4	0	6	18	1	7
Future Volume (Veh/h)	6	939	5	6	812	27	4	0	6	18	1	7
Sign Control		Free			Free			Stop			Stop	
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	1021	5	7	883	29	4	0	7	20	1	8
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	912			1026			1502	1964	513	1443	1952	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	912			1026			1502	1964	513	1443	1952	456
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			95	100	99	78	98	99
cM capacity (veh/h)	743			673			81	61	506	90	62	551
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	518	516	448	470	11	29						
Volume Left	7	0	7	0	4	20						
Volume Right	0	5	0	29	7	8						
cSH	743	1700	673	1700	173	115						
Volume to Capacity	0.01	0.30	0.01	0.28	0.06	0.25						
Queue Length 95th (m)	0.2	0.0	0.3	0.0	1.6	7.4						
Control Delay (s)	0.3	0.0	0.3	0.0	27.2	46.5						
Lane LOS	A		A		D	E						
Approach Delay (s)	0.1		0.1		27.2	46.5						
Approach LOS					D	E						
Intersection Summary												
Average Delay			1.0									
Intersection Capacity Utilization			40.3%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: Wallwins Way/New Road & Hurst Dr

2041 Alternative 6C
Saturday Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	701	10	5	605	12	10	0	5	9	0	102
Future Volume (Veh/h)	103	701	10	5	605	12	10	0	5	9	0	102
Sign Control		Free			Free			Stop			Stop	
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)	112	762	11	5	658	13	11	0	5	10	0	111
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)	230											
pX, platoon unblocked												
vC, conflicting volume	671			773			1442	1672	386	1284	1672	336
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	671			773			1442	1672	386	1284	1672	336
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			99			84	100	99	91	100	83
cM capacity (veh/h)	915			838			70	83	612	109	83	660
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	493	392	334	342	16	121						
Volume Left	112	0	5	0	11	10						
Volume Right	0	11	0	13	5	111						
cSH	915	1700	838	1700	97	466						
Volume to Capacity	0.12	0.23	0.01	0.20	0.17	0.26						
Queue Length 95th (m)	3.3	0.0	0.1	0.0	4.5	8.2						
Control Delay (s)	3.3	0.0	0.2	0.0	49.5	15.4						
Lane LOS	A		A		E	C						
Approach Delay (s)	1.8		0.1		49.5	15.4						
Approach LOS					E	C						
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			56.6%		ICU Level of Service		B					
Analysis Period (min)			15									