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Appendix A: Transportation and Traffic Assessment



City of Windsor

University Avenue & Victoria Avenue EA

Traffic Operations Report

17-18



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01-03-2022 – Review 02

City of Windsor

University Avenue & Victoria Avenue EA

Traffic Operations Report

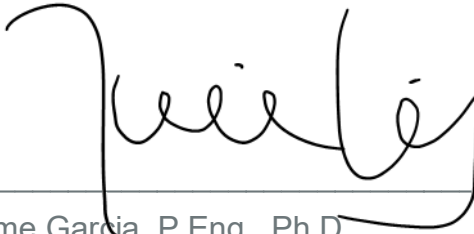
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01	JG	Jan 2019	Added Future Conditions with Single-lane Cross Section
02	JG	Mar 2022	Completion of Final Report

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1. Introduction

CIMA+ was retained by the City of Windsor (the City) to conduct an Environmental Assessment (EA) to optimize and improve roadway elements for a 20-year study horizon along University Avenue between Huron Church Road and McDougall Street, and along Victoria Avenue from Chatham Street West to Park Street West. A transportation and traffic analysis of the existing and future conditions is one of the components of this study. The purpose of this report is to review existing transportation and traffic conditions and opportunities for future improvement. The findings of this report will assist the project team in developing any necessary improvements, as well as in the design of the preferred alternative.

2. Study Area

University Avenue is a major east-west arterial road connecting the downtown area of the City of Windsor in the east to McDougall Street and Huron Church Road in the west. Victoria Avenue is a north-south local road that connects the downtown area in the north with residential neighbourhoods in the south. The study area is approximately a 3.5-kilometre section along University Avenue between Huron Church Road and McDougall Street, and along Victoria Avenue from Chatham Street West to Park Street West. There are twelve (12) signalized intersections within the study area, in addition to two (2) intersection pedestrian signals (IPS), as illustrated in **Figure 1**.



Figure 1: University Avenue and Victoria Avenue EA Study Area

Within the EA study area, the 3.5-kilometre section of University Avenue between Huron Church Road and McDougall Street has several types of cross sections, including:

- + 2-lane urban from Huron Church Road to Partington Avenue;
- + 4-lane urban from Partington Avenue to Crawford Avenue; and
- + 2-lane urban from Crawford Avenue to McDougall Street.

Victoria Avenue is a one-way street (southbound) south of University Avenue with 3 lanes of traffic. North of University Avenue, Victoria Avenue presents 2 traffic lanes (one per direction).

The land use surrounding the study area varies from residential (between California Avenue and Bruce Avenue) to commercial (between Pelissier Street and McDougall Street). The land use along Victoria Avenue is mixed commercial/high-rise residential, as well as several parking lots.

The current statutory speed limit on University Avenue and Victoria Avenue within the study area is 50 km/h. No speed limit signs were observed along this corridor.

For the purposes of this report, the study area was divided into two areas encompassing the main type of context zones identified along the corridors under study¹:

- + **West Section:** Along University Avenue from Huron Church Road to Church Street covering the Riverwest University Campus and Residential Urban Areas as well as the Downtown Transitional Area west of Victoria Avenue; and
- + **East Section:** Along University Avenue from Church Street to McDougall Street and along Victoria Avenue from Chatham Street West to Park Street West covering the Downtown Core and the University-Institutional Areas.

3. Existing Conditions

3.1 Existing Traffic Volumes

The existing Annual Average Daily Traffic (AADT) for University Avenue and Victoria Avenue, within the study area, were provided by the City of Windsor - **Table 1**. The AADT values provided by the City were from different years, therefore the most representative volumes were taken based on the most recent data (up to 5 years old). The AADT for the west and east sections is approximately 8,800 and 7,700, respectively.

Turning Movement Counts (TMC) were provided by the City, as summarized in **Table 2**. The weekday peak hour volumes for each intersection are illustrated in **Appendix A**, including individual turning movements.

As seen in **Table 2**, AM and PM peak hours vary for different intersections within the study area. In order to select the most representative peak time for the corridor the volumes per intersection for each possible peak hour were first identified (3 possible times for AM peak and 6 for PM peak). Then, minimum and maximum volumes were selected to recognize the peak time at which the most representative volume was present.

¹ Refer to Socio Economic Assessment Memorandum for additional information regarding the selected Context Zones.

After reviewing all the possible weekday peak hours for the corridor, an AM Peak Hour between 8:15 and 9:15 and a PM Peak Hour between 16:45 and 17:45 were selected as the corridor peak hours to complete the traffic analysis.

Some imbalances, which could not be explained by the surrounding intersections and/or the traffic generators, were identified along corridor. Thus, volume balancing was performed along the corridor by using a conservative approach of always increasing the volumes. These new volumes for the selected peak hours are summarized in **Appendix A**.

Table 1: Annual Average Daily Traffic for the Study Area

Section	Location	AADT	Year
West Section	University Avenue between Huron Church Road and Josephine Avenue	9000	2006
	University Avenue between Campbell Avenue and McKay Avenue	8700	2013
	University Avenue between Cameron Avenue and Oak Street	8800	2015
	University Avenue between Crawford Avenue and Caron Avenue	8500	2015
	University Avenue between Janette Avenue and Church Street	11200	2007
East Section	University Avenue between Dougall Avenue and Victoria Avenue	7500	2008
	University Avenue between Victoria Avenue and Pelissier Street	7700	2015
	University Avenue between Ouellette Avenue and McDougall Street	7200	2008
Victoria Avenue	Victoria Avenue between Chatham Street West and Park Street East	2900	2008

Table 2: Traffic Movement Counts

Intersection	Count Date	AM Peak Hour	PM Peak Hour
University Avenue & Huron Church Road	November 21, 2016	7:45 to 8:45	16:45 to 17:45
University Avenue & Sunset Avenue	April 10, 2018	7:45 to 8:45	16:00 to 17:00
University Avenue & California Avenue	October 4, 2017	8:00 to 9:00	17:00 to 18:00
University Avenue & Campbell Avenue	October 2, 2017	8:15 to 9:15	17:00 to 18:00
University Avenue & McKay Avenue	April 9, 2018	8:00 to 9:00	16:45 to 17:45
University Avenue & Crawford Avenue	October 3, 2017	8:15 to 9:15	16:30 to 17:30
University Avenue & Bruce Avenue	September 25, 2017	8:15 to 9:15	16:30 to 17:30
University Avenue & Church Street	September 28, 2017	8:15 to 9:15	17:00 to 18:00
University Avenue & Victoria Avenue	September 26, 2017	8:15 to 9:15	15:45 to 16:45
University Avenue & Pelissier Street	September 28, 2017	8:00 to 9:00	16:15 to 17:15
University Avenue & Ouellette Avenue	September 27, 2017	8:15 to 9:15	16:00 to 17:00
University Avenue & Goyeau Street	September 26, 2017	8:15 to 9:15	16:30 to 17:30
University Avenue & McDougall Street	September 27, 2017	8:00 to 9:00	16:00 to 17:00
Victoria Avenue & Park Street West	September 25, 2017	8:30 to 9:30	15:00 to 16:00

3.2 Existing Intersection Operations

Intersection capacity analysis was undertaken using Trafficware's Synchro Version 10.0 software and following procedures described in the Highway Capacity Manual (HCM). The analysis primarily focuses on performance measures such as level-of-service (LOS), volume to capacity (v/c) ratio, and 95th percentile queues.

LOS is a qualitative measure of operational performance and is based on control delay. The LOS criteria for signalized intersections is shown in **Table 3**.

Table 3: LOS Criteria for Signalized and Unsignalized Intersections

LOS	Control Delay (seconds/vehicle)	Traffic Flow Characteristics
A	0 – 10	Very Good
B	> 10 – 20	Good

C	> 20 – 35	Typically preferred planning objective
D	> 35 – 55	Typically acceptable
E	> 55 – 80	Undesirable; potentially unstable traffic flow
F	> 80	Failing movements may impede traffic flow

The v/c ratio is the ratio between traffic volumes and the capacity of an intersection movement. A v/c ratio greater than 1.0 indicates that the movement is operating over capacity.

The 95th Percentile Queue is the queue length that has only a 5 percent probability of being exceeded during the analysis period. It is industry practice and accepted methodology to use the 95th percentile queue length for design and operational analysis purposes.

Existing intersection operations were reviewed using Synchro software, and the results are summarized in **Table 4**. Detailed Synchro Reports can be found in **Appendix B**.

Table 4: Existing Intersection Operations

Intersection	Control	Peak Hour	LOS	Average Delay (s/veh)	Movement with Highest v/c ratio	95 th percentile Queues > Storage Length
University Avenue & Huron Church Road	Traffic Signal	AM	B	13.8 s	0.30 (EB L/T)	None
		PM	B	17.0 s	0.33 (WB L)	46 m > 45 m (WB L)
University Avenue & Sunset Avenue	IPS	AM	A	2.2 s	0.11 (NB L/T/R)	None
		PM	A	2.5 s	0.16 (NB L/T/R)	None
University Avenue & California Avenue	Traffic Signal	AM	B	14.4 s	0.47 (WB L/T/R)	None
		PM	B	13.9 s	0.58 (WB L/T/R)	None
University Avenue & Campbell Avenue	Traffic Signal	AM	B	14.4 s	0.28 (EB T/R)	None
		PM	B	12.9 s	0.47 (WB L)	None
University Avenue & McKay Avenue	IPS	AM	A	0.4 s	0.09 (WB T/R)	None
		PM	A	0.7 s	0.14 (WB T/R)	None
University Avenue & Crawford Avenue	Traffic Signal	AM	B	13.3 s	0.43 (NB L/T/R)	None
		PM	B	11.6 s	0.34 (NB L/T/R)	None
University Avenue & Bruce Avenue	Traffic Signal	AM	B	13.0 s	0.46 (EB T)	None
		PM	B	14.6 s	0.54 (WB T/R)	None

Intersection	Control	Peak Hour	LOS	Average Delay (s/veh)	Movement with Highest v/c ratio	95 th percentile Queues > Storage Length
University Avenue & Church Street	Traffic Signal	AM	B	12.0 s	0.53 (EB L/T/R)	None
		PM	B	11.6 s	0.42 (EB L/T/R)	None
University Avenue & Victoria Avenue	Traffic Signal	AM	A	8.6 s	0.49 (SB L/T/R)	None
		PM	A	9.8 s	0.55 (SB L/T/R)	None
University Avenue & Pelissier Street	Traffic Signal	AM	B	13.3 s	0.38 (EB L/T)	None
		PM	B	11.7 s	0.37 (WB T/R)	None
University Avenue & Ouellette Avenue	Traffic Signal	AM	B	15.4 s	0.35 (WB L/T/R)	None
		PM	B	14.2 s	0.54 (WB L/T/R)	None
University Avenue & Goyeau Street	Traffic Signal	AM	B	12.8 s	0.45 (EB L/T/R)	None
		PM	B	15.8 s	0.53 (EB L/T/R)	None
University Avenue & McDougall Street	Traffic Signal	AM	B	16.9 s	0.32 (NB L)	None
		PM	B	17.9 s	0.39 (EB T/R)	None
Victoria Avenue & Park Street West	Traffic Signal	AM	B	15.0 s	0.48 (WB L/T)	None
		PM	B	18.4 s	0.74 (WB L/T)	92 m > 70 m (WB L/T)

Based on the results summarized above, all signalized intersections in the study area operate well under existing conditions, as v/c ratios for all individual movements are below the 0.85 threshold. In addition, all intersections operate with LOS A or B (i.e. 'Very Good' or 'Good' according to the criteria in **Table 3**).

Only two intersections present 95th percentile queues that exceed the existing storage length capacity: westbound left-turn movement at University Avenue and Huron Church Road and westbound through/left-turn movement at Victoria Avenue and Park Street West. However, this issue only occurs during the PM peak hour and it is not expected to decrease the performance of the corridor.

CIMA+ conducted a site visit on Wednesday June 20th and Thursday June 21st, 2018 and was able to observe traffic operations during the AM and PM peak hours. The results from the Synchro software were consistent with the field observations.

3.3 Existing Mid-Block Operations (Volume/Capacity Analysis)

Existing traffic volumes along the corridors under study were used to estimate the traffic volume per hour per lane and compare against the estimated capacity of the corridors under existing conditions. An average capacity of 900 vehicles per hour per lane was estimated for the corridors under study based on the directional number of through lanes, based saturation flow and the type of urban corridors.

The results of volume over capacity ratios estimated for the different segments of the corridors under study are presented in Table 5.

Table 5 Estimated V/C for Existing Conditions – University Avenue

Study Context Zones	Existing Link Volume (2-way)	Number of Lanes	Existing V/C Ratio
Huron Church Road to California Avenue	620	2	0.34
California Avenue to Salter Avenue	864	4	0.24
Salter Avenue to Victoria Avenue	780	2	0.43
Victoria Avenue to Freedom Way	604	2	0.34
Freedom Way to McDougall Street	566	2	0.31

Table 6 Estimated V/C for Existing Conditions – Victoria Avenue

Study Context Zones	Existing Link Volume	Number of Lanes	Existing V/C Ratio
Chatham Street to University Avenue	225	2	0.13
University Avenue to Park Street	239	3	0.09

A comparison of the exiting v/c ratios against the following ranges of traffic conditions indicates that all segments of the University Avenue and Victoria Avenue corridors currently operates under capacity.

- $v/c < 0.85$: under capacity
- $0.5 \leq v/c < 1.0$: approaching or at capacity
- $v/c \Rightarrow 1.0$: over capacity

3.4 Existing On-Street Parking

The University Avenue corridor generally allows on-street parking along the study area, on both north and south side, with more prominent restrictions on the east section. On-street parking is also present along Victoria Avenue on both west and east sides. The majority of parking spaces along University Avenue have a minimum width of 2.3-metre, which is in compliance with specifications of OTM Book 11 – Pavement, Hazard and Delineation Markings.

However, parking spaces at the following locations were observed to have widths between 1.8 and 2.1 metres, narrower than the minimum described in OTM Book 11:

- + University Avenue and Bruce Avenue: 2.1-metre width on north side;
- + University Avenue and Church Street: 1.8 and 2.1-metre width on north and south side, respectively; and
- + University Avenue and Campbell Avenue: 2.1 and 2.2-metre width on south and north side, respectively.

On-street parking spaces along Victoria Avenue – east and west side north of University and west side south of University – are angled with a width of approximately 3.1-metres and a length between 6 to 8 metres, which is compliant with the specifications of OTM Book 11.

Table 7 shows different types of parking regulations available along University Avenue and Victoria Avenue within the study area.

From the tables presented below, it can be observed that there are different parking regulations all across the study area but with a common “No Parking between 4AM and 6AM” along several blocks.

On-street parking within the study area is currently regulated by parking meters at the following locations:

- + Victoria Avenue: From Park Street West to Chatham Street West;
- + University Avenue: From Huron Church Road to Bridge Avenue; and
- + University Avenue: From Caron Avenue to Bruce Avenue.

Paid parking is enforceable Monday to Saturday from 9:00 AM to 6:00 PM².

Table 7: Parking Regulations along University Avenue

Location	Regulations	
	Eastbound	Westbound
Huron Church Road to Bridge Avenue	<ul style="list-style-type: none"> • No parking between 4AM and 6AM 	<ul style="list-style-type: none"> • No parking between 4AM and 6AM • No stopping • Commercial vehicle 1 hour (Mon to Sat)

² City of Windsor – Traffic and Parking

Location	Regulations	
	Eastbound	Westbound
Bridge Avenue to Wellington Avenue	<ul style="list-style-type: none"> • Time limit 2 hours 9AM – 6PM (Mon to Sat) • Time limit 2 hours 9AM – 6PM (Mon to Sat) Holidays excepted • Commercial vehicle 1 hour (Mon to Sat) • Time limit 2 hours 4AM – 6PM (Mon to Fri) • No parking between 4AM and 6AM 	<ul style="list-style-type: none"> • Time limit 2 hours 9AM – 6PM (Mon to Sat) • Time limit 2 hours 9AM – 6PM (Mon to Sat) Holidays excepted • Commercial vehicle 1 hour (Mon to Sat) • Time limit 2 hours 4AM – 6PM (Mon to Fri) • No parking between 4AM and 6AM
Wellington Avenue to Crawford Avenue	<ul style="list-style-type: none"> • Time limit 2 hours 9AM – 6PM (Mon to Sat) Holidays excepted • Time limit 30 minutes 8AM to 6PM • Time limit 5 minutes Any day • No stopping • Time limit 20 minutes (Mon to Sat) • No parking between 4AM and 6AM 	<ul style="list-style-type: none"> • Time limit 2 hours 9AM – 6PM (Mon to Sat) Holidays excepted • No parking between 4AM and 6AM • Time limit 40 minutes 8AM – 6PM (Mon to Sat) • No stopping
Crawford Avenue to Victoria Avenue	<ul style="list-style-type: none"> • Wheelchair 4 hours limit • Commercial vehicles 15 minutes time limit • No parking between 4AM and 6AM 	<ul style="list-style-type: none"> • Time limit 1 hour 6AM to 12Am (Mon to Sat) • Time limit 15 minutes Any day • Commercial vehicles 15 minutes time limit • No parking between 4AM and 6AM
Victoria Avenue to Ouellette Avenue	<ul style="list-style-type: none"> • No Parking • No Stopping • Time limit 1-hour Commercial vehicles only 9AM to 6PM (Mon to Sat) 	<ul style="list-style-type: none"> • No Stopping • No parking between 4AM and 6AM • Time limit 1-hour Commercial vehicles only 9AM to 6PM (Mon to Sat)
Ouellette Avenue to McDougall Street	<ul style="list-style-type: none"> • No Parking 	<ul style="list-style-type: none"> • No Parking • Wheelchair parking only 4-hour limit • Time limit 1 hour 6PM to 4AM (Mon to Sat) • Time limit 5 minutes 9AM to 6PM (Mon to Sat)

Table 8: Parking Regulations along Victoria Avenue

Location	Regulations	
	Northbound	Southbound
Park Street West to University Avenue	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> No parking between 4AM and 6AM (east and west side) Time limit 4 hours
University Avenue to Chatham Street West	<ul style="list-style-type: none"> No parking between 4AM and 6AM 	<ul style="list-style-type: none"> No parking between 4AM and 6AM

CIMA+ conducted a site visit on Thursday June 21st, 2018 and based on a visual inspection along the study area observed that on-street parking usage is low (30%) during the morning time (starting around 9:30 AM), increasing to approximately 40% to 50% during the off peak hours (2:00 PM) and evening/night hours (10:00 PM). Parking usage was also observed to be higher at the west section along University Avenue and along Victoria Avenue.

3.4.1 Parking Occupancy Survey

A parking occupancy survey was conducted on October 9, 2018 for the entire length of the corridors under study to identify the number of available on-street parking spaces on both sides of the road and the percentage of utilization between 9:00 am to 8:00 pm.

Table 9 summarizes the results of the survey per block along University Avenue and Victoria Avenue corridors.

Table 9 Parking Occupancy Survey – October 9, 2018

SEGMENT	SIDE	AVAILABLE SPACES	VEHICLES PARKED				% OCCUPANCY			
			9:00 AM	12:00 PM	4:00 PM	8:00 PM	9:00 AM	12:00 PM	4:00 PM	8:00 PM
University Avenue West										
Huron Church to Vista	N	No Parking	0	0	0	0	-	-	-	-
	S	No Parking	0	0	0	0	-	-	-	-
Vista to Sunset	N	12	1	9	5	9	8%	75%	42%	75%
	S	18	8	11	15	8	44%	61%	83%	44%
Sunset to California	N	4	0	1	2	1	0%	25%	50%	25%
	S	8	0	2	1	2	0%	50%	25%	50%
California to Campbell	N	37	5	8	7	9	14%	22%	19%	24%
	S	46	4	6	5	14	9%	13%	11%	30%
Campbell to McKay	N	21	14	12	13	11	67%	57%	62%	52%
	S	11	0	2	2	3	0%	18%	18%	27%
McKay to Crawford	N	35	20	10	12	12	57%	29%	34%	34%
	S	24	10	10	4	7	42%	42%	17%	29%
Crawford to Bruce	N	14	0	1	1	2	0%	7%	7%	14%
	S	25	7	7	7	10	28%	28%	28%	40%
Bruce to Church	N	11	1	1	1	8	9%	9%	9%	73%
	S	11	0	2	2	5	0%	18%	18%	45%
Church to Victoria	N	13	2	2	1	9	15%	15%	8%	69%
	S	11	0	2	1	5	0%	18%	9%	45%

SEGMENT	SIDE	AVAILABLE SPACES	VEHICLES PARKED				% OCCUPANCY			
			9:00 AM	12:00 PM	4:00 PM	8:00 PM	9:00 AM	12:00 PM	4:00 PM	8:00 PM
Victoria to Pelissier	N	6	1	3	3	5	17%	50%	50%	83%
	S	4	1	1	0	3	25%	25%	0%	75%
Pelissier to Ouellette	N	4	2	2	2	3	50%	50%	50%	75%
	S	No Parking	0	0	0	0	-	-	-	-
Ouellette to Goyeau	N	3	1	2	2	3	33%	67%	67%	100%
	S	No Parking	0	0	0	0	-	-	-	-
Goyeau to McDougall	N	7	6	6	3	2	86%	86%	43%	29%
	S	No Parking	0	0	0	0	-	-	-	-
Victoria Avenue										
Chatham to University	E	6	1	1	1	5	17%	17%	17%	83%
	W	14	3	6	7	14	21%	43%	50%	100%
University to Park	E	12	4	4	3	10	33%	33%	25%	83%
	W	24	1	9	5	24	4%	38%	21%	100%
SUBTOTALS		381	92	120	105	184	24%	31%	28%	48%

Although the average percentage of occupancy for both corridors under study is less than 50 percent (48%), most of the blocks servicing the Downtown area shown higher levels of occupancy during the day (between 75 to 100%).

However, it should be noted that the number of parking spaces available at those locations along University Avenue is very low, which may explain the increased occupancy.

3.5 Existing Cycling and Pedestrian Operations

Sidewalks are present on both north and south sides of University Avenue and east and west sides of Victoria Avenue within the study area. The majority of the sidewalks are at least 1.5-

metre wide, which conforms to AODA requirements³ for new construction or redeveloped exterior paths of travel.

However, it was observed that the width of some sidewalks along University Avenue (e.g. near Bridge Avenue, Crawford Avenue, Dougall Avenue and Freedom Way) is less than 1.5 metres due to obstructions such as hydro poles or trees.



Figure 2: Sidewalk Width Reduced by Hydro Pole

Each signalized intersection within the study area has crosswalks on all four approaches with the exception of the following intersections (due to the location of the IPS):

- + University Avenue and Sunset Avenue (IPS): north-south crosswalk on east side only; and
- + University Avenue and McKay Avenue (IPS): north-south crosswalk on west side only.

These are standard crosswalks (i.e. marked with two parallel white lines) that range between 2.5 and 3.0 metres in width, which is in compliance with OTM Book 11 (crosswalks must be at least 2.5 metres wide⁴).

Pedestrian signal heads are provided at all intersections in the study area, including the two intersection pedestrian signals. The pedestrian push buttons at each of the intersection within the study area do not comply with the requirements outlined in the Accessibility of Ontarians with Disabilities Act (AODA). An example of the existing pedestrian push buttons at intersection is shown in **Figure 3**. For example, there is no locator tone or audible and vibrotactile walk indicators. In addition, it was observed at some intersections that the pedestrian

³ O.Reg. 191/11 – Integrated Accessibility Standards, Part IV.1 80.23

⁴ OTM Book 11 Pavement Markings, page 80

push button was not located on the side of the pole that corresponds to the natural path of pedestrians⁵.



Figure 3: Non-AODA Compliant Pedestrian Push Button

Pedestrian volumes at signalized intersections along the corridor vary from the west section to the east section. The higher number of pedestrian volumes on the west section are at the intersection of University Avenue and California Avenue due to its proximity to University of Windsor facilities. Similarly, the highest pedestrian volumes for the east section are the intersection of University Avenue and Ouellette Avenue, due to its location in the central business area. These are the two busiest intersections in the study area with regard to pedestrian volumes, with up to 405 and 667 peak hour crossings, respectively. The highest number of pedestrian crossings during the AM peak hour is 483 at the intersection of University Avenue and Ouellette Avenue.

Table 10 provides a summary of pedestrians crossing at locations with the highest pedestrian volumes along the east and west sections of University Avenue, as well as locations with intersection pedestrian signals (IPS).

The pedestrian performance along the corridor was evaluated using the following level-of-service (LOS) criteria from York Region's Transportation Mobility Plan Guidelines in **Table 11**. These guidelines provide a simplified method for evaluating pedestrian LOS compared to the methodology outlined in the Highway Capacity Manual (which require an extensive amount of data). A target LOS C was assumed for both Segment and Intersection categories. Based on the existing characteristics described above, **Table 12** summarizes the existing LOS throughout the study area.

⁵ Further discussion regarding safety of the existing pedestrian network is provided in the Safety Report associated with this study.

Table 10: Pedestrian Volumes along University Avenue

Location	Peak Hour	Pedestrian Volumes	
		Total Number of Crossings	Individual Crossing with Highest Number of Crossings
University Ave & California Ave (Residential Area)	Off Peak (12:15 – 13:15)	405	South Crossing / 136
University Ave & Ouellette Ave (Commercial Area)	PM Peak (16:00 – 17:00)	667	East Crossing / 252
University Ave & Sunset Ave (IPS)	Off Peak (11:15 – 12:15)	123	South Crossing / 58
University Ave & McKay Ave (IPS)	PM Peak (16:45 – 17:45)	31	South Crossing / 14

Table 11: Pedestrian Level of Service Criteria

LOS	Segment	Intersection
A	<ul style="list-style-type: none"> ≥ 2.0 m sidewalk with minimum 3.5 m buffer including planting and edge zone; or ≥ 3.0 m multi-use path 	<ul style="list-style-type: none"> ≥ 2.0 m sidewalk with minimum 3.5 m buffer including planting and edge zone; or ≥ 3.0 m multi-use path Pedestrian signal head with sufficient pedestrian clearance time⁶ Clearly delineated cross-walk
B	<ul style="list-style-type: none"> ≥ 1.5 m sidewalk with minimum 1.0 m buffer including edge zone; or < 3.0 m multi-use path 	<ul style="list-style-type: none"> ≥ 1.5 m sidewalk with minimum 1.0 m buffer including edge zone; or < 3.0 m multi-use path Pedestrian signal head with sufficient pedestrian clearance time Clearly delineated cross-walk
C	<ul style="list-style-type: none"> ≥ 1.5 m curb-faced sidewalk (no buffer) 	<ul style="list-style-type: none"> ≥ 1.5 m curb-faced sidewalk (no buffer) Pedestrian signal head with sufficient pedestrian clearance time Clearly delineated cross-walk
D	<ul style="list-style-type: none"> < 1.5 m sidewalk 	<ul style="list-style-type: none"> < 1.5 m sidewalk Pedestrian signal head sufficient pedestrian clearance time No clearly delineated cross-walk
E	<ul style="list-style-type: none"> Paved shoulder or no sidewalk provision 	<ul style="list-style-type: none"> Paved shoulder or no sidewalk provision No pedestrian signal head No clearly delineated cross-walk
F	<ul style="list-style-type: none"> No sidewalk provision 	<ul style="list-style-type: none"> No sidewalk provision No pedestrian signal head

⁶ 1.2m per second walking speed

		• No clearly delineated cross-walk
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Table 12: Pedestrian Level of Service in the Study Area

Location	Level of Service	
	Intersection	Segment (east of intersection)
University Avenue & Huron Church Road	C	D
University Avenue & Sunset Avenue	B	C
University Avenue & California Avenue	B	C
University Avenue & Campbell Avenue	C	C
University Avenue & McKay Avenue	C	C
University Avenue & Crawford Avenue	D	C
University Avenue & Bruce Avenue	D	D
University Avenue & Church Street	C	C
University Avenue & Victoria Avenue	C	C
Victoria Avenue & Park Street West	C	C
University Avenue & Pelissier Street	C	C
University Avenue & Ouellette Avenue	C	D
University Avenue & Goyeau Street	C	C
University Avenue & McDougall Street	C	C

Two intersections and three segments within the study area present LOS lower than the target of C, both due to the reduced effective sidewalk width. As mentioned before, the existing sidewalks at these locations are obstructed by hydro poles, trees and sometimes by the parking bay. To achieve this target LOS for the intersections and segments, the sidewalk can be widened to a minimum of 1.5-metres.

Dedicated bicycle facilities are provided along University Avenue from Huron Church Road to Bruce Avenue. East of this intersection, bicyclists share the road with vehicular traffic. No dedicated bicycle facilities are provided along Victoria Avenue within the study area. The bicycle facilities within the study area were assessed following the processes described in OTM Book 18 – Bicycle Facilities, which considers AADT and 85th percentile speeds. It is important to mention that the evaluation used – Desirable Cycling Facility Pre-Selection Nomograph – considers only two-lane roads, which is applicable for the east section of the study area. However, the assessment presented below assumes this process to be applicable to four-lane road cross-section as well.

The 85th percentile speeds obtained from speed studies completed on June 26, 2018 are summarized in **Table 13**.

Table 13: 85th Percentile Speeds along University Avenue

Location	85th Percentile Speed	Direction
University Ave between Vista Pl and Patricia Rd	62 km/h	EB/WB
University Ave between Bridge Ave and Josephine Ave	59 km/h	EB/WB
University Ave between Wellington Ave and Elm Ave	63 km/h	EB/WB
University Ave between Salter Ave and Caron Ave	55 km/h	EB/WB
University Ave east of Dougall Ave	48 km/h	EB
University Ave east of Freedom Way	44 km/h	WB

The 85th percentile speeds can be grouped in the following ranges based on west and east sections along University Avenue:

- + West Section: 55 – 63 km/h; and
- + East Section: 44 – 48 km/h.

Using these speeds and the AADT values presented in Section 2, based on OTM Book 18 – Desirable Cycling Facility Pre-Selection Nomograph, illustrated in **Figure 4**, both west and east sections should provide a designated cycling operating space such as paved shoulders and/or exclusive bicycle lanes. These facilities are already in place along University Avenue from Huron Church Road to Bruce Avenue but cycling infrastructure is not provided east of Bruce Avenue.

The bicycle performance along the corridor was evaluated using the following LOS criteria from York Region's Transportation Mobility Plan Guidelines in **Table 14**. It should be noted that the Guidelines considers the desired width of 1.8m as well as the suggested minimum of 1.5m as described in the OTM Book 18 Cycling Facilities to estimate the LOS.

A target LOS is C was assumed for both Segment and Intersection categories. Based on the existing characteristics described above, **Table 15** summarizes the LOS throughout the study area.

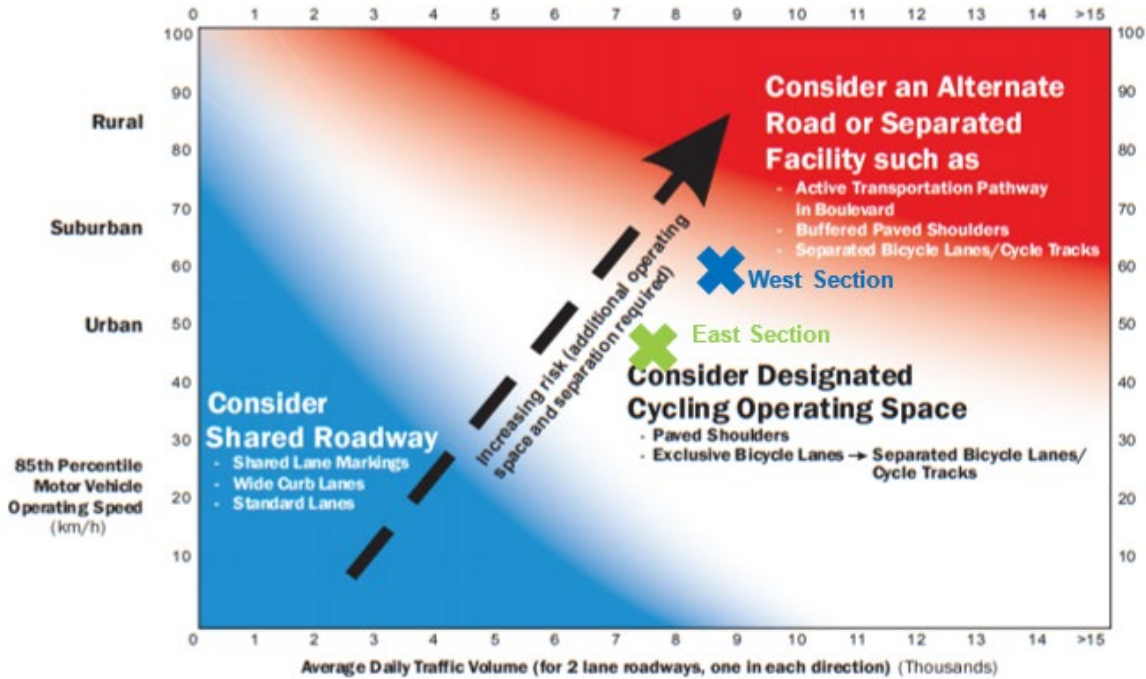


Figure 4: Desirable Cycling Facility Nomograph

Table 14: Bicycle Level of Service Criteria

Level of Service	Segment	Intersection
A	<ul style="list-style-type: none"> Separated cycling facilities (e.g. cycle tracks, multi-use path) 	<ul style="list-style-type: none"> Separated cycling facilities Bicycle box or clearly delineated bicycle treatment or bicycle signal head
B	<ul style="list-style-type: none"> ≥ 1.8 m dedicated cycling facilities (e.g. bicycle lanes with and without buffer) 	<ul style="list-style-type: none"> > 1.8 m dedicated cycling facilities (e.g. bicycle lanes with and without buffer), Bicycle box, clearly delineated bicycle treatment or bicycle signal head
C	<ul style="list-style-type: none"> < 1.8 m dedicated cycling facilities with no buffer 	<ul style="list-style-type: none"> < 1.8 m dedicated cycling facilities with no buffer, Bicycle box, clearly delineated bicycle treatment or bicycle signal head
D	<ul style="list-style-type: none"> ≤ 1.5 m bicycle lane with no buffer 	<ul style="list-style-type: none"> ≤ 1.5 m bicycle lane and no buffer Bicycle treatment
E	<ul style="list-style-type: none"> Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 m in constrained area) 	<ul style="list-style-type: none"> Shared facilities (e.g. signed routes, sharrows or paved shoulder with minimum 1.2 m in constrained area) No clearly delineated bicycle treatment
F	<ul style="list-style-type: none"> No bicycle provision 	<ul style="list-style-type: none"> No bicycle provision

Table 15: Bicycle Level of Service in the Study Area

Location	Level of Service	
	Intersection	Segment (east of intersection)
University Avenue & Huron Church Road	D	D
University Avenue & Sunset Avenue	D	D
University Avenue & California Avenue	D	D
University Avenue & Campbell Avenue	D	D
University Avenue & McKay Avenue	D	D
University Avenue & Crawford Avenue	D	D
University Avenue & Bruce Avenue	F	F
University Avenue & Church Street	F	F
University Avenue & Victoria Avenue	F	F
Victoria Avenue & Park Street West	F	F
University Avenue & Pelissier Street	F	F
University Avenue & Ouellette Avenue	F	F
University Avenue & Goyeau Street	F	F
University Avenue & McDougall Street	F	F

As seen in **Table 15**, all locations present LOS lower than the target of C due to the reduced width or the absence of bicycle provisions, resulting in LOS of D or F. In order to improve LOS to C, consideration may be given to extending the bicycle lanes to the east section of the study area, if feasible, as well as increasing the width of the bicycle lanes to 1.8 m for the west section. At intersections, treatments such as bike boxes or bicycle signals can be considered.

3.6 Existing Transit Operations

Based on Windsor Transit information, bus Route 1C – Transway is the only east-west transit line serving the University Avenue Corridor. The following north-south transit lines cross University Avenue within the study area:

- + Route 5 Dominion: Campbell Avenue;
- + Route 3 Central: Crawford Avenue;
- + Route 6 Dougall: Bruce Avenue and Janette Avenue; and
- + Routes 4 Ottawa, 1A Transway and Tunnel (Windsor-Detroit route): Ouellette Avenue.

All these routes converge at the bus terminal located at Church Street & Chatham Street West. The bus routes near the study area are illustrated in **Figure 5**. There are no bus routes along Victoria Avenue.

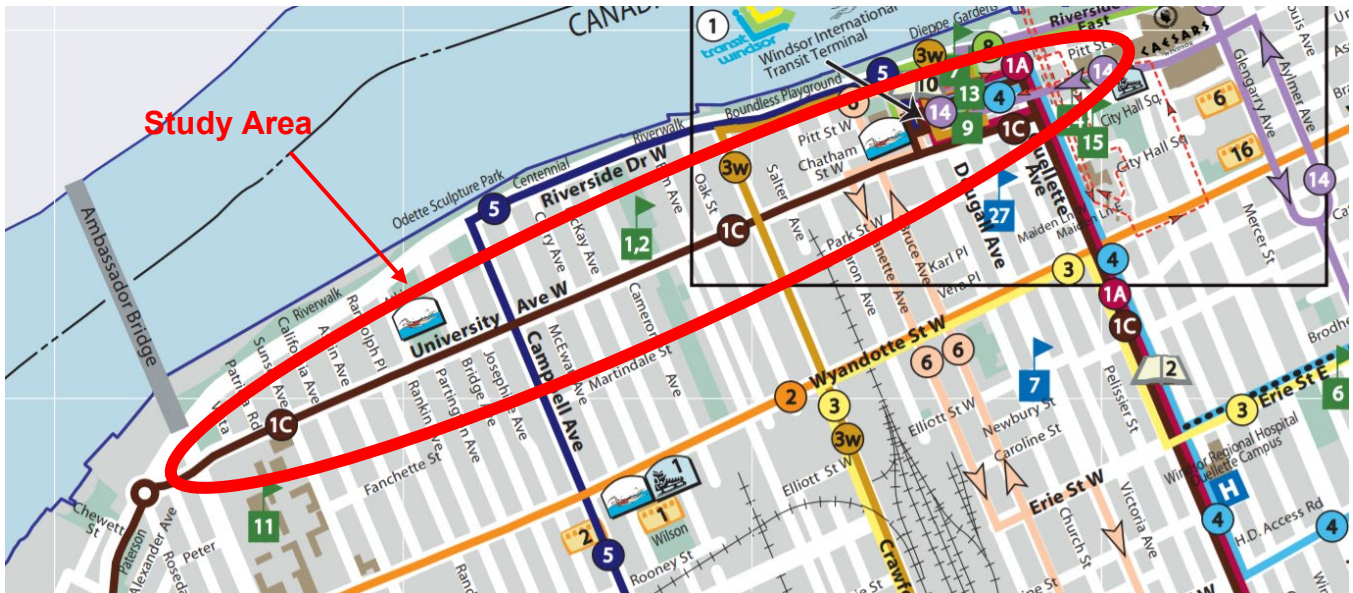


Figure 5: Downtown Windsor Transit Routes

Route 1C – Transway operates east-west along University Avenue, approximately every 15 minutes on weekdays and weekends from 5:30 AM until 1 AM. The locations of existing bus stops along University Avenue within the study area are illustrated in **Figure 6**. The distance between bus stops ranges between 200 and 270 metres for most stops, with the exception of the first two stops in the westbound direction, which are spaced by approximately 345 metres.

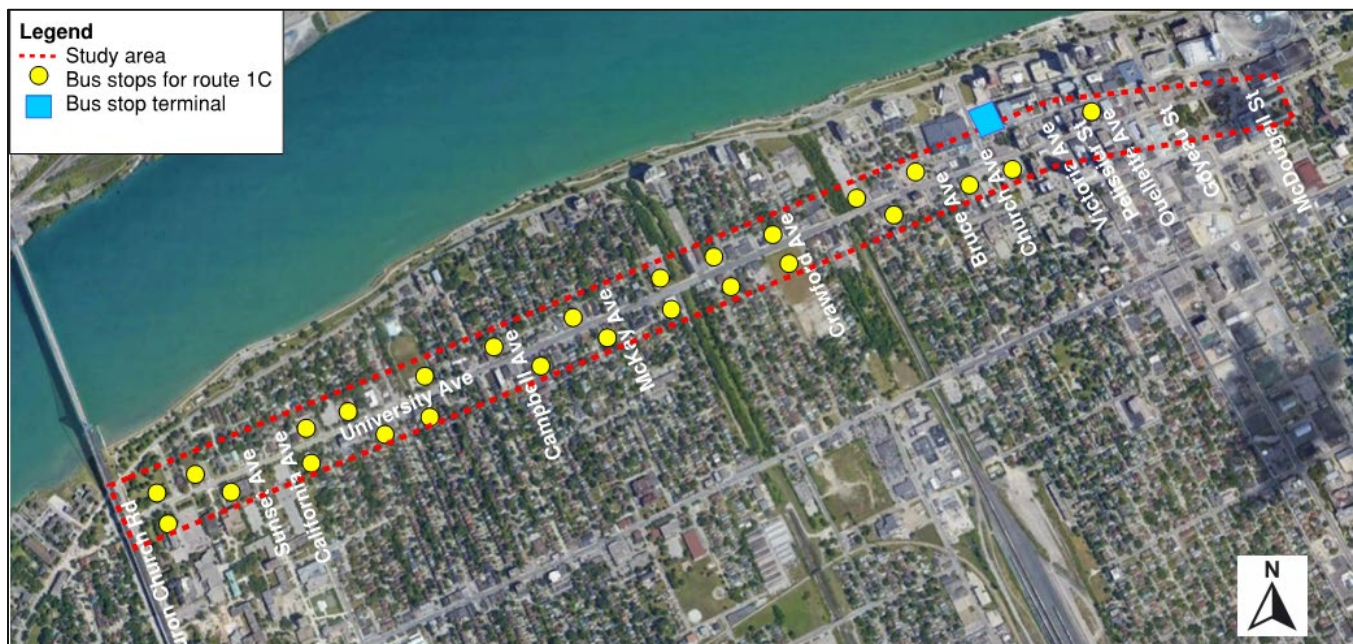


Figure 6: Existing Route 1C Bus Stops in the Study Area

The transit performance along the corridor was evaluated using the LOS criteria from York Region’s Transportation Mobility Plan Guidelines in **Table 16**. A target LOS of C or better was assumed for Access to Transit Stops and Transit Headways, and a LOS of D or better for Intersection Approach (typical for general traffic operations).

Table 16: Transit Level of Service Criteria

Level of Service	Access to Transit Stops	Transit Headways	Intersection Approach (transit or curb lanes)	
			Delay (seconds/veh)	v/c ratio
A	90% within ≤ 200 m	≤ 5 minutes	≤ 10	0 to 0.60
B	90% within ≤ 500 m and 70% within ≤ 200 m	> 5-10 minutes	> 10-20	0.61 to 0.70
C	90% within ≤ 500 m and 50% within ≤ 200 m	> 10-15 minutes	> 20-35	0.71 to 0.80
D	100% within ≤ 600 m	> 15-20 minutes	> 35-55	0.81 to 0.90
E	100% within ≤ 800 m	> 20-30 minutes	> 55-80	0.91 to 1.00
F	100% > 800 m	> 30 minutes	> 80	> 1.00

The transit level of service was evaluated considering the access points to University Avenue from the surrounding neighbourhoods (i.e. intersections with cross streets). Since the minimum radio used by the LOS criteria is 200m, the only intersections evaluated are those with bus stops for Route 1C as this is the main transit line along University Avenue.

Table 17: Transit Level of Service within the Study Area

Location	Direction	Access to Transit Stops	Transit Headways	Intersections Approach (transit or curb lanes)
		LOS	LOS	LOS
University Avenue & Huron Church Road	Eastbound	A	C	B (B)
	Westbound	A		B (C)
University Avenue & Sunset Avenue	Eastbound	A		A (A)
	Westbound	A		A (A)
University Avenue & California Avenue	Eastbound	A		B (A)
	Westbound	A		B (A)
University Avenue & Campbell Avenue	Eastbound	A		B (B)
	Westbound	A		B (A)
University Avenue & McKay Avenue	Eastbound	A		A (A)
	Westbound	A		A (A)
University Avenue & Crawford Avenue	Eastbound	A		B (B)
	Westbound	A		A (A)
	Eastbound	A		B (B)

University Avenue & Bruce Avenue	Westbound	A		B (B)
University Avenue & Church Street	Eastbound	A		B (A)
	Westbound	A		A (A)
University Avenue & Victoria Avenue	Eastbound	A		A (A)
	Westbound	A		A (A)

Legend: AM (PM)

Based on the information provided above, it can be seen that all the locations present an acceptable LOS for the evaluated criteria. Therefore, no further improvements are needed for the transit service within the study area.

4. Future Traffic Conditions

4.1 Development Potential

Development potential for the areas surrounding the corridors under study for the 5, 10 and 20-year horizon was originally established based on information provided by the City's Planning Department regarding approved, proposed and expected institutional, commercial and residential developments as summarized in **Table 18**.

Table 18 Approved, proposed and expected development

Development	Location	Amount of Proposed Development
Canterbury College Residence	Patricia Road between Riverside and University Avenue	30 residential units - 113 residents
Fish Market	156 Chatham	Mixed Use – 11 apartments plus commercial use on ground floor
Former Grace Hospital Site	University Avenue and Crawford Avenue	Future Urgent Care site
Science Research Center	University of Windsor Main Campus	46,000 square feet
Lancer Sports Complex	College Avenue and California Avenue	
Residential/student housing	666-669 Chatham	60 residents
Residential Proposal	Victoria Avenue and Park Avenue	120 Condominiums
Metropolitan Building	156 University Avenue	5 stories converted to residential
University of Windsor	Law School – Paul Martin Building, Corner of Chatham Street and Ouellette Avenue	600 students
	Armouries – Centre for the Arts	
	Windsor Star Building – School of Social Work	
	360 Freedom Way – SoCA	

Development	Location	Amount of Proposed Development
St. Clair College	St. Clair College Centre for the Arts	
	MediaPlex on University Avenue and Victoria Avenue	
	TD Student Success Centre – University Avenue	
	One Riverside Drive – Business School	1,000 students

In addition to the information presented in **Table 18**, the following assumptions were discussed and approved for consideration as part of the EA process by the City's Planning Department:

- **Former Grace Hospital** – Although the Windsor Regional Hospital considered the construction of a new, 4-storey, 80,224 square foot satellite building at this location, an approved timeline for this project is not available at the time of this study;
- **Lancer Sports Complex** – Construction of a new sport and recreation centre in the current St. Denis Athletic & Community Centre was approved by the University of Windsor Board of Governors on May 2018. The site is expected to host a gymnasium with capacity for 2,500 spectators as well as a new pool and fitness area. Due to its location, almost 2 kilometres south of University Avenue, it is assumed that the proposed development will have no direct effects on the areas under study.
- **University of Windsor, School of Creative Arts** – It is assumed that the 500 students, faculty and staff that will use the new Armouries and Freedom Way building will be relocated from existing facilities;
- **St. Clair College, Downtown Expansion** – It is assumed that existing activities along University Avenue and Victoria Avenue already includes the effect of the St. Clair College Centre for the Arts, the MediaPlex and the TD Student Success Centre.
- **St. Clair College, Business School** - With respect of potential effects generated by the Business School at One Riverside Drive, the location of the access to the parking lot at Ferry Street suggested that those will be mostly located along Ouellette Avenue, Riverside Drive and Pitt Street West rather than University Avenue.
- **Ambassador Bridge** - Although Planning Department also suggested to consider the potential effects of the Gordie Howe International Bridge and the proposed Ambassador Bridge new span on activities along the University Corridor, there is not enough publicly available information to confirm the potential modifications (in timeline and extent) on traffic at the intersection of Huron Church Road and University Avenue generated by the demolition of the existing bridge and the construction of the new span.
- **Gordie Howe International Bridge** - With respect of the Gordie Howe International Bridge, the results of an Impact Assessment of the Windsor-Essex Parkway Project completed by the University of Windsor's Cross-Border Transportation Centre suggested that the diversion of traffic to the Gordie Howe International Bridge generated by the construction of the Windsor-Essex Parkway will improve traffic conditions along Huron Church Road but no differences on congested travel time are expected along University Avenue.

During the development of the future conditions' scenarios, the City's Planning Department requires the following changes and/or modifications to the projected amount and type of development:

- Removal of the Law School proposed development;
- Removal of the residential component of the Fish Market;
- Addition of a residential development at the corner of Wyandotte and Crawford; and
- Addition of residential units at 531 Pelissier Street.

Although the historical AADTs presented in Section 3 of this report suggested a decrease along most portions of the corridors under study, with a minimal increase (less than 1% annually) on some portions of University Avenue corridor, the City's Planning Department requested to consider a potential increase on traffic along the corridors under study that may results from the future implementation of the Downtown Windsor Enhancement Strategy and Community Improvement Plan.

As a result, the projected traffic volumes for future conditions considered an average annualized traffic growth of 1% along both corridors under study in addition to the traffic to be generated by the proposed and expected institutional, commercial and residential development adjacent and within the study area.

Those new generated and attracted trips were estimated based on the aforementioned information and following ITE's Trip Generation Manual, 10th Edition. Future expected trips generated by the proposed development are summarized in **Table 19** and the total projected traffic along both corridors under study are included as part of **Appendix A**.

Table 19: Projected Traffic Growth

Proposed Development	LUC	Name	Trips Generated	
			AM	PM
Canterbury College Residence	225	Off-Campus Student Apartment (Adjacent to Campus)	20	34
531 Pelissier Apartments (low/mid rise)	231	Mid-Rise Residential with 1st floor Commercial	11	10
Science Research Centre	760	Research and Development Centre	26	24
666-669 Chatham West student housing	225	Off-Campus Student Apartment (over 1/2 Mile from Campus)	13	20
Residential Building, 16 Stories	222	Multifamily Housing (High Rise)	42*	49*
Residential Building at	220	Residential	25**	31**

Proposed Development	LUC	Name	Trips Generated	
			AM	PM
Crawford and Wyandotte				
Business School Campus Building	550	University/College (Per Student)	130*	140*

LUC – Land use code

*Not or only partially allocated to University Avenue corridor

**Trips obtained from TIS shared by the City

4.2 Future Intersection Operations – Do Nothing

Similarly to the traffic operations analysis of existing conditions, intersection capacity analysis was undertaken following the procedures described in the Highway Capacity Manual (HCM) and the projected future volumes. Cross-sections remain unchanged. The analysis primarily focuses on performance measures such as level-of-service (LOS), volume to capacity (v/c) ratio, and 95th percentile queues.

Future intersection operations – Do Nothing were reviewed using Synchro software. Results presented in **Table 20** represent the 20-year horizon forecasts (2038). Detailed Synchro reports can be found in **Appendix B**

Table 20: 2038 Intersection Operations - Do Nothing

Intersection	Control	Peak Hour	LOS	Average Delay (s/veh)	Movement with Highest v/c ratio	95 th percentile Queues > Storage Length
University Avenue & Huron Church Road	Traffic Signal	AM	B	13.7 s	0.36 (EB L/T)	None
		PM	B	16.5 s	0.45 (WB L)	58 m > 45 m (WB L)
University Avenue & Sunset Avenue	IPS	AM	A	2.5 s	0.16 (NB L/T/R)	None
		PM	A	3.0 s	0.25 (NB L/T/R)	None
University Avenue & California Avenue	Traffic Signal	AM	B	15.4 s	0.59 (WB L/T/R)	None
		PM	B	16.8 s	0.73 (WB L/T/R)	None
University Avenue & Campbell Avenue	Traffic Signal	AM	B	14.4 s	0.35 (EB T/R)	None
		PM	B	14.0 s	0.67 (WB L)	None
University Avenue & McKay Avenue	IPS	AM	A	0.4 s	0.15 (EB T/R)	None
		PM	A	0.8 s	0.18 (WB T/R)	None

Intersection	Control	Peak Hour	LOS	Average Delay (s/veh)	Movement with Highest v/c ratio	95 th percentile Queues > Storage Length
University Avenue & Crawford Avenue	Traffic Signal	AM	B	14.2 s	0.57 (NB L/T/R)	None
		PM	B	12.4 s	0.43 (NB L/T/R)	None
University Avenue & Bruce Avenue	Traffic Signal	AM	B	13.4 s	0.55 (EB T)	None
		PM	B	15.9 s	0.65 (WB T/R)	None
University Avenue & Church Street	Traffic Signal	AM	B	13.0 s	0.65 (EB L/T/R)	None
		PM	B	12.9 s	0.54 (EB L/T/R)	None
University Avenue & Victoria Avenue	Traffic Signal	AM	A	8.9 s	0.55 (SB L/T/R)	None
		PM	B	10.6 s	0.60 (SB L/T/R)	None
University Avenue & Pelissier Street	Traffic Signal	AM	B	13.3 s	0.45 (EB L/T)	None
		PM	B	11.9 s	0.45 (WB T/R)	None
University Avenue & Ouellette Avenue	Traffic Signal	AM	B	15.8 s	0.43 (WB L/T/R)	None
		PM	B	15.9 s	0.65 (WB L/T/R)	None
University Avenue & Goyeau Street	Traffic Signal	AM	B	13.4 s	0.54 (EB L/T/R)	None
		PM	B	16.6 s	0.64 (EB L/T/R)	None
University Avenue & McDougall Street	Traffic Signal	AM	B	17.0 s	0.40 (NB L)	None
		PM	B	17.6 s	0.49 (EB T/R)	None
Victoria Avenue & Park Street West	Traffic Signal	AM	B	15.1 s	0.58 (WB L/T)	None
		PM	C	25.4 s	0.92 (WB L/T)	124 m > 70 m (WB L/T)

No major changes were observed in the 2038 intersection operations – Do Nothing from the existing conditions operations. Levels of service remained unchanged except for the intersection of Victoria Avenue and Park Street West, where the LOS changed from B to C. The average delay presented some changes ranging between 0.1 to 1.3 seconds at some intersections, but with an increase of 7 seconds at the intersection of Victoria Avenue and Park Street West.

The 95th percentile queue lengths also remained the same for all intersections with the exception of the westbound left-turn movements at the intersections of University Avenue and Huron Church Road and Victoria Avenue and Park Street West, which increased from 50 to 58 metres and 92 to 124 metres, respectively.

4.3 Future Mid-Block Operations (Volume/Capacity Analysis) – Do Nothing

In a similar way than for existing conditions, the projected traffic volumes along the corridors under study for the 20-year scenario were used to estimate the volume over capacity for the different segments of the corridors. The results of the analysis are presented in Table 21 and Table 22 for University Avenue and Victoria Avenue corridors respectively.

Table 21 Estimated V/C for 20-year Horizon – University Avenue

Study Context Zones	Existing Link Volume (2-way)	Number of Lanes	Existing V/C Ratio
Huron Church Road to California Avenue	744	2	0.41
California Avenue to Salter Avenue	1036	4	0.29
Salter Avenue to Victoria Avenue	936	2	0.52
Victoria Avenue to Freedom Way	724	2	0.40
Freedom Way to McDougall Street	679	2	0.38

Table 22 Estimated V/C for 20-year Horizon – Victoria Avenue

Study Context Zones	Existing Link Volume	Number of Lanes	Existing V/C Ratio
Chatham Street to University Avenue	270	2	0.15
University Avenue to Park Street	286	3	0.11

Based on the results of the operational and capacity analysis for the 20-year scenario it is possible to assume that both corridors under study will work under adequate Level of Service under the projected traffic volumes without modifications to the existing roadway configuration and the potential exists to relocate some of the excess capacity to other roadway elements along both corridors under study. The results of an operational and capacity analysis of this potential scenario is presented in the following section of this document.

4.4 Future Intersection Operations – Single Lane

Following once again the procedures described in the Highway Capacity Manual (HCM) and using projected future volumes, the cross-sections were changed to analyze future intersection operations. The cross-sections within the study area were changed to a single-lane along University Avenue and Victoria Avenue. Some exclusive left-turn lanes were redesigned as left/through/right shared movements. The cross-sections at the intersections of Huron Church Road and McDougall Street remain unchanged as these are the limits of the study area. **Table 23** shows the proposed lane configuration along the study area. Note that north-south cross-sections along University Avenue also remain unchanged.

Table 23: Proposed Lane Configuration

Intersection	Lane Configuration	
	EB	WB
University Avenue & Huron Church Road		
University Avenue & Sunset Avenue		
University Avenue & California Avenue		
University Avenue & Campbell Avenue		
University Avenue & McKay Avenue		
University Avenue & Crawford Avenue		
University Avenue & Bruce Avenue		
University Avenue & Church Street		

Intersection	Lane Configuration	
	EB	WB
University Avenue & Victoria Avenue		
University Avenue & Pelissier Street		
University Avenue & Ouellette Avenue		
University Avenue & Goyeau Street		
University Avenue & McDougall Street		
Intersection	SB (one-way)	
Victoria Avenue & Park Street West		

Future intersection operations – Single Lane were reviewed using Synchro software. Results presented in **Table 24** represent the 20-year horizon forecasts (2038). Detailed Synchro reports for all future years can be found in **Appendix B**. It is important to note that splits were optimized at some intersections within the study area in order to provide additional green time for movements with reduced capacity.

Table 24:2038 Intersection Operations – Single Lane

Intersection	Control	Peak Hour	LOS	Average Delay (s/veh)	Movement with Highest v/c ratio	95 th percentile Queues > Storage Length
University Avenue & Huron Church Road	Traffic Signal	AM	B	13.7 s	0.36 (EB L/T)	None
		PM	B	16.5 s	0.45 (WB L)	58 m > 45 m (WB L)
University Avenue & Sunset Avenue	IPS	AM	A	2.5 s	0.16 (NB L/T/R)	None
		PM	A	3.0 s	0.25 (NB L/T/R)	None

Intersection	Control	Peak Hour	LOS	Average Delay (s/veh)	Movement with Highest v/c ratio	95 th percentile Queues > Storage Length
University Avenue & California Avenue	Traffic Signal	AM	B	15.4 s	0.59 (WB L/T/R)	None
		PM	B	16.8 s	0.73 (WB L/T/R)	None
University Avenue & Campbell Avenue	Traffic Signal	AM	B	15.1 s	0.56 (EB T/R)	None
		PM	B	14.6 s	0.66 (EB T/R)	None
University Avenue & McKay Avenue	IPS	AM	A	0.5 s	0.06 (SB L/T/R)	None
		PM	A	1.1 s	0.10 (SB L/T/R)	None
University Avenue & Crawford Avenue	Traffic Signal	AM	B	15.8 s	0.63 (EB T/R)	None
		PM	B	15.4 s	0.73 (WB T/R)	95 m > 92 m (WB T/R)
University Avenue & Bruce Avenue	Traffic Signal	AM	B	12.3 s	0.50 (EB T)	None
		PM	B	13.0 s	0.58 (WB T/R)	None
University Avenue & Church Street	Traffic Signal	AM	B	13.0 s	0.65 (EB L/T/R)	None
		PM	B	12.9 s	0.54 (EB L/T/R)	None
University Avenue & Victoria Avenue	Traffic Signal	AM	A	9.3 s	0.55 (SB L/T/R)	None
		PM	B	13.8 s	0.60 (WB L/T)	None
University Avenue & Pelissier Street	Traffic Signal	AM	B	13.3 s	0.45 (EB L/T)	None
		PM	B	13.0 s	0.43 (WB T/R)	None
University Avenue & Ouellette Avenue	Traffic Signal	AM	B	17.0 s	0.58 (EB T/R)	None
		PM	B	16.7 s	0.64 (WB L/T/R)	None
University Avenue & Goyeau Street	Traffic Signal	AM	B	12.8 s	0.54 (EB L/T/R)	None
		PM	B	17.1 s	0.52 (EB L/T/R)	None
University Avenue & McDougall Street	Traffic Signal	AM	B	17.0 s	0.40 (NB L)	None
		PM	B	17.7 s	0.49 (EB T/R)	None

Intersection	Control	Peak Hour	LOS	Average Delay (s/veh)	Movement with Highest v/c ratio	95 th percentile Queues > Storage Length
Victoria Avenue & Park Street West	Traffic Signal	AM	B	16.7 s	0.57 (WB L/T)	None
		PM	C	24.0 s	0.82 (WB L/T)	114 m > 70 m (WB L/T)

No major changes were observed in the Future Intersection Operations – Single Lane from the Future Intersection Conditions – Do Nothing operations. Levels of service remained unchanged, while the average delay had minimal change between 0.1 to 1.6 seconds at some intersections. In addition, the average delay at improved at the intersections of University Avenue and Bruce Avenue and University Avenue and Goyeau Street due to the optimization of splits.

The 95th percentile queue lengths presented some changes at the intersections of University Avenue and Crawford Avenue (WB T/R) and Victoria Avenue and Park Street West (WB L/T). The queues were found to be 95 and 114 metres, respectively.

4.5 Future Mid-Block Operations (Volume/Capacity Analysis) – Single Lane

In a similar way than for future do-nothing conditions, the projected traffic volumes along the corridors under study for the 20-year scenario were used to estimate the volume over capacity for the different segments of the corridors with one vehicular lane per direction. The results of the analysis are presented in **Table 25** and **Table 26** for University Avenue and Victoria Avenue corridors respectively.

Table 25 Estimated V/C for 20-year Horizon – University Avenue

Study Context Zones	Existing Link Volume (2-way)	Number of Lanes	Existing V/C Ratio
Huron Church Road to California Avenue	744	2	0.41
California Avenue to Salter Avenue	1036	2	0.57
Salter Avenue to Victoria Avenue	936	2	0.52
Victoria Avenue to Freedom Way	724	2	0.40
Freedom Way to McDougall Street	679	2	0.38

Table 26 Estimated V/C for 20-year Horizon – Victoria Avenue

Study Context Zones	Existing Link Volume	Number of Lanes	Existing V/C Ratio
Chatham Street to University Avenue	270	2	0.15
University Avenue to Park Street	286	1	0.31

A comparison of the future v/c ratios against the following ranges of traffic conditions indicates that all segments of the University Avenue and Victoria Avenue corridors will operate under capacity and the excess capacity may be allocated to other roadways elements without a detriment of the projected traffic conditions.

- v/c < 0.85: under capacity
- 0.5 ≤ v/c < 1.0: approaching or at capacity
- v/c ≥ 1.0: over capacity

4.6 Future Cycling and Pedestrian Operations

Following the Class EA Process, several alternative cross-sections were subjected to a preliminary evaluation process which resulted in the selection of the preliminary preferred alternatives presented in **Figure 7** to **Figure 9**.

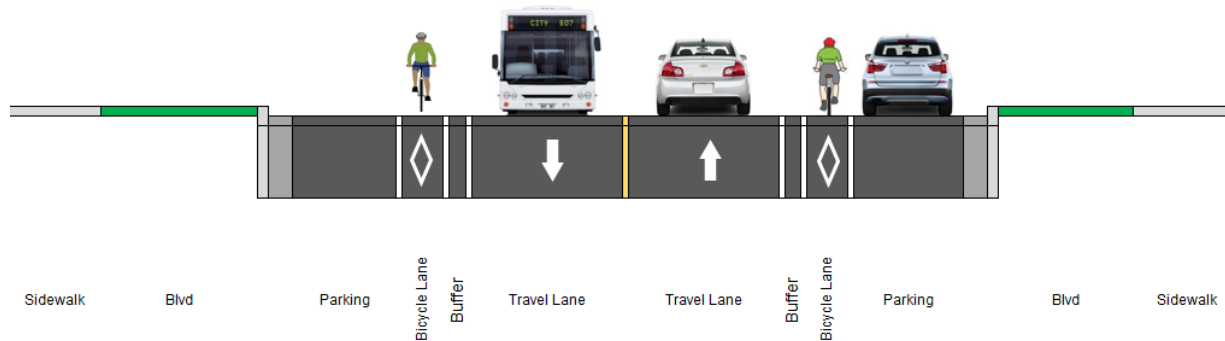


Figure 7 Buffered Bicycle Lanes

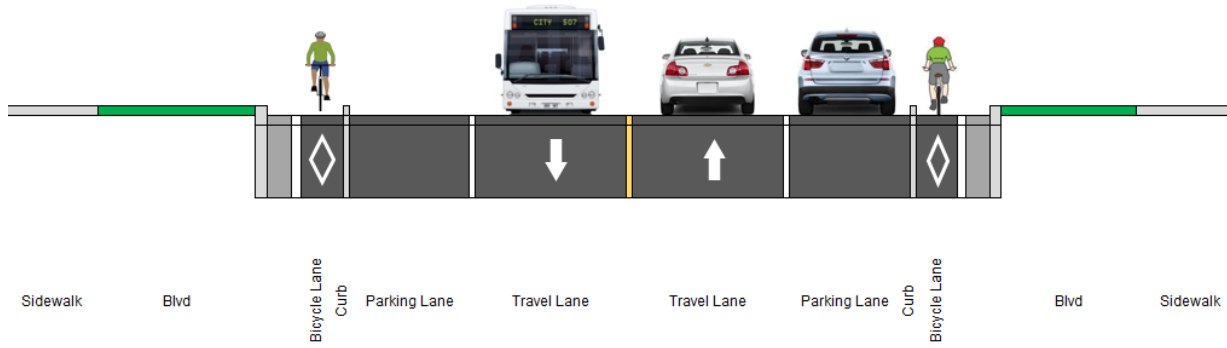


Figure 8 Physically Separated Bicycle Lanes

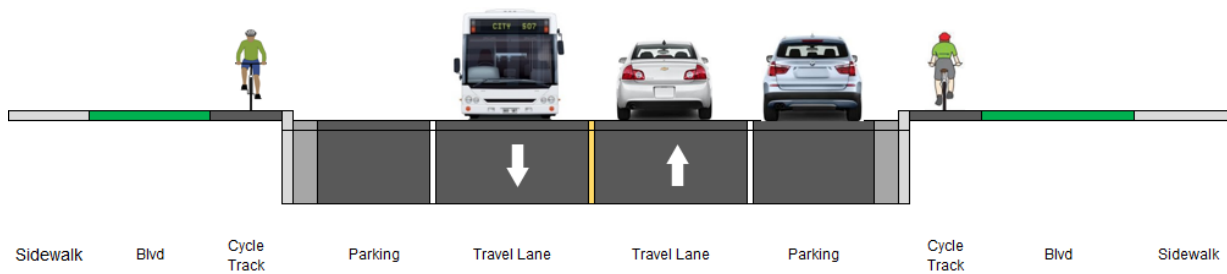


Figure 9 Cycle Track (One-way)

4.6.1 Changes to the Preferred Alternative Cross-Sections

In February 2021, City Staff provided the following comments regarding the location of the proposed cycle track (preferred alternative):

- + The cycle track is preferred to be behind the boulevard in all instances throughout the project and not against the curb area.
- + This provides an area for snow storage during the winter months from both the road and the cycle tracks.
- + Additionally, as mentioned in the report, it poses a hazard to both cyclists and pedestrians exiting and entering vehicles.
- + Relocation of the cycle track is preferred. Hydro relocation is acceptable for a project of this scope and scale.

The requested changes to the cross-sections are presented in the following figures.

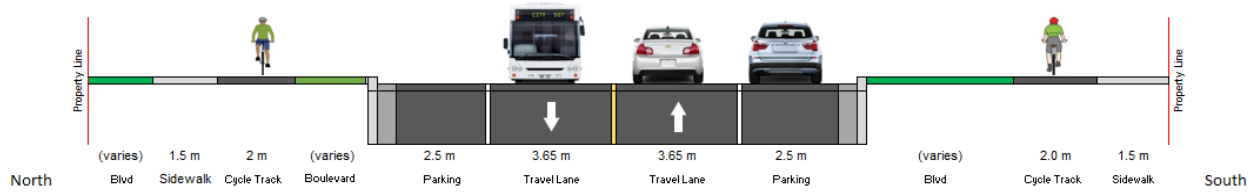


Figure 10 University Avenue – From Huron Church Road to Partington Avenue

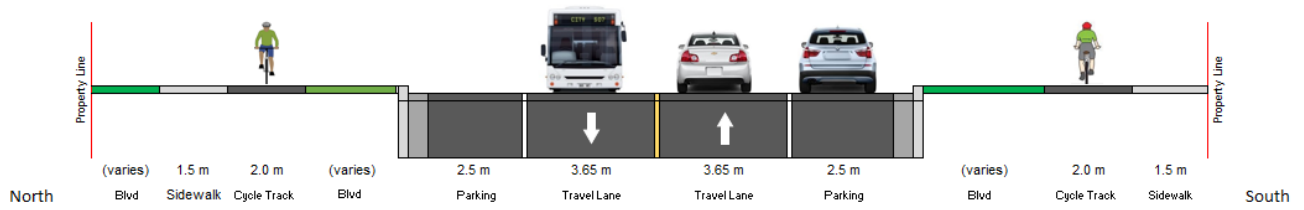


Figure 11 University Avenue – From Partington Avenue to Salter Avenue

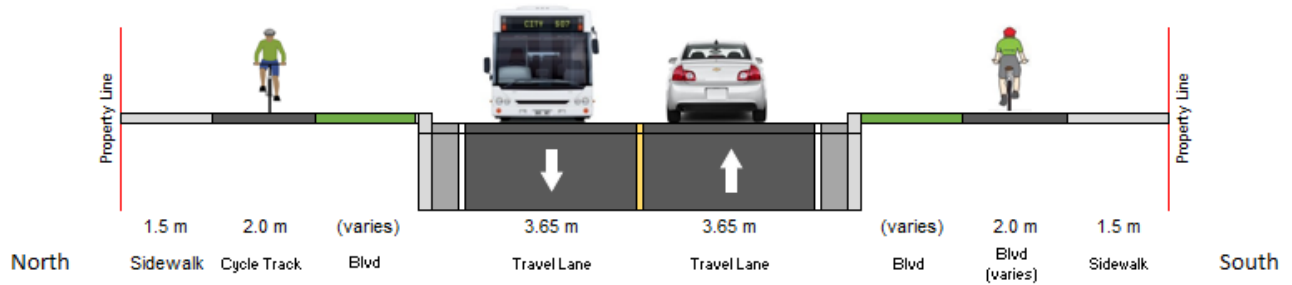


Figure 12 University Avenue – From Salter Avenue to Pelissier Avenue

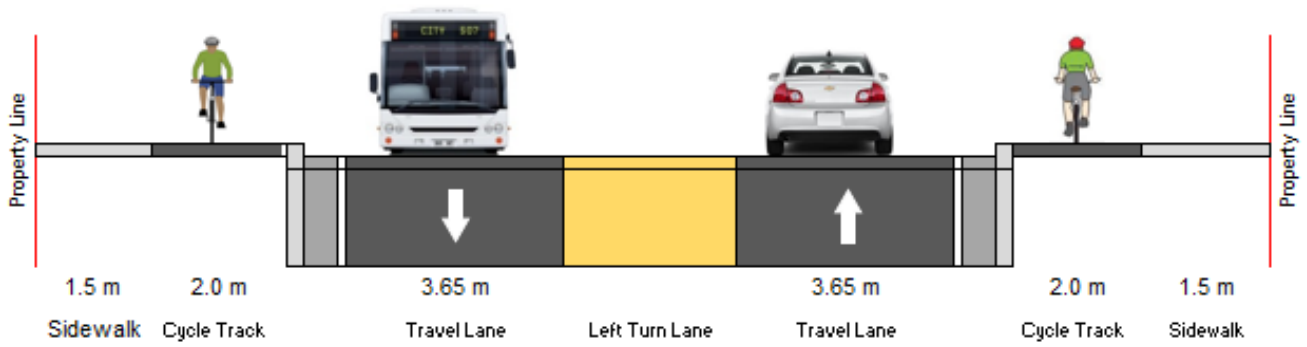


Figure 13 University Avenue – From Pelissier Avenue to Oullette Avenue

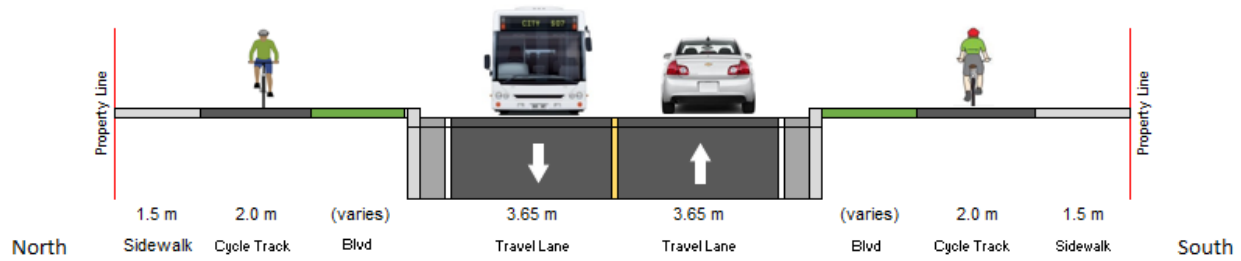


Figure 14 University Avenue – From Oullette Avenue to Freedom Way



Figure 15 University Avenue – From Freedom Way to City Hall Square

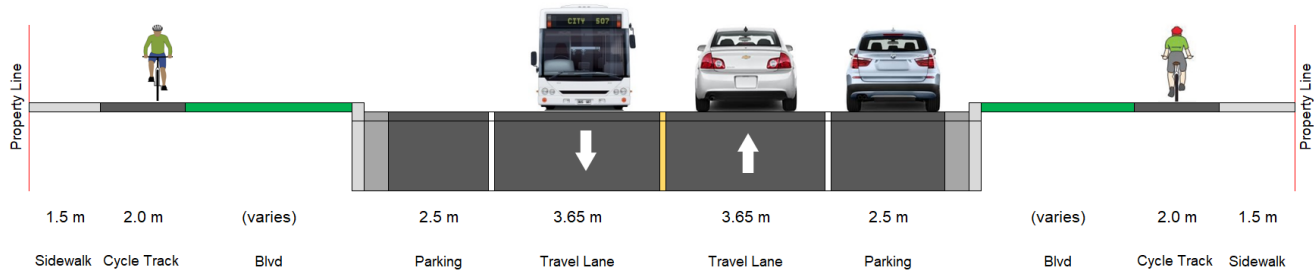


Figure 16 Victoria Avenue – From Chatham Street W to University Avenue W

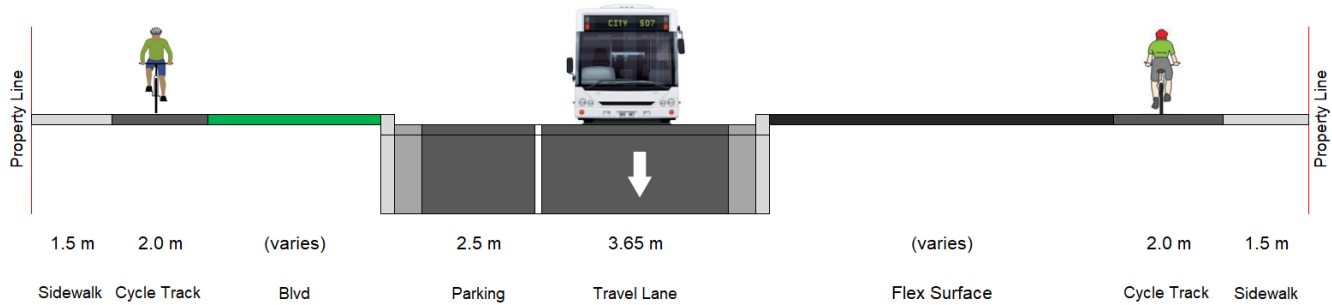


Figure 17 Victoria Avenue – From University Avenue W to Park Street W

Elements of the Preferred Alternative for University Avenue West include:

- + Sidewalks and dedicated cycling facilities are provided along both sides of the road along the full length of the corridor.
- + On street parking provided on both sides of University Avenue between Huron Church Road and Bruce Avenue.
- + Boulevards are provided on both sides of the corridor along most of the corridor which provides an opportunity for plantings, landscaping features and streetscaping.

Elements of the Preferred Alternative for Victoria Avenue include:

- + Sidewalks and dedicated cycling facilities are present on the east and west sides of Victoria Avenue along the full length of the corridor.
- + Permanent on street parking present on both sides of Victoria Avenue between Chatham Avenue and Park Street.
- + Boulevards are provided on both sides of the corridor which provides an opportunity for plantings, landscaping features and streetscaping.

The results of the traffic analysis undertaken to determine the type of traffic control at each of the intersections of University Avenue and Victoria Avenue identified the need for the following improvements:

- + Dedicated left turn lanes at the following intersections with University Avenue West:
 - Campbell Avenue

- Crawford Avenue
- Salter Avenue
- Caron Avenue
- Janette Avenue
- Bruce Avenue
- Ouellette Avenue
- McDougall Avenue
- + The remaining intersections will operate as shared left/through/right lanes.
- + Victoria Avenue will transition from a two-way street to one-way at University Avenue West. The northbound lane ends at this intersection and one through lane continues through the intersection to the south.

Since the available right-of-way varies along the corridors under study the detailed design of the preferred alternative will determine the allocated width of each roadway element based on the design criteria presented in **Table 27**.

Table 27 University Avenue and Victoria Avenue EA Design Criteria

ROADWAY ELEMENT	DESIRED	MINIMUM	NOTES/SOURCE
Vehicular Travel Lanes (Shared with Transit)	3.65 metres	3.2 metres	City standard is 3.65 m when buses/trucks are present. There is flexibility to narrow this in certain contexts. No BRT lanes (Transit Windsor)
Vehicle Parking Lanes	2.4 metres	2.2 metres 2.4 m with bike lanes present	City Standard
Sidewalks – Pedestrian Comfort	Meet or exceed AODA requirements	1.5 m AODA requirements	AODA Standards
Cycling Facilities -Separated Bike Lanes (Cycle-tracks)	OTM Book 18 requirements 2 m per direction	OTM Book 18 requirements 1.5 m per direction	OTM Book 18

Cycling Facilities -Buffered Bike lanes	1.5 m lane with 0.3 m buffer	1.5 m 0.3 m buffer	Location of buffer at the right side of the vehicular travel lane Having wider lanes or buffers encourages use as a travel lane.
Cycling Facilities -Bike lanes no buffer	OTM Book 18 requirements (1.8 m)	1.5 m no parking 1.6 m with parking	OTM Book 18/City Standard
Transit Stops/Bulb out requirements	60ft bulb-outs (per email)	40ft bulb- outs(existing)	Information provided via Transit Windsor

Changes of the pedestrian and bicycle Level of Service expected as a result of the proposed improvements are summarizing in **Table 28** and **Table 29**, respectively.

Table 28: Projected Pedestrian Level of Service in the Study Area

Location	Level of Service	
	Intersection	Segment (east of intersection)
University Avenue & Huron Church Road	B	B
University Avenue & Sunset Avenue	B	B
University Avenue & California Avenue	B	B
University Avenue & Campbell Avenue	B	B
University Avenue & McKay Avenue	B	B
University Avenue & Crawford Avenue	B	B
University Avenue & Bruce Avenue	B	B
University Avenue & Church Street	B	B
University Avenue & Victoria Avenue	A	A
Victoria Avenue & Park Street West	A	A
University Avenue & Pelissier Street	B	B
University Avenue & Ouellette Avenue	B	B
University Avenue & Goyeau Street	B	B
University Avenue & McDougall Street	B	B

Table 29: Projected Bicycle Level of Service in the Study Area

Location	Level of Service	
	Intersection	Segment (east of intersection)
University Avenue & Huron Church Road	A/B ⁷	A/B
University Avenue & Sunset Avenue	A/B	A/B
University Avenue & California Avenue	A/B	A/B
University Avenue & Campbell Avenue	A/B	A/B
University Avenue & McKay Avenue	A/B	A/B
University Avenue & Crawford Avenue	A/B	A/B
University Avenue & Bruce Avenue	A/B	A/B
University Avenue & Church Street	A/B	A/B
University Avenue & Victoria Avenue	A/B	A/B
Victoria Avenue & Park Street West	A/B	A/B
University Avenue & Pelissier Street	A/B	A/B
University Avenue & Ouellette Avenue	A/B	A/B
University Avenue & Goyeau Street	A/B	A/B
University Avenue & McDougall Street	A/B	A/B

Aside of bike boxes and other pavement marking treatments, the detailed design of the preferred alternative will consider the following intersection treatments:

- **Huron Church Road at University Avenue** – connection with existing multiuse path along the east portion of Huron Church Road.
- **Janette Avenue at University Avenue** – connection with existing bicycle lane (southbound) along Janette Ave. We are assuming that a cross-ride may be adequate for this location.
- **Bruce Avenue at University Avenue** – connection with existing bicycle lane (northbound) along Bruce Avenue. We are assuming that a protected intersection may be suitable for this location since is a direct connection between University Avenue and Riverside Drive.
- **Victoria Avenue at University Avenue** – There are no cycling facilities along Victoria Avenue at the present time. Our options of Victoria Avenue includes bike lanes on both sides of the road between Chatham and Park Street. We are assuming again that a protect intersection could be integrated to the flex-street proposed for Victoria Avenue.

4.7 Future Transit Operations

Evaluation of the existing transit operations along University Avenue and Victoria Avenue corridors indicated that all evaluated locations were under acceptable LOS and no further improvements were required. However, due to the proposed modifications of the roadway elements servicing the corridors under study, Transit Windsor requested that the following items should be considered (or discarded) during the design of the preferred alternative:

⁷ Depending of type of cycling facility (A) physically separated and cycle track (B) buffered bicycle lanes

- No need for consideration of exclusive transit lanes or bus rapid transit facilities on University.
- Transit Windsor would continue to operate their buses in mixed traffic and would want to do so without bus bays and with, if necessary, appropriate transit priority measures that would be suitable to the particular intersection in question⁸.
- Consideration for bulb-outs to eliminate bus bays and enhance space for waiting transit customers, and to take advantage of transit priority/ITS opportunities⁹. Consider bulb outs be built to a 60ft length for passengers rather than 40ft so that we can accommodate future use of articulated buses (see Figure
- Consideration for maintaining the current bus stops location with the exception of the one on the north side at Randolph¹⁰.
- Identify the interaction between the proposed cycling infrastructure and the bus stop operations.

With respect of the interactions between transit operations and the proposed cycling facilities the detailed design of the preferred alternative will consider the location and layout of the bus stops along the corridors under study. Although Transit Windsor is suggesting the bus stop layout shown in **Figure 18**, it will need to be subjected to some modifications depending of the type of cycling facility and the available right-of-way at each location.



Figure 18 Transit Windsor – Preferred Bus Stop Layout

Figure 19 and **Figure 20** provide an example of the design elements of near-side and far-side boarding island stop with dedicated cycling facilities at sidewalk level as recommended by the National Association of City Transportation Officials (NATCO).

⁸ Transit Comment: So basically bulb outs replacing the parking at those locations

⁹ Transit Windsor comment: We would prefer traffic signal priority where our ITS system would work with the city's and know where the bus stops are (farside or nearside) and hold the light or make it green if possible based on when the bus is approaching the intersection.

¹⁰ Transit Windsor comment: It's currently in that center island with the shelter. When this project happens we would like to have that moved to the nearside of the intersection and the parking removed there.



Figure 19 Near-Side Stop with Bike Channel at Sidewalk Level (Source: NATCO)¹¹

1. The boarding platform must at minimum span from the front door to the rear door, and may be extended to meet capacity demands (i.e. 60 ft as per Transit Windsor comments);
2. The cycling facility behind the floating boarding island can be at street grade or may be raised; and
3. Mark pedestrian crossings through bike lane.



Figure 20 Far-Side Stop with Bike Channel at Sidewalk Level (Source: NATCO)¹²

1. If high turn volumes are present, include a rear storage area so cars are less likely to queue into the intersection while the bus dwells;

¹¹ <https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-configurations/side-boarding-island-stop/>

¹² <https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-configurations/side-boarding-island-stop/>

2. Accessible ramps should be paired with crosswalks to direct users to safe crossings; and
3. At high passenger volumes, channelize pedestrian movements on and off the platform to reduce conflicts.

It should be noted that accommodation of this type of transit related infrastructure will affect the availability of parking space as well as access to residential and commercial driveways along the corridors under study.

4.8 Future On-Street Parking

Determination of the exact number of parking spaces that will be removed to allow the introduction of the roadway elements described in the previous sections of this document will be established as part of the detailed design of the preferred option. However, it is possible to estimate the potential effects of each cycling treatment on parking allocation based on the functional design as presented on **Table 30**.

Table 30 Future On-Street Parking Changes

SEGMENT	SIDE	AVAILABLE SPACES	CYCLING INFRASTRUCTURE		
			PROTECTED BIKE LANES	BUFFERED BIKE LANES	CYCLE TRACKS
University Avenue West					
Huron Church to Vista	N	No Parking	No changes	No changes	No changes
	S	No Parking	No changes	No changes	No changes
Vista to Sunset	N	12	Parking reduction (bus stop)	Parking reduction (bus stop)	Parking reduction (bus stop)
	S	18	Parking reduction (bus stop)	Parking reduction (bus stop and hydro poles)	Parking reduction (bus stop)
Sunset to California	N	4	No changes	No changes	No changes
	S	8	No changes	Parking reduction (hydro poles)	No changes
California to Campbell	N	37	Parking reduction (bus stop)	Parking reduction (bus stop)	Parking reduction (bus stop)
	S	46	Parking reduction (bus stop)	Parking reduction (bus stop and hydro poles)	Parking reduction (bus stop)
Campbell to McKay	N	21	Parking reduction (bus stop)	Parking reduction (bus stop)	Parking reduction (bus stop)

SEGMENT	SIDE	AVAILABLE SPACES	CYCLING INFRASTRUCTURE		
			PROTECTED BIKE LANES	BUFFERED BIKE LANES	CYCLE TRACKS
	S	11	Parking reduction (bus stop)	Parking reduction (bus stop)	Parking reduction (bus stop)
McKay to Crawford	N	35	Parking reduction (bus stop)	Parking reduction (bus stop)	Parking reduction (bus stop)
	S	24	Parking reduction (bus stop)	Parking reduction (bus stop)	Parking reduction (bus stop)
Crawford to Bruce	N	14	Parking reduction (bus stop)	Parking reduction (bus stop)	Parking reduction (bus stop)
	S	25	Parking reduction (bus stop)	Parking reduction (bus stop)	Parking reduction (bus stop)
Bruce to Church	N	11	No Parking	No Parking	No Parking
	S	11	No Parking	No Parking	No Parking
Church to Victoria	N	13	No Parking	No Parking	No Parking
	S	11	No Parking	No Parking	No Parking
Victoria to Pelissier	N	6	No Parking	No Parking	No Parking
	S	4	No Parking	No Parking	No Parking
Pelissier to Ouellette	N	4	No Parking	No Parking	No Parking
	S	No Parking	No changes	No changes	No changes
Ouellette to Goyeau	N	3	No Parking	No Parking	No Parking
	S	No Parking	No changes	No changes	No changes
Goyeau to McDougall	N	7	No Parking	No Parking	No Parking
	S	No Parking	No changes	No changes	No changes
Victoria Avenue					
Chatham to University	E	6	Parking Reduction (Parallel Parking)	Parking Reduction (Parallel Parking)	Parking Reduction (Parallel Parking)

SEGMENT	SIDE	AVAILABLE SPACES	CYCLING INFRASTRUCTURE		
			PROTECTED BIKE LANES	BUFFERED BIKE LANES	CYCLE TRACKS
	W	14	Parking Reduction (Parallel Parking)	Parking Reduction (Parallel Parking)	Parking Reduction (Parallel Parking)
University to Park	E	12	No Parking	No Parking	No Parking
	W	24	Parking Reduction (Parallel Parking)	Parking Reduction (Parallel Parking)	Parking Reduction (Parallel Parking)

5. Conclusions

Based on the findings from the traffic operations review, the following can be concluded:

5.1 Existing Conditions

- + Daily volumes along University Avenue West within the study area range between 7,700 and 8,800;
- + All intersections in the study area operate with Level of Service A or B in both Weekday AM and Weekday PM peak hours during existing conditions;
- + On-street parking occupancy ranges between 30% in the morning period and 40-50% in the afternoon and evening/night periods, therefore there is potential to remove some parking spaces if necessary;
- + Pedestrians are well served within the study area, with sidewalks on both sides of the road on both University Avenue West and Victoria Avenue. However, there is opportunity for upgrades to comply with AODA standards (e.g. narrow sidewalks at some points; accessible devices at intersections);
- + Bicycle lanes are provided between Huron Church Road and Bruce Avenue, which are adequate facilities based on existing volumes and speeds, however widening to 1.8 metres would be desirable;
- + No bicycle facilities are provided between Bruce Avenue and McDougall Avenue. Based on existing volumes and speeds, a designated cycling operating space such as bicycle lanes would be desirable; and
- + Transit service can be considered adequate in the study area.

5.2 Future Conditions

- + During 2038 future – do nothing and single-lane scenarios, intersections within the study area operate well with higher v/c ratios than existing conditions;
- + No individual movement exceeds a v/c ratio of 0.58 University Avenue West intersections during existing conditions;
- + On future conditions, the highest v/c ratio for any individual movement at Victoria Avenue & Park Street West is 0.92
- + Splits at some intersections within the study area were optimized for the 2038 Future – Single Lane scenario to provide more green time to movements with reduced capacity along University Avenue;
- + During 2038 future – do nothing and single-lane scenarios, operations at mid-block for both corridors under study are under capacity (v/c ratios less than 0.85)
- + Relocation of excess capacity may support the integration of cycling facilities, improvements to pedestrian and transit facilities along the corridors under study but may affect the availability of parking spaces.

A

Appendix A Traffic Volumes



Ontario Traffic Inc

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 7:45:00
To: 8:45:00

Municipality: Windsor
Site #: 1600600061
Intersection: Huron Church Rd & University Ave
TFR File #: 1
Count date: 21-Nov-16

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Huron Church Rd runs N/S

North Leg Total: 193
North Entering: 134
North Peds: 6
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	3	0	3
Cars	1	119	11	131
Totals	1	122	11	



Heavys	0
Trucks	10
Cars	49
Totals	59

East Leg Total: 523
East Entering: 182
East Peds: 1
Peds Cross: \times

Heavys	0
Trucks	1
Cars	72
Totals	73

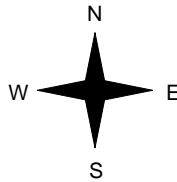


Huron Church Rd

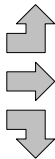
Cars	8	6	0	14
Trucks	57	1	0	58
Heavys	110	0	0	110
Totals	175	7	0	



University Ave W



Heavys	0
Trucks	0
Cars	2
Totals	2
Heavys	0
Trucks	10
Cars	212
Totals	222
Heavys	0
Trucks	1
Cars	74
Totals	75



University Ave W



Peds Cross: \times
West Peds: 6
West Entering: 299
West Leg Total: 372

Cars	303	Cars	14	39	106	159
Trucks	4	Trucks	0	4	2	6
Heavys	0	Heavys	0	0	0	0
Totals	307	Totals	14	43	108	



Huron Church Rd



Peds Cross: \times
South Peds: 47
South Entering: 165
South Leg Total: 472

Comments

Ontario Traffic Inc

Mid-day Peak Diagram

Specified Period

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

One Hour Peak

From: 11:15:00
To: 12:15:00

Municipality: Windsor
Site #: 1600600061
Intersection: Huron Church Rd & University Ave
TFR File #: 1
Count date: 21-Nov-16

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Huron Church Rd runs N/S

North Leg Total: 144
North Entering: 82
North Peds: 7
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	1	0	1
Cars	2	75	4	81
Totals	2	76	4	



Heavys	1
Trucks	6
Cars	55
Totals	62

East Leg Total: 416
East Entering: 220
East Peds: 5
Peds Cross: \times

Heavys	0	Trucks	1	Cars	128	Totals	129
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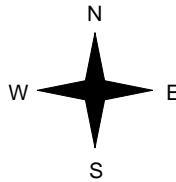


Huron Church Rd

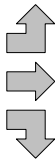
Cars	6	Trucks	5	Heavys	0	Totals	11
Cars	92	Trucks	0	Heavys	0	Totals	92
Cars	114	Trucks	3	Heavys	0	Totals	117
Cars	212	Trucks	8	Heavys	0	Totals	



University Ave W



Heavys	0	Trucks	0	Cars	6	Totals	6
Heavys	0	Trucks	5	Cars	105	Totals	110
Heavys	0	Trucks	0	Cars	40	Totals	40
Heavys	0	Trucks	5	Cars	151	Totals	



University Ave W



Cars	188	Trucks	8	Heavys	0	Totals	196
------	-----	--------	---	--------	---	--------	-----

Peds Cross: \times
West Peds: 1
West Entering: 156
West Leg Total: 285

Cars	229	Cars	34	43	79	156
Trucks	4	Trucks	1	1	3	5
Heavys	0	Heavys	0	1	0	1
Totals	233	Totals	35	45	82	



Huron Church Rd

Peds Cross: \times
South Peds: 46
South Entering: 162
South Leg Total: 395

Comments

Ontario 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: Windsor
Site #: 1600600061
Intersection: Huron Church Rd & University Ave
TFR File #: 1
Count date: 21-Nov-16

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Huron Church Rd runs N/S

North Leg Total: 226
North Entering: 137
North Peds: 11
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	5	124	8	137
Totals	5	124	8	



Heavys	0
Trucks	6
Cars	83
Totals	89

East Leg Total: 538
East Entering: 307
East Peds: 6
Peds Cross: \times

Heavys	0
Trucks	0
Cars	178
Totals	178

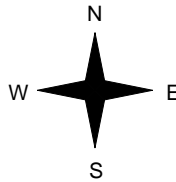


Huron Church Rd

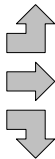
Cars	14	6	0	20
Trucks	127	0	0	127
Heavys	158	2	0	160
Totals	299	8	0	



University Ave W



Heavys	0
Trucks	0
Cars	5
Totals	5
Heavys	0
Trucks	4
Cars	123
Totals	127
Heavys	0
Trucks	0
Cars	51
Totals	51
Heavys	0
Trucks	4
Cars	179
Totals	179



University Ave W



Huron Church Rd



Cars	227	4	0	231
Trucks				
Heavys				
Totals				

Peds Cross: \times
West Peds: 9
West Entering: 183
West Leg Total: 361

Cars	333	46	64	96	206
Trucks	2	0	0	0	0
Heavys	0	0	0	0	0
Totals	335	46	64	96	



Peds Cross: \times
South Peds: 54
South Entering: 206
South Leg Total: 541

Comments

Ontario Traffic Inc

Total Count Diagram

Municipality: Windsor
Site #: 1600600061
Intersection: Huron Church Rd & University Ave
TFR File #: 1
Count date: 21-Nov-16

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Huron Church Rd runs N/S

North Leg Total: 1516
 North Entering: 934
 North Peds: 70
 Peds Cross: \times

Heavys	0	0	1	1
Trucks	1	11	1	13
Cars	38	813	69	920
Totals	39	824	71	



Heavys	3
Trucks	58
Cars	521
Totals	582

East Leg Total: 3847
 East Entering: 1896
 East Peds: 43
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
0	11	968	979

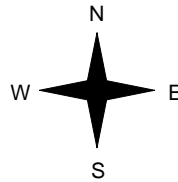


Huron Church Rd

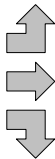
Cars	Trucks	Heavys	Totals
92	47	1	140
699	6	0	705
1031	16	4	1051
1822	69	5	



University Ave W



Heavys	Trucks	Cars	Totals
0	1	48	49
0	54	1094	1148
1	5	412	418
1	60	1554	



University Ave W



Peds Cross: \times
 West Peds: 44
 West Entering: 1615
 West Leg Total: 2594

Cars	2256	Cars	231	381	719	1331
Trucks	32	Trucks	4	10	13	27
Heavys	5	Heavys	0	2	0	2
Totals	2293	Totals	235	393	732	



Huron Church Rd



Peds Cross: \times
 South Peds: 358
 South Entering: 1360
 South Leg Total: 3653

Comments

Ontario Traffic Inc

Traffic Count Summary

Intersection: Huron Church Rd & University Ave Count Date: 21-Nov-16 Municipality: Windsor

North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	4	73	4	81	2	141	8:00:00	8	18	34	60	16
9:00:00	10	105	3	118	5	284	9:00:00	16	41	109	166	41
10:00:00	12	86	8	106	2	223	10:00:00	20	27	70	117	40
11:00:00	0	1	0	1	0	3	11:00:00	2	0	0	2	0
12:00:00	5	71	6	82	7	230	12:00:00	29	40	79	148	47
13:00:00	7	103	2	112	6	268	13:00:00	27	45	84	156	51
14:00:00	15	68	7	90	13	254	14:00:00	23	56	85	164	32
15:00:00	0	2	0	2	0	3	15:00:00	0	1	0	1	0
16:00:00	7	93	1	101	9	265	16:00:00	31	54	79	164	40
17:00:00	2	99	3	104	17	263	17:00:00	28	55	76	159	42
18:00:00	9	123	5	137	9	360	18:00:00	51	56	116	223	49
Totals:	71	824	39	934	70	2294		235	393	732	1360	358

East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	87	28	6	121	4	261	8:00:00	6	99	35	140	1
9:00:00	110	61	15	186	0	489	9:00:00	1	229	73	303	5
10:00:00	58	31	15	104	2	288	10:00:00	5	138	41	184	8
11:00:00	1	0	0	1	0	1	11:00:00	0	0	0	0	0
12:00:00	114	87	12	213	4	378	12:00:00	8	117	40	165	1
13:00:00	91	74	18	183	10	340	13:00:00	2	106	49	157	1
14:00:00	117	67	9	193	4	352	14:00:00	6	118	35	159	2
15:00:00	0	1	0	1	0	1	15:00:00	0	0	0	0	0
16:00:00	148	105	22	275	6	429	16:00:00	4	104	46	154	6
17:00:00	172	133	25	330	9	503	17:00:00	11	115	47	173	10
18:00:00	153	118	18	289	4	465	18:00:00	6	118	52	176	10
Totals:	1051	705	140	1896	43	3507		49	1144	418	1611	44

Calculated Values for Traffic Crossing Major Street

Hours Ending:	9:00	10:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	386	243	293	256	286	306	375	335

Ontario Traffic Inc

Count Date: 21-Nov-16 Site #: 1600600061

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	5	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	18	13	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	39	21	4	2	1	0	0	0	0	0	1	1	0	0	0	0	0	0
8:00:00	2	2	73	34	4	0	1	0	0	0	0	0	1	0	0	0	0	0	2	2
8:15:00	4	2	103	30	4	0	1	0	1	1	1	0	1	0	0	0	0	0	5	3
8:30:00	9	5	137	34	4	0	1	0	3	2	0	0	1	0	0	0	0	0	6	1
8:45:00	11	2	158	21	5	1	1	0	3	0	0	0	1	0	0	0	0	0	6	0
9:00:00	12	1	175	17	7	2	1	0	3	0	0	0	1	0	0	0	0	0	7	1
9:15:00	14	2	188	13	9	2	1	0	3	0	0	0	1	0	0	0	0	0	7	0
9:30:00	15	1	210	22	11	2	1	0	3	0	0	0	1	0	0	0	0	0	9	2
9:45:00	20	5	234	24	13	2	1	0	3	0	1	1	1	0	0	0	0	0	9	0
10:00:00	24	4	261	27	14	1	1	0	3	0	1	0	1	0	0	0	0	0	9	0
10:00:28	24	0	261	0	14	0	1	0	4	1	1	0	1	0	0	0	0	0	9	0
11:00:00	24	0	261	0	14	0	1	0	4	0	1	0	1	0	0	0	0	0	9	0
11:15:00	27	3	276	15	18	4	1	0	4	0	1	0	1	0	0	0	0	0	11	2
11:30:00	28	1	291	15	18	0	1	0	4	0	1	0	1	0	0	0	0	0	13	2
11:45:00	28	0	313	22	19	1	1	0	4	0	1	0	1	0	0	0	0	0	14	1
12:00:00	29	1	331	18	20	1	1	0	5	1	1	0	1	0	0	0	0	0	16	2
12:15:00	31	2	351	20	20	0	1	0	5	0	1	0	1	0	0	0	0	0	18	2
12:30:00	33	2	377	26	21	1	1	0	6	1	1	0	1	0	0	0	0	0	20	2
12:45:00	34	1	403	26	21	0	1	0	6	0	1	0	1	0	0	0	0	0	20	0
13:00:00	36	2	433	30	22	1	1	0	6	0	1	0	1	0	0	0	0	0	22	2
13:15:00	37	1	448	15	23	1	1	0	6	0	1	0	1	0	0	0	0	0	25	3
13:30:00	37	0	465	17	24	1	1	0	6	0	1	0	1	0	0	0	0	0	29	4
13:45:00	43	6	483	18	27	3	1	0	6	0	1	0	1	0	0	0	0	0	33	4
14:00:00	51	8	501	18	29	2	1	0	6	0	1	0	1	0	0	0	0	0	35	2
14:01:21	51	0	503	2	29	0	1	0	6	0	1	0	1	0	0	0	0	0	35	0
15:00:00	51	0	503	0	29	0	1	0	6	0	1	0	1	0	0	0	0	0	35	0
15:15:00	54	3	526	23	29	0	1	0	8	2	1	0	1	0	0	0	0	0	36	1
15:30:00	56	2	549	23	29	0	1	0	9	1	1	0	1	0	0	0	0	0	40	4
15:45:00	56	0	575	26	29	0	1	0	9	0	1	0	1	0	0	0	0	0	41	1
16:00:00	58	2	592	17	30	1	1	0	10	1	1	0	1	0	0	0	0	0	44	3
16:15:00	59	1	616	24	30	0	1	0	10	0	1	0	1	0	0	0	0	0	52	8
16:30:00	59	0	634	18	31	1	1	0	10	0	1	0	1	0	0	0	0	0	54	2
16:45:00	60	1	660	26	32	1	1	0	11	1	1	0	1	0	0	0	0	0	58	4
17:00:00	60	0	690	30	33	1	1	0	11	0	1	0	1	0	0	0	0	0	61	3
17:15:00	62	2	727	37	34	1	1	0	11	0	1	0	1	0	0	0	0	0	63	2
17:30:00	66	4	751	24	36	2	1	0	11	0	1	0	1	0	0	0	0	0	64	1
17:45:00	68	2	784	33	37	1	1	0	11	0	1	0	1	0	0	0	0	0	69	5

Ontario Traffic Inc

Count Date: 21-Nov-16 Site #: 1600600061

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	16	16	9	9	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	37	21	13	4	0	0	2	1	0	0	1	1	0	0	0	0	0	0	1	0
7:45:00	64	27	18	5	2	2	2	0	0	0	2	1	0	0	0	0	0	0	3	2
8:00:00	85	21	28	10	3	1	2	0	0	0	3	1	0	0	0	0	0	0	4	1
8:15:00	114	29	45	17	5	2	2	0	1	1	5	2	0	0	0	0	0	0	4	0
8:30:00	145	31	59	14	7	2	2	0	1	0	6	1	0	0	0	0	0	0	4	0
8:45:00	174	29	75	16	10	3	2	0	1	0	8	2	0	0	0	0	0	0	4	0
9:00:00	195	21	88	13	12	2	2	0	1	0	9	1	0	0	0	0	0	0	4	0
9:15:00	212	17	96	8	16	4	2	0	2	1	10	1	0	0	0	0	0	0	4	0
9:30:00	232	20	104	8	19	3	2	0	2	0	11	1	0	0	0	0	1	1	6	2
9:45:00	248	16	112	8	21	2	2	0	2	0	12	1	0	0	0	0	1	0	6	0
10:00:00	253	5	118	6	22	1	2	0	2	0	13	1	0	0	0	0	1	0	6	0
10:00:28	254	1	118	0	22	0	2	0	2	0	13	0	0	0	0	0	1	0	6	0
11:00:00	254	0	118	0	22	0	2	0	2	0	13	0	0	0	0	0	1	0	6	0
11:15:00	274	20	133	15	25	3	4	2	2	0	14	1	1	1	0	0	1	0	7	1
11:30:00	299	25	154	21	27	2	4	0	2	0	15	1	1	0	0	0	1	0	8	1
11:45:00	326	27	178	24	28	1	6	2	2	0	17	2	1	0	0	0	1	0	10	2
12:00:00	362	36	205	27	29	1	7	1	2	0	18	1	1	0	0	0	1	0	10	0
12:15:00	388	26	225	20	31	2	7	0	2	0	19	1	1	0	0	0	1	0	12	2
12:30:00	404	16	242	17	33	2	7	0	4	2	20	1	1	0	0	0	1	0	14	2
12:45:00	428	24	258	16	34	1	8	1	4	0	21	1	1	0	0	0	1	0	18	4
13:00:00	451	23	277	19	43	9	9	1	4	0	22	1	1	0	0	0	1	0	20	2
13:15:00	487	36	293	16	44	1	9	0	4	0	23	1	1	0	0	0	1	0	20	0
13:30:00	507	20	307	14	45	1	10	1	5	1	24	1	2	1	0	0	1	0	22	2
13:45:00	534	27	326	19	46	1	10	0	5	0	25	1	2	0	0	0	1	0	22	0
14:00:00	566	32	343	17	47	1	10	0	5	0	27	2	2	0	0	0	1	0	24	2
14:01:21	566	0	344	1	47	0	10	0	5	0	27	0	2	0	0	0	1	0	24	0
15:00:00	566	0	344	0	47	0	10	0	5	0	27	0	2	0	0	0	1	0	24	0
15:15:00	598	32	368	24	53	6	10	0	5	0	27	0	2	0	0	0	1	0	28	4
15:30:00	633	35	397	29	55	2	11	1	5	0	30	3	2	0	0	0	1	0	28	0
15:45:00	661	28	422	25	56	1	11	0	5	0	31	1	2	0	0	0	1	0	28	0
16:00:00	712	51	448	26	62	6	12	1	6	1	34	3	2	0	0	0	1	0	30	2
16:15:00	759	47	484	36	65	3	12	0	6	0	35	1	2	0	0	0	1	0	33	3
16:30:00	800	41	517	33	66	1	14	2	6	0	38	3	2	0	0	0	1	0	36	3
16:45:00	842	42	551	34	76	10	14	0	6	0	40	2	4	2	0	0	1	0	37	1
17:00:00	880	38	581	30	80	4	14	0	6	0	41	1	4	0	0	0	1	0	39	2
17:15:00	926	46	623	42	86	6	14	0	6	0	44	3	4	0	0	0	1	0	42	3
17:30:00	961	35	652	29	88	2	15	1	6	0	44	0	4	0	0	0	1	0	43	1
17:45:00	1000	39	678	26	90	2	16	1	6	0	46	2	4	0	0	0	1	0	43	0

Ontario Traffic Inc

Count Date: 21-Nov-16 Site #: 160600061

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	0	0	1	1	2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	3	3	5	4	11	9	0	0	1	0	2	2	0	0	0	0	0	0	2	2
7:45:00	5	2	10	5	17	6	0	0	1	0	2	0	0	0	0	0	0	0	5	3
8:00:00	8	3	14	4	32	15	0	0	4	3	2	0	0	0	0	0	0	0	16	11
8:15:00	11	3	30	16	57	25	0	0	4	0	2	0	0	0	0	0	0	0	23	7
8:30:00	17	6	40	10	87	30	0	0	4	0	2	0	0	0	0	0	0	0	38	15
8:45:00	19	2	49	9	123	36	0	0	5	1	4	2	0	0	0	0	0	0	52	14
9:00:00	24	5	54	5	139	16	0	0	5	0	4	0	0	0	0	0	0	0	57	5
9:15:00	31	7	59	5	161	22	1	1	5	0	4	0	0	0	0	0	0	0	67	10
9:30:00	37	6	64	5	182	21	2	1	5	0	5	1	0	0	0	0	0	0	77	10
9:45:00	39	2	71	7	194	12	2	0	5	0	5	0	0	0	0	0	0	0	85	8
10:00:00	42	3	81	10	208	14	2	0	5	0	5	0	0	0	0	0	0	0	97	12
10:00:28	44	2	81	0	208	0	2	0	5	0	5	0	0	0	0	0	0	0	97	0
11:00:00	44	0	81	0	208	0	2	0	5	0	5	0	0	0	0	0	0	0	97	0
11:15:00	46	2	89	8	226	18	2	0	5	0	5	0	0	0	0	0	0	0	109	12
11:30:00	62	16	104	15	248	22	3	1	6	1	6	1	0	0	0	0	0	0	117	8
11:45:00	66	4	113	9	267	19	3	0	6	0	7	1	0	0	0	0	0	0	131	14
12:00:00	72	6	119	6	284	17	3	0	6	0	8	1	0	0	1	1	0	0	144	13
12:15:00	80	8	132	13	305	21	3	0	6	0	8	0	0	0	1	0	0	0	155	11
12:30:00	89	9	139	7	323	18	3	0	6	0	8	0	0	0	1	0	0	0	162	7
12:45:00	95	6	148	9	346	23	3	0	7	1	8	0	0	0	1	0	0	0	174	12
13:00:00	99	4	163	15	368	22	3	0	7	0	8	0	0	0	1	0	0	0	195	21
13:15:00	104	5	174	11	385	17	4	1	7	0	9	1	0	0	1	0	0	0	207	12
13:30:00	108	4	179	5	408	23	4	0	8	1	11	2	0	0	1	0	0	0	214	7
13:45:00	115	7	185	6	429	21	4	0	8	0	11	0	0	0	2	1	0	0	221	7
14:00:00	121	6	217	32	450	21	4	0	8	0	11	0	0	0	2	0	0	0	227	6
14:01:21	121	0	218	1	450	0	4	0	8	0	11	0	0	0	2	0	0	0	227	0
15:00:00	121	0	218	0	450	0	4	0	8	0	11	0	0	0	2	0	0	0	227	0
15:15:00	128	7	227	9	460	10	4	0	9	1	11	0	0	0	2	0	0	0	235	8
15:30:00	135	7	241	14	477	17	4	0	9	0	11	0	0	0	2	0	0	0	243	8
15:45:00	143	8	257	16	499	22	4	0	9	0	11	0	0	0	2	0	0	0	248	5
16:00:00	152	9	271	14	527	28	4	0	9	0	13	2	0	0	2	0	0	0	267	19
16:15:00	159	7	281	10	556	29	4	0	9	0	13	0	0	0	2	0	0	0	285	18
16:30:00	164	5	290	9	566	10	4	0	9	0	13	0	0	0	2	0	0	0	293	8
16:45:00	171	7	303	13	587	21	4	0	10	1	13	0	0	0	2	0	0	0	300	7
17:00:00	180	9	325	22	603	16	4	0	10	0	13	0	0	0	2	0	0	0	309	9
17:15:00	191	11	335	10	622	19	4	0	10	0	13	0	0	0	2	0	0	0	336	27
17:30:00	200	9	352	17	644	22	4	0	10	0	13	0	0	0	2	0	0	0	342	6
17:45:00	217	17	367	15	683	39	4	0	10	0	13	0	0	0	2	0	0	0	354	12

Ontario Traffic Inc

Count Date: 21-Nov-16 Site #: 160600061

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	2	2	11	11	5	5	0	0	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	3	1	25	14	11	6	0	0	3	1	1	1	0	0	0	0	0	0	0	0
7:45:00	5	2	53	28	21	10	0	0	8	5	1	0	0	0	0	0	0	0	0	0
8:00:00	6	1	88	35	34	13	0	0	11	3	1	0	0	0	0	0	0	0	1	1
8:15:00	6	0	135	47	58	24	0	0	14	3	1	0	0	0	0	0	0	0	1	0
8:30:00	6	0	203	68	82	24	0	0	16	2	1	0	0	0	0	0	0	0	2	1
8:45:00	7	1	265	62	95	13	0	0	18	2	2	1	0	0	0	0	0	0	6	4
9:00:00	7	0	309	44	106	11	0	0	19	1	2	0	0	0	0	0	0	0	6	0
9:15:00	7	0	344	35	112	6	0	0	22	3	2	0	0	0	0	0	0	0	6	0
9:30:00	7	0	365	21	119	7	0	0	25	3	3	1	0	0	0	0	0	0	7	1
9:45:00	10	3	404	39	133	14	0	0	25	0	4	1	0	0	0	0	0	0	7	0
10:00:00	12	2	440	36	145	12	0	0	26	1	4	0	0	0	0	0	0	0	14	7
10:00:28	12	0	440	0	145	0	0	0	26	0	4	0	0	0	0	0	0	0	14	0
11:00:00	12	0	440	0	145	0	0	0	26	0	4	0	0	0	0	0	0	0	14	0
11:15:00	15	3	468	28	154	9	0	0	27	1	4	0	0	0	0	0	0	0	14	0
11:30:00	15	0	499	31	169	15	0	0	27	0	4	0	0	0	0	0	0	0	15	1
11:45:00	20	5	526	27	176	7	0	0	29	2	4	0	0	0	0	0	0	0	15	0
12:00:00	20	0	552	26	185	9	0	0	31	2	4	0	0	0	0	0	0	0	15	0
12:15:00	21	1	573	21	194	9	0	0	32	1	4	0	0	0	0	0	0	0	15	0
12:30:00	21	0	592	19	203	9	0	0	32	0	4	0	0	0	0	0	0	0	15	0
12:45:00	21	0	623	31	216	13	0	0	33	1	4	0	0	0	0	0	0	0	15	0
13:00:00	22	1	654	31	234	18	0	0	35	2	4	0	0	0	0	0	0	0	16	1
13:15:00	23	1	689	35	241	7	0	0	36	1	4	0	0	0	0	0	0	0	16	0
13:30:00	25	2	715	26	254	13	0	0	37	1	4	0	0	0	0	0	0	0	17	1
13:45:00	27	2	743	28	261	7	0	0	38	1	4	0	0	0	0	0	1	1	17	0
14:00:00	28	1	769	26	268	7	0	0	38	0	4	0	0	0	0	0	1	0	18	1
14:01:21	28	0	769	0	268	0	0	0	38	0	4	0	0	0	0	0	1	0	18	0
15:00:00	28	0	769	0	268	0	0	0	38	0	4	0	0	0	0	0	1	0	18	0
15:15:00	28	0	791	22	275	7	1	1	41	3	4	0	0	0	0	0	1	0	20	2
15:30:00	29	1	815	24	285	10	1	0	41	0	4	0	0	0	0	0	1	0	21	1
15:45:00	30	1	840	25	297	12	1	0	43	2	4	0	0	0	0	0	1	0	22	1
16:00:00	31	1	868	28	313	16	1	0	43	0	5	1	0	0	0	0	1	0	24	2
16:15:00	36	5	894	26	328	15	1	0	46	3	5	0	0	0	0	0	1	0	26	2
16:30:00	40	4	919	25	339	11	1	0	47	1	5	0	0	0	0	0	1	0	31	5
16:45:00	42	2	943	24	350	11	1	0	49	2	5	0	0	0	0	0	1	0	32	1
17:00:00	42	0	976	33	360	10	1	0	50	1	5	0	0	0	0	0	1	0	34	2
17:15:00	44	2	1014	38	378	18	1	0	52	2	5	0	0	0	0	0	1	0	36	2
17:30:00	46	2	1040	26	387	9	1	0	52	0	5	0	0	0	0	0	1	0	36	0
17:45:00	47	1	1066	26	401	14	1	0	53	1	5	0	0	0	0	0	1	0	41	5

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 7:45:00
To: 8:45:00

Municipality: Windsor
Site #: 1800600002
Intersection: University Ave W & Sunset Ave
TFR File #: 2
Count date: 10-Apr-18

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 52
North Entering: 34
North Peds: 13
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	1	0	1
Cars	10	19	4	33
Totals	10	20	4	



Heavys	0
Trucks	0
Cars	18
Totals	18

East Leg Total: 315
East Entering: 171
East Peds: 15
Peds Cross: \times

Heavys	0
Trucks	6
Cars	173
Totals	179

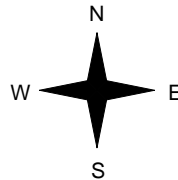


Sunset Ave

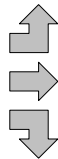
Cars	1	0	0	1
Trucks	136	5	0	141
Heavys	29	0	0	29
Totals	166	5	0	



University Ave W



Heavys	0
Trucks	0
Cars	3
Totals	3
Heavys	2
Trucks	7
Cars	107
Totals	116
Heavys	1
Trucks	1
Cars	30
Totals	32
Heavys	3
Trucks	8
Cars	140
Totals	



University Ave W



Cars	134	8	2	144
Trucks				
Heavys				
Totals				

Peds Cross: \times
West Peds: 10
West Entering: 151
West Leg Total: 330

Cars	78	27	14	23	64
Trucks	2	1	0	1	2
Heavys	1	0	0	0	0
Totals	81	28	14	24	



Sunset Ave



Peds Cross: \times
South Peds: 25
South Entering: 66
South Leg Total: 147

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

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

One Hour Peak

From: 11:15:00
To: 12:15:00

Municipality: Windsor
Site #: 1800600002
Intersection: University Ave W & Sunset Ave
TFR File #: 2
Count date: 10-Apr-18

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 57
North Entering: 31
North Peds: 21
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	10	8	13	31
Totals	10	8	13	



Heavys	1
Trucks	0
Cars	25
Totals	26

East Leg Total: 352
East Entering: 199
East Peds: 36
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	5	181	187

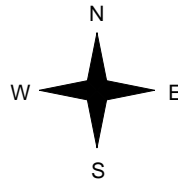


Sunset Ave

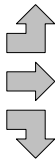
Cars	Trucks	Heavys	Totals
6	0	0	6
154	5	1	160
33	0	0	33
193	5	1	



University Ave W



Heavys	Trucks	Cars	Totals
1	0	7	8
1	7	97	105
0	0	20	20
2	7	124	



University Ave W



Cars	Trucks	Heavys	Totals
145	7	1	153

Peds Cross: \times
West Peds: 8
West Entering: 133
West Leg Total: 320

Cars	61
Trucks	0
Heavys	0
Totals	61

Cars	17	12	35	64
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	17	12	35	



Peds Cross: \times
South Peds: 58
South Entering: 64
South Leg Total: 125

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:00:00

To: 17:00:00

Municipality: Windsor
Site #: 1800600002
Intersection: University Ave W & Sunset Ave
TFR File #: 2
Count date: 10-Apr-18

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 42
 North Entering: 22
 North Peds: 6
 Peds Cross: \bowtie

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	8	7	7	22
Totals	8	7	7	



Heavys	0
Trucks	0
Cars	20
Totals	20

East Leg Total: 415
 East Entering: 262
 East Peds: 26
 Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
0	8	250	258

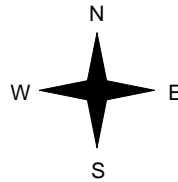


Sunset Ave

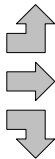
Cars	Trucks	Heavys	Totals
5	0	0	5
225	8	0	233
24	0	0	24
254	8	0	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	2	2
0	7	114	121
0	0	11	11
0	7	127	



University Ave W



Cars	Trucks	Heavys	Totals
146	7	0	153

Peds Cross: \bowtie
 West Peds: 7
 West Entering: 134
 West Leg Total: 392

Cars	42	Cars	17	13	25	55
Trucks	0	Trucks	0	0	0	0
Heavys	0	Heavys	0	0	0	0
Totals	42	Totals	17	13	25	



Peds Cross: \bowtie
 South Peds: 71
 South Entering: 55
 South Leg Total: 97

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1800600002
Intersection: University Ave W & Sunset Ave
TFR File #: 2
Count date: 10-Apr-18

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 368
 North Entering: 210
 North Peds: 107
 Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	1	0	1
Cars	76	80	53	209
Totals	76	81	53	



Heavys	2
Trucks	0
Cars	156
Totals	158

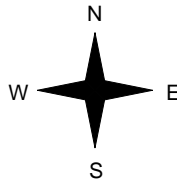
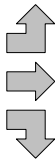
East Leg Total: 2772
 East Entering: 1653
 East Peds: 213
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	60	1536	1597



University Ave W

Heavys	Trucks	Cars	Totals
1	0	33	34
5	59	784	848
1	2	113	116
7	61	930	



Sunset Ave

Cars	Trucks	Heavys	Totals
43	0	0	43
1334	59	1	1394
216	0	0	216
1593	59	1	



University Ave W



Cars	Trucks	Heavys	Totals
1052	62	5	1119

Peds Cross: \times
 West Peds: 112
 West Entering: 998
 West Leg Total: 2595

Cars	409
Trucks	3
Heavys	1
Totals	413



Cars	126	80	215	421
Trucks	1	0	3	4
Heavys	0	1	0	1
Totals	127	81	218	

Peds Cross: \times
 South Peds: 401
 South Entering: 426
 South Leg Total: 839

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave W & Sunset Ave

Count Date: 10-Apr-18

Municipality: Windsor

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	1	7:00:00	0	1	0	1	0
8:00:00	6	12	4	22	5	46	8:00:00	11	5	8	24	13
9:00:00	2	19	11	32	15	93	9:00:00	22	15	24	61	27
10:00:00	3	17	7	27	1	53	10:00:00	9	6	11	26	37
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	15	9	10	34	20	99	12:00:00	15	10	40	65	60
13:00:00	5	6	12	23	19	82	13:00:00	15	16	28	59	49
14:00:00	6	1	9	16	14	52	14:00:00	7	2	27	36	52
15:00:00	0	0	1	1	1	3	15:00:00	0	0	2	2	1
16:00:00	6	5	10	21	13	74	16:00:00	16	8	29	53	55
17:00:00	7	7	8	22	6	77	17:00:00	17	13	25	55	71
18:00:00	3	5	4	12	13	56	18:00:00	15	5	24	44	36
Totals:	53	81	76	210	107	636		127	81	218	426	401
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	1	3	0	4	0	4	7:00:00	0	0	0	0	0
8:00:00	14	99	2	115	6	175	8:00:00	1	50	9	60	9
9:00:00	28	141	3	172	19	314	9:00:00	3	112	27	142	9
10:00:00	11	92	1	104	15	178	10:00:00	4	62	8	74	7
11:00:00	0	1	0	1	0	5	11:00:00	0	4	0	4	1
12:00:00	36	152	5	193	33	325	12:00:00	9	105	18	132	13
13:00:00	20	164	9	193	41	324	13:00:00	5	108	18	131	17
14:00:00	32	133	7	172	33	273	14:00:00	3	89	9	101	14
15:00:00	2	5	0	7	0	10	15:00:00	1	2	0	3	1
16:00:00	26	174	7	207	20	320	16:00:00	2	101	10	113	18
17:00:00	24	233	5	262	26	396	17:00:00	2	121	11	134	7
18:00:00	22	196	4	222	20	324	18:00:00	4	92	6	102	16
Totals:	216	1393	43	1652	213	2648		34	846	116	996	112
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00				14:00	16:00	17:00	18:00	
Crossing Values:	71	51	86	94				62	68	70	59	

Ontario Traffic Inc.

Count Date: 10-Apr-18 Site #: 180600002

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	1	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	0	11	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	4	3	36	25	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
7:45:00	8	4	69	33	2	2	0	0	5	2	0	0	0	0	0	0	0	0	4	4
8:00:00	15	7	97	28	2	0	0	0	5	0	0	0	0	0	0	0	0	0	6	2
8:15:00	27	12	126	29	2	0	0	0	7	2	0	0	0	0	0	0	0	0	11	5
8:30:00	36	9	172	46	3	1	0	0	9	2	0	0	0	0	0	0	0	0	16	5
8:45:00	37	1	205	33	3	0	0	0	10	1	0	0	0	0	0	0	0	0	19	3
9:00:00	43	6	230	25	5	2	0	0	13	3	0	0	0	0	0	0	0	0	25	6
9:15:00	47	4	252	22	6	1	0	0	13	0	0	0	0	0	0	0	0	0	27	2
9:30:00	51	4	275	23	6	0	0	0	16	3	0	0	0	0	0	0	0	0	37	10
9:45:00	53	2	297	22	6	0	0	0	17	1	0	0	0	0	0	0	0	0	38	1
10:00:00	54	1	316	19	6	0	0	0	19	2	0	0	0	0	0	0	0	0	40	2
10:15:00	54	0	316	0	6	0	0	0	19	0	0	0	0	0	0	0	0	0	40	0
10:15:26	54	0	317	1	6	0	0	0	19	0	0	0	0	0	0	0	0	0	40	0
11:00:00	54	0	317	0	6	0	0	0	19	0	0	0	0	0	0	0	0	0	40	0
11:15:00	64	10	353	36	7	1	0	0	21	2	0	0	0	0	0	0	0	0	44	4
11:30:00	70	6	394	41	8	1	0	0	23	2	0	0	0	0	0	0	0	0	54	10
11:45:00	78	8	433	39	9	1	0	0	25	2	0	0	0	0	1	1	0	0	63	9
12:00:00	90	12	462	29	11	2	0	0	25	0	0	0	0	0	1	0	0	0	73	10
12:15:00	97	7	507	45	13	2	0	0	26	1	0	0	0	0	1	0	0	0	80	7
12:30:00	102	5	551	44	17	4	0	0	28	2	0	0	0	0	1	0	0	0	94	14
12:45:00	105	3	589	38	20	3	0	0	30	2	0	0	0	0	1	0	0	0	102	8
13:00:00	110	5	619	30	20	0	0	0	32	2	0	0	0	0	1	0	0	0	114	12
13:15:00	124	14	647	28	22	2	0	0	35	3	0	0	0	0	1	0	0	0	121	7
13:30:00	129	5	682	35	23	1	0	0	36	1	0	0	0	0	1	0	0	0	130	9
13:45:00	135	6	713	31	26	3	0	0	37	1	0	0	0	0	1	0	0	0	139	9
14:00:00	142	7	746	33	27	1	0	0	38	1	0	0	0	0	1	0	0	0	147	8
14:01:19	144	2	750	4	27	0	0	0	38	0	0	0	0	0	1	0	0	0	147	0
15:00:00	144	0	751	1	27	0	0	0	38	0	0	0	0	0	1	0	0	0	147	0
15:15:00	153	9	802	51	28	1	0	0	40	2	0	0	0	0	1	0	0	0	155	8
15:30:00	161	8	842	40	30	2	0	0	42	2	0	0	0	0	1	0	0	0	160	5
15:45:00	167	6	885	43	33	3	0	0	42	0	0	0	0	0	1	0	0	0	165	5
16:00:00	170	3	918	33	34	1	0	0	45	3	0	0	0	0	1	0	0	0	167	2
16:15:00	178	8	982	64	36	2	0	0	49	4	0	0	0	0	1	0	0	0	176	9
16:30:00	182	4	1038	56	37	1	0	0	50	1	0	0	0	0	1	0	0	0	180	4
16:45:00	187	5	1095	57	37	0	0	0	51	1	0	0	0	0	1	0	0	0	188	8
17:00:00	194	7	1143	48	39	2	0	0	53	2	0	0	0	0	1	0	0	0	193	5
17:15:00	205	11	1194	51	40	1	0	0	55	2	0	0	0	0	1	0	0	0	201	8
17:30:00	210	5	1250	56	41	1	0	0	56	1	0	0	0	0	1	0	0	0	205	4

Ontario Traffic Inc.

Count Date: 10-Apr-18 Site #: 1800600002

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	3	2	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6	4
7:45:00	5	2	3	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8	2
8:00:00	11	6	6	3	7	4	0	0	0	0	1	1	0	0	0	0	0	0	0	13	5
8:15:00	17	6	8	2	14	7	1	1	0	0	1	1	0	0	0	0	0	0	0	20	7
8:30:00	27	10	15	7	22	8	1	0	0	0	1	0	0	0	0	0	0	0	0	23	3
8:45:00	32	5	17	2	26	4	1	0	0	0	1	0	0	0	0	0	0	0	0	33	10
9:00:00	32	0	21	4	31	5	1	0	0	0	1	0	0	0	0	0	0	0	0	40	7
9:15:00	32	0	23	2	32	1	1	0	0	0	1	0	0	0	0	0	0	0	0	49	9
9:30:00	39	7	24	1	38	6	1	0	0	0	1	0	0	0	0	0	0	0	0	70	21
9:45:00	39	0	25	1	41	3	1	0	0	0	1	0	0	0	0	0	0	0	0	73	3
10:00:00	41	2	27	2	42	1	1	0	0	0	1	0	0	0	0	0	0	0	0	77	4
10:15:00	41	0	27	0	42	0	1	0	0	0	1	0	0	0	0	0	0	0	0	77	0
10:15:26	41	0	27	0	42	0	1	0	0	0	1	0	0	0	0	0	0	0	0	77	0
11:00:00	41	0	27	0	42	0	1	0	0	0	1	0	0	0	0	0	0	0	0	77	0
11:15:00	45	4	28	1	55	13	1	0	0	0	2	1	0	0	0	0	0	0	0	91	14
11:30:00	50	5	28	0	63	8	1	0	0	0	2	0	0	0	0	0	0	0	0	115	24
11:45:00	54	4	31	3	72	9	1	0	0	0	2	0	0	0	0	0	0	0	0	120	5
12:00:00	56	2	37	6	81	9	1	0	0	0	2	0	0	0	0	0	0	0	0	137	17
12:15:00	62	6	40	3	90	9	1	0	0	0	2	0	0	0	0	0	0	0	0	149	12
12:30:00	65	3	43	3	96	6	1	0	0	0	2	0	0	0	0	0	0	0	0	162	13
12:45:00	66	1	45	2	101	5	1	0	0	0	3	1	0	0	0	0	0	0	0	171	9
13:00:00	71	5	52	7	108	7	1	0	0	0	3	0	0	0	1	1	0	0	0	186	15
13:15:00	73	2	52	0	119	11	1	0	0	0	3	0	0	0	1	0	0	0	0	197	11
13:30:00	73	0	52	0	123	4	1	0	0	0	3	0	0	0	1	0	0	0	0	209	12
13:45:00	76	3	53	1	127	4	1	0	0	0	3	0	0	0	1	0	0	0	0	218	9
14:00:00	78	2	54	1	135	8	1	0	0	0	3	0	0	0	1	0	0	0	0	238	20
14:01:19	78	0	54	0	136	1	1	0	0	0	3	0	0	0	1	0	0	0	0	239	1
15:00:00	78	0	54	0	137	1	1	0	0	0	3	0	0	0	1	0	0	0	0	239	0
15:15:00	81	3	55	1	147	10	1	0	0	0	3	0	0	0	1	0	0	0	0	258	19
15:30:00	89	8	56	1	156	9	1	0	0	0	3	0	0	0	1	0	0	0	0	269	11
15:45:00	93	4	61	5	164	8	1	0	0	0	3	0	0	0	1	0	0	0	0	285	16
16:00:00	94	1	62	1	166	2	1	0	0	0	3	0	0	0	1	0	0	0	0	294	9
16:15:00	100	6	66	4	171	5	1	0	0	0	3	0	0	0	1	0	0	0	0	324	30
16:30:00	106	6	66	0	181	10	1	0	0	0	3	0	0	0	1	0	0	0	0	340	16
16:45:00	111	5	71	5	187	6	1	0	0	0	3	0	0	0	1	0	0	0	0	351	11
17:00:00	111	0	75	4	191	4	1	0	0	0	3	0	0	0	1	0	0	0	0	365	14
17:15:00	118	7	75	0	200	9	1	0	0	0	3	0	0	0	1	0	0	0	0	384	19
17:30:00	124	6	77	2	210	10	1	0	0	0	3	0	0	0	1	0	0	0	0	389	5

Ontario Traffic Inc.

Count Date: 10-Apr-18 Site #: 1800600002

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	0	0	9	9	3	3	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	18	9	4	1	0	0	3	2	0	0	0	0	0	0	0	0	7	7
7:45:00	0	0	29	11	4	0	0	0	5	2	0	0	0	0	0	0	0	0	8	1
8:00:00	1	1	43	14	7	3	0	0	6	1	1	1	0	0	1	1	1	1	9	1
8:15:00	1	0	69	26	16	9	0	0	8	2	1	0	0	0	2	1	1	0	13	4
8:30:00	3	2	108	39	24	8	0	0	10	2	1	0	0	0	2	0	1	0	16	3
8:45:00	3	0	136	28	34	10	0	0	12	2	1	0	0	0	2	0	1	0	18	2
9:00:00	4	1	147	11	34	0	0	0	13	1	1	0	0	0	2	0	1	0	18	0
9:15:00	4	0	159	12	37	3	0	0	15	2	1	0	0	0	2	0	1	0	18	0
9:30:00	5	1	177	18	40	3	0	0	17	2	1	0	0	0	2	0	1	0	18	0
9:45:00	5	0	190	13	40	0	0	0	18	1	1	0	0	0	2	0	1	0	21	3
10:00:00	8	3	203	13	42	2	0	0	19	1	1	0	0	0	2	0	1	0	25	4
10:15:00	8	0	203	0	42	0	0	0	19	0	1	0	0	0	2	0	1	0	25	0
10:15:26	8	0	204	1	42	0	0	0	19	0	1	0	0	0	2	0	1	0	25	0
11:00:00	8	0	207	3	42	0	0	0	19	0	1	0	0	0	2	0	1	0	26	1
11:15:00	10	2	228	21	44	2	0	0	21	2	1	0	0	0	3	1	1	0	33	7
11:30:00	12	2	255	27	50	6	0	0	24	3	1	0	0	0	3	0	1	0	33	0
11:45:00	13	1	283	28	55	5	0	0	25	1	1	0	0	0	3	0	1	0	34	1
12:00:00	17	4	303	20	60	5	0	0	26	1	1	0	0	0	4	1	1	0	39	5
12:15:00	17	0	325	22	64	4	0	0	28	2	1	0	1	1	4	0	1	0	41	2
12:30:00	17	0	346	21	66	2	0	0	32	4	1	0	1	0	4	0	1	0	47	6
12:45:00	21	4	372	26	70	4	0	0	33	1	2	1	1	0	4	0	1	0	53	6
13:00:00	21	0	402	30	77	7	0	0	35	2	2	0	1	0	4	0	1	0	56	3
13:15:00	24	3	429	27	79	2	0	0	37	2	2	0	1	0	4	0	1	0	60	4
13:30:00	24	0	448	19	80	1	0	0	38	1	2	0	1	0	4	0	1	0	65	5
13:45:00	24	0	467	19	83	3	0	0	39	1	2	0	1	0	4	0	1	0	69	4
14:00:00	24	0	487	20	86	3	0	0	39	0	2	0	1	0	4	0	1	0	70	1
14:01:19	25	1	487	0	86	0	0	0	39	0	2	0	1	0	4	0	1	0	71	1
15:00:00	25	0	489	2	86	0	0	0	39	0	2	0	1	0	4	0	1	0	71	0
15:15:00	26	1	521	32	89	3	0	0	43	4	2	0	1	0	4	0	1	0	77	6
15:30:00	26	0	541	20	96	7	0	0	46	3	2	0	1	0	4	0	1	0	82	5
15:45:00	27	1	563	22	96	0	0	0	47	1	2	0	1	0	5	1	1	0	86	4
16:00:00	27	0	579	16	96	0	0	0	49	2	2	0	1	0	5	0	1	0	89	3
16:15:00	28	1	605	26	99	3	0	0	50	1	2	0	1	0	5	0	1	0	89	0
16:30:00	29	1	629	24	101	2	0	0	52	2	2	0	1	0	5	0	1	0	90	1
16:45:00	29	0	666	37	105	4	0	0	54	2	2	0	1	0	5	0	1	0	92	2
17:00:00	29	0	693	27	107	2	0	0	56	2	2	0	1	0	5	0	1	0	96	4
17:15:00	29	0	712	19	111	4	0	0	57	1	2	0	1	0	5	0	1	0	102	6
17:30:00	31	2	736	24	111	0	0	0	58	1	2	0	1	0	5	0	1	0	105	3

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:00:00
To: 9:00:00

Municipality: Windsor
Site #: 1700600071
Intersection: University Ave W & California Ave
TFR File #: 3
Count date: 4-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 207
North Entering: 149
North Peds: 85
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	1	0	1
Cars	17	128	3	148
Totals	17	129	3	



Heavys	0
Trucks	1
Cars	57
Totals	58

East Leg Total: 594
East Entering: 296
East Peds: 39
Peds Cross: \times

Heavys	Trucks	Cars	Totals
2	9	282	293

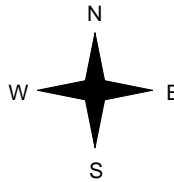


California Ave

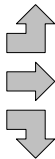
Cars	Trucks	Heavys	Totals
4	0	0	4
198	8	1	207
85	0	0	85
287	8	1	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	8	8
2	6	205	213
0	1	34	35
2	7	247	



University Ave W



Cars	Trucks	Heavys	Totals
286	9	3	298

Peds Cross: \times
West Peds: 60
West Entering: 256
West Leg Total: 549

Cars	247	Cars	67	45	78	190
Trucks	2	Trucks	1	1	3	5
Heavys	0	Heavys	1	0	1	2
Totals	249	Totals	69	46	82	



Peds Cross: \times
South Peds: 95
South Entering: 197
South Leg Total: 446

Comments

Ontario 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: Windsor
Site #: 1700600071
Intersection: University Ave W & California Ave
TFR File #: 3
Count date: 4-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 235
North Entering: 107
North Peds: 120
Peds Cross: \times

Heavys	0	1	0	1
Trucks	0	1	0	1
Cars	14	79	12	105
Totals	14	81	12	



Heavys	0
Trucks	1
Cars	127
Totals	128

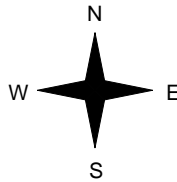
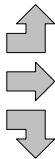
East Leg Total: 703
East Entering: 380
East Peds: 62
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	12	368	381



University Ave W

Heavys	Trucks	Cars	Totals
0	0	18	18
0	10	238	248
0	0	34	34
0	10	290	



California Ave

California Ave

Cars	Trucks	Heavys	Totals
18	0	0	18
294	11	1	306
56	0	0	56
368	11	1	



University Ave W



Cars	Trucks	Heavys	Totals
312	10	1	323

Peds Cross: \times
West Peds: 87
West Entering: 300
West Leg Total: 681

Cars	169
Trucks	1
Heavys	1
Totals	171



Cars	60	91	62	213
Trucks	1	1	0	2
Heavys	0	0	1	1
Totals	61	92	63	

Peds Cross: \times
South Peds: 136
South Entering: 216
South Leg Total: 387

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

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

One Hour Peak

From: 17:00:00
To: 18:00:00

Municipality: Windsor
Site #: 1700600071
Intersection: University Ave W & California Ave
TFR File #: 3
Count date: 4-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 241
North Entering: 85
North Peds: 81
Peds Cross: \times

Heavys	1	0	0	1
Trucks	0	2	0	2
Cars	32	37	13	82
Totals	33	39	13	



Heavys	0
Trucks	0
Cars	156
Totals	156

East Leg Total: 812
East Entering: 458
East Peds: 70
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	7	450	458

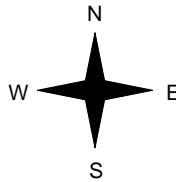


California Ave

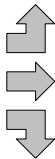
Cars	Trucks	Heavys	Totals
21	0	0	21
356	7	0	363
74	0	0	74
451	7	0	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	18	18
0	8	246	254
0	1	65	66
0	9	329	



California Ave

University Ave W



Cars	Trucks	Heavys	Totals
346	8	0	354

Peds Cross: \times
West Peds: 44
West Entering: 338
West Leg Total: 796

Cars	176	Cars	62	117	87	266
Trucks	3	Trucks	0	0	0	0
Heavys	0	Heavys	0	0	0	0
Totals	179	Totals	62	117	87	



Peds Cross: \times
South Peds: 201
South Entering: 266
South Leg Total: 445

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600071
Intersection: University Ave W & California Ave
TFR File #: 3
Count date: 4-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 1473
 North Entering: 699
 North Peds: 711
 Peds Cross: \times

Heavys	1	1	0	2
Trucks	1	6	1	8
Cars	115	523	51	689
Totals	117	530	52	



Heavys	1
Trucks	5
Cars	768
Totals	774

East Leg Total: 5194
 East Entering: 2698
 East Peds: 402
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
9	76	2679	2764

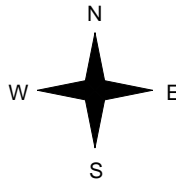


California Ave

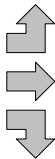
Cars	Trucks	Heavys	Totals
75	1	0	76
2111	73	5	2189
430	3	0	433
2616	77	5	



University Ave W



Heavys	Trucks	Cars	Totals
1	0	86	87
6	66	1745	1817
0	9	379	388
7	75	2210	



California Ave



University Ave W



Cars	Trucks	Heavys	Totals
2413	73	10	2496

Peds Cross: \times
 West Peds: 470
 West Entering: 2292
 West Leg Total: 5056

Cars	1332
Trucks	18
Heavys	1
Totals	1351



Cars	453	607	617	1677
Trucks	2	4	6	12
Heavys	3	0	4	7
Totals	458	611	627	

Peds Cross: \times
 South Peds: 1158
 South Entering: 1696
 South Leg Total: 3047

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave W & California Ave Count Date: 4-Oct-17 Municipality: Windsor												
North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	0	26	3	29	11	115	8:00:00	16	28	42	86	22
9:00:00	3	129	17	149	85	346	9:00:00	69	46	82	197	95
10:00:00	6	106	21	133	73	281	10:00:00	44	49	55	148	115
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	2	43	6	51	96	216	12:00:00	53	49	63	165	122
13:00:00	14	86	13	113	124	321	13:00:00	58	82	68	208	137
14:00:00	1	31	7	39	98	184	14:00:00	47	44	54	145	118
15:00:00	0	0	1	1	0	3	15:00:00	1	0	1	2	3
16:00:00	4	36	10	50	64	249	16:00:00	47	86	66	199	161
17:00:00	9	34	6	49	79	329	17:00:00	61	110	109	280	184
18:00:00	13	39	33	85	81	351	18:00:00	62	117	87	266	201
Totals:	52	530	117	699	711	2395		458	611	627	1696	1158
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	25	118	0	143	2	293	8:00:00	1	141	8	150	9
9:00:00	85	207	4	296	39	552	9:00:00	8	213	35	256	60
10:00:00	44	208	3	255	39	510	10:00:00	5	205	45	255	59
11:00:00	0	5	0	5	0	5	11:00:00	0	0	0	0	0
12:00:00	37	206	3	246	49	479	12:00:00	8	176	49	233	77
13:00:00	59	293	17	369	63	657	13:00:00	19	237	32	288	86
14:00:00	38	224	13	275	42	496	14:00:00	5	177	39	221	70
15:00:00	0	6	0	6	0	10	15:00:00	0	3	1	4	1
16:00:00	33	245	11	289	47	567	16:00:00	16	204	58	278	35
17:00:00	38	314	4	356	51	625	17:00:00	7	207	55	269	29
18:00:00	74	353	21	448	70	786	18:00:00	18	254	66	338	44
Totals:	433	2179	76	2688	402	4980		87	1817	388	2292	470
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00			14:00	16:00	17:00	18:00		
Crossing Values:	300	254	230	307			204	219	260	306		

Ontario Traffic Inc.

Count Date: 4-Oct-17 Site #: 1700600071

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:45:00	0	0	14	7	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1
8:00:00	0	0	26	12	3	2	0	0	0	0	0	0	0	0	0	0	0	0	11	9
8:15:00	2	2	89	63	10	7	0	0	0	0	0	0	0	0	0	0	0	0	27	16
8:30:00	2	0	115	26	16	6	0	0	0	0	0	0	0	0	0	0	0	0	68	41
8:45:00	3	1	136	21	19	3	0	0	1	1	0	0	0	0	0	0	0	0	84	16
9:00:00	3	0	154	18	20	1	0	0	1	0	0	0	0	0	0	0	0	0	96	12
9:15:00	3	0	173	19	22	2	1	1	1	0	0	0	0	0	0	0	0	0	105	9
9:30:00	3	0	189	16	25	3	1	0	1	0	0	0	0	0	0	0	0	0	115	10
9:45:00	6	3	222	33	30	5	1	0	1	0	0	0	0	0	0	0	0	0	150	35
10:00:00	8	2	260	38	41	11	1	0	1	0	0	0	0	0	0	0	0	0	169	19
10:00:17	8	0	260	0	41	0	1	0	1	0	0	0	0	0	0	0	0	0	169	0
11:00:00	8	0	260	0	41	0	1	0	1	0	0	0	0	0	0	0	0	0	169	0
11:15:00	9	1	278	18	42	1	1	0	2	1	0	0	0	0	0	0	0	0	190	21
11:30:00	10	1	289	11	43	1	1	0	2	0	0	0	0	0	0	0	0	0	220	30
11:45:00	10	0	296	7	44	1	1	0	2	0	0	0	0	0	0	0	0	0	245	25
12:00:00	10	0	302	6	47	3	1	0	2	0	0	0	0	0	0	0	0	0	265	20
12:15:00	12	2	320	18	48	1	1	0	2	0	0	0	0	0	0	0	0	0	299	34
12:30:00	17	5	335	15	52	4	1	0	2	0	0	0	0	0	0	0	0	0	319	20
12:45:00	20	3	364	29	54	2	1	0	2	0	0	0	0	0	1	1	0	0	361	42
13:00:00	24	4	387	23	60	6	1	0	2	0	0	0	0	0	1	0	0	0	389	28
13:15:00	24	0	399	12	62	2	1	0	3	1	0	0	0	0	1	0	0	0	419	30
13:30:00	25	1	403	4	65	3	1	0	3	0	0	0	0	0	1	0	0	0	450	31
13:45:00	25	0	409	6	66	1	1	0	3	0	1	1	0	0	1	0	0	0	470	20
14:00:00	25	0	417	8	66	0	1	0	3	0	1	0	0	0	1	0	0	0	487	17
14:15:00	25	0	417	0	67	1	1	0	3	0	1	0	0	0	1	0	0	0	487	0
14:29:09	25	0	417	0	67	0	1	0	3	0	1	0	0	0	1	0	0	0	487	0
15:00:00	25	0	417	0	67	0	1	0	3	0	1	0	0	0	1	0	0	0	487	0
15:15:00	26	1	432	15	70	3	1	0	4	1	1	0	0	0	1	0	0	0	508	21
15:30:00	27	1	437	5	71	1	1	0	4	0	1	0	0	0	1	0	0	0	520	12
15:45:00	29	2	447	10	75	4	1	0	4	0	1	0	0	0	1	0	0	0	532	12
16:00:00	29	0	452	5	77	2	1	0	4	0	1	0	0	0	1	0	0	0	551	19
16:15:00	33	4	459	7	78	1	1	0	4	0	1	0	0	0	1	0	0	0	574	23
16:30:00	35	2	467	8	81	3	1	0	4	0	1	0	0	0	1	0	0	0	583	9
16:45:00	37	2	476	9	83	2	1	0	4	0	1	0	0	0	1	0	0	0	600	17
17:00:00	38	1	486	10	83	0	1	0	4	0	1	0	0	0	1	0	0	0	630	30
17:15:00	38	0	493	7	83	0	1	0	4	0	1	0	0	0	1	0	0	0	652	22
17:30:00	38	0	500	7	85	2	1	0	5	1	1	0	0	0	1	0	1	1	668	16

Ontario Traffic Inc.

Count Date: 4-Oct-17 Site #: 1700600071

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	3	3	19	19	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	4	1	42	23	0	0	1	1	2	0	0	0	0	0	0	0	0	0	1	1
7:45:00	12	8	77	35	0	0	1	0	3	1	0	0	0	0	0	0	0	0	1	0
8:00:00	23	11	113	36	0	0	2	1	5	2	0	0	0	0	0	0	0	0	2	1
8:15:00	39	16	156	43	2	2	2	0	7	2	0	0	0	0	0	0	0	0	7	5
8:30:00	70	31	206	50	2	0	2	0	8	1	0	0	0	0	0	0	0	0	30	23
8:45:00	95	25	254	48	4	2	2	0	11	3	0	0	0	0	1	1	0	0	37	7
9:00:00	108	13	311	57	4	0	2	0	13	2	0	0	0	0	1	0	0	0	41	4
9:15:00	114	6	356	45	4	0	2	0	15	2	0	0	0	0	1	0	0	0	44	3
9:30:00	125	11	393	37	4	0	3	1	16	1	0	0	0	0	1	0	0	0	48	4
9:45:00	132	7	459	66	6	2	3	0	17	1	0	0	0	0	3	2	0	0	58	10
10:00:00	151	19	511	52	7	1	3	0	19	2	0	0	0	0	3	0	0	0	80	22
10:00:17	151	0	516	5	7	0	3	0	19	0	0	0	0	0	3	0	0	0	80	0
11:00:00	151	0	516	0	7	0	3	0	19	0	0	0	0	0	3	0	0	0	80	0
11:15:00	159	8	555	39	8	1	3	0	21	2	0	0	0	0	3	0	0	0	91	11
11:30:00	171	12	615	60	9	1	3	0	22	1	0	0	0	0	3	0	0	0	105	14
11:45:00	178	7	661	46	9	0	3	0	23	1	0	0	0	0	4	1	0	0	120	15
12:00:00	188	10	716	55	10	1	3	0	24	1	0	0	0	0	4	0	0	0	129	9
12:15:00	198	10	761	45	12	2	3	0	25	1	0	0	0	0	4	0	0	0	140	11
12:30:00	213	15	828	67	18	6	3	0	27	2	0	0	0	0	5	1	0	0	153	13
12:45:00	221	8	919	91	25	7	3	0	30	3	0	0	0	0	5	0	0	0	172	19
13:00:00	247	26	998	79	27	2	3	0	34	4	0	0	0	0	5	0	0	0	192	20
13:15:00	254	7	1055	57	30	3	3	0	36	2	0	0	0	0	5	0	0	0	202	10
13:30:00	264	10	1105	50	32	2	3	0	37	1	0	0	0	0	5	0	0	0	214	12
13:45:00	268	4	1149	44	36	4	3	0	38	1	0	0	0	0	5	0	0	0	222	8
14:00:00	285	17	1215	66	40	4	3	0	41	3	0	0	0	0	5	0	0	0	234	12
14:15:00	285	0	1220	5	40	0	3	0	41	0	0	0	0	0	5	0	0	0	234	0
14:29:09	285	0	1220	0	40	0	3	0	41	0	0	0	0	0	5	0	0	0	234	0
15:00:00	285	0	1221	1	40	0	3	0	41	0	0	0	0	0	5	0	0	0	234	0
15:15:00	295	10	1268	47	44	4	3	0	46	5	1	1	0	0	5	0	0	0	242	8
15:30:00	304	9	1321	53	46	2	3	0	51	5	1	0	0	0	5	0	0	0	257	15
15:45:00	308	4	1371	50	49	3	3	0	52	1	1	0	0	0	5	0	0	0	268	11
16:00:00	318	10	1452	81	50	1	3	0	55	3	1	0	0	0	5	0	0	0	281	13
16:15:00	324	6	1541	89	52	2	3	0	58	3	1	0	0	0	5	0	0	0	304	23
16:30:00	330	6	1591	50	53	1	3	0	60	2	1	0	0	0	5	0	0	0	313	9
16:45:00	346	16	1665	74	54	1	3	0	64	4	1	0	0	0	5	0	0	0	321	8
17:00:00	356	10	1755	90	54	0	3	0	66	2	1	0	0	0	5	0	0	0	332	11
17:15:00	369	13	1844	89	56	2	3	0	67	1	1	0	0	0	5	0	0	0	339	7
17:30:00	387	18	1933	89	58	2	3	0	69	2	1	0	0	0	5	0	0	0	354	15

Ontario Traffic Inc.

Count Date: 4-Oct-17 Site #: 1700600071

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	2	2	2	2	4	4	0	0	0	0	0	0	1	1	0	0	1	1	6	6
7:30:00	4	2	11	9	11	7	0	0	0	0	0	0	1	0	0	0	1	0	7	1
7:45:00	11	7	13	2	25	14	0	0	1	1	0	0	1	0	0	0	1	0	11	4
8:00:00	14	3	27	14	41	16	0	0	1	0	0	0	2	1	0	0	1	0	22	11
8:15:00	25	11	43	16	55	14	0	0	1	0	0	0	2	0	0	0	1	0	44	22
8:30:00	51	26	56	13	69	14	1	1	1	0	1	1	3	1	0	0	1	0	87	43
8:45:00	68	17	66	10	91	22	1	0	2	1	3	2	3	0	0	0	2	1	105	18
9:00:00	81	13	72	6	119	28	1	0	2	0	3	0	3	0	0	0	2	0	117	12
9:15:00	90	9	87	15	142	23	1	0	2	0	4	1	3	0	0	0	2	0	143	26
9:30:00	100	10	98	11	153	11	1	0	2	0	4	0	3	0	0	0	2	0	168	25
9:45:00	110	10	105	7	162	9	1	0	2	0	4	0	3	0	0	0	2	0	197	29
10:00:00	125	15	121	16	173	11	1	0	2	0	4	0	3	0	0	0	2	0	232	35
10:00:17	125	0	121	0	173	0	1	0	2	0	4	0	3	0	0	0	2	0	232	0
11:00:00	125	0	121	0	173	0	1	0	2	0	4	0	3	0	0	0	2	0	232	0
11:15:00	139	14	129	8	186	13	1	0	2	0	5	1	3	0	0	0	2	0	275	43
11:30:00	152	13	142	13	199	13	1	0	2	0	5	0	3	0	0	0	2	0	300	25
11:45:00	169	17	157	15	220	21	1	0	3	1	5	0	3	0	0	0	2	0	319	19
12:00:00	178	9	169	12	235	15	1	0	3	0	5	0	3	0	0	0	2	0	354	35
12:15:00	188	10	175	6	252	17	1	0	3	0	5	0	3	0	0	0	3	1	385	31
12:30:00	198	10	205	30	266	14	1	0	4	1	5	0	3	0	0	0	3	0	407	22
12:45:00	228	30	230	25	290	24	1	0	4	0	5	0	3	0	0	0	3	0	445	38
13:00:00	236	8	250	20	301	11	1	0	4	0	5	0	3	0	0	0	4	1	491	46
13:15:00	248	12	266	16	314	13	2	1	4	0	5	0	3	0	0	0	4	0	521	30
13:30:00	266	18	271	5	321	7	2	0	4	0	5	0	3	0	0	0	4	0	571	50
13:45:00	274	8	282	11	340	19	2	0	4	0	5	0	3	0	0	0	4	0	590	19
14:00:00	282	8	294	12	355	15	2	0	4	0	5	0	3	0	0	0	4	0	609	19
14:15:00	283	1	294	0	356	1	2	0	4	0	5	0	3	0	0	0	4	0	609	0
14:29:09	283	0	294	0	356	0	2	0	4	0	5	0	3	0	0	0	4	0	609	0
15:00:00	283	0	294	0	356	0	2	0	4	0	5	0	3	0	0	0	4	0	612	3
15:15:00	292	9	315	21	375	19	2	0	4	0	5	0	3	0	0	0	4	0	638	26
15:30:00	304	12	335	20	389	14	2	0	4	0	5	0	3	0	0	0	4	0	665	27
15:45:00	311	7	354	19	407	18	2	0	4	0	5	0	3	0	0	0	4	0	700	35
16:00:00	330	19	380	26	422	15	2	0	4	0	5	0	3	0	0	0	4	0	773	73
16:15:00	354	24	404	24	438	16	2	0	4	0	6	1	3	0	0	0	4	0	843	70
16:30:00	366	12	434	30	468	30	2	0	4	0	6	0	3	0	0	0	4	0	894	51
16:45:00	381	15	465	31	509	41	2	0	4	0	6	0	3	0	0	0	4	0	924	30
17:00:00	391	10	490	25	530	21	2	0	4	0	6	0	3	0	0	0	4	0	957	33
17:15:00	400	9	512	22	547	17	2	0	4	0	6	0	3	0	0	0	4	0	989	32
17:30:00	426	26	536	24	575	28	2	0	4	0	6	0	3	0	0	0	4	0	1039	50

Ontario Traffic Inc.

Count Date: 4-Oct-17 Site #: 1700600071

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	0	0	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	54	37	3	3	0	0	4	4	0	0	0	0	0	0	0	0	0	0
7:45:00	1	1	94	40	6	3	0	0	5	1	0	0	0	0	1	1	0	0	0	0
8:00:00	1	0	133	39	7	1	0	0	6	1	1	1	0	0	2	1	0	0	0	9
8:15:00	2	1	173	40	17	10	0	0	6	0	1	0	0	0	2	0	0	0	0	21
8:30:00	5	3	216	43	29	12	0	0	9	3	1	0	0	0	3	1	0	0	0	55
8:45:00	7	2	288	72	35	6	0	0	11	2	2	1	0	0	4	1	0	0	0	62
9:00:00	9	2	338	50	41	6	0	0	12	1	2	0	0	0	4	0	0	0	0	69
9:15:00	12	3	399	61	55	14	0	0	14	2	2	0	0	0	4	0	0	0	0	74
9:30:00	12	0	438	39	63	8	0	0	15	1	2	0	0	0	4	0	0	0	0	86
9:45:00	13	1	488	50	74	11	0	0	17	2	2	0	0	0	4	0	0	0	0	104
10:00:00	14	1	536	48	86	12	0	0	19	2	2	0	0	0	4	0	0	0	0	128
10:00:17	14	0	536	0	86	0	0	0	19	0	2	0	0	0	4	0	0	0	0	128
11:00:00	14	0	536	0	86	0	0	0	19	0	2	0	0	0	4	0	0	0	0	128
11:15:00	15	1	572	36	98	12	0	0	20	1	2	0	0	0	4	0	0	0	0	147
11:30:00	16	1	622	50	113	15	0	0	20	0	2	0	0	0	4	0	0	0	0	175
11:45:00	20	4	663	41	127	14	0	0	21	1	4	2	0	0	4	0	0	0	0	189
12:00:00	22	2	707	44	133	6	0	0	24	3	4	0	0	0	4	0	0	0	0	205
12:15:00	25	3	746	39	139	6	0	0	25	1	4	0	0	0	4	0	0	0	0	222
12:30:00	29	4	786	40	149	10	0	0	27	2	4	0	0	0	4	0	0	0	0	235
12:45:00	39	10	886	100	162	13	0	0	30	3	4	0	0	0	4	0	0	0	0	269
13:00:00	41	2	937	51	165	3	0	0	31	1	4	0	0	0	4	0	0	0	0	291
13:15:00	43	2	984	47	173	8	0	0	35	4	4	0	0	0	4	0	0	0	0	309
13:30:00	43	0	1022	38	185	12	0	0	35	0	4	0	0	0	4	0	0	0	0	326
13:45:00	45	2	1066	44	193	8	0	0	37	2	5	1	1	1	4	0	0	0	0	348
14:00:00	45	0	1107	41	202	9	0	0	38	1	6	1	1	0	4	0	0	0	0	361
14:15:00	45	0	1110	3	203	1	0	0	38	0	6	0	1	0	4	0	0	0	0	362
14:29:09	45	0	1110	0	203	0	0	0	38	0	6	0	1	0	4	0	0	0	0	362
15:00:00	45	0	1110	0	203	0	0	0	38	0	6	0	1	0	4	0	0	0	0	362
15:15:00	51	6	1173	63	217	14	0	0	44	6	6	0	1	0	4	0	0	0	0	370
15:30:00	54	3	1207	34	223	6	0	0	45	1	6	0	1	0	5	1	0	0	0	377
15:45:00	57	3	1246	39	241	18	0	0	47	2	7	1	1	0	5	0	0	0	0	384
16:00:00	61	4	1300	54	260	19	0	0	50	3	7	0	1	0	6	1	0	0	0	397
16:15:00	62	1	1344	44	272	12	0	0	50	0	7	0	1	0	6	0	0	0	0	408
16:30:00	66	4	1394	50	282	10	0	0	53	3	8	1	1	0	6	0	0	0	0	412
16:45:00	68	2	1447	53	305	23	0	0	56	3	8	0	1	0	6	0	0	0	0	417
17:00:00	68	0	1499	52	314	9	0	0	58	2	8	0	1	0	6	0	0	0	0	426
17:15:00	72	4	1540	41	323	9	0	0	60	2	8	0	1	0	6	0	0	0	0	434
17:30:00	75	3	1601	61	336	13	0	0	62	2	8	0	1	0	6	0	0	0	0	458

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:15:00
To: 9:15:00

Municipality: Windsor
Site #: 1700600069
Intersection: University Ave W & Campbell Ave
TFR File #: 1
Count date: 2-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 174
North Entering: 68
North Peds: 21
Peds Cross: \bowtie

Heavys	0	0	0	0
Trucks	1	5	1	7
Cars	8	40	13	61
Totals	9	45	14	



Heavys	0
Trucks	6
Cars	100
Totals	106

East Leg Total: 706
East Entering: 265
East Peds: 12
Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
3	10	233	246



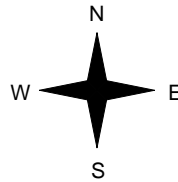
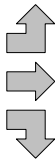
Campbell Ave

Cars	Trucks	Heavys	Totals
7	0	0	7
193	9	3	205
51	1	1	53
251	10	4	



University Ave W

Heavys	Trucks	Cars	Totals
0	3	14	17
0	8	289	297
0	0	36	36
0	11	339	



University Ave W



Peds Cross: \bowtie
West Peds: 16
West Entering: 350
West Leg Total: 596

Cars	127	Cars	32	79	128	239
Trucks	6	Trucks	0	3	2	5
Heavys	1	Heavys	0	0	0	0
Totals	134	Totals	32	82	130	



Campbell Ave



Peds Cross: \bowtie
South Peds: 28
South Entering: 244
South Leg Total: 378

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600069
Intersection: University Ave W & Campbell Ave
TFR File #: 1
Count date: 2-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 265
North Entering: 120
North Peds: 44
Peds Cross: \times

Heavys	0	0	0	0
Trucks	3	7	0	10
Cars	28	64	18	110
Totals	31	71	18	



Heavys	1
Trucks	5
Cars	139
Totals	145

East Leg Total: 798
East Entering: 384
East Peds: 38
Peds Cross: \times

Heavys	Trucks	Cars	Totals
3	15	358	376

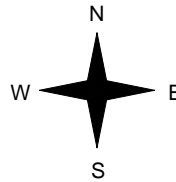


Campbell Ave

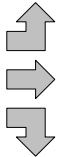
Cars	Trucks	Heavys	Totals
23	0	0	23
271	11	3	285
76	0	0	76
370	11	3	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	18	18
3	7	286	296
0	1	73	74
3	8	377	



University Ave W



Cars	Trucks	Heavys	Totals
402	9	3	414

Peds Cross: \times
West Peds: 28
West Entering: 388
West Leg Total: 764

Cars	213	Cars	59	98	98	255
Trucks	8	Trucks	1	5	2	8
Heavys	0	Heavys	0	1	0	1
Totals	221	Totals	60	104	100	



Campbell Ave



Peds Cross: \times
South Peds: 40
South Entering: 264
South Leg Total: 485

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 17:00:00

To: 18:00:00

Municipality: Windsor
Site #: 1700600069
Intersection: University Ave W & Campbell Ave
TFR File #: 1
Count date: 2-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 247
 North Entering: 116
 North Peds: 37
 Peds Cross: \bowtie

Heavys	0	0	0	0
Trucks	2	4	0	6
Cars	22	66	22	110
Totals	24	70	22	



Heavys	1
Trucks	5
Cars	125
Totals	131

East Leg Total: 980
 East Entering: 568
 East Peds: 36
 Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
1	12	473	486

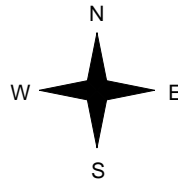


Campbell Ave

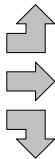
Cars	Trucks	Heavys	Totals
12	0	0	12
403	7	1	411
145	0	0	145
560	7	1	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	24	24
2	7	299	308
0	2	88	90
2	9	411	



University Ave W



Cars	Trucks	Heavys	Totals
403	7	2	412

Peds Cross: \bowtie
 West Peds: 37
 West Entering: 422
 West Leg Total: 908

Cars	299
Trucks	6
Heavys	0
Totals	305

Cars	48	89	82	219
Trucks	3	5	0	8
Heavys	0	1	0	1
Totals	51	95	82	



Campbell Ave



Peds Cross: \bowtie
 South Peds: 89
 South Entering: 228
 South Leg Total: 533

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600069
Intersection: University Ave W & Campbell Ave
TFR File #: 1
Count date: 2-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 1735
 North Entering: 780
 North Peds: 267
 Peds Cross: \times

Heavys	0	3	0	3
Trucks	9	48	1	58
Cars	126	494	99	719
Totals	135	545	100	



Heavys	6
Trucks	44
Cars	905
Totals	955

East Leg Total: 6485
 East Entering: 3333
 East Peds: 190
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
10	95	2828	2933

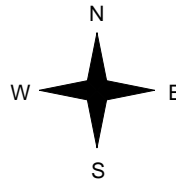


Campbell Ave

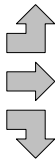
Cars	Trucks	Heavys	Totals
96	1	1	98
2374	79	10	2463
762	8	2	772
3232	88	13	



University Ave W



Heavys	Trucks	Cars	Totals
0	4	150	154
7	64	2231	2302
0	7	426	433
7	75	2807	



University Ave W



Peds Cross: \times
 West Peds: 217
 West Entering: 2889
 West Leg Total: 5822

Cars	1682
Trucks	63
Heavys	5
Totals	1750



Cars	328	659	732	1719
Trucks	7	39	17	63
Heavys	0	5	1	6
Totals	335	703	750	

Peds Cross: \times
 South Peds: 403
 South Entering: 1788
 South Leg Total: 3538



Campbell Ave

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave W & Campbell Ave Count Date: 2-Oct-17 Municipality: Windsor

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				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	2	43	7	52	21	169	8:00:00	14	46	57	117	29
9:00:00	9	50	10	69	15	287	9:00:00	35	72	111	218	22
10:00:00	11	53	14	78	29	271	10:00:00	39	67	87	193	46
11:00:00	0	1	0	1	0	5	11:00:00	1	1	2	4	0
12:00:00	7	55	4	66	28	222	12:00:00	27	63	66	156	46
13:00:00	18	71	31	120	44	384	13:00:00	60	104	100	264	40
14:00:00	5	46	13	64	28	220	14:00:00	29	71	56	156	49
15:00:00	0	0	0	0	3	3	15:00:00	0	1	2	3	0
16:00:00	17	89	26	132	33	387	16:00:00	50	102	103	255	39
17:00:00	9	67	6	82	29	276	17:00:00	29	81	84	194	43
18:00:00	22	70	24	116	37	344	18:00:00	51	95	82	228	89
Totals:	100	545	135	780	267	2568		335	703	750	1788	403

East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				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	19	92	1	112	5	286	8:00:00	7	154	13	174	24
9:00:00	43	226	6	275	10	609	9:00:00	15	289	30	334	18
10:00:00	49	210	4	263	20	557	10:00:00	19	245	30	294	17
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	1
12:00:00	86	227	4	317	24	573	12:00:00	16	202	38	256	14
13:00:00	76	285	23	384	38	772	13:00:00	18	296	74	388	28
14:00:00	74	258	7	339	22	608	14:00:00	11	217	41	269	23
15:00:00	5	22	0	27	0	43	15:00:00	0	13	3	16	0
16:00:00	140	384	30	554	19	929	16:00:00	13	302	60	375	37
17:00:00	135	348	11	494	16	855	17:00:00	31	276	54	361	18
18:00:00	145	411	12	568	36	990	18:00:00	24	308	90	422	37
Totals:	772	2463	98	3333	190	6222		154	2302	433	2889	217

Calculated Values for Traffic Crossing Major Street

Hours Ending:	9:00	10:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	144	154	135	248	150	225	153	241

Ontario Traffic Inc.

Count Date: 2-Oct-17 Site #: 1700600069

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	13	13	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	0	0	22	9	3	1	0	0	2	2	0	0	0	0	0	0	0	0	3	1
7:45:00	0	0	33	11	6	3	0	0	2	0	0	0	0	0	0	0	0	0	15	12
8:00:00	2	2	38	5	7	1	0	0	5	3	0	0	0	0	0	0	0	0	21	6
8:15:00	5	3	48	10	14	7	0	0	6	1	0	0	0	0	0	0	0	0	23	2
8:30:00	6	1	65	17	15	1	0	0	7	1	0	0	0	0	0	0	0	0	33	10
8:45:00	9	3	74	9	17	2	0	0	8	1	0	0	0	0	0	0	0	0	33	0
9:00:00	10	1	85	11	17	0	1	1	8	0	0	0	0	0	0	0	0	0	36	3
9:15:00	18	8	88	3	22	5	1	0	11	3	1	1	0	0	0	0	0	0	44	8
9:30:00	19	1	102	14	22	0	1	0	11	0	1	0	0	0	0	0	0	0	52	8
9:45:00	20	1	114	12	25	3	1	0	12	1	1	0	0	0	1	1	0	0	58	6
10:00:00	21	1	130	16	29	4	1	0	14	2	2	1	0	0	2	1	0	0	65	7
10:04:52	21	0	130	0	29	0	1	0	14	0	2	0	0	0	2	0	0	0	65	0
11:00:00	21	0	131	1	29	0	1	0	14	0	2	0	0	0	2	0	0	0	65	0
11:15:00	22	1	140	9	29	0	1	0	16	2	2	0	0	0	2	0	0	0	67	2
11:30:00	23	1	149	9	32	3	1	0	16	0	2	0	0	0	2	0	0	0	71	4
11:45:00	25	2	164	15	32	0	1	0	17	1	2	0	0	0	3	1	0	0	79	8
12:00:00	28	3	182	18	32	0	1	0	17	0	3	1	0	0	3	0	0	0	93	14
12:15:00	34	6	195	13	37	5	1	0	22	5	4	1	0	0	3	0	0	0	100	7
12:30:00	38	4	220	25	45	8	1	0	23	1	5	1	0	0	3	0	0	0	109	9
12:45:00	46	8	235	15	54	9	1	0	23	0	6	1	0	0	3	0	0	0	135	26
13:00:00	46	0	246	11	60	6	1	0	24	1	6	0	0	0	3	0	0	0	137	2
13:15:00	47	1	258	12	62	2	1	0	24	0	6	0	0	0	3	0	0	0	144	7
13:30:00	50	3	266	8	65	3	1	0	28	4	6	0	0	0	3	0	0	0	150	6
13:45:00	50	0	279	13	70	5	1	0	29	1	6	0	0	0	3	0	0	0	159	9
14:00:00	51	1	287	8	73	3	1	0	29	0	6	0	0	0	3	0	0	0	165	6
14:00:20	51	0	287	0	73	0	1	0	29	0	6	0	0	0	3	0	0	0	165	0
15:00:00	51	0	287	0	73	0	1	0	29	0	6	0	0	0	3	0	0	0	168	3
15:15:00	53	2	298	11	74	1	1	0	30	1	7	1	0	0	3	0	0	0	179	11
15:30:00	55	2	321	23	80	6	1	0	33	3	7	0	0	0	3	0	0	0	182	3
15:45:00	60	5	347	26	91	11	1	0	35	2	7	0	0	0	3	0	0	0	193	11
16:00:00	68	8	367	20	98	7	1	0	38	3	7	0	0	0	3	0	0	0	201	8
16:15:00	70	2	380	13	98	0	1	0	39	1	7	0	0	0	3	0	0	0	205	4
16:30:00	75	5	395	15	103	5	1	0	43	4	7	0	0	0	3	0	0	0	220	15
16:45:00	76	1	411	16	104	1	1	0	44	1	7	0	0	0	3	0	0	0	230	10
17:00:00	77	1	428	17	104	0	1	0	44	0	7	0	0	0	3	0	0	0	230	0
17:15:00	79	2	448	20	117	13	1	0	46	2	7	0	0	0	3	0	0	0	254	24
17:30:00	86	7	458	10	118	1	1	0	47	1	7	0	0	0	3	0	0	0	257	3
17:45:00	89	3	471	13	119	1	1	0	47	0	8	1	0	0	3	0	0	0	264	7

Ontario Traffic Inc.

Count Date: 2-Oct-17 Site #: 1700600069

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	2	2	13	13	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
7:30:00	5	3	25	12	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	1
7:45:00	13	8	51	26	0	0	0	0	8	5	0	0	0	0	0	0	0	0	1	0
8:00:00	18	5	83	32	1	1	1	1	9	1	0	0	0	0	0	0	0	0	5	4
8:15:00	27	9	139	56	3	2	1	0	11	2	0	0	0	0	0	0	0	0	6	1
8:30:00	35	8	204	65	3	0	1	0	13	2	0	0	0	0	0	0	0	0	9	3
8:45:00	47	12	253	49	4	1	2	1	15	2	0	0	0	0	1	1	0	0	11	2
9:00:00	60	13	301	48	7	3	2	0	16	1	0	0	0	0	1	0	0	0	15	4
9:15:00	78	18	332	31	10	3	2	0	20	4	0	0	1	1	3	2	0	0	18	3
9:30:00	88	10	376	44	10	0	2	0	22	2	0	0	1	0	3	0	0	0	22	4
9:45:00	98	10	418	42	11	1	2	0	23	1	0	0	1	0	3	0	0	0	31	9
10:00:00	108	10	499	81	11	0	2	0	26	3	0	0	1	0	3	0	0	0	35	4
10:04:52	108	0	499	0	11	0	2	0	26	0	0	0	1	0	3	0	0	0	35	0
11:00:00	108	0	499	0	11	0	2	0	26	0	0	0	1	0	3	0	0	0	35	0
11:15:00	125	17	551	52	11	0	2	0	27	1	0	0	1	0	3	0	0	0	40	5
11:30:00	137	12	598	47	11	0	2	0	28	1	0	0	1	0	3	0	0	0	43	3
11:45:00	174	37	649	51	12	1	2	0	31	3	0	0	1	0	3	0	0	0	54	11
12:00:00	193	19	717	68	15	3	3	1	35	4	0	0	1	0	3	0	0	0	59	5
12:15:00	219	26	763	46	19	4	3	0	39	4	0	0	1	0	3	0	0	0	65	6
12:30:00	243	24	835	72	25	6	3	0	41	2	0	0	1	0	3	0	0	0	69	4
12:45:00	255	12	925	90	35	10	3	0	43	2	0	0	1	0	3	0	0	0	94	25
13:00:00	269	14	988	63	38	3	3	0	46	3	0	0	1	0	6	3	0	0	97	3
13:15:00	278	9	1047	59	40	2	3	0	47	1	0	0	1	0	6	0	0	0	103	6
13:30:00	296	18	1106	59	42	2	4	1	48	1	0	0	1	0	6	0	1	1	108	5
13:45:00	321	25	1168	62	42	0	5	1	49	1	0	0	1	0	6	0	1	0	114	6
14:00:00	340	19	1240	72	44	2	6	1	52	3	0	0	1	0	6	0	1	0	119	5
14:00:20	342	2	1254	14	44	0	6	0	52	0	0	0	1	0	6	0	1	0	119	0
15:00:00	345	3	1262	8	44	0	6	0	52	0	0	0	1	0	6	0	1	0	119	0
15:15:00	389	44	1369	107	45	1	7	1	56	4	0	0	1	0	6	0	1	0	126	7
15:30:00	414	25	1445	76	54	9	8	1	58	2	1	1	1	0	6	0	1	0	130	4
15:45:00	457	43	1565	120	66	12	8	0	61	3	1	0	1	0	6	0	1	0	133	3
16:00:00	482	25	1634	69	73	7	8	0	63	2	1	0	2	1	7	1	1	0	138	5
16:15:00	512	30	1713	79	75	2	8	0	64	1	1	0	2	0	8	1	1	0	139	1
16:30:00	554	42	1782	69	80	5	8	0	69	5	1	0	2	0	9	1	1	0	151	12
16:45:00	588	34	1889	107	82	2	8	0	72	3	1	0	2	0	9	0	1	0	152	1
17:00:00	617	29	1971	82	84	2	8	0	72	0	1	0	2	0	9	0	1	0	154	2
17:15:00	659	42	2092	121	86	2	8	0	74	2	1	0	2	0	10	1	1	0	170	16
17:30:00	691	32	2173	81	89	3	8	0	76	2	1	0	2	0	10	0	1	0	175	5
17:45:00	730	39	2278	105	89	0	8	0	77	1	1	0	2	0	10	0	1	0	178	3

Ontario Traffic Inc.

Count Date: 2-Oct-17 Site #: 1700600069

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	0	0	7	7	5	5	0	0	0	0	0	0	0	0	0	0	0	0	7	7
7:30:00	3	3	18	11	18	13	0	0	0	0	0	0	0	0	0	0	0	20	13	
7:45:00	7	4	26	8	30	12	0	0	2	2	1	1	0	0	0	0	0	23	3	
8:00:00	14	7	43	17	56	26	0	0	3	1	1	0	0	0	0	0	0	29	6	
8:15:00	23	9	59	16	65	9	0	0	3	0	1	0	0	0	0	0	0	34	5	
8:30:00	40	17	74	15	91	26	0	0	4	1	3	2	0	0	0	0	0	42	8	
8:45:00	47	7	91	17	131	40	0	0	4	0	3	0	0	0	0	0	0	45	3	
9:00:00	49	2	112	21	165	34	0	0	6	2	3	0	0	0	0	0	0	51	6	
9:15:00	55	6	138	26	193	28	0	0	6	0	3	0	0	0	0	0	0	62	11	
9:30:00	60	5	153	15	210	17	0	0	6	0	3	0	0	0	0	0	0	73	11	
9:45:00	71	11	160	7	229	19	0	0	7	1	4	1	0	0	0	0	0	82	9	
10:00:00	88	17	176	16	250	21	0	0	9	2	5	1	0	0	0	0	0	97	15	
10:04:52	88	0	176	0	250	0	0	0	9	0	5	0	0	0	0	0	0	97	0	
11:00:00	89	1	177	1	252	2	0	0	9	0	5	0	0	0	0	0	0	97	0	
11:15:00	97	8	193	16	269	17	0	0	9	0	5	0	0	0	0	0	0	111	14	
11:30:00	100	3	202	9	280	11	0	0	10	1	7	2	0	0	0	0	0	114	3	
11:45:00	109	9	219	17	299	19	1	1	11	1	7	0	0	0	1	1	0	130	16	
12:00:00	114	5	237	18	316	17	2	1	11	0	7	0	0	0	1	0	0	143	13	
12:15:00	124	10	253	16	332	16	2	0	13	2	8	1	0	0	1	0	0	159	16	
12:30:00	135	11	280	27	357	25	2	0	14	1	8	0	0	0	1	0	0	165	6	
12:45:00	152	17	314	34	390	33	2	0	15	1	8	0	0	0	2	1	0	174	9	
13:00:00	173	21	335	21	414	24	3	1	16	1	9	1	0	0	2	0	0	183	9	
13:15:00	182	9	351	16	431	17	3	0	16	0	10	1	0	0	2	0	0	200	17	
13:30:00	191	9	370	19	440	9	3	0	18	2	10	0	0	0	2	0	0	210	10	
13:45:00	197	6	384	14	456	16	3	0	18	0	10	0	0	0	2	0	0	216	6	
14:00:00	202	5	402	18	468	12	3	0	20	2	11	1	0	0	2	0	0	232	16	
14:00:20	202	0	402	0	470	2	3	0	20	0	11	0	0	0	2	0	0	232	0	
15:00:00	202	0	402	0	470	0	3	0	21	1	11	0	0	0	2	0	0	232	0	
15:15:00	213	11	418	16	487	17	3	0	22	1	12	1	0	0	2	0	0	238	6	
15:30:00	225	12	439	21	504	17	3	0	23	1	12	0	0	0	2	0	0	247	9	
15:45:00	244	19	477	38	535	31	4	1	26	3	14	2	0	0	2	0	0	267	20	
16:00:00	251	7	497	20	570	35	4	0	27	1	14	0	0	0	3	1	0	271	4	
16:15:00	256	5	510	13	586	16	4	0	30	3	15	1	0	0	3	0	1	275	4	
16:30:00	266	10	528	18	606	20	4	0	34	4	16	1	0	0	4	1	1	292	17	
16:45:00	273	7	547	19	620	14	4	0	34	0	16	0	0	0	4	0	1	302	10	
17:00:00	280	7	570	23	650	30	4	0	34	0	17	1	0	0	4	0	1	314	12	
17:15:00	295	15	595	25	673	23	4	0	36	2	17	0	0	0	5	1	1	351	37	
17:30:00	306	11	614	19	693	20	4	0	36	0	17	0	0	0	5	0	1	365	14	
17:45:00	322	16	627	13	718	25	6	2	37	1	17	0	0	0	5	0	1	383	18	

Ontario Traffic Inc.

Count Date: 2-Oct-17 Site #: 1700600069

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	2	2	18	18	2	2	0	0	3	3	0	0	0	0	0	0	0	0	2	2
7:30:00	5	3	56	38	3	1	0	0	5	2	0	0	0	0	0	0	0	0	18	16
7:45:00	7	2	97	41	11	8	0	0	6	1	0	0	0	0	1	1	0	0	22	4
8:00:00	7	0	144	47	13	2	0	0	9	3	0	0	0	0	1	0	0	0	24	2
8:15:00	12	5	201	57	19	6	0	0	11	2	0	0	0	0	1	0	0	0	31	7
8:30:00	15	3	267	66	27	8	2	2	13	2	0	0	0	0	1	0	0	0	38	7
8:45:00	17	2	357	90	34	7	3	1	15	2	0	0	0	0	1	0	0	0	39	1
9:00:00	19	2	426	69	43	9	3	0	16	1	0	0	0	0	1	0	0	0	42	3
9:15:00	26	7	490	64	55	12	3	0	19	3	0	0	0	0	1	0	0	0	47	5
9:30:00	34	8	541	51	59	4	3	0	20	1	0	0	0	0	1	0	0	0	51	4
9:45:00	35	1	598	57	66	7	3	0	23	3	0	0	0	0	1	0	0	0	55	4
10:00:00	38	3	660	62	73	7	3	0	26	3	0	0	0	0	2	1	0	0	59	4
10:04:52	38	0	660	0	73	0	3	0	26	0	0	0	0	0	2	0	0	0	59	0
11:00:00	38	0	660	0	73	0	3	0	26	0	0	0	0	0	2	0	0	0	60	1
11:15:00	43	5	705	45	84	11	3	0	28	2	0	0	0	0	2	0	0	0	67	7
11:30:00	46	3	746	41	95	11	3	0	28	0	0	0	0	0	2	0	0	0	71	4
11:45:00	54	8	797	51	106	11	3	0	28	0	0	0	0	0	2	0	0	0	72	1
12:00:00	54	0	857	60	111	5	3	0	31	3	0	0	0	0	2	0	0	0	74	2
12:15:00	57	3	928	71	128	17	3	0	34	3	0	0	0	0	3	1	0	0	83	9
12:30:00	61	4	1002	74	140	12	3	0	36	2	1	1	0	0	3	0	0	0	88	5
12:45:00	70	9	1096	94	171	31	3	0	37	1	1	0	0	0	5	2	0	0	100	12
13:00:00	72	2	1143	47	184	13	3	0	38	1	1	0	0	0	5	0	0	0	102	2
13:15:00	73	1	1206	63	203	19	3	0	39	1	1	0	0	0	5	0	0	0	107	5
13:30:00	76	3	1255	49	206	3	3	0	40	1	1	0	0	0	5	0	0	0	116	9
13:45:00	78	2	1301	46	214	8	3	0	41	1	1	0	0	0	5	0	0	0	121	5
14:00:00	83	5	1356	55	224	10	3	0	42	1	2	1	0	0	5	0	0	0	125	4
14:00:20	83	0	1362	6	224	0	3	0	42	0	2	0	0	0	5	0	0	0	125	0
15:00:00	83	0	1369	7	227	3	3	0	42	0	2	0	0	0	5	0	0	0	125	0
15:15:00	83	0	1428	59	239	12	3	0	45	3	3	1	0	0	5	0	0	0	132	7
15:30:00	86	3	1514	86	254	15	4	1	46	1	3	0	0	0	5	0	0	0	139	7
15:45:00	93	7	1604	90	277	23	4	0	49	3	3	0	0	0	5	0	0	0	148	9
16:00:00	95	2	1663	59	286	9	4	0	50	1	3	0	0	0	5	0	0	0	162	14
16:15:00	104	9	1737	74	294	8	4	0	51	1	3	0	0	0	5	0	0	0	164	2
16:30:00	120	16	1794	57	299	5	4	0	53	2	3	0	0	0	5	0	0	0	171	7
16:45:00	121	1	1879	85	322	23	4	0	54	1	3	0	0	0	5	0	0	0	174	3
17:00:00	126	5	1932	53	338	16	4	0	57	3	5	2	0	0	5	0	0	0	180	6
17:15:00	132	6	1994	62	356	18	4	0	60	3	5	0	0	0	6	1	0	0	190	10
17:30:00	139	7	2077	83	373	17	4	0	61	1	5	0	0	0	6	0	0	0	199	9
17:45:00	146	7	2165	88	389	16	4	0	63	2	5	0	0	0	6	0	0	0	208	9

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:00:00
To: 9:00:00

Municipality: Windsor
Site #: 1800600001
Intersection: University Ave W & McKay Ave
TFR File #: 1
Count date: 9-Apr-18

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 28
North Entering: 17
North Peds: 20
Peds Cross: \bowtie

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	9	0	8	17
Totals	9	0	8	



Heavys	0
Trucks	0
Cars	11
Totals	11

East Leg Total: 492
East Entering: 192
East Peds: 1
Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
2	4	192	198

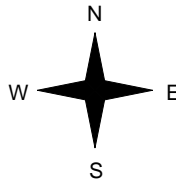


McKay Ave

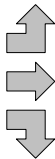
Cars	Trucks	Heavys	Totals
4	0	0	4
181	4	2	187
1	0	0	1
186	4	2	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	6	6
2	9	280	291
0	0	2	2
2	9	288	



University Ave W



Cars	Trucks	Heavys	Totals
289	9	2	300

Peds Cross: \bowtie
West Peds: 1
West Entering: 299
West Leg Total: 497

Cars	3
Trucks	0
Heavys	0
Totals	3



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

Peds Cross: \bowtie
South Peds: 5
South Entering: 4
South Leg Total: 7

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1800600001
Intersection: University Ave W & McKay Ave
TFR File #: 1
Count date: 9-Apr-18

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 41
North Entering: 22
North Peds: 14
Peds Cross: \times

Heavys	0	0	0	0
Trucks	1	0	0	1
Cars	12	2	7	21
Totals	13	2	7	



Heavys	0
Trucks	1
Cars	18
Totals	19

East Leg Total: 452
East Entering: 232
East Peds: 1
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	8	222	231

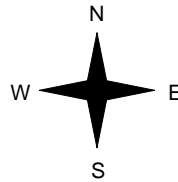


McKay Ave

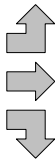
Cars	Trucks	Heavys	Totals
9	1	0	10
209	7	1	217
5	0	0	5
223	8	1	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	8	8
1	8	202	211
0	0	1	1
1	8	211	



University Ave W



Peds Cross: \times
West Peds: 1
West Entering: 220
West Leg Total: 451

Cars	8
Trucks	0
Heavys	0
Totals	8



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

Peds Cross: \times
South Peds: 11
South Entering: 4
South Leg Total: 12

Comments

Ontario 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: Windsor
Site #: 1800600001
Intersection: University Ave W & McKay Ave
TFR File #: 1
Count date: 9-Apr-18

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 46
North Entering: 21
North Peds: 11
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	13	0	8	21
Totals	13	0	8	



Heavys	0
Trucks	0
Cars	25
Totals	25

East Leg Total: 611
East Entering: 348
East Peds: 1
Peds Cross: \times

Heavys	0
Trucks	6
Cars	341
Totals	347

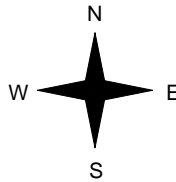


McKay Ave

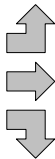
Cars	10	0	0	10
Trucks	325	6	0	331
Heavys	7	0	0	7
Totals	342	6	0	



University Ave W



Heavys	0
Trucks	0
Cars	14
Totals	14
Heavys	0
Trucks	10
Cars	240
Totals	250
Heavys	0
Trucks	0
Cars	7
Totals	7
Heavys	0
Trucks	10
Cars	261
Totals	271



McKay Ave



University Ave W



Cars	253	10	0	263
Trucks				
Heavys				
Totals				

Peds Cross: \times
West Peds: 5
West Entering: 271
West Leg Total: 618

Cars	14
Trucks	0
Heavys	0
Totals	14



Cars	3	1	5	9
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	3	1	5	

Peds Cross: \times
South Peds: 14
South Entering: 9
South Leg Total: 23

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1800600001
Intersection: University Ave W & McKay Ave
TFR File #: 1
Count date: 9-Apr-18

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 325
 North Entering: 181
 North Peds: 136
 Peds Cross: \times

Heavys	0	0	0	0
Trucks	4	0	1	5
Cars	94	9	73	176
Totals	98	9	74	



Heavys	1
Trucks	1
Cars	142
Totals	144

East Leg Total: 3905
 East Entering: 2004
 East Peds: 8
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
7	63	1957	2027

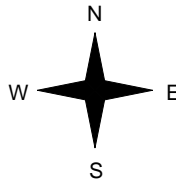


McKay Ave

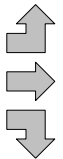
Cars	Trucks	Heavys	Totals
63	1	0	64
1850	59	7	1916
24	0	0	24
1937	60	7	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	71	71
6	69	1735	1810
1	0	20	21
7	69	1826	



McKay Ave

University Ave W



Cars	Trucks	Heavys	Totals
1825	70	6	1901

Peds Cross: \times
 West Peds: 31
 West Entering: 1902
 West Leg Total: 3929

Cars	53	Cars	13	8	17	38
Trucks	0	Trucks	0	0	0	0
Heavys	1	Heavys	0	1	0	1
Totals	54	Totals	13	9	17	



Peds Cross: \times
 South Peds: 103
 South Entering: 39
 South Leg Total: 93

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave W & McKay Ave

Count Date: 9-Apr-18

Municipality: Windsor

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				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	9	2	12	23	16	27	8:00:00	1	1	2	4	4
9:00:00	8	0	9	17	20	21	9:00:00	2	1	1	4	5
10:00:00	4	2	8	14	13	16	10:00:00	0	0	2	2	15
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	7	0	4	11	19	11	12:00:00	0	0	0	0	9
13:00:00	7	2	13	22	14	26	13:00:00	1	1	2	4	11
14:00:00	7	1	9	17	13	22	14:00:00	2	2	1	5	8
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	16	1	12	29	17	34	16:00:00	3	0	2	5	29
17:00:00	7	1	16	24	12	30	17:00:00	2	3	1	6	6
18:00:00	9	0	15	24	12	33	18:00:00	2	1	6	9	16
Totals:	74	9	98	181	136	220		13	9	17	39	103
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	1	0	1	0	4	7:00:00	0	3	0	3	0
8:00:00	1	110	2	113	1	219	8:00:00	1	105	0	106	5
9:00:00	1	187	4	192	1	491	9:00:00	6	291	2	299	1
10:00:00	0	134	6	140	1	311	10:00:00	3	168	0	171	3
11:00:00	0	0	0	0	0	2	11:00:00	0	2	0	2	1
12:00:00	1	169	9	179	1	313	12:00:00	5	129	0	134	1
13:00:00	5	217	10	232	1	452	13:00:00	8	211	1	220	1
14:00:00	2	218	5	225	0	407	14:00:00	7	172	3	182	1
15:00:00	0	6	0	6	0	14	15:00:00	0	8	0	8	0
16:00:00	2	277	10	289	2	562	16:00:00	11	260	2	273	7
17:00:00	5	299	7	311	0	543	17:00:00	16	209	7	232	4
18:00:00	7	297	11	315	1	585	18:00:00	14	250	6	270	7
Totals:	24	1915	64	2003	8	3903		71	1808	21	1900	31
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00		14:00	16:00	17:00	18:00			
Crossing Values:	13	10	9	12		12	29	16	20			

Ontario Traffic Inc.

Count Date: 9-Apr-18 Site #: 1800600001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	19	18	1	1	0	0	3	3	0	0	0	0	0	0	0	0	0	0
7:30:00	1	1	43	24	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
7:45:00	1	0	63	20	2	1	0	0	6	3	0	0	0	0	0	0	0	0	1	1
8:00:00	1	0	101	38	2	0	0	0	9	3	0	0	0	0	1	1	0	0	1	0
8:15:00	1	0	134	33	2	0	0	0	10	1	0	0	0	0	2	1	0	0	1	0
8:30:00	2	1	185	51	5	3	0	0	11	1	0	0	0	0	3	1	0	0	1	0
8:45:00	2	0	227	42	6	1	0	0	11	0	0	0	0	0	3	0	0	0	2	1
9:00:00	2	0	282	55	6	0	0	0	13	2	0	0	0	0	3	0	0	0	2	0
9:15:00	2	0	311	29	7	1	0	0	13	0	0	0	0	0	3	0	0	0	3	1
9:30:00	2	0	334	23	9	2	0	0	15	2	0	0	0	0	3	0	0	0	3	0
9:45:00	2	0	371	37	12	3	0	0	15	0	0	0	0	0	4	1	0	0	3	0
10:00:00	2	0	411	40	12	0	0	0	17	2	0	0	0	0	4	0	0	0	3	0
10:00:34	2	0	411	0	12	0	0	0	17	0	0	0	0	0	4	0	0	0	3	0
11:00:00	2	0	411	0	12	0	0	0	17	0	0	0	0	0	4	0	0	0	3	0
11:15:00	3	1	450	39	17	5	0	0	19	2	0	0	0	0	4	0	0	0	3	0
11:30:00	3	0	478	28	19	2	0	0	23	4	0	0	0	0	4	0	0	0	3	0
11:45:00	3	0	519	41	19	0	0	0	24	1	0	0	0	0	4	0	0	0	4	1
12:00:00	3	0	573	54	21	2	0	0	24	0	0	0	0	0	4	0	0	0	4	0
12:15:00	3	0	639	66	22	1	0	0	26	2	0	0	0	0	4	0	0	0	4	0
12:30:00	6	3	674	35	23	1	0	0	28	2	1	1	0	0	4	0	0	0	4	0
12:45:00	7	1	728	54	25	2	0	0	30	2	1	0	0	0	5	1	0	0	4	0
13:00:00	8	1	782	54	30	5	0	0	31	1	1	0	0	0	5	0	0	0	5	1
13:15:00	9	1	832	50	31	1	0	0	33	2	1	0	0	0	6	1	0	0	5	0
13:30:00	10	1	879	47	32	1	0	0	35	2	1	0	0	0	6	0	0	0	5	0
13:45:00	10	0	929	50	33	1	0	0	38	3	1	0	0	0	6	0	0	0	5	0
14:00:00	10	0	991	62	35	2	0	0	39	1	1	0	0	0	6	0	0	0	5	0
14:00:10	10	0	992	1	35	0	0	0	39	0	1	0	0	0	6	0	0	0	5	0
15:00:00	10	0	996	4	35	0	0	0	40	1	1	0	0	0	6	0	0	0	5	0
15:15:00	10	0	1072	76	37	2	0	0	42	2	1	0	0	0	6	0	0	0	7	2
15:30:00	10	0	1129	57	39	2	0	0	43	1	1	0	0	0	6	0	0	0	7	0
15:45:00	11	1	1196	67	44	5	0	0	45	2	1	0	0	0	7	1	0	0	7	0
16:00:00	12	1	1264	68	45	1	0	0	48	3	1	0	0	0	7	0	0	0	7	0
16:15:00	14	2	1339	75	46	1	0	0	48	0	1	0	0	0	7	0	0	0	7	0
16:30:00	15	1	1409	70	49	3	0	0	49	1	1	0	0	0	7	0	0	0	7	0
16:45:00	16	1	1475	66	51	2	0	0	52	3	1	0	0	0	7	0	0	0	7	0
17:00:00	17	1	1556	81	52	1	0	0	55	3	1	0	0	0	7	0	0	0	7	0
17:15:00	19	2	1661	105	56	4	0	0	55	0	1	0	0	0	7	0	0	0	7	0
17:30:00	21	2	1730	69	57	1	0	0	57	2	1	0	0	0	7	0	0	0	7	0
17:45:00	23	2	1800	70	61	4	0	0	58	1	1	0	0	0	7	0	0	0	8	1

Ontario Traffic Inc.

Count Date: 9-Apr-18 Site #: 1800600001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
7:30:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
7:45:00	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0
8:00:00	1	1	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	4	1
8:15:00	2	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1
8:30:00	2	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	7	2
8:45:00	3	1	2	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	9	2
9:00:00	3	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0
9:15:00	3	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	14	5
9:30:00	3	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	21	7
9:45:00	3	0	2	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	22	1
10:00:00	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	24	2
10:00:34	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0
11:00:00	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0
11:15:00	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	26	2
11:30:00	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0
11:45:00	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	28	2
12:00:00	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	33	5
12:15:00	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	36	3
12:30:00	4	1	2	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	37	1
12:45:00	4	0	2	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	42	5
13:00:00	4	0	3	1	7	1	0	0	0	0	0	0	0	0	0	0	0	0	44	2
13:15:00	5	1	3	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	46	2
13:30:00	5	0	3	0	7	0	0	0	0	0	0	0	0	0	1	1	0	0	50	4
13:45:00	6	1	3	0	8	1	0	0	0	0	0	0	0	0	1	0	0	0	51	1
14:00:00	6	0	4	1	8	0	0	0	0	0	0	0	0	0	1	0	0	0	52	1
14:00:10	6	0	4	0	8	0	0	0	0	0	0	0	0	0	1	0	0	0	52	0
15:00:00	6	0	4	0	8	0	0	0	0	0	0	0	0	0	1	0	0	0	52	0
15:15:00	6	0	4	0	8	0	0	0	0	0	0	0	0	0	1	0	0	0	67	15
15:30:00	7	1	4	0	9	1	0	0	0	0	0	0	0	0	1	0	0	0	71	4
15:45:00	8	1	4	0	10	1	0	0	0	0	0	0	0	0	1	0	0	0	73	2
16:00:00	9	1	4	0	10	0	0	0	0	0	0	0	0	0	1	0	0	0	81	8
16:15:00	9	0	5	1	10	0	0	0	0	0	0	0	0	0	1	0	0	0	81	0
16:30:00	9	0	5	0	10	0	0	0	0	0	0	0	0	0	1	0	0	0	86	5
16:45:00	10	1	6	1	11	1	0	0	0	0	0	0	0	0	1	0	0	0	87	1
17:00:00	11	1	7	1	11	0	0	0	0	0	0	0	0	0	1	0	0	0	87	0
17:15:00	12	1	7	0	13	2	0	0	0	0	0	0	0	0	1	0	0	0	94	7
17:30:00	12	0	7	0	15	2	0	0	0	0	0	0	0	0	1	0	0	0	96	2
17:45:00	13	1	7	0	16	1	0	0	0	0	0	0	0	0	1	0	0	0	101	5

Ontario Traffic Inc.

Count Date: 9-Apr-18 Site #: 1800600001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	2	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	
7:15:00	0	0	17	15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	1	1	46	29	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	1	0
7:45:00	1	0	73	27	0	0	0	0	5	3	0	0	0	0	1	1	0	0	2	1	
8:00:00	1	0	99	26	0	0	0	0	8	3	0	0	0	0	1	0	0	0	5	3	
8:15:00	3	2	160	61	0	0	0	0	9	1	0	0	0	0	1	0	0	0	6	1	
8:30:00	4	1	227	67	1	1	0	0	13	4	0	0	0	0	1	0	0	0	6	0	
8:45:00	6	2	290	63	2	1	0	0	14	1	0	0	0	0	1	0	0	0	6	0	
9:00:00	7	1	379	89	2	0	0	0	17	3	0	0	0	0	3	2	0	0	6	0	
9:15:00	7	0	424	45	2	0	0	0	17	0	0	0	0	0	3	0	0	0	7	1	
9:30:00	9	2	451	27	2	0	0	0	18	1	0	0	0	0	3	0	0	0	7	0	
9:45:00	9	0	496	45	2	0	0	0	20	2	0	0	0	0	3	0	0	0	7	0	
10:00:00	10	1	542	46	2	0	0	0	22	2	0	0	0	0	3	0	0	0	9	2	
10:00:34	10	0	544	2	2	0	0	0	22	0	0	0	0	0	3	0	0	0	10	1	
11:00:00	10	0	544	0	2	0	0	0	22	0	0	0	0	0	3	0	0	0	10	0	
11:15:00	11	1	583	39	2	0	0	0	23	1	0	0	0	0	4	1	0	0	11	1	
11:30:00	13	2	605	22	2	0	0	0	24	1	0	0	0	0	4	0	0	0	11	0	
11:45:00	13	0	620	15	2	0	0	0	25	1	0	0	0	0	4	0	0	0	11	0	
12:00:00	15	2	668	48	2	0	0	0	26	1	0	0	0	0	4	0	0	0	11	0	
12:15:00	15	0	720	52	3	1	0	0	27	1	0	0	0	0	4	0	0	0	11	0	
12:30:00	18	3	762	42	3	0	0	0	31	4	0	0	0	0	4	0	0	0	11	0	
12:45:00	20	2	816	54	3	0	0	0	33	2	0	0	0	0	4	0	0	0	11	0	
13:00:00	23	3	870	54	3	0	0	0	34	1	0	0	0	0	5	1	0	0	12	1	
13:15:00	25	2	923	53	3	0	0	0	36	2	0	0	0	0	5	0	1	1	12	0	
13:30:00	26	1	955	32	4	1	0	0	37	1	0	0	0	0	6	1	1	0	13	1	
13:45:00	29	3	994	39	5	1	0	0	37	0	0	0	0	0	6	0	1	0	13	0	
14:00:00	30	1	1036	42	5	0	0	0	39	2	0	0	0	0	6	0	1	0	13	0	
14:00:10	30	0	1038	2	5	0	0	0	39	0	0	0	0	0	6	0	1	0	13	0	
15:00:00	30	0	1043	5	5	0	0	0	40	1	0	0	0	0	6	0	1	0	13	0	
15:15:00	35	5	1119	76	5	0	0	0	42	2	0	0	0	0	6	0	1	0	16	3	
15:30:00	38	3	1172	53	7	2	0	0	45	3	0	0	0	0	6	0	1	0	16	0	
15:45:00	40	2	1226	54	7	0	0	0	48	3	0	0	0	0	6	0	1	0	17	1	
16:00:00	41	1	1292	66	7	0	0	0	51	3	0	0	0	0	6	0	1	0	20	3	
16:15:00	43	2	1332	40	8	1	0	0	51	0	0	0	0	0	6	0	1	0	20	0	
16:30:00	49	6	1386	54	10	2	0	0	54	3	0	0	0	0	6	0	1	0	22	2	
16:45:00	54	5	1439	53	11	1	0	0	57	3	0	0	0	0	6	0	1	0	24	2	
17:00:00	57	3	1492	53	14	3	0	0	60	3	0	0	0	0	6	0	1	0	24	0	
17:15:00	60	3	1563	71	14	0	0	0	63	3	0	0	0	0	6	0	1	0	24	0	
17:30:00	64	4	1621	58	17	3	0	0	64	1	0	0	0	0	6	0	1	0	24	0	
17:45:00	68	4	1679	58	18	1	0	0	67	3	0	0	0	0	6	0	1	0	29	5	

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:15:00
To: 9:15:00

Municipality: Windsor
Site #: 1700600070
Intersection: University Ave W & Crawford Ave
TFR File #: 2
Count date: 3-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 197
North Entering: 73
North Peds: 40
Peds Cross: \times

Heavys	0	0	0	0
Trucks	2	3	0	5
Cars	11	50	7	68
Totals	13	53	7	



Heavys	0
Trucks	2
Cars	122
Totals	124

East Leg Total: 876
East Entering: 302
East Peds: 9
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	11	333	345

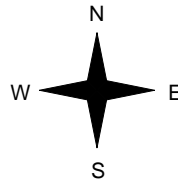


Crawford Ave

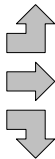
Cars	Trucks	Heavys	Totals
13	1	0	14
256	9	1	266
21	1	0	22
290	11	1	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	29	29
2	16	419	437
0	1	39	40
2	17	487	



University Ave W



Cars	Trucks	Heavys	Totals
552	19	3	574

Peds Cross: \times
West Peds: 13
West Entering: 506
West Leg Total: 851

Cars	110
Trucks	5
Heavys	0
Totals	115



Cars	66	80	126	272
Trucks	0	1	3	4
Heavys	0	0	1	1
Totals	66	81	130	

Peds Cross: \times
South Peds: 19
South Entering: 277
South Leg Total: 392

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600070
Intersection: University Ave W & Crawford Ave
TFR File #: 2
Count date: 3-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 265
North Entering: 133
North Peds: 32
Peds Cross: \bowtie

Heavys	0	0	0	0
Trucks	0	3	0	3
Cars	31	74	25	130
Totals	31	77	25	



Heavys	1
Trucks	5
Cars	126
Totals	132

East Leg Total: 878
East Entering: 452
East Peds: 11
Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
1	4	450	455

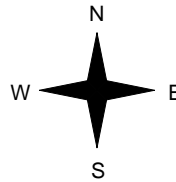


Crawford Ave

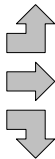
Cars	Trucks	Heavys	Totals
26	1	0	27
361	4	1	366
59	0	0	59
446	5	1	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	17	17
1	6	351	358
2	1	39	42
3	7	407	



Crawford Ave

University Ave W



Cars	Trucks	Heavys	Totals
418	7	1	426

Peds Cross: \bowtie
West Peds: 12
West Entering: 417
West Leg Total: 872

Cars	172
Trucks	4
Heavys	2
Totals	178



Cars	58	83	42	183
Trucks	0	4	1	5
Heavys	0	1	0	1
Totals	58	88	43	

Peds Cross: \bowtie
South Peds: 25
South Entering: 189
South Leg Total: 367

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:30:00

To: 17:30:00

Municipality: Windsor
Site #: 1700600070
Intersection: University Ave W & Crawford Ave
TFR File #: 2
Count date: 3-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 256
 North Entering: 128
 North Peds: 28
 Peds Cross: \times

Heavys	0	1	0	1
Trucks	0	3	0	3
Cars	36	70	18	124
Totals	36	74	18	



Heavys 2
 Trucks 1
 Cars 125
 Totals 128

East Leg Total: 1095
 East Entering: 674
 East Peds: 16
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	8	588	597



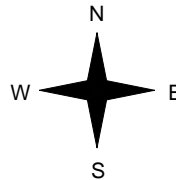
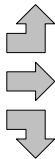
Crawford Ave

Cars	Trucks	Heavys	Totals
22	0	0	22
505	8	1	514
138	0	0	138
665	8	1	



University Ave W

Heavys	Trucks	Cars	Totals
0	0	31	31
1	5	333	339
0	0	36	36
1	5	400	



University Ave W



Peds Cross: \times
 West Peds: 15
 West Entering: 406
 West Leg Total: 1003

Cars	244	Cars	47	72	64	183
Trucks	3	Trucks	0	1	0	1
Heavys	1	Heavys	0	2	0	2
Totals	248	Totals	47	75	64	



Crawford Ave



Peds Cross: \times
 South Peds: 28
 South Entering: 186
 South Leg Total: 434

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600070
Intersection: University Ave W & Crawford Ave
TFR File #: 2
Count date: 3-Oct-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 2010
 North Entering: 903
 North Peds: 297
 Peds Cross: ⚡

Heavys	0	5	0	5
Trucks	6	19	1	26
Cars	208	527	137	872
Totals	214	551	138	



Heavys	11
Trucks	25
Cars	1071
Totals	1107

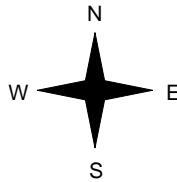
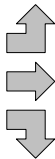
East Leg Total: 6990
 East Entering: 3336
 East Peds: 83
 Peds Cross: ⚡

Heavys	Trucks	Cars	Totals
11	84	3274	3369



University Ave W

Heavys	Trucks	Cars	Totals
2	6	225	233
9	75	2851	2935
3	9	355	367
14	90	3431	



Crawford Ave

Cars	Trucks	Heavys	Totals
157	3	0	160
2648	71	7	2726
443	5	2	450
3248	79	9	



University Ave W



Cars	Trucks	Heavys	Totals
3558	86	10	3654

Peds Cross: ⚡
 West Peds: 131
 West Entering: 3535
 West Leg Total: 6904

Cars	1325
Trucks	33
Heavys	10
Totals	1368



Cars	418	689	570	1677
Trucks	7	16	10	33
Heavys	4	9	1	14
Totals	429	714	581	

Peds Cross: ⚡
 South Peds: 249
 South Entering: 1724
 South Leg Total: 3092

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave W & Crawford Ave Count Date: 3-Oct-17 Municipality: Windsor												
North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	1	0	1	0	1	7:00:00	0	0	0	0	0
8:00:00	0	44	9	53	7	148	8:00:00	22	29	44	95	8
9:00:00	5	54	12	71	44	327	9:00:00	49	73	134	256	23
10:00:00	19	48	35	102	31	301	10:00:00	61	79	59	199	22
11:00:00	0	0	1	1	0	1	11:00:00	0	0	0	0	1
12:00:00	20	63	21	104	45	254	12:00:00	50	55	45	150	43
13:00:00	25	77	31	133	32	322	13:00:00	58	88	43	189	25
14:00:00	19	49	18	86	32	278	14:00:00	39	104	49	192	26
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	16	59	19	94	23	278	16:00:00	52	78	54	184	22
17:00:00	16	69	29	114	23	317	17:00:00	41	87	75	203	32
18:00:00	18	87	39	144	60	400	18:00:00	57	121	78	256	47
Totals:	138	551	214	903	297	2627		429	714	581	1724	249
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	1	0	1	0	3	7:00:00	0	2	0	2	0
8:00:00	12	117	4	133	4	390	8:00:00	14	222	21	257	12
9:00:00	27	253	15	295	9	791	9:00:00	32	430	34	496	14
10:00:00	20	225	18	263	10	651	10:00:00	23	324	41	388	11
11:00:00	0	3	0	3	0	11	11:00:00	0	8	0	8	1
12:00:00	31	253	11	295	6	657	12:00:00	22	288	52	362	13
13:00:00	59	366	27	452	11	869	13:00:00	17	358	42	417	12
14:00:00	40	277	21	338	7	705	14:00:00	28	305	34	367	11
15:00:00	0	0	0	0	0	4	15:00:00	0	4	0	4	0
16:00:00	44	328	9	381	4	763	16:00:00	27	303	52	382	25
17:00:00	126	457	30	613	12	1068	17:00:00	42	367	46	455	10
18:00:00	91	445	25	561	20	953	18:00:00	28	319	45	392	22
Totals:	450	2725	160	3335	83	6865		233	2930	367	3530	131
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00			14:00	16:00	17:00	18:00		
Crossing Values:	150	180	152	194			180	175	166	238		

Ontario Traffic Inc.

Count Date: 3-Oct-17 Site #: 1700600070

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	5	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	13	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	26	13	3	2	0	0	1	1	1	1	0	0	0	0	0	0	2	2
8:00:00	0	0	43	17	8	5	0	0	2	1	1	0	0	0	0	0	0	0	7	5
8:15:00	1	1	58	15	11	3	0	0	2	0	1	0	0	0	0	0	0	0	16	9
8:30:00	3	2	69	11	12	1	0	0	3	1	2	1	0	0	0	0	0	0	17	1
8:45:00	5	2	82	13	13	1	0	0	5	2	3	1	0	0	0	0	0	0	37	20
9:00:00	5	0	94	12	18	5	0	0	5	0	3	0	0	0	0	0	0	0	51	14
9:15:00	8	3	108	14	22	4	0	0	5	0	3	0	0	0	0	0	0	0	56	5
9:30:00	11	3	116	8	25	3	0	0	5	0	3	0	0	0	0	0	0	0	61	5
9:45:00	14	3	127	11	28	3	0	0	6	1	4	1	0	0	0	0	0	0	74	13
10:00:00	24	10	139	12	52	24	0	0	7	1	4	0	0	0	1	1	0	0	82	8
10:00:21	24	0	139	0	52	0	0	0	7	0	4	0	0	0	1	0	0	0	82	0
11:00:00	24	0	139	0	53	1	0	0	7	0	4	0	0	0	1	0	0	0	82	0
11:15:00	25	1	152	13	58	5	0	0	7	0	4	0	0	0	1	0	0	0	90	8
11:30:00	27	2	167	15	61	3	0	0	7	0	4	0	0	0	1	0	0	0	95	5
11:45:00	36	9	191	24	66	5	0	0	7	0	4	0	0	0	1	0	0	0	113	18
12:00:00	43	7	201	10	74	8	1	1	8	1	4	0	0	0	1	0	0	0	127	14
12:15:00	55	12	233	32	78	4	1	0	9	1	4	0	0	0	1	0	0	0	144	17
12:30:00	61	6	252	19	86	8	1	0	10	1	4	0	0	0	1	0	0	0	148	4
12:45:00	67	6	268	16	95	9	1	0	10	0	4	0	0	0	1	0	0	0	155	7
13:00:00	68	1	275	7	105	10	1	0	11	1	4	0	0	0	1	0	0	0	159	4
13:15:00	71	3	283	8	106	1	1	0	11	0	4	0	0	0	1	0	0	0	166	7
13:30:00	71	0	294	11	107	1	1	0	11	0	4	0	0	0	1	0	0	0	170	4
13:45:00	77	6	309	15	114	7	1	0	11	0	4	0	0	0	2	1	0	0	184	14
14:00:00	87	10	322	13	123	9	1	0	12	1	4	0	0	0	2	0	0	0	191	7
14:00:45	87	0	322	0	123	0	1	0	12	0	4	0	0	0	2	0	0	0	191	0
15:00:00	87	0	322	0	123	0	1	0	12	0	4	0	0	0	2	0	0	0	191	0
15:15:00	91	4	342	20	128	5	1	0	12	0	4	0	0	0	2	0	0	0	197	6
15:30:00	95	4	352	10	134	6	1	0	14	2	4	0	0	0	2	0	0	0	202	5
15:45:00	98	3	365	13	136	2	1	0	14	0	4	0	0	0	2	0	0	0	209	7
16:00:00	103	5	378	13	141	5	1	0	15	1	5	1	0	0	2	0	0	0	214	5
16:15:00	110	7	396	18	145	4	1	0	15	0	5	0	0	0	3	1	0	0	219	5
16:30:00	111	1	411	15	148	3	1	0	15	0	6	1	0	0	3	0	0	0	227	8
16:45:00	117	6	428	17	161	13	1	0	16	1	6	0	0	0	3	0	0	0	230	3
17:00:00	119	2	443	15	169	8	1	0	17	1	6	0	0	0	4	1	0	0	237	7
17:15:00	125	6	459	16	176	7	1	0	18	1	6	0	0	0	4	0	0	0	248	11
17:30:00	129	4	481	22	184	8	1	0	18	0	6	0	0	0	4	0	0	0	255	7
17:45:00	134	5	511	30	198	14	1	0	19	1	6	0	0	0	5	1	0	0	275	20

Ontario Traffic Inc.

Count Date: 3-Oct-17 Site #: 1700600070

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	5	5	25	24	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	6	1	45	20	3	3	0	0	3	1	0	0	0	0	0	0	0	0	1	1
7:45:00	10	4	68	23	3	0	1	1	4	1	0	0	0	0	0	0	0	0	2	1
8:00:00	11	1	112	44	4	1	1	0	6	2	0	0	0	0	0	0	0	0	4	2
8:15:00	18	7	146	34	6	2	1	0	8	2	0	0	0	0	0	0	0	0	4	0
8:30:00	27	9	218	72	7	1	1	0	11	3	0	0	0	0	0	0	0	0	7	3
8:45:00	32	5	291	73	14	7	2	1	14	3	0	0	0	0	1	1	0	0	10	3
9:00:00	37	5	353	62	18	4	2	0	17	3	1	1	0	0	1	0	0	0	13	3
9:15:00	39	2	402	49	19	1	2	0	17	0	1	0	0	0	1	0	0	0	13	0
9:30:00	42	3	460	58	23	4	2	0	22	5	1	0	0	0	1	0	0	0	15	2
9:45:00	49	7	512	52	26	3	2	0	24	2	1	0	0	0	1	0	0	0	15	0
10:00:00	56	7	566	54	36	10	2	0	27	3	1	0	1	1	3	2	0	0	23	8
10:00:21	56	0	567	1	36	0	2	0	27	0	1	0	1	0	3	0	0	0	23	0
11:00:00	56	0	569	2	36	0	2	0	27	0	1	0	1	0	3	0	0	0	23	0
11:15:00	60	4	623	54	39	3	2	0	29	2	1	0	1	0	3	0	0	0	23	0
11:30:00	65	5	676	53	41	2	3	1	29	0	1	0	1	0	3	0	0	0	23	0
11:45:00	75	10	743	67	45	4	3	0	32	3	1	0	1	0	3	0	0	0	23	0
12:00:00	86	11	816	73	47	2	3	0	33	1	1	0	1	0	3	0	0	0	29	6
12:15:00	103	17	916	100	54	7	3	0	35	2	2	1	1	0	4	1	0	0	32	3
12:30:00	116	13	1032	116	64	10	3	0	36	1	2	0	1	0	4	0	0	0	36	4
12:45:00	133	17	1115	83	69	5	3	0	37	1	2	0	1	0	4	0	0	0	39	3
13:00:00	145	12	1177	62	73	4	3	0	37	0	2	0	1	0	4	0	0	0	40	1
13:15:00	152	7	1216	39	78	5	5	2	38	1	2	0	1	0	4	0	0	0	41	1
13:30:00	157	5	1285	69	78	0	5	0	38	0	2	0	1	0	4	0	0	0	41	0
13:45:00	178	21	1363	78	88	10	5	0	44	6	2	0	1	0	4	0	0	0	44	3
14:00:00	183	5	1445	82	94	6	5	0	46	2	2	0	1	0	4	0	0	0	47	3
14:00:45	183	0	1445	0	94	0	5	0	46	0	2	0	1	0	4	0	0	0	47	0
15:00:00	183	0	1445	0	94	0	5	0	46	0	2	0	1	0	4	0	0	0	47	0
15:15:00	195	12	1507	62	95	1	5	0	47	1	2	0	1	0	4	0	0	0	47	0
15:30:00	210	15	1592	85	98	3	5	0	49	2	2	0	2	1	4	0	0	0	47	0
15:45:00	214	4	1672	80	101	3	5	0	51	2	2	0	2	0	5	1	0	0	49	2
16:00:00	226	12	1762	90	103	2	5	0	55	4	2	0	2	0	6	1	0	0	51	2
16:15:00	251	25	1892	130	116	13	5	0	58	3	3	1	2	0	6	0	0	0	54	3
16:30:00	272	21	1976	84	120	4	5	0	60	2	3	0	2	0	6	0	0	0	54	0
16:45:00	313	41	2113	137	125	5	5	0	61	1	3	0	2	0	7	1	0	0	63	9
17:00:00	352	39	2209	96	132	7	5	0	64	3	3	0	2	0	7	0	0	0	63	0
17:15:00	390	38	2366	157	138	6	5	0	65	1	3	0	2	0	7	0	0	0	67	4
17:30:00	410	20	2481	115	142	4	5	0	68	3	3	0	2	0	7	0	0	0	70	3
17:45:00	432	22	2550	69	148	6	5	0	69	1	3	0	2	0	7	0	0	0	75	5

Ontario Traffic Inc.

Count Date: 3-Oct-17 Site #: 1700600070

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	4	4	5	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	8	4	8	3	12	7	1	1	0	0	0	0	0	0	0	0	0	0	4	3
7:45:00	12	4	13	5	25	13	1	0	0	0	0	0	0	0	0	0	0	0	5	1
8:00:00	19	7	28	15	42	17	3	2	1	1	2	2	0	0	0	0	0	0	8	3
8:15:00	22	3	43	15	69	27	3	0	1	0	2	0	0	0	0	0	0	0	12	4
8:30:00	33	11	61	18	99	30	3	0	1	0	2	0	0	0	0	0	0	0	16	4
8:45:00	45	12	84	23	141	42	3	0	2	1	5	3	0	0	0	0	0	0	19	3
9:00:00	68	23	100	16	173	32	3	0	2	0	5	0	0	0	0	0	0	0	31	12
9:15:00	88	20	123	23	195	22	3	0	2	0	5	0	0	0	0	0	1	1	31	0
9:30:00	93	5	135	12	209	14	3	0	2	0	5	0	1	1	0	0	1	0	37	6
9:45:00	103	10	152	17	220	11	4	1	2	0	5	0	1	0	1	1	1	0	42	5
10:00:00	127	24	176	24	231	11	4	0	4	2	5	0	1	0	1	0	1	0	53	11
10:00:21	127	0	176	0	231	0	4	0	4	0	5	0	1	0	1	0	1	0	53	0
11:00:00	127	0	176	0	231	0	4	0	4	0	5	0	1	0	1	0	1	0	54	1
11:15:00	139	12	190	14	244	13	6	2	4	0	5	0	1	0	1	0	1	0	67	13
11:30:00	155	16	206	16	252	8	6	0	4	0	5	0	2	1	1	0	1	0	74	7
11:45:00	162	7	217	11	259	7	6	0	4	0	5	0	2	0	1	0	1	0	83	9
12:00:00	172	10	231	14	276	17	7	1	4	0	5	0	3	1	1	0	1	0	97	14
12:15:00	183	11	262	31	290	14	7	0	5	1	5	0	3	0	1	0	1	0	103	6
12:30:00	207	24	284	22	298	8	7	0	6	1	5	0	3	0	1	0	1	0	107	4
12:45:00	220	13	296	12	308	10	7	0	6	0	5	0	3	0	2	1	1	0	120	13
13:00:00	230	10	314	18	318	10	7	0	8	2	6	1	3	0	2	0	1	0	122	2
13:15:00	238	8	334	20	328	10	7	0	9	1	6	0	3	0	2	0	1	0	124	2
13:30:00	244	6	351	17	332	4	7	0	10	1	7	1	3	0	2	0	1	0	127	3
13:45:00	259	15	384	33	348	16	7	0	10	0	7	0	3	0	3	1	1	0	144	17
14:00:00	269	10	414	30	366	18	7	0	11	1	7	0	3	0	3	0	1	0	148	4
14:00:45	269	0	414	0	366	0	7	0	11	0	7	0	3	0	3	0	1	0	148	0
15:00:00	269	0	414	0	366	0	7	0	11	0	7	0	3	0	3	0	1	0	148	0
15:15:00	286	17	435	21	377	11	7	0	11	0	7	0	3	0	3	0	1	0	153	5
15:30:00	297	11	454	19	389	12	7	0	11	0	8	1	3	0	3	0	1	0	159	6
15:45:00	308	11	477	23	404	15	7	0	11	0	9	1	4	1	3	0	1	0	167	8
16:00:00	320	12	492	15	418	14	7	0	11	0	9	0	4	0	3	0	1	0	170	3
16:15:00	328	8	520	28	438	20	7	0	14	3	9	0	4	0	4	1	1	0	182	12
16:30:00	333	5	542	22	460	22	7	0	14	0	9	0	4	0	4	0	1	0	189	7
16:45:00	344	11	564	22	482	22	7	0	15	1	9	0	4	0	6	2	1	0	196	7
17:00:00	361	17	572	8	493	11	7	0	15	0	9	0	4	0	6	0	1	0	202	6
17:15:00	370	9	591	19	505	12	7	0	15	0	9	0	4	0	6	0	1	0	205	3
17:30:00	380	10	614	23	524	19	7	0	15	0	9	0	4	0	6	0	1	0	217	12
17:45:00	400	20	648	34	548	24	7	0	16	1	9	0	4	0	7	1	1	0	232	15

Ontario Traffic Inc.

Count Date: 3-Oct-17 Site #: 1700600070

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	3	3	32	30	3	3	0	0	1	1	0	0	0	0	0	0	0	0	1	1
7:30:00	8	5	77	45	8	5	0	0	4	3	0	0	0	0	0	0	0	0	3	2
7:45:00	10	2	139	62	11	3	0	0	5	1	0	0	0	0	0	0	0	0	10	7
8:00:00	14	4	216	77	20	9	0	0	8	3	1	1	0	0	0	0	0	0	12	2
8:15:00	20	6	287	71	26	6	0	0	9	1	1	0	1	1	0	0	0	0	14	2
8:30:00	24	4	391	104	38	12	0	0	14	5	1	0	1	0	1	1	0	0	17	3
8:45:00	40	16	533	142	48	10	0	0	19	5	1	0	1	0	2	1	0	0	19	2
9:00:00	45	5	629	96	53	5	0	0	23	4	2	1	1	0	2	0	0	0	26	7
9:15:00	49	4	706	77	65	12	0	0	25	2	2	0	1	0	2	0	0	0	27	1
9:30:00	50	1	774	68	72	7	0	0	26	1	2	0	1	0	2	0	0	0	29	2
9:45:00	55	5	837	63	80	8	0	0	29	3	3	1	1	0	2	0	0	0	35	6
10:00:00	67	12	939	102	93	13	0	0	36	7	3	0	2	1	3	1	0	0	37	2
10:00:21	67	0	945	6	93	0	0	0	36	0	3	0	2	0	3	0	0	0	37	0
11:00:00	67	0	947	2	93	0	0	0	36	0	3	0	2	0	3	0	0	0	38	1
11:15:00	73	6	1012	65	101	8	0	0	38	2	3	0	2	0	3	0	0	0	44	6
11:30:00	81	8	1086	74	117	16	1	1	39	1	4	1	2	0	3	0	0	0	48	4
11:45:00	83	2	1170	84	136	19	1	0	41	2	4	0	2	0	3	0	1	1	51	3
12:00:00	87	4	1227	57	143	7	2	1	43	2	4	0	2	0	4	1	1	0	51	0
12:15:00	89	2	1315	88	150	7	2	0	44	1	4	0	2	0	5	1	3	2	54	3
12:30:00	93	4	1408	93	163	13	2	0	47	3	4	0	2	0	5	0	3	0	60	6
12:45:00	100	7	1492	84	175	12	2	0	49	2	5	1	2	0	5	0	3	0	63	3
13:00:00	104	4	1578	86	182	7	2	0	49	0	5	0	2	0	5	0	3	0	63	0
13:15:00	105	1	1630	52	199	17	2	0	50	1	5	0	2	0	5	0	3	0	67	4
13:30:00	106	1	1720	90	201	2	2	0	52	2	5	0	2	0	5	0	3	0	68	1
13:45:00	121	15	1800	80	207	6	2	0	55	3	6	1	2	0	6	1	3	0	71	3
14:00:00	132	11	1875	75	215	8	2	0	56	1	6	0	2	0	6	0	3	0	74	3
14:00:45	132	0	1879	4	215	0	2	0	56	0	6	0	2	0	6	0	3	0	74	0
15:00:00	132	0	1879	0	215	0	2	0	56	0	6	0	2	0	6	0	3	0	74	0
15:15:00	137	5	1949	70	231	16	2	0	57	1	6	0	2	0	6	0	3	0	81	7
15:30:00	142	5	2018	69	247	16	4	2	59	2	7	1	2	0	7	1	3	0	91	10
15:45:00	148	6	2086	68	256	9	4	0	61	2	7	0	2	0	7	0	3	0	94	3
16:00:00	156	8	2175	89	265	9	5	1	62	1	8	1	2	0	7	0	3	0	99	5
16:15:00	172	16	2272	97	283	18	5	0	65	3	9	1	2	0	7	0	3	0	101	2
16:30:00	180	8	2360	88	295	12	6	1	67	2	9	0	2	0	7	0	3	0	104	3
16:45:00	195	15	2452	92	305	10	6	0	68	1	9	0	2	0	8	1	3	0	107	3
17:00:00	197	2	2534	82	310	5	6	0	69	1	9	0	2	0	8	0	3	0	109	2
17:15:00	204	7	2614	80	317	7	6	0	71	2	9	0	2	0	8	0	3	0	110	1
17:30:00	211	7	2693	79	331	14	6	0	72	1	9	0	2	0	8	0	3	0	119	9
17:45:00	214	3	2768	75	347	16	6	0	74	2	9	0	2	0	9	1	3	0	123	4

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:15:00
To: 9:15:00

Municipality: Windsor
Site #: 1700600065
Intersection: University Ave W & Bruce Ave
TFR File #: 1
Count date: 25-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 99
North Entering: 0
North Peds: 27
Peds Cross: \times

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



Heavys 1
Trucks 3
Cars 95
Totals 99

East Leg Total: 639
East Entering: 242
East Peds: 17
Peds Cross: \times

Heavys	Trucks	Cars	Totals
2	18	255	275

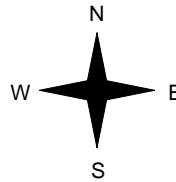


Bruce Ave

Cars	Trucks	Heavys	Totals
31	2	0	33
191	17	1	209
0	0	0	0
222	19	1	



University Ave W



Heavys	Trucks	Cars	Totals
0	1	21	22
1	6	349	356
0	0	0	0
1	7	370	



Bruce Ave

University Ave W



Cars	Trucks	Heavys	Totals
380	15	2	397

Peds Cross: \times
West Peds: 11
West Entering: 378
West Leg Total: 653

Cars	0	64	43	31	138
Trucks	0	1	0	9	10
Heavys	0	1	1	1	3
Totals	0	66	44	41	



Peds Cross: \times
South Peds: 19
South Entering: 151
South Leg Total: 151

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600065
Intersection: University Ave W & Bruce Ave
TFR File #: 1
Count date: 25-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 82
North Entering: 0
North Peds: 27
Peds Cross: \times

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



Heavys	0
Trucks	0
Cars	82
Totals	82

East Leg Total: 592
East Entering: 284
East Peds: 10
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	21	308	330

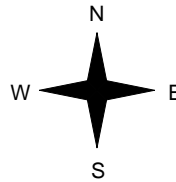


Bruce Ave

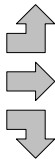
Cars	Trucks	Heavys	Totals
21	0	0	21
245	18	0	263
0	0	0	0
266	18	0	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	13	13
2	7	257	266
0	0	0	0
2	7	270	



Bruce Ave

University Ave W



Cars	Trucks	Heavys	Totals
291	15	2	308

Peds Cross: \times
West Peds: 11
West Entering: 279
West Leg Total: 609

Cars	0	63	48	34	145
Trucks	0	3	0	8	11
Heavys	0	1	0	0	1
Totals	0	67	48	42	



Peds Cross: \times
South Peds: 35
South Entering: 157
South Leg Total: 157

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600065
Intersection: University Ave W & Bruce Ave
TFR File #: 1
Count date: 25-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 123
North Entering: 0
North Peds: 15
Peds Cross: \times

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



Heavys	1
Trucks	2
Cars	120
Totals	123

East Leg Total: 805
East Entering: 528
East Peds: 16
Peds Cross: \times

Heavys	Trucks	Cars	Totals
0	18	551	569

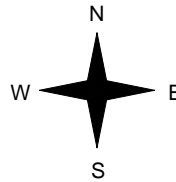


Bruce Ave

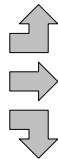
Cars	Trucks	Heavys	Totals
35	0	1	36
474	18	0	492
0	0	0	0
509	18	1	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	33	33
0	5	237	242
0	0	0	0
0	5	270	



University Ave W



Cars	Trucks	Heavys	Totals
265	12	0	277

Peds Cross: \times
West Peds: 14
West Entering: 275
West Leg Total: 844

Cars	0	77	52	28	157
Trucks	0	0	2	7	9
Heavys	0	0	0	0	0
Totals	0	77	54	35	



Bruce Ave



Peds Cross: \times
South Peds: 17
South Entering: 166
South Leg Total: 166

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600065
Intersection: University Ave W & Bruce Ave
TFR File #: 1
Count date: 25-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 830
 North Entering: 1
 North Peds: 201
 Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	1	0	0	1
Totals	1	0	0	



Heavys	2
Trucks	16
Cars	811
Totals	829

East Leg Total: 5321
 East Entering: 2572
 East Peds: 141
 Peds Cross: \times

Heavys	7
Trucks	171
Cars	2692
Totals	2870

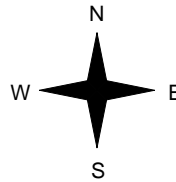


Bruce Ave

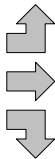
Cars	218	Trucks	5	Heavys	1	Totals	224
Cars	2181	Trucks	160	Heavys	5	Totals	2346
Cars	1	Trucks	0	Heavys	1	Totals	2
Cars	2400	Trucks	165	Heavys	7	Totals	



University Ave W



Heavys	0
Trucks	3
Cars	198
Totals	201
Heavys	11
Trucks	78
Cars	2359
Totals	2448
Heavys	0
Trucks	0
Cars	2
Totals	2



University Ave W



Peds Cross: \times
 West Peds: 107
 West Entering: 2651
 West Leg Total: 5521

Cars	3
Trucks	0
Heavys	1
Totals	4



Bruce Ave

Cars	510	395	221	1126
Trucks	11	8	79	98
Heavys	2	1	1	4
Totals	523	404	301	

Peds Cross: \times
 South Peds: 216
 South Entering: 1228
 South Leg Total: 1232

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave W & Bruce Ave

Count Date: 25-Sep-17

Municipality: Windsor

North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	0	0	0	0	10	77	8:00:00	27	21	29	77	12
9:00:00	0	0	0	0	25	135	9:00:00	59	35	41	135	20
10:00:00	0	0	0	0	20	144	10:00:00	62	54	28	144	26
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	17	122	12:00:00	54	39	29	122	37
13:00:00	0	0	0	0	27	157	13:00:00	67	48	42	157	35
14:00:00	0	0	0	0	28	135	14:00:00	57	48	30	135	25
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	20	144	16:00:00	58	49	37	144	15
17:00:00	0	0	0	0	25	159	17:00:00	70	55	34	159	28
18:00:00	0	0	1	1	29	156	18:00:00	69	55	31	155	18
Totals:	0	0	1	1	201	1229		523	404	301	1228	216
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	1	7:00:00	0	1	0	1	0
8:00:00	1	101	14	116	14	344	8:00:00	17	211	0	228	7
9:00:00	0	189	28	217	20	619	9:00:00	25	377	0	402	7
10:00:00	0	190	19	209	18	478	10:00:00	16	253	0	269	12
11:00:00	0	0	0	0	0	2	11:00:00	0	2	0	2	0
12:00:00	0	231	22	253	16	547	12:00:00	14	279	1	294	8
13:00:00	0	263	21	284	10	563	13:00:00	13	266	0	279	11
14:00:00	0	225	28	253	11	538	14:00:00	20	265	0	285	10
15:00:00	0	1	1	2	0	5	15:00:00	0	3	0	3	0
16:00:00	0	319	20	339	17	619	16:00:00	21	258	1	280	27
17:00:00	0	436	28	464	20	764	17:00:00	34	266	0	300	16
18:00:00	1	389	43	433	15	740	18:00:00	41	266	0	307	9
Totals:	2	2344	224	2570	141	5220		201	2447	2	2650	107
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00		14:00	16:00	17:00	18:00			
Crossing Values:	121	146	117	136		126	151	161	148			

Ontario Traffic Inc.

Count Date: 25-Sep-17 Site #: 1700600065

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	0	0	18	18	6	6	0	0	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	43	25	7	1	0	0	4	2	0	0	0	0	0	0	0	0	5	5
7:45:00	0	0	69	26	11	4	0	0	7	3	0	0	0	0	0	0	0	0	11	6
8:00:00	1	1	91	22	14	3	0	0	10	3	0	0	0	0	0	0	0	0	14	3
8:15:00	1	0	130	39	17	3	0	0	13	3	0	0	0	0	0	0	0	0	22	8
8:30:00	1	0	181	51	20	3	0	0	19	6	0	0	0	0	1	1	0	0	24	2
8:45:00	1	0	218	37	31	11	0	0	21	2	1	1	0	0	1	0	0	0	31	7
9:00:00	1	0	267	49	41	10	0	0	22	1	1	0	0	0	1	0	0	0	34	3
9:15:00	1	0	321	54	48	7	0	0	30	8	2	1	0	0	1	0	0	0	39	5
9:30:00	1	0	357	36	50	2	0	0	34	4	2	0	0	0	1	0	0	0	42	3
9:45:00	1	0	394	37	55	5	0	0	40	6	2	0	0	0	1	0	0	0	48	6
10:00:00	1	0	433	39	58	3	0	0	46	6	3	1	0	0	1	0	0	0	52	4
10:00:06	1	0	433	0	58	0	0	0	46	0	3	0	0	0	1	0	0	0	52	0
11:00:00	1	0	433	0	58	0	0	0	46	0	3	0	0	0	1	0	0	0	52	0
11:15:00	1	0	479	46	68	10	0	0	52	6	4	1	0	0	1	0	0	0	55	3
11:30:00	1	0	521	42	70	2	0	0	55	3	4	0	0	0	1	0	0	0	61	6
11:45:00	1	0	584	63	75	5	0	0	59	4	4	0	0	0	1	0	0	0	62	1
12:00:00	1	0	642	58	79	4	0	0	66	7	4	0	0	0	3	2	0	0	68	6
12:15:00	1	0	713	71	82	3	0	0	70	4	4	0	0	0	3	0	0	0	69	1
12:30:00	1	0	765	52	88	6	0	0	74	4	4	0	0	0	3	0	0	0	74	5
12:45:00	1	0	835	70	94	6	0	0	77	3	4	0	0	0	3	0	0	0	78	4
13:00:00	1	0	887	52	100	6	0	0	84	7	4	0	0	0	3	0	0	0	78	0
13:15:00	1	0	943	56	108	8	0	0	90	6	4	0	0	0	3	0	0	0	80	2
13:30:00	1	0	988	45	113	5	0	0	92	2	4	0	0	0	3	0	0	0	84	4
13:45:00	1	0	1043	55	119	6	0	0	96	4	4	0	0	0	3	0	0	0	85	1
14:00:00	1	0	1094	51	128	9	0	0	102	6	4	0	0	0	3	0	0	0	89	4
14:00:13	1	0	1095	1	128	0	0	0	102	0	5	1	0	0	3	0	0	0	89	0
15:00:00	1	0	1095	0	128	0	0	0	102	0	5	0	0	0	3	0	0	0	89	0
15:15:00	1	0	1160	65	134	6	0	0	109	7	5	0	0	0	3	0	0	0	94	5
15:30:00	1	0	1219	59	139	5	0	0	113	4	5	0	0	0	4	1	0	0	96	2
15:45:00	1	0	1297	78	142	3	0	0	118	5	5	0	0	0	4	0	0	0	97	1
16:00:00	1	0	1391	94	148	6	0	0	124	6	5	0	0	0	4	0	0	0	106	9
16:15:00	1	0	1481	90	156	8	0	0	128	4	5	0	0	0	4	0	0	0	115	9
16:30:00	1	0	1554	73	162	6	0	0	135	7	5	0	0	0	5	1	0	0	118	3
16:45:00	1	0	1688	134	168	6	0	0	137	2	5	0	0	0	5	0	0	0	119	1
17:00:00	1	0	1808	120	176	8	0	0	142	5	5	0	0	0	5	0	0	0	126	7
17:15:00	1	0	1933	125	187	11	0	0	148	6	5	0	0	0	5	0	1	1	130	4
17:30:00	1	0	2028	95	197	10	0	0	153	5	5	0	0	0	5	0	1	0	134	4
17:45:00	1	0	2116	88	209	12	0	0	157	4	5	0	0	0	5	0	1	0	138	4

Ontario Traffic Inc.

Count Date: 25-Sep-17 Site #: 1700600065

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	5	5	5	5	5	5	0	0	0	0	2	2	0	0	0	0	0	0	1	1
7:30:00	6	1	13	8	10	5	1	1	0	0	5	3	0	0	0	0	0	0	4	3
7:45:00	12	6	17	4	13	3	1	0	0	0	10	5	0	0	0	0	0	0	8	4
8:00:00	26	14	21	4	16	3	1	0	0	0	13	3	0	0	0	0	0	0	12	4
8:15:00	37	11	25	4	21	5	1	0	0	0	14	1	0	0	0	0	0	0	19	7
8:30:00	53	16	33	8	31	10	1	0	0	0	18	4	1	1	0	0	0	0	22	3
8:45:00	66	13	42	9	39	8	1	0	0	0	19	1	1	0	0	0	0	0	26	4
9:00:00	84	18	56	14	47	8	1	0	0	0	22	3	1	0	0	0	1	1	32	6
9:15:00	101	17	68	12	52	5	2	1	0	0	23	1	1	0	1	1	1	0	38	6
9:30:00	119	18	81	13	57	5	3	1	0	0	25	2	1	0	1	0	1	0	41	3
9:45:00	129	10	89	8	63	6	3	0	0	0	27	2	1	0	1	0	1	0	47	6
10:00:00	144	15	108	19	66	3	3	0	1	1	31	4	1	0	1	0	1	0	58	11
10:00:06	144	0	108	0	66	0	3	0	1	0	31	0	1	0	1	0	1	0	58	0
11:00:00	144	0	108	0	66	0	3	0	1	0	31	0	1	0	1	0	1	0	58	0
11:15:00	159	15	119	11	69	3	3	0	1	0	34	3	1	0	1	0	1	0	67	9
11:30:00	170	11	125	6	75	6	3	0	1	0	34	0	1	0	1	0	1	0	73	6
11:45:00	180	10	134	9	83	8	3	0	2	1	38	4	1	0	1	0	1	0	82	9
12:00:00	198	18	146	12	87	4	3	0	2	0	39	1	1	0	1	0	1	0	95	13
12:15:00	214	16	154	8	96	9	4	1	2	0	39	0	1	0	1	0	1	0	105	10
12:30:00	230	16	170	16	105	9	5	1	2	0	43	4	2	1	1	0	1	0	110	5
12:45:00	247	17	184	14	113	8	5	0	2	0	44	1	2	0	1	0	1	0	125	15
13:00:00	261	14	194	10	121	8	6	1	2	0	47	3	2	0	1	0	1	0	130	5
13:15:00	270	9	202	8	126	5	7	1	3	1	47	0	2	0	1	0	1	0	134	4
13:30:00	282	12	215	13	131	5	8	1	4	1	49	2	2	0	1	0	1	0	145	11
13:45:00	293	11	227	12	141	10	8	0	4	0	51	2	2	0	1	0	1	0	150	5
14:00:00	316	23	240	13	145	4	8	0	4	0	53	2	2	0	1	0	1	0	155	5
14:00:13	316	0	240	0	145	0	8	0	4	0	53	0	2	0	1	0	1	0	155	0
15:00:00	316	0	240	0	145	0	8	0	4	0	53	0	2	0	1	0	1	0	155	0
15:15:00	329	13	251	11	154	9	9	1	4	0	56	3	2	0	1	0	1	0	160	5
15:30:00	341	12	260	9	159	5	9	0	4	0	59	3	2	0	1	0	1	0	162	2
15:45:00	357	16	274	14	167	8	9	0	6	2	61	2	2	0	1	0	1	0	166	4
16:00:00	373	16	287	13	172	5	9	0	6	0	63	2	2	0	1	0	1	0	170	4
16:15:00	395	22	299	12	176	4	9	0	6	0	66	3	2	0	1	0	1	0	181	11
16:30:00	406	11	312	13	182	6	9	0	6	0	68	2	2	0	1	0	1	0	188	7
16:45:00	426	20	324	12	189	7	9	0	7	1	71	3	2	0	1	0	1	0	192	4
17:00:00	443	17	341	17	195	6	9	0	7	0	74	3	2	0	1	0	1	0	198	6
17:15:00	461	18	355	14	204	9	9	0	8	1	75	1	2	0	1	0	1	0	204	6
17:30:00	483	22	364	9	210	6	9	0	8	0	75	0	2	0	1	0	1	0	205	1
17:45:00	495	12	383	19	215	5	11	2	8	0	79	4	2	0	1	0	1	0	211	6

Ontario Traffic Inc.

Count Date: 25-Sep-17 Site #: 1700600065

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	5	5	37	36	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2
7:30:00	10	5	72	35	0	0	0	0	3	2	0	0	0	0	0	0	0	0	4	2
7:45:00	12	2	123	51	0	0	0	0	4	1	0	0	0	0	0	0	0	0	5	1
8:00:00	17	5	204	81	0	0	0	0	8	4	0	0	0	0	0	0	0	0	7	2
8:15:00	20	3	277	73	0	0	1	1	10	2	0	0	0	0	3	3	0	0	8	1
8:30:00	25	5	380	103	0	0	1	0	12	2	0	0	0	0	4	1	0	0	13	5
8:45:00	33	8	482	102	0	0	2	1	14	2	0	0	0	0	4	0	0	0	14	1
9:00:00	40	7	570	88	0	0	2	0	15	1	0	0	0	0	4	0	0	0	14	0
9:15:00	41	1	626	56	0	0	2	0	16	1	0	0	0	0	4	0	0	0	19	5
9:30:00	48	7	688	62	0	0	2	0	19	3	0	0	0	0	4	0	0	0	21	2
9:45:00	53	5	751	63	0	0	2	0	20	1	0	0	0	0	5	1	0	0	25	4
10:00:00	56	3	812	61	0	0	2	0	24	4	0	0	0	0	6	1	0	0	26	1
10:00:06	56	0	813	1	0	0	2	0	24	0	0	0	0	0	6	0	0	0	26	0
11:00:00	56	0	814	1	0	0	2	0	24	0	0	0	0	0	6	0	0	0	26	0
11:15:00	60	4	876	62	0	0	2	0	27	3	0	0	0	0	8	2	0	0	31	5
11:30:00	60	0	936	60	0	0	2	0	33	6	0	0	0	0	9	1	0	0	31	0
11:45:00	66	6	1015	79	1	1	2	0	35	2	0	0	0	0	9	0	0	0	33	2
12:00:00	70	4	1078	63	1	0	2	0	36	1	0	0	0	0	9	0	0	0	34	1
12:15:00	72	2	1139	61	1	0	2	0	37	1	0	0	0	0	10	1	0	0	35	1
12:30:00	74	2	1199	60	1	0	2	0	39	2	0	0	0	0	11	1	0	0	43	8
12:45:00	79	5	1260	61	1	0	2	0	42	3	0	0	0	0	11	0	0	0	43	0
13:00:00	83	4	1335	75	1	0	2	0	43	1	0	0	0	0	11	0	0	0	45	2
13:15:00	86	3	1400	65	1	0	2	0	45	2	0	0	0	0	11	0	0	0	45	0
13:30:00	92	6	1456	56	1	0	2	0	49	4	0	0	0	0	11	0	0	0	49	4
13:45:00	99	7	1533	77	1	0	2	0	50	1	0	0	0	0	11	0	0	0	52	3
14:00:00	103	4	1591	58	1	0	2	0	52	2	0	0	0	0	11	0	0	0	55	3
14:00:13	103	0	1593	2	1	0	2	0	52	0	0	0	0	0	11	0	0	0	55	0
15:00:00	103	0	1594	1	1	0	2	0	52	0	0	0	0	0	11	0	0	0	55	0
15:15:00	109	6	1659	65	2	1	3	1	56	4	0	0	0	0	11	0	0	0	65	10
15:30:00	111	2	1717	58	2	0	3	0	60	4	0	0	0	0	11	0	0	0	66	1
15:45:00	117	6	1784	67	2	0	3	0	62	2	0	0	0	0	11	0	0	0	76	10
16:00:00	123	6	1839	55	2	0	3	0	65	3	0	0	0	0	11	0	0	0	82	6
16:15:00	130	7	1920	81	2	0	3	0	67	2	0	0	0	0	11	0	0	0	84	2
16:30:00	141	11	1989	69	2	0	3	0	70	3	0	0	0	0	11	0	0	0	91	7
16:45:00	147	6	2037	48	2	0	3	0	71	1	0	0	0	0	11	0	0	0	94	3
17:00:00	157	10	2097	60	2	0	3	0	73	2	0	0	0	0	11	0	0	0	98	4
17:15:00	166	9	2158	61	2	0	3	0	74	1	0	0	0	0	11	0	0	0	102	4
17:30:00	174	8	2226	68	2	0	3	0	75	1	0	0	0	0	11	0	0	0	105	3
17:45:00	185	11	2307	81	2	0	3	0	76	1	0	0	0	0	11	0	0	0	106	1

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:15:00
To: 9:15:00

Municipality: Windsor
Site #: 1700600064
Intersection: University Ave W & Church St
TFR File #: 17
Count date: 28-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 212
North Entering: 95
North Peds: 35
Peds Cross: \times

Heavys	0	1	0	1
Trucks	8	1	0	9
Cars	28	44	13	85
Totals	36	46	13	



Heavys	1
Trucks	6
Cars	110
Totals	117

East Leg Total: 646
East Entering: 222
East Peds: 42
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	21	232	254

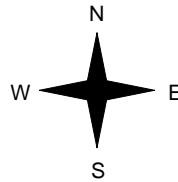


Church St

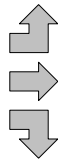
Cars	Trucks	Heavys	Totals
11	0	0	11
187	13	1	201
10	0	0	10
208	13	1	



University Ave W



Heavys	Trucks	Cars	Totals
0	5	58	63
0	13	383	396
0	0	32	32
0	18	473	



Church St

University Ave W



Cars	Trucks	Heavys	Totals
408	15	1	424

Peds Cross: \times
West Peds: 26
West Entering: 491
West Leg Total: 745

Cars	86	Cars	17	41	12	70
Trucks	1	Trucks	0	1	2	3
Heavys	1	Heavys	0	1	1	2
Totals	88	Totals	17	43	15	



Peds Cross: \times
South Peds: 51
South Entering: 75
South Leg Total: 163

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 12:30:00

To: 13:30:00

Municipality: Windsor
Site #: 1700600064
Intersection: University Ave W & Church St
TFR File #: 17
Count date: 28-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 202
 North Entering: 107
 North Peds: 66
 Peds Cross: \times

Heavys	0	1	0	1
Trucks	10	3	0	13
Cars	36	42	15	93
Totals	46	46	15	



Heavys	2
Trucks	3
Cars	90
Totals	95

East Leg Total: 560
 East Entering: 225
 East Peds: 83
 Peds Cross: \times

Heavys	3
Trucks	20
Cars	247
Totals	270



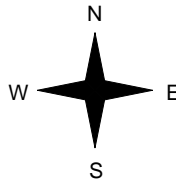
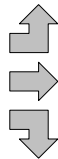
Church St

Cars	14	0	0	14
Trucks	188	10	3	201
Heavys	9	1	0	10
Totals	211	11	3	



University Ave W

Heavys	2
Trucks	2
Cars	25
Totals	29
Heavys	1
Trucks	12
Cars	288
Totals	301
Heavys	0
Trucks	0
Cars	16
Totals	16
Heavys	3
Trucks	14
Cars	329



University Ave W



Cars	322	12	1	335
Trucks				
Heavys				
Totals				

Peds Cross: \times
 West Peds: 43
 West Entering: 346
 West Leg Total: 616

Cars	67	23	51	19	93
Trucks	4	0	1	0	1
Heavys	1	0	0	0	0
Totals	72	23	52	19	



Church St

Peds Cross: \times
 South Peds: 100
 South Entering: 94
 South Leg Total: 166

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 17:00:00

To: 18:00:00

Municipality: Windsor
Site #: 1700600064
Intersection: University Ave W & Church St
TFR File #: 17
Count date: 28-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 380
 North Entering: 199
 North Peds: 77
 Peds Cross: \bowtie

Heavys	0	1	0	1
Trucks	12	1	0	13
Cars	76	88	21	185
Totals	88	90	21	

Heavys	1
Trucks	6
Cars	174
Totals	181

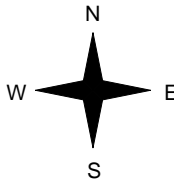
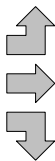
East Leg Total: 717
 East Entering: 381
 East Peds: 69
 Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
1	27	416	444



University Ave W

Heavys	Trucks	Cars	Totals
1	6	58	65
1	14	282	297
1	0	50	51
3	20	390	



Church St

Cars	Trucks	Heavys	Totals
39	0	0	39
307	15	1	323
19	0	0	19
365	15	1	



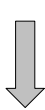
University Ave W



Cars	Trucks	Heavys	Totals
321	14	1	336

Peds Cross: \bowtie
 West Peds: 41
 West Entering: 413
 West Leg Total: 857

Cars	157
Trucks	1
Heavys	2
Totals	160



Cars	33	77	18	128
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	33	77	18	

Peds Cross: \bowtie
 South Peds: 42
 South Entering: 128
 South Leg Total: 288

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600064
Intersection: University Ave W & Church St
TFR File #: 17
Count date: 28-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 2056
 North Entering: 1115
 North Peds: 478
 Peds Cross: ⚡

Heavys	0	4	2	6
Trucks	79	13	4	96
Cars	457	386	170	1013
Totals	536	403	176	



Heavys	9
Trucks	35
Cars	897
Totals	941

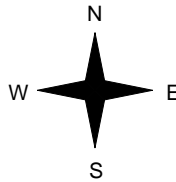
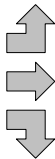
East Leg Total: 5057
 East Entering: 2157
 East Peds: 463
 Peds Cross: ⚡

Heavys	Trucks	Cars	Totals
12	175	2414	2601



University Ave W

Heavys	Trucks	Cars	Totals
7	29	353	389
5	137	2437	2579
5	0	257	262
17	166	3047	



Church St

Cars	Trucks	Heavys	Totals
170	1	1	172
1795	94	12	1901
82	2	0	84
2047	97	13	



University Ave W



Cars	Trucks	Heavys	Totals
2748	144	8	2900

Peds Cross: ⚡
 West Peds: 311
 West Entering: 3230
 West Leg Total: 5831

Cars	725	Cars	162	374	141	677
Trucks	15	Trucks	2	5	3	10
Heavys	9	Heavys	0	1	1	2
Totals	749	Totals	164	380	145	



Peds Cross: ⚡
 South Peds: 422
 South Entering: 689
 South Leg Total: 1438

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave W & Church St

Count Date: 28-Sep-17

Municipality: Windsor

North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	12	28	48	88	28	119	8:00:00	4	18	9	31	30
9:00:00	9	43	33	85	33	154	9:00:00	16	40	13	69	46
10:00:00	24	34	30	88	32	144	10:00:00	15	29	12	56	23
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	17	28	44	89	55	140	12:00:00	14	24	13	51	43
13:00:00	17	50	46	113	59	207	13:00:00	25	52	17	94	103
14:00:00	18	29	54	101	97	145	14:00:00	15	21	8	44	48
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	29	40	78	147	45	254	16:00:00	27	56	24	107	54
17:00:00	29	61	115	205	52	314	17:00:00	15	63	31	109	33
18:00:00	21	90	88	199	77	327	18:00:00	33	77	18	128	42
Totals:	176	403	536	1115	478	1804		164	380	145	689	422
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	4	100	7	111	40	389	8:00:00	53	204	21	278	12
9:00:00	12	194	10	216	43	725	9:00:00	60	419	30	509	25
10:00:00	8	169	8	185	21	501	10:00:00	33	265	18	316	40
11:00:00	0	1	0	1	0	8	11:00:00	0	7	0	7	0
12:00:00	8	167	10	185	35	495	12:00:00	28	247	35	310	19
13:00:00	8	201	13	222	86	552	13:00:00	25	288	17	330	55
14:00:00	9	185	14	208	51	549	14:00:00	33	277	31	341	30
15:00:00	0	5	0	5	2	10	15:00:00	0	5	0	5	0
16:00:00	3	260	22	285	53	652	16:00:00	46	300	21	367	43
17:00:00	13	296	49	358	63	712	17:00:00	46	270	38	354	46
18:00:00	19	322	39	380	69	790	18:00:00	65	294	51	410	41
Totals:	84	1900	172	2156	463	5383		389	2576	262	3227	311
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00		14:00	16:00	17:00	18:00			
Crossing Values:	136	134	113	235		143	208	216	254			

Ontario Traffic Inc.

Count Date: 28-Sep-17 Site #: 1700600064

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	2	2	5	5	8	8	0	0	0	0	1	1	0	0	0	0	0	0	3	3
7:30:00	9	7	6	1	18	10	0	0	0	0	2	1	0	0	0	0	0	0	8	5
7:45:00	11	2	20	14	28	10	0	0	1	1	5	3	0	0	0	0	0	0	20	12
8:00:00	12	1	27	7	41	13	0	0	1	0	7	2	0	0	0	0	0	0	28	8
8:15:00	12	0	37	10	46	5	0	0	1	0	8	1	0	0	0	0	0	0	32	4
8:30:00	15	3	51	14	58	12	0	0	1	0	10	2	0	0	0	0	0	0	41	9
8:45:00	17	2	61	10	60	2	0	0	2	1	13	3	0	0	0	0	0	0	44	3
9:00:00	21	4	69	8	67	7	0	0	2	0	14	1	0	0	0	0	0	0	61	17
9:15:00	25	4	81	12	74	7	0	0	2	0	16	2	0	0	1	1	0	0	67	6
9:30:00	26	1	86	5	79	5	0	0	2	0	18	2	0	0	1	0	0	0	73	6
9:45:00	32	6	93	7	84	5	0	0	2	0	19	1	0	0	1	0	0	0	82	9
10:00:00	43	11	100	7	90	6	1	1	4	2	21	2	1	1	1	0	0	0	93	11
10:00:09	43	0	100	0	90	0	1	0	4	0	21	0	1	0	1	0	0	0	93	0
11:00:00	43	0	100	0	90	0	1	0	4	0	21	0	1	0	1	0	0	0	93	0
11:15:00	49	6	107	7	97	7	1	0	4	0	23	2	1	0	1	0	0	0	115	22
11:30:00	53	4	111	4	109	12	1	0	4	0	24	1	2	1	1	0	0	0	124	9
11:45:00	59	6	124	13	119	10	1	0	4	0	24	0	2	0	1	0	0	0	135	11
12:00:00	59	0	128	4	128	9	1	0	4	0	27	3	2	0	1	0	0	0	148	13
12:15:00	64	5	137	9	148	20	1	0	4	0	29	2	2	0	1	0	0	0	157	9
12:30:00	68	4	143	6	153	5	1	0	4	0	30	1	2	0	1	0	0	0	173	16
12:45:00	70	2	154	11	158	5	1	0	5	1	34	4	2	0	1	0	0	0	186	13
13:00:00	76	6	174	20	165	7	1	0	7	2	36	2	2	0	2	1	0	0	207	21
13:15:00	79	3	177	3	179	14	1	0	7	0	39	3	2	0	2	0	0	0	222	15
13:30:00	83	4	185	8	189	10	1	0	7	0	40	1	2	0	2	0	0	0	239	17
13:45:00	86	3	192	7	199	10	1	0	7	0	42	2	2	0	2	0	0	0	278	39
14:00:00	94	8	203	11	211	12	1	0	7	0	44	2	2	0	2	0	0	0	304	26
14:00:15	94	0	203	0	211	0	1	0	7	0	44	0	2	0	2	0	0	0	304	0
15:00:00	94	0	203	0	211	0	1	0	7	0	44	0	2	0	2	0	0	0	304	0
15:15:00	102	8	209	6	222	11	1	0	7	0	47	3	2	0	2	0	0	0	316	12
15:30:00	108	6	214	5	240	18	2	1	9	2	48	1	2	0	2	0	0	0	327	11
15:45:00	119	11	228	14	258	18	2	0	9	0	51	3	2	0	2	0	0	0	341	14
16:00:00	122	3	239	11	278	20	2	0	10	1	55	4	2	0	3	1	0	0	349	8
16:15:00	127	5	257	18	313	35	2	0	11	1	56	1	2	0	3	0	0	0	368	19
16:30:00	137	10	271	14	336	23	2	0	12	1	59	3	2	0	3	0	0	0	386	18
16:45:00	143	6	281	10	361	25	3	1	12	0	62	3	2	0	3	0	0	0	390	4
17:00:00	149	6	298	17	381	20	4	1	12	0	67	5	2	0	3	0	0	0	401	11
17:15:00	151	2	319	21	398	17	4	0	12	0	69	2	2	0	3	0	0	0	418	17
17:30:00	155	4	351	32	407	9	4	0	12	0	72	3	2	0	4	1	0	0	433	15
17:45:00	160	5	361	10	433	26	4	0	12	0	74	2	2	0	4	0	0	0	443	10

Ontario Traffic Inc.

Count Date: 28-Sep-17 Site #: 1700600064

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	0	0	19	19	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	5	5
7:30:00	0	0	32	13	1	0	0	0	3	2	0	0	0	0	1	1	0	0	9	4	
7:45:00	1	1	72	40	4	3	0	0	7	4	0	0	0	0	1	0	0	0	29	20	
8:00:00	4	3	91	19	7	3	0	0	8	1	0	0	0	0	1	0	0	0	40	11	
8:15:00	8	4	126	35	8	1	0	0	11	3	0	0	0	0	1	0	0	0	50	10	
8:30:00	12	4	161	35	11	3	0	0	13	2	0	0	0	0	2	1	0	0	59	9	
8:45:00	14	2	236	75	12	1	0	0	17	4	0	0	0	0	2	0	0	0	68	9	
9:00:00	16	2	273	37	17	5	0	0	19	2	0	0	0	0	2	0	0	0	83	15	
9:15:00	18	2	313	40	19	2	0	0	24	5	0	0	0	0	2	0	0	0	92	9	
9:30:00	19	1	345	32	20	1	1	1	25	1	0	0	0	0	2	0	0	0	93	1	
9:45:00	20	1	381	36	22	2	1	0	26	1	0	0	0	0	3	1	0	0	101	8	
10:00:00	23	3	429	48	25	3	1	0	30	4	0	0	0	0	4	1	0	0	104	3	
10:00:09	23	0	430	1	25	0	1	0	30	0	0	0	0	0	4	0	0	0	104	0	
11:00:00	23	0	430	0	25	0	1	0	30	0	0	0	0	0	4	0	0	0	104	0	
11:15:00	24	1	461	31	26	1	1	0	32	2	0	0	0	0	4	0	0	0	113	9	
11:30:00	27	3	491	30	30	4	1	0	32	0	0	0	0	0	4	0	0	0	120	7	
11:45:00	29	2	529	38	32	2	1	0	36	4	0	0	0	0	6	2	0	0	131	11	
12:00:00	31	2	586	57	35	3	1	0	39	3	0	0	0	0	6	0	0	0	139	8	
12:15:00	31	0	641	55	38	3	1	0	41	2	1	1	0	0	6	0	0	0	148	9	
12:30:00	33	2	683	42	39	1	1	0	43	2	1	0	0	0	6	0	0	0	168	20	
12:45:00	37	4	725	42	43	4	1	0	44	1	1	0	0	0	7	1	0	0	202	34	
13:00:00	39	2	774	49	47	4	1	0	49	5	1	0	0	0	9	2	0	0	225	23	
13:15:00	40	1	823	49	52	5	1	0	51	2	1	0	0	0	9	0	0	0	242	17	
13:30:00	42	2	871	48	53	1	2	1	53	2	1	0	0	0	9	0	0	0	251	9	
13:45:00	44	2	906	35	57	4	2	0	57	4	1	0	0	0	9	0	1	1	264	13	
14:00:00	47	3	947	41	60	3	2	0	61	4	1	0	0	0	9	0	1	0	276	12	
14:00:15	47	0	952	5	60	0	2	0	61	0	1	0	0	0	9	0	1	0	276	0	
15:00:00	47	0	952	0	60	0	2	0	61	0	1	0	0	0	9	0	1	0	278	2	
15:15:00	47	0	998	46	64	4	2	0	64	3	1	0	0	0	9	0	1	0	290	12	
15:30:00	49	2	1062	64	70	6	2	0	64	0	1	0	0	0	9	0	1	0	300	10	
15:45:00	50	1	1139	77	77	7	2	0	68	4	1	0	0	0	9	0	1	0	317	17	
16:00:00	50	0	1203	64	82	5	2	0	70	2	1	0	0	0	9	0	1	0	331	14	
16:15:00	53	3	1275	72	97	15	2	0	71	1	1	0	0	0	9	0	1	0	338	7	
16:30:00	57	4	1325	50	107	10	2	0	77	6	1	0	0	0	11	2	1	0	358	20	
16:45:00	63	6	1421	96	122	15	2	0	77	0	1	0	0	0	11	0	1	0	377	19	
17:00:00	63	0	1488	67	131	9	2	0	79	2	1	0	0	0	11	0	1	0	394	17	
17:15:00	64	1	1583	95	140	9	2	0	82	3	1	0	0	0	11	0	1	0	408	14	
17:30:00	80	16	1677	94	149	9	2	0	84	2	1	0	0	0	12	1	1	0	424	16	
17:45:00	80	0	1745	68	158	9	2	0	87	3	1	0	0	0	12	0	1	0	433	9	

Ontario Traffic Inc.

Count Date: 28-Sep-17 Site #: 1700600064

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	0	0	1	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	5	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	14	14
7:45:00	4	4	15	10	7	4	0	0	0	0	0	0	0	0	0	0	0	0	15	1
8:00:00	4	0	18	3	9	2	0	0	0	0	0	0	0	0	0	0	0	0	30	15
8:15:00	6	2	23	5	10	1	0	0	0	0	0	0	0	0	0	0	0	0	32	2
8:30:00	10	4	31	8	12	2	0	0	0	0	1	1	0	0	0	0	0	0	46	14
8:45:00	14	4	46	15	17	5	0	0	1	1	2	1	0	0	0	0	1	1	64	18
9:00:00	20	6	56	10	19	2	0	0	1	0	2	0	0	0	1	1	1	0	76	12
9:15:00	23	3	64	8	22	3	0	0	1	0	2	0	0	0	1	0	1	0	83	7
9:30:00	27	4	70	6	25	3	0	0	1	0	2	0	0	0	1	0	1	0	83	0
9:45:00	27	0	72	2	25	0	0	0	1	0	2	0	0	0	1	0	1	0	87	4
10:00:00	35	8	84	12	31	6	0	0	2	1	2	0	0	0	1	0	1	0	99	12
10:00:09	35	0	84	0	31	0	0	0	2	0	2	0	0	0	1	0	1	0	99	0
11:00:00	35	0	84	0	31	0	0	0	2	0	2	0	0	0	1	0	1	0	99	0
11:15:00	37	2	89	5	34	3	1	1	2	0	2	0	0	0	1	0	1	0	108	9
11:30:00	40	3	99	10	37	3	1	0	2	0	2	0	0	0	1	0	1	0	119	11
11:45:00	42	2	102	3	41	4	2	1	2	0	2	0	0	0	1	0	1	0	130	11
12:00:00	47	5	108	6	44	3	2	0	2	0	2	0	0	0	1	0	1	0	142	12
12:15:00	50	3	115	7	45	1	2	0	2	0	2	0	0	0	1	0	1	0	159	17
12:30:00	54	4	121	6	48	3	2	0	2	0	2	0	0	0	1	0	1	0	167	8
12:45:00	64	10	136	15	54	6	2	0	2	0	2	0	0	0	1	0	1	0	212	45
13:00:00	72	8	159	23	61	7	2	0	3	1	2	0	0	0	1	0	1	0	245	33
13:15:00	75	3	167	8	65	4	2	0	3	0	2	0	0	0	1	0	1	0	262	17
13:30:00	77	2	172	5	67	2	2	0	3	0	2	0	0	0	1	0	1	0	267	5
13:45:00	81	4	175	3	68	1	2	0	3	0	2	0	0	0	1	0	1	0	276	9
14:00:00	87	6	180	5	69	1	2	0	3	0	2	0	0	0	1	0	1	0	293	17
14:00:15	87	0	180	0	69	0	2	0	3	0	2	0	0	0	1	0	1	0	293	0
15:00:00	87	0	180	0	69	0	2	0	3	0	2	0	0	0	1	0	1	0	293	0
15:15:00	90	3	194	14	76	7	2	0	4	1	2	0	0	0	1	0	1	0	307	14
15:30:00	97	7	201	7	83	7	2	0	4	0	2	0	0	0	1	0	1	0	327	20
15:45:00	106	9	212	11	89	6	2	0	5	1	2	0	0	0	1	0	1	0	340	13
16:00:00	114	8	234	22	93	4	2	0	5	0	2	0	0	0	1	0	1	0	347	7
16:15:00	117	3	247	13	102	9	2	0	5	0	2	0	0	0	1	0	1	0	351	4
16:30:00	121	4	265	18	109	7	2	0	5	0	3	1	0	0	1	0	1	0	359	8
16:45:00	124	3	287	22	119	10	2	0	5	0	3	0	0	0	1	0	1	0	371	12
17:00:00	129	5	297	10	123	4	2	0	5	0	3	0	0	0	1	0	1	0	380	9
17:15:00	135	6	315	18	128	5	2	0	5	0	3	0	0	0	1	0	1	0	392	12
17:30:00	149	14	336	21	134	6	2	0	5	0	3	0	0	0	1	0	1	0	408	16
17:45:00	154	5	349	13	135	1	2	0	5	0	3	0	0	0	1	0	1	0	419	11

Ontario Traffic Inc.

Count Date: 28-Sep-17 Site #: 1700600064

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	30	30	4	4	2	2	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	12	9	73	43	9	5	2	0	6	4	0	0	1	1	0	0	0	0	2	2
7:45:00	31	19	122	49	12	3	5	3	15	9	0	0	1	0	0	0	0	0	11	9
8:00:00	47	16	186	64	21	9	5	0	17	2	0	0	1	0	1	1	0	0	12	1
8:15:00	56	9	268	82	22	1	5	0	24	7	0	0	1	0	1	0	1	1	14	2
8:30:00	74	18	385	117	31	9	7	2	27	3	0	0	1	0	1	0	1	0	18	4
8:45:00	80	6	501	116	39	8	9	2	31	4	0	0	1	0	1	0	1	0	23	5
9:00:00	103	23	589	88	50	11	9	0	33	2	0	0	1	0	1	0	1	0	37	14
9:15:00	114	11	651	62	54	4	10	1	37	4	0	0	1	0	1	0	1	0	40	3
9:30:00	119	5	727	76	55	1	10	0	40	3	0	0	1	0	1	0	1	0	43	3
9:45:00	124	5	778	51	58	3	12	2	43	3	0	0	2	1	1	0	1	0	48	5
10:00:00	130	6	838	60	68	10	14	2	48	5	0	0	2	0	2	1	1	0	77	29
10:00:09	130	0	845	7	68	0	14	0	48	0	0	0	2	0	2	0	1	0	77	0
11:00:00	130	0	845	0	68	0	14	0	48	0	0	0	2	0	2	0	1	0	77	0
11:15:00	135	5	898	53	74	6	14	0	53	5	0	0	2	0	2	0	1	0	81	4
11:30:00	140	5	955	57	78	4	14	0	56	3	0	0	2	0	2	0	1	0	84	3
11:45:00	153	13	1018	63	92	14	15	1	59	3	0	0	2	0	2	0	2	1	89	5
12:00:00	157	4	1079	61	101	9	15	0	61	2	0	0	2	0	2	0	3	1	96	7
12:15:00	160	3	1149	70	106	5	15	0	63	2	0	0	2	0	2	0	3	0	107	11
12:30:00	168	8	1200	51	112	6	15	0	65	2	0	0	3	1	2	0	3	0	115	8
12:45:00	170	2	1262	62	114	2	16	1	68	3	0	0	3	0	2	0	3	0	133	18
13:00:00	180	10	1355	93	118	4	16	0	73	5	0	0	3	0	2	0	3	0	151	18
13:15:00	185	5	1420	65	123	5	17	1	74	1	0	0	5	2	3	1	3	0	155	4
13:30:00	193	8	1488	68	128	5	17	0	77	3	0	0	5	0	3	0	3	0	158	3
13:45:00	202	9	1559	71	138	10	18	1	80	3	0	0	5	0	3	0	3	0	170	12
14:00:00	209	7	1618	59	149	11	18	0	86	6	0	0	5	0	3	0	3	0	181	11
14:00:15	209	0	1623	5	149	0	18	0	86	0	0	0	5	0	3	0	3	0	181	0
15:00:00	209	0	1623	0	149	0	18	0	86	0	0	0	5	0	3	0	3	0	181	0
15:15:00	217	8	1689	66	150	1	18	0	90	4	0	0	6	1	3	0	4	1	187	6
15:30:00	227	10	1756	67	155	5	18	0	96	6	0	0	6	0	3	0	4	0	202	15
15:45:00	247	20	1834	78	158	3	18	0	99	3	0	0	6	0	3	0	4	0	218	16
16:00:00	253	6	1904	70	169	11	19	1	105	6	0	0	6	0	3	0	4	0	224	6
16:15:00	266	13	1984	80	181	12	19	0	106	1	0	0	6	0	3	0	4	0	235	11
16:30:00	278	12	2047	63	192	11	21	2	115	9	0	0	6	0	3	0	4	0	243	8
16:45:00	288	10	2109	62	203	11	23	2	118	3	0	0	6	0	4	1	4	0	265	22
17:00:00	295	7	2155	46	207	4	23	0	123	5	0	0	6	0	4	0	4	0	270	5
17:15:00	311	16	2228	73	218	11	24	1	124	1	0	0	7	1	4	0	5	1	281	11
17:30:00	325	14	2291	63	245	27	26	2	128	4	0	0	7	0	4	0	5	0	288	7
17:45:00	337	12	2362	71	251	6	26	0	132	4	0	0	7	0	4	0	5	0	298	10

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:15:00
To: 9:15:00

Municipality: Windsor
Site #: 1700600062
Intersection: University Ave W & Victoria Ave
TFR File #: 15
Count date: 26-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 197
North Entering: 171
North Peds: 58
Peds Cross: \bowtie

Heavys	0	2	0	2
Trucks	0	1	0	1
Cars	35	107	26	168
Totals	35	110	26	



Heavys	1
Trucks	8
Cars	17
Totals	26

East Leg Total: 571
East Entering: 259
East Peds: 52
Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
1	11	206	218

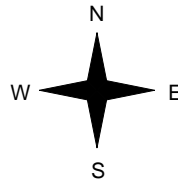


Victoria Ave

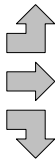
Cars	Trucks	Heavys	Totals
7	2	0	9
171	11	1	183
61	4	2	67
239	17	3	



University Ave W



Heavys	Trucks	Cars	Totals
1	6	10	17
1	7	278	286
0	4	84	88
2	17	372	



University Ave W



Peds Cross: \bowtie
West Peds: 95
West Entering: 391
West Leg Total: 609

Cars	252
Trucks	9
Heavys	4
Totals	265



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

Peds Cross: \bowtie
South Peds: 48
South Entering: 0
South Leg Total: 265

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600062
Intersection: University Ave W & Victoria Ave
TFR File #: 15
Count date: 26-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 187
North Entering: 172
North Peds: 99
Peds Cross: \times

Heavys	0	3	0	3
Trucks	3	5	1	9
Cars	39	109	12	160
Totals	42	117	13	



Heavys	0
Trucks	5
Cars	10
Totals	15

East Leg Total: 596
East Entering: 357
East Peds: 96
Peds Cross: \times

Heavys	Trucks	Cars	Totals
2	9	313	324



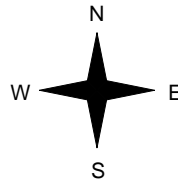
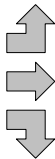
Victoria Ave

Cars	Trucks	Heavys	Totals
6	1	0	7
274	6	2	282
67	1	0	68
347	8	2	



University Ave W

Heavys	Trucks	Cars	Totals
0	4	4	8
1	11	214	226
0	4	50	54
1	19	268	



University Ave W



Cars	Trucks	Heavys	Totals
226	12	1	239



Victoria Ave

Peds Cross: \times
West Peds: 130
West Entering: 288
West Leg Total: 612

Cars	226
Trucks	10
Heavys	3
Totals	239



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

Peds Cross: \times
South Peds: 111
South Entering: 0
South Leg Total: 239

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600062
Intersection: University Ave W & Victoria Ave
TFR File #: 15
Count date: 26-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 249
North Entering: 227
North Peds: 32
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	3	1	4
Cars	63	145	15	223
Totals	63	148	16	



Heavys	0
Trucks	8
Cars	14
Totals	22

East Leg Total: 761
East Entering: 486
East Peds: 25
Peds Cross: \times

Heavys	2
Trucks	11
Cars	401
Totals	414

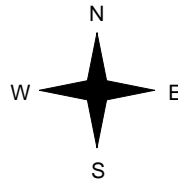


Victoria Ave

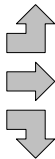
Cars	7	Trucks	2	Heavys	0	Totals	9
Cars	338	Trucks	11	Heavys	2	Totals	351
Cars	124	Trucks	2	Heavys	0	Totals	126
Totals	469	15	2				



University Ave W



Heavys	0
Trucks	6
Cars	7
Totals	13
Heavys	2
Trucks	9
Cars	248
Totals	259
Heavys	0
Trucks	4
Cars	61
Totals	65



University Ave W



Peds Cross: \times
West Peds: 61
West Entering: 337
West Leg Total: 751

Cars	330
Trucks	9
Heavys	0
Totals	339



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



Victoria Ave

Peds Cross: \times
South Peds: 50
South Entering: 0
South Leg Total: 339

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600062
Intersection: University Ave W & Victoria Ave
TFR File #: 15
Count date: 26-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 1440
 North Entering: 1242
 North Peds: 382
 Peds Cross: ⚡

Heavys	1	12	0	13
Trucks	8	16	3	27
Cars	295	809	98	1202
Totals	304	837	101	



Heavys	1
Trucks	49
Cars	148
Totals	198

East Leg Total: 4766
 East Entering: 2638
 East Peds: 344
 Peds Cross: ⚡

Heavys	Trucks	Cars	Totals
11	83	2184	2278

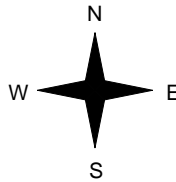


Victoria Ave

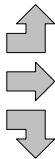
Cars	Trucks	Heavys	Totals
80	9	0	89
1889	75	10	1974
552	15	8	575
2521	99	18	



University Ave W



Heavys	Trucks	Cars	Totals
1	40	67	108
10	73	1944	2027
1	32	471	504
12	145	2482	



University Ave W



Cars	Trucks	Heavys	Totals
2042	76	10	2128

Peds Cross: ⚡
 West Peds: 581
 West Entering: 2639
 West Leg Total: 4917

Cars	1832
Trucks	63
Heavys	21
Totals	1916



Cars	0	1	0	1
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	0	1	0	

Peds Cross: ⚡
 South Peds: 510
 South Entering: 1
 South Leg Total: 1917

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave W & Victoria Ave

Count Date: 26-Sep-17

Municipality: Windsor

North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	4	37	6	47	10	47	8:00:00	0	0	0	0	18
9:00:00	15	75	24	114	51	114	9:00:00	0	0	0	0	36
10:00:00	17	77	23	117	39	117	10:00:00	0	0	0	0	55
11:00:00	0	4	1	5	0	5	11:00:00	0	0	0	0	0
12:00:00	5	91	24	120	41	120	12:00:00	0	0	0	0	92
13:00:00	13	117	42	172	99	172	13:00:00	0	0	0	0	111
14:00:00	11	84	22	117	35	117	14:00:00	0	0	0	0	72
15:00:00	0	0	0	0	2	0	15:00:00	0	0	0	0	0
16:00:00	8	94	34	136	22	137	16:00:00	0	1	0	1	28
17:00:00	16	138	62	216	34	216	17:00:00	0	0	0	0	56
18:00:00	12	120	66	198	49	198	18:00:00	0	0	0	0	42
Totals:	101	837	304	1242	382	1243		0	1	0	1	510
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	41	107	8	156	11	333	8:00:00	10	145	22	177	22
9:00:00	71	172	10	253	39	622	9:00:00	15	279	75	369	85
10:00:00	48	176	6	230	35	511	10:00:00	9	200	72	281	48
11:00:00	0	4	0	4	0	8	11:00:00	0	1	3	4	2
12:00:00	57	171	15	243	32	530	12:00:00	12	225	50	287	90
13:00:00	68	282	7	357	96	645	13:00:00	8	226	54	288	130
14:00:00	53	181	11	245	39	521	14:00:00	13	212	51	276	52
15:00:00	0	4	0	4	1	10	15:00:00	0	6	0	6	0
16:00:00	47	208	8	263	18	531	16:00:00	5	214	49	268	35
17:00:00	121	368	11	500	17	799	17:00:00	16	234	49	299	59
18:00:00	69	300	13	382	56	763	18:00:00	20	282	79	381	58
Totals:	575	1973	89	2637	344	5273		108	2024	504	2636	581
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00		14:00	16:00	17:00	18:00			
Crossing Values:	214	177	218	356		186	155	230	246			

Ontario Traffic Inc.

Count Date: 26-Sep-17 Site #: 1700600062

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	0	0	14	9	1	1	0	0	0	0	0	0	0	0	0	0	1	1	3	2
7:45:00	3	3	27	13	4	3	0	0	0	0	0	0	0	0	0	0	1	0	6	3
8:00:00	4	1	37	10	4	0	0	0	0	0	1	1	0	0	0	0	1	0	10	4
8:15:00	5	1	45	8	8	4	0	0	0	0	1	0	0	0	0	0	1	0	17	7
8:30:00	6	1	57	12	9	1	0	0	0	0	1	0	0	0	1	1	1	0	20	3
8:45:00	10	4	82	25	22	13	0	0	0	0	1	0	0	0	1	0	1	0	31	11
9:00:00	19	9	110	28	28	6	0	0	1	1	1	0	0	0	1	0	1	0	61	30
9:15:00	31	12	152	42	43	15	0	0	1	0	1	0	0	0	2	1	1	0	75	14
9:30:00	33	2	165	13	44	1	0	0	1	0	1	0	0	0	2	0	1	0	79	4
9:45:00	33	0	176	11	48	4	0	0	1	0	1	0	0	0	3	1	1	0	86	7
10:00:00	36	3	185	9	51	3	0	0	1	0	1	0	0	0	3	0	1	0	100	14
10:00:14	36	0	187	2	51	0	0	0	1	0	1	0	0	0	3	0	1	0	100	0
11:00:00	36	0	189	2	51	0	0	0	1	0	2	1	0	0	3	0	1	0	100	0
11:15:00	40	4	210	21	53	2	0	0	2	1	2	0	0	0	3	0	1	0	102	2
11:30:00	40	0	230	20	58	5	0	0	3	1	2	0	0	0	4	1	1	0	123	21
11:45:00	40	0	248	18	67	9	0	0	3	0	2	0	0	0	4	0	1	0	129	6
12:00:00	41	1	277	29	75	8	0	0	3	0	2	0	0	0	4	0	1	0	141	12
12:15:00	44	3	304	27	87	12	0	0	4	1	3	1	0	0	6	2	1	0	157	16
12:30:00	47	3	333	29	94	7	0	0	4	0	3	0	0	0	6	0	1	0	171	14
12:45:00	50	3	354	21	99	5	1	1	7	3	5	2	0	0	6	0	1	0	202	31
13:00:00	53	3	386	32	114	15	1	0	8	1	5	0	0	0	7	1	1	0	240	38
13:15:00	54	1	403	17	122	8	1	0	9	1	5	0	0	0	8	1	1	0	244	4
13:30:00	60	6	425	22	124	2	1	0	9	0	5	0	0	0	8	0	1	0	254	10
13:45:00	61	1	438	13	127	3	1	0	9	0	7	2	0	0	8	0	1	0	262	8
14:00:00	64	3	468	30	134	7	1	0	9	0	7	0	0	0	8	0	1	0	275	13
14:00:26	64	0	468	0	134	0	1	0	9	0	7	0	0	0	8	0	1	0	276	1
15:00:00	64	0	468	0	134	0	1	0	9	0	7	0	0	0	8	0	1	0	277	1
15:15:00	64	0	490	22	144	10	1	0	9	0	7	0	0	0	8	0	1	0	288	11
15:30:00	66	2	506	16	149	5	1	0	9	0	8	1	0	0	8	0	1	0	291	3
15:45:00	68	2	528	22	154	5	1	0	9	0	8	0	0	0	9	1	1	0	296	5
16:00:00	71	3	559	31	167	13	2	1	11	2	8	0	0	0	9	0	1	0	299	3
16:15:00	78	7	618	59	182	15	2	0	12	1	8	0	0	0	9	0	1	0	307	8
16:30:00	80	2	636	18	194	12	2	0	12	0	8	0	0	0	9	0	1	0	315	8
16:45:00	83	3	673	37	217	23	2	0	12	0	8	0	0	0	9	0	1	0	328	13
17:00:00	87	4	696	23	229	12	2	0	12	0	8	0	0	0	9	0	1	0	333	5
17:15:00	89	2	727	31	246	17	2	0	12	0	8	0	0	0	10	1	1	0	341	8
17:30:00	94	5	761	34	267	21	2	0	13	1	8	0	0	0	11	1	1	0	351	10
17:45:00	96	2	787	26	279	12	2	0	13	0	8	0	0	0	11	0	1	0	363	12

Ontario Traffic Inc.

Count Date: 26-Sep-17 Site #: 1700600062

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	8	8	17	17	2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	15	7	38	21	4	2	0	0	2	1	1	1	0	0	0	0	0	0	1	1
7:45:00	28	13	61	23	6	2	0	0	5	3	1	0	2	2	0	0	0	0	6	5
8:00:00	38	10	100	39	7	1	1	1	7	2	1	0	2	0	0	0	0	0	11	5
8:15:00	56	18	129	29	9	2	1	0	8	1	2	1	2	0	0	0	0	0	11	0
8:30:00	68	12	167	38	10	1	1	0	10	2	3	1	2	0	0	0	0	0	30	19
8:45:00	86	18	205	38	14	4	2	1	12	2	3	0	2	0	0	0	0	0	41	11
9:00:00	105	19	263	58	15	1	4	2	16	4	3	0	3	1	0	0	0	0	50	9
9:15:00	117	12	300	37	16	1	5	1	19	3	4	1	4	1	1	1	0	0	63	13
9:30:00	126	9	332	32	18	2	6	1	20	1	4	0	4	0	1	0	0	0	69	6
9:45:00	141	15	383	51	19	1	6	0	21	1	5	1	4	0	1	0	0	0	77	8
10:00:00	149	8	429	46	19	0	6	0	23	2	5	0	5	1	3	2	0	0	85	8
10:00:14	149	0	433	4	19	0	6	0	23	0	5	0	5	0	3	0	0	0	85	0
11:00:00	149	0	433	0	19	0	6	0	23	0	5	0	5	0	3	0	0	0	85	0
11:15:00	164	15	467	34	22	3	6	0	26	3	5	0	5	0	3	0	0	0	89	4
11:30:00	175	11	510	43	25	3	6	0	28	2	5	0	5	0	4	1	0	0	96	7
11:45:00	187	12	542	32	29	4	7	1	30	2	5	0	5	0	4	0	0	0	111	15
12:00:00	205	18	594	52	34	5	7	0	32	2	5	0	5	0	4	0	0	0	117	6
12:15:00	218	13	659	65	36	2	8	1	33	1	5	0	5	0	4	0	0	0	129	12
12:30:00	226	8	707	48	37	1	8	0	35	2	5	0	5	0	5	1	0	0	144	15
12:45:00	238	12	784	77	37	0	8	0	37	2	5	0	5	0	6	1	0	0	173	29
13:00:00	272	34	868	84	40	3	8	0	38	1	6	1	5	0	6	0	0	0	213	40
13:15:00	286	14	911	43	43	3	8	0	41	3	6	0	5	0	6	0	0	0	216	3
13:30:00	298	12	954	43	47	4	8	0	42	1	6	0	5	0	6	0	0	0	231	15
13:45:00	313	15	997	43	50	3	8	0	45	3	6	0	5	0	6	0	0	0	240	9
14:00:00	324	11	1040	43	51	1	8	0	47	2	6	0	6	1	6	0	0	0	252	12
14:00:26	324	0	1043	3	51	0	8	0	47	0	6	0	6	0	6	0	0	0	253	1
15:00:00	324	0	1044	1	51	0	8	0	47	0	6	0	6	0	6	0	0	0	253	0
15:15:00	332	8	1095	51	54	3	10	2	49	2	6	0	6	0	6	0	0	0	256	3
15:30:00	339	7	1135	40	56	2	11	1	50	1	6	0	6	0	6	0	0	0	260	4
15:45:00	346	7	1181	46	57	1	11	0	53	3	6	0	6	0	6	0	0	0	260	0
16:00:00	368	22	1244	63	58	1	11	0	54	1	7	1	6	0	7	1	0	0	271	11
16:15:00	434	66	1335	91	58	0	12	1	59	5	8	1	6	0	8	1	0	0	276	5
16:30:00	450	16	1402	67	60	2	13	1	62	3	8	0	6	0	8	0	0	0	280	4
16:45:00	470	20	1519	117	64	4	13	0	64	2	8	0	6	0	8	0	0	0	285	5
17:00:00	486	16	1598	79	68	4	14	1	67	3	8	0	6	0	8	0	0	0	288	3
17:15:00	499	13	1691	93	69	1	14	0	68	1	8	0	6	0	8	0	0	0	302	14
17:30:00	532	33	1755	64	79	10	14	0	68	0	8	0	8	2	9	1	0	0	323	21
17:45:00	535	3	1808	53	80	1	15	1	71	3	8	0	8	0	9	0	0	0	329	6

Ontario Traffic Inc.

Count Date: 26-Sep-17 Site #: 1700600062

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	1	1	28	28	5	5	0	0	1	1	0	0	0	0	0	0	0	0	2	2
7:30:00	3	2	55	27	10	5	1	1	3	2	1	1	0	0	1	1	0	0	6	4
7:45:00	4	1	89	34	15	5	1	0	5	2	2	1	0	0	1	0	0	0	12	6
8:00:00	8	4	137	48	20	5	2	1	6	1	2	0	0	0	2	1	0	0	22	10
8:15:00	9	1	178	41	31	11	4	2	9	3	3	1	0	0	2	0	0	0	30	8
8:30:00	10	1	264	86	47	16	5	1	12	3	4	1	0	0	2	0	0	0	46	16
8:45:00	12	2	334	70	67	20	7	2	14	2	4	0	1	1	2	0	0	0	67	21
9:00:00	16	4	407	73	91	24	8	1	15	1	6	2	1	0	2	0	0	0	107	40
9:15:00	19	3	456	49	115	24	10	2	16	1	7	1	1	0	3	1	0	0	125	18
9:30:00	19	0	499	43	125	10	11	1	18	2	9	2	1	0	3	0	0	0	133	8
9:45:00	20	1	554	55	143	18	11	0	19	1	9	0	1	0	3	0	0	0	144	11
10:00:00	21	1	598	44	160	17	12	1	22	3	9	0	1	0	4	1	0	0	155	11
10:00:14	21	0	599	1	160	0	12	0	22	0	11	2	1	0	4	0	0	0	155	0
11:00:00	21	0	599	0	161	1	12	0	22	0	11	0	1	0	4	0	0	0	157	2
11:15:00	24	3	635	36	171	10	13	1	26	4	14	3	1	0	4	0	0	0	161	4
11:30:00	25	1	692	57	183	12	14	1	28	2	14	0	1	0	4	0	0	0	192	31
11:45:00	28	3	753	61	196	13	15	1	30	2	15	1	1	0	4	0	0	0	212	20
12:00:00	29	1	813	60	207	11	16	1	33	3	15	0	1	0	4	0	0	0	247	35
12:15:00	29	0	856	43	222	15	17	1	36	3	16	1	1	0	4	0	0	0	268	21
12:30:00	31	2	904	48	236	14	18	1	39	3	16	0	1	0	5	1	0	0	292	24
12:45:00	31	0	955	51	245	9	18	0	42	3	17	1	1	0	5	0	0	0	315	23
13:00:00	33	2	1027	72	257	12	20	2	44	2	19	2	1	0	5	0	0	0	377	62
13:15:00	35	2	1074	47	266	9	21	1	46	2	20	1	1	0	5	0	0	0	391	14
13:30:00	38	3	1137	63	284	18	21	0	47	1	21	1	1	0	5	0	1	1	403	12
13:45:00	40	2	1190	53	293	9	23	2	50	3	21	0	1	0	5	0	1	0	410	7
14:00:00	42	2	1231	41	304	11	24	1	52	2	22	1	1	0	5	0	1	0	429	19
14:00:26	42	0	1237	6	304	0	24	0	52	0	22	0	1	0	5	0	1	0	429	0
15:00:00	42	0	1237	0	304	0	24	0	52	0	22	0	1	0	5	0	1	0	429	0
15:15:00	43	1	1295	58	315	11	25	1	53	1	23	1	1	0	5	0	1	0	445	16
15:30:00	44	1	1323	28	321	6	25	0	55	2	24	1	1	0	5	0	1	0	450	5
15:45:00	45	1	1371	48	328	7	25	0	55	0	24	0	1	0	5	0	1	0	452	2
16:00:00	45	0	1445	74	350	22	26	1	56	1	25	1	1	0	7	2	1	0	464	12
16:15:00	45	0	1533	88	359	9	28	2	60	4	26	1	1	0	7	0	1	0	481	17
16:30:00	50	5	1580	47	375	16	29	1	62	2	27	1	1	0	7	0	1	0	495	14
16:45:00	52	2	1619	39	389	14	31	2	64	2	28	1	1	0	7	0	1	0	513	18
17:00:00	54	2	1669	50	396	7	33	2	65	1	28	0	1	0	8	1	1	0	523	10
17:15:00	55	1	1731	62	406	10	35	2	68	3	28	0	1	0	8	0	1	0	543	20
17:30:00	61	6	1804	73	430	24	37	2	71	3	30	2	1	0	9	1	1	0	558	15
17:45:00	62	1	1868	64	440	10	38	1	72	1	30	0	1	0	10	1	1	0	569	11

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:00:00
To: 9:00:00

Municipality: Windsor
Site #: 1700600068
Intersection: University Ave W & Pelissier St
TFR File #: 4
Count date: 28-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 93
North Entering: 0
North Peds: 47
Peds Cross: \times

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



Heavys	1
Trucks	0
Cars	92
Totals	93

East Leg Total: 488
East Entering: 158
East Peds: 14
Peds Cross: \times

Heavys	0	Trucks	9	Cars	215	Totals	224
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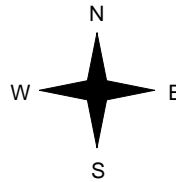


Pelissier St

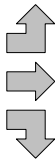
Cars	8	Trucks	0	Heavys	0	Totals	8
Cars	141	Trucks	9	Heavys	0	Totals	150
Cars	0	Trucks	0	Heavys	0	Totals	0
Cars	149	Trucks	9	Heavys	0	Totals	158



University Ave W



Heavys	0	Trucks	0	Cars	9	Totals	9
Heavys	1	Trucks	9	Cars	244	Totals	254
Heavys	0	Trucks	0	Cars	0	Totals	0
Heavys	1	Trucks	9	Cars	253	Totals	254



University Ave W



Peds Cross: \times
West Peds: 25
West Entering: 263
West Leg Total: 487

Cars	0	Cars	74	75	74	Totals	223
Trucks	0	Trucks	0	0	0	Totals	0
Heavys	0	Heavys	0	1	2	Totals	3
Totals	0	Totals	74	76	76	Totals	226



Pelissier St



Peds Cross: \times
South Peds: 50
South Entering: 226
South Leg Total: 226

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 11:45:00

To: 12:45:00

Municipality: Windsor
Site #: 1700600068
Intersection: University Ave W & Pelissier St
TFR File #: 4
Count date: 28-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 84
 North Entering: 0
 North Peds: 61
 Peds Cross: \times

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



Heavys	0
Trucks	1
Cars	83
Totals	84

East Leg Total: 517
 East Entering: 204
 East Peds: 53
 Peds Cross: \times

Heavys	0
Trucks	8
Cars	258
Totals	266

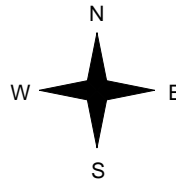


Pelissier St

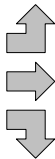
Cars	12	0	0	12
Trucks	185	7	0	192
Heavys	0	0	0	0
Totals	197	7	0	



University Ave W



Heavys	0
Trucks	0
Cars	9
Totals	9
Heavys	0
Trucks	5
Cars	217
Totals	222
Heavys	0
Trucks	0
Cars	0
Totals	0
Heavys	0
Trucks	5
Cars	226
Totals	231



Pelissier St

University Ave W



Cars	305	8	0	313
Trucks				
Heavys				
Totals				

Peds Cross: \times
 West Peds: 47
 West Entering: 231
 West Leg Total: 497

Cars	0	73	62	88	223
Trucks	0	1	1	3	5
Heavys	0	0	0	0	0
Totals	0	74	63	91	



Peds Cross: \times
 South Peds: 100
 South Entering: 228
 South Leg Total: 228

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

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

One Hour Peak

From: 16:15:00
To: 17:15:00

Municipality: Windsor
Site #: 1700600068
Intersection: University Ave W & Pelissier St
TFR File #: 4
Count date: 28-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 104
North Entering: 0
North Peds: 50
Peds Cross: \times

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



Heavys	1
Trucks	0
Cars	103
Totals	104

East Leg Total: 619
East Entering: 293
East Peds: 35
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	9	368	378

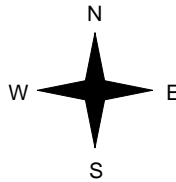


Pelissier St

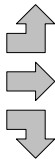
Cars	Trucks	Heavys	Totals
19	0	0	19
264	9	1	274
0	0	0	0
283	9	1	



University Ave W



Heavys	Trucks	Cars	Totals
0	0	12	12
0	7	221	228
0	0	0	0
0	7	233	



University Ave W



Cars	Trucks	Heavys	Totals
319	7	0	326

Peds Cross: \times
West Peds: 34
West Entering: 240
West Leg Total: 618

Cars	0	Cars	104	72	98	274
Trucks	0	Trucks	0	0	0	0
Heavys	0	Heavys	0	1	0	1
Totals	0	Totals	104	73	98	



Peds Cross: \times
South Peds: 71
South Entering: 275
South Leg Total: 275

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600068
Intersection: University Ave W & Pelissier St
TFR File #: 4
Count date: 28-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave W runs W/E

North Leg Total: 710
 North Entering: 0
 North Peds: 366
 Peds Cross: \times

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



Heavys	3
Trucks	6
Cars	701
Totals	710

East Leg Total: 4334
 East Entering: 1652
 East Peds: 281
 Peds Cross: \times

Heavys	5
Trucks	87
Cars	2135
Totals	2227

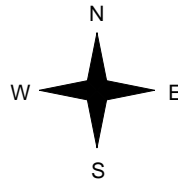


Pelissier St

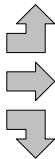
Cars	95	Trucks	0	Heavys	0	Totals	95
Cars	1469	Trucks	83	Heavys	3	Totals	1555
Cars	2	Trucks	0	Heavys	0	Totals	2
Cars	1566	Trucks	83	Heavys	3	Totals	



University Ave W



Heavys	0
Trucks	2
Cars	69
Totals	69
Heavys	0
Trucks	2
Cars	1948
Totals	2013
Heavys	0
Trucks	0
Cars	0
Totals	0
Heavys	2
Trucks	63
Cars	2017
Totals	



University Ave W



Cars	2604	Trucks	71	Heavys	7	Totals	2682
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Peds Cross: \times
 West Peds: 232
 West Entering: 2082
 West Leg Total: 4309

Cars	2
Trucks	0
Heavys	0
Totals	2



Cars	666	537	656	1859
Trucks	4	6	8	18
Heavys	2	3	5	10
Totals	672	546	669	

Peds Cross: \times
 South Peds: 511
 South Entering: 1887
 South Leg Total: 1889

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave W & Pelissier St

Count Date: 28-Sep-17

Municipality: Windsor

North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	0	0	0	0	6	152	8:00:00	46	60	46	152	14
9:00:00	0	0	0	0	47	226	9:00:00	74	76	76	226	50
10:00:00	0	0	0	0	27	187	10:00:00	64	51	72	187	22
11:00:00	0	0	0	0	0	2	11:00:00	1	1	0	2	0
12:00:00	0	0	0	0	28	188	12:00:00	67	53	68	188	64
13:00:00	0	0	0	0	69	229	13:00:00	75	62	92	229	95
14:00:00	0	0	0	0	47	209	14:00:00	67	54	88	209	73
15:00:00	0	0	0	0	1	2	15:00:00	2	0	0	2	1
16:00:00	0	0	0	0	52	193	16:00:00	78	49	66	193	60
17:00:00	0	0	0	0	52	255	17:00:00	95	85	75	255	62
18:00:00	0	0	0	0	37	240	18:00:00	100	55	85	240	70
Totals:	0	0	0	0	366	1883		669	546	668	1883	511
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	1	7:00:00	0	1	0	1	0
8:00:00	0	74	3	77	4	229	8:00:00	0	152	0	152	4
9:00:00	0	150	8	158	14	421	9:00:00	9	254	0	263	25
10:00:00	0	122	6	128	25	334	10:00:00	6	200	0	206	19
11:00:00	0	2	0	2	0	9	11:00:00	0	7	0	7	0
12:00:00	0	132	10	142	27	340	12:00:00	7	191	0	198	16
13:00:00	0	184	11	195	52	420	13:00:00	7	218	0	225	45
14:00:00	2	166	12	180	42	417	14:00:00	10	227	0	237	24
15:00:00	0	2	0	2	0	13	15:00:00	0	11	0	11	0
16:00:00	0	230	15	245	30	541	16:00:00	11	285	0	296	33
17:00:00	0	268	23	291	39	538	17:00:00	14	233	0	247	27
18:00:00	0	225	7	232	48	470	18:00:00	5	233	0	238	38
Totals:	2	1555	95	1652	281	3733		69	2012	0	2081	231
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00			14:00	16:00	17:00	18:00		
Crossing Values:	189	159	163	234			187	190	246	241		

Ontario Traffic Inc.

Count Date: 28-Sep-17 Site #: 1700600068

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	0	0	12	12	1	1	0	0	3	3	0	0	0	0	0	0	0	0	1	1
7:30:00	0	0	22	10	2	1	0	0	3	0	0	0	0	0	0	0	0	0	1	0
7:45:00	0	0	45	23	2	0	0	0	5	2	0	0	0	0	0	0	0	0	1	0
8:00:00	0	0	67	22	3	1	0	0	7	2	0	0	0	0	0	0	0	0	4	3
8:15:00	0	0	99	32	4	1	0	0	9	2	0	0	0	0	0	0	0	0	8	4
8:30:00	0	0	129	30	6	2	0	0	11	2	0	0	0	0	0	0	0	0	11	3
8:45:00	0	0	172	43	10	4	0	0	13	2	0	0	0	0	0	0	0	0	12	1
9:00:00	0	0	208	36	11	1	0	0	16	3	0	0	0	0	0	0	0	0	18	6
9:15:00	0	0	240	32	12	1	0	0	21	5	0	0	0	0	0	0	0	0	24	6
9:30:00	0	0	266	26	13	1	0	0	23	2	0	0	0	0	1	1	0	0	29	5
9:45:00	0	0	293	27	15	2	0	0	25	2	0	0	0	0	1	0	0	0	38	9
10:00:00	0	0	318	25	17	2	0	0	27	2	0	0	0	0	1	0	0	0	43	5
10:02:17	0	0	320	2	17	0	0	0	27	0	0	0	0	0	1	0	0	0	43	0
11:00:00	0	0	320	0	17	0	0	0	27	0	0	0	0	0	1	0	0	0	43	0
11:15:00	0	0	349	29	19	2	0	0	30	3	0	0	0	0	1	0	0	0	46	3
11:30:00	0	0	376	27	21	2	0	0	33	3	0	0	0	0	1	0	0	0	52	6
11:45:00	0	0	395	19	23	2	0	0	34	1	0	0	0	0	1	0	0	0	56	4
12:00:00	0	0	443	48	27	4	0	0	36	2	0	0	0	0	1	0	0	0	70	14
12:15:00	0	0	486	43	31	4	0	0	36	0	0	0	0	0	1	0	0	0	88	18
12:30:00	0	0	530	44	34	3	0	0	39	3	0	0	0	0	1	0	0	0	102	14
12:45:00	0	0	580	50	35	1	0	0	41	2	0	0	0	0	1	0	0	0	109	7
13:00:00	0	0	618	38	38	3	0	0	44	3	0	0	0	0	2	1	0	0	122	13
13:15:00	0	0	654	36	42	4	0	0	48	4	0	0	0	0	2	0	0	0	130	8
13:30:00	0	0	706	52	43	1	0	0	50	2	0	0	0	0	2	0	0	0	134	4
13:45:00	2	2	730	24	47	4	0	0	51	1	0	0	0	0	2	0	0	0	142	8
14:00:00	2	0	774	44	50	3	0	0	54	3	0	0	0	0	2	0	0	0	164	22
14:01:03	2	0	776	2	50	0	0	0	54	0	0	0	0	0	2	0	0	0	164	0
15:00:00	2	0	776	0	50	0	0	0	54	0	0	0	0	0	2	0	0	0	164	0
15:15:00	2	0	820	44	55	5	0	0	57	3	0	0	0	0	2	0	0	0	174	10
15:30:00	2	0	879	59	58	3	0	0	57	0	0	0	0	0	2	0	0	0	182	8
15:45:00	2	0	940	61	62	4	0	0	61	4	0	0	0	0	2	0	0	0	189	7
16:00:00	2	0	995	55	65	3	0	0	65	4	0	0	0	0	2	0	0	0	194	5
16:15:00	2	0	1051	56	69	4	0	0	68	3	0	0	0	0	2	0	0	0	204	10
16:30:00	2	0	1105	54	74	5	0	0	70	2	0	0	0	0	3	1	0	0	214	10
16:45:00	2	0	1200	95	79	5	0	0	73	3	0	0	0	0	3	0	0	0	219	5
17:00:00	2	0	1251	51	88	9	0	0	76	3	0	0	0	0	3	0	0	0	233	14
17:15:00	2	0	1315	64	88	0	0	0	77	1	0	0	0	0	3	0	0	0	239	6
17:30:00	2	0	1368	53	92	4	0	0	79	2	0	0	0	0	3	0	0	0	253	14
17:45:00	2	0	1424	56	94	2	0	0	82	3	0	0	0	0	3	0	0	0	264	11

Ontario Traffic Inc.

Count Date: 28-Sep-17 Site #: 1700600068

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	9	9	12	12	10	10	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	19	10	29	17	22	12	0	0	0	0	0	0	0	0	0	0	0	0	7	5
7:45:00	33	14	38	9	35	13	0	0	0	0	0	0	0	0	0	0	0	0	12	5
8:00:00	46	13	60	22	46	11	0	0	0	0	0	0	0	0	0	0	0	0	14	2
8:15:00	63	17	91	31	65	19	0	0	0	0	0	0	0	0	0	0	1	1	22	8
8:30:00	83	20	104	13	79	14	0	0	0	0	0	0	0	0	1	1	2	1	37	15
8:45:00	101	18	127	23	99	20	0	0	0	0	0	0	0	0	1	0	2	0	51	14
9:00:00	120	19	135	8	120	21	0	0	0	0	0	0	0	0	1	0	2	0	64	13
9:15:00	135	15	146	11	131	11	0	0	1	1	0	0	0	0	1	0	2	0	69	5
9:30:00	148	13	161	15	148	17	0	0	1	0	0	0	0	0	2	1	2	0	78	9
9:45:00	170	22	169	8	169	21	0	0	1	0	0	0	0	0	2	0	2	0	83	5
10:00:00	184	14	183	14	192	23	0	0	2	1	0	0	0	0	2	0	2	0	86	3
10:02:17	185	1	184	1	192	0	0	0	2	0	0	0	0	0	2	0	2	0	86	0
11:00:00	185	0	184	0	192	0	0	0	2	0	0	0	0	0	2	0	2	0	86	0
11:15:00	195	10	193	9	212	20	1	1	3	1	0	0	0	0	2	0	3	1	98	12
11:30:00	207	12	209	16	226	14	1	0	3	0	0	0	0	0	2	0	3	0	120	22
11:45:00	228	21	222	13	233	7	1	0	3	0	1	1	2	2	2	0	3	0	123	3
12:00:00	249	21	236	14	256	23	1	0	3	0	3	2	2	0	2	0	3	0	150	27
12:15:00	269	20	252	16	276	20	1	0	3	0	3	0	2	0	2	0	3	0	174	24
12:30:00	284	15	271	19	295	19	1	0	4	1	3	0	2	0	2	0	3	0	191	17
12:45:00	301	17	284	13	321	26	2	1	4	0	4	1	2	0	2	0	3	0	223	32
13:00:00	323	22	296	12	346	25	2	0	5	1	4	0	2	0	2	0	4	1	245	22
13:15:00	347	24	306	10	369	23	2	0	5	0	5	1	2	0	2	0	4	0	262	17
13:30:00	362	15	319	13	390	21	2	0	6	1	5	0	2	0	2	0	4	0	275	13
13:45:00	377	15	334	15	411	21	3	1	6	0	8	3	2	0	2	0	5	1	295	20
14:00:00	389	12	349	15	429	18	3	0	6	0	8	0	2	0	2	0	5	0	318	23
14:01:03	391	2	349	0	429	0	3	0	6	0	8	0	2	0	2	0	5	0	319	1
15:00:00	391	0	349	0	429	0	3	0	6	0	8	0	2	0	2	0	5	0	319	0
15:15:00	411	20	359	10	449	20	3	0	6	0	8	0	2	0	2	0	5	0	338	19
15:30:00	438	27	373	14	462	13	3	0	6	0	8	0	2	0	2	0	5	0	356	18
15:45:00	456	18	388	15	479	17	4	1	6	0	8	0	2	0	2	0	5	0	368	12
16:00:00	468	12	398	10	495	16	4	0	6	0	8	0	2	0	2	0	5	0	379	11
16:15:00	482	14	421	23	501	6	4	0	6	0	8	0	2	0	2	0	5	0	387	8
16:30:00	499	17	435	14	526	25	4	0	6	0	8	0	2	0	3	1	5	0	418	31
16:45:00	533	34	457	22	553	27	4	0	6	0	8	0	2	0	3	0	5	0	433	15
17:00:00	563	30	482	25	570	17	4	0	6	0	8	0	2	0	3	0	5	0	441	8
17:15:00	586	23	493	11	599	29	4	0	6	0	8	0	2	0	3	0	5	0	458	17
17:30:00	610	24	507	14	618	19	4	0	6	0	8	0	2	0	3	0	5	0	475	17
17:45:00	633	23	521	14	636	18	4	0	6	0	8	0	2	0	3	0	5	0	484	9

Ontario Traffic Inc.

Count Date: 28-Sep-17 Site #: 1700600068

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	22	21	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	57	35	0	0	0	0	2	1	0	0	0	0	0	0	0	0	2	2
7:45:00	0	0	90	33	0	0	0	0	4	2	0	0	0	0	0	0	0	0	3	1
8:00:00	0	0	147	57	0	0	0	0	5	1	0	0	0	0	1	1	0	0	4	1
8:15:00	3	3	197	50	0	0	0	0	7	2	0	0	0	0	1	0	0	0	7	3
8:30:00	4	1	284	87	0	0	0	0	9	2	0	0	0	0	1	0	0	0	13	6
8:45:00	8	4	333	49	0	0	0	0	12	3	0	0	0	0	2	1	0	0	22	9
9:00:00	9	1	391	58	0	0	0	0	14	2	0	0	0	0	2	0	0	0	29	7
9:15:00	12	3	454	63	0	0	0	0	15	1	0	0	0	0	2	0	0	0	34	5
9:30:00	12	0	507	53	0	0	0	0	16	1	0	0	0	0	2	0	0	0	39	5
9:45:00	15	3	551	44	0	0	0	0	18	2	0	0	0	0	2	0	0	0	41	2
10:00:00	15	0	586	35	0	0	0	0	19	1	0	0	0	0	2	0	0	0	48	7
10:02:17	15	0	592	6	0	0	0	0	19	0	0	0	0	0	2	0	0	0	48	0
11:00:00	15	0	593	1	0	0	0	0	19	0	0	0	0	0	2	0	0	0	48	0
11:15:00	18	3	644	51	0	0	0	0	20	1	0	0	0	0	2	0	0	0	49	1
11:30:00	20	2	690	46	0	0	0	0	22	2	0	0	0	0	2	0	0	0	54	5
11:45:00	20	0	723	33	0	0	0	0	24	2	0	0	0	0	2	0	0	0	54	0
12:00:00	22	2	778	55	0	0	0	0	25	1	0	0	0	0	2	0	0	0	64	10
12:15:00	26	4	840	62	0	0	0	0	26	1	0	0	0	0	2	0	0	0	79	15
12:30:00	27	1	892	52	0	0	0	0	27	1	0	0	0	0	2	0	0	0	87	8
12:45:00	29	2	940	48	0	0	0	0	29	2	0	0	0	0	2	0	0	0	101	14
13:00:00	29	0	990	50	0	0	0	0	31	2	0	0	0	0	2	0	0	0	109	8
13:15:00	32	3	1046	56	0	0	0	0	32	1	0	0	0	0	2	0	0	0	117	8
13:30:00	36	4	1095	49	0	0	0	0	33	1	0	0	0	0	2	0	0	0	121	4
13:45:00	36	0	1150	55	0	0	0	0	35	2	0	0	0	0	2	0	0	0	128	7
14:00:00	39	3	1210	60	0	0	0	0	38	3	0	0	0	0	2	0	0	0	133	5
14:01:03	39	0	1220	10	0	0	0	0	38	0	0	0	0	0	2	0	0	0	133	0
15:00:00	39	0	1221	1	0	0	0	0	38	0	0	0	0	0	2	0	0	0	133	0
15:15:00	41	2	1305	84	0	0	0	0	40	2	0	0	0	0	2	0	0	0	143	10
15:30:00	45	4	1362	57	0	0	0	0	44	4	0	0	0	0	2	0	0	0	154	11
15:45:00	49	4	1431	69	0	0	0	0	47	3	0	0	0	0	2	0	0	0	162	8
16:00:00	50	1	1495	64	0	0	0	0	49	2	0	0	0	0	2	0	0	0	166	4
16:15:00	53	3	1553	58	0	0	0	0	50	1	0	0	0	0	2	0	0	0	168	2
16:30:00	57	4	1622	69	0	0	0	0	52	2	0	0	0	0	2	0	0	0	178	10
16:45:00	59	2	1674	52	0	0	0	0	54	2	0	0	0	0	2	0	0	0	186	8
17:00:00	64	5	1722	48	0	0	0	0	55	1	0	0	0	0	2	0	0	0	193	7
17:15:00	65	1	1774	52	0	0	0	0	57	2	0	0	0	0	2	0	0	0	202	9
17:30:00	67	2	1831	57	0	0	0	0	59	2	0	0	0	0	2	0	0	0	216	14
17:45:00	68	1	1893	62	0	0	0	0	61	2	0	0	0	0	2	0	0	0	224	8

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:15:00
To: 9:15:00

Municipality: Windsor
Site #: 1700600063
Intersection: University Ave & Ouellette Ave
TFR File #: 16
Count date: 27-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave runs W/E

North Leg Total: 335
North Entering: 169
North Peds: 118
Peds Cross: \times

Heavys	0	1	1	2
Trucks	0	7	1	8
Cars	36	107	16	159
Totals	36	115	18	



Heavys	1
Trucks	12
Cars	153
Totals	166

East Leg Total: 534
East Entering: 192
East Peds: 136
Peds Cross: \times

Heavys	Trucks	Cars	Totals
2	11	200	213

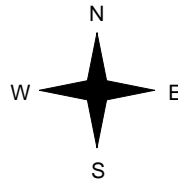


Ouellette Ave

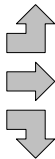
Cars	Trucks	Heavys	Totals
26	0	0	26
137	11	2	150
16	0	0	16
179	11	2	



University Ave



Heavys	Trucks	Cars	Totals
0	2	47	49
0	9	271	280
1	1	37	39
1	12	355	



Ouellette Ave

University Ave



Cars	Trucks	Heavys	Totals
329	12	1	342

Peds Cross: \times
West Peds: 142
West Entering: 368
West Leg Total: 581

Cars	160
Trucks	8
Heavys	2
Totals	170

Cars	27	80	42	149
Trucks	0	10	2	12
Heavys	0	1	0	1
Totals	27	91	44	



Peds Cross: \times
South Peds: 87
South Entering: 162
South Leg Total: 332

Comments

Ontario 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: Windsor
Site #: 1700600063
Intersection: University Ave & Ouellette Ave
TFR File #: 16
Count date: 27-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave runs W/E

North Leg Total: 509
North Entering: 258
North Peds: 156
Peds Cross: \times

Heavys	0	3	0	3
Trucks	1	3	2	6
Cars	38	162	49	249
Totals	39	168	51	



Heavys	0
Trucks	7
Cars	244
Totals	251

East Leg Total: 708
East Entering: 293
East Peds: 375
Peds Cross: \times

Heavys	Trucks	Cars	Totals
3	14	299	316

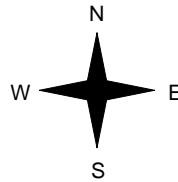


Ouellette Ave

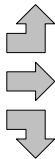
Cars	Trucks	Heavys	Totals
41	1	0	42
196	13	3	212
39	0	0	39
276	14	3	



University Ave



Heavys	Trucks	Cars	Totals
0	0	82	82
1	10	266	277
0	2	62	64
1	12	410	



University Ave



Peds Cross: \times
West Peds: 404
West Entering: 423
West Leg Total: 739

Cars	263
Trucks	5
Heavys	3
Totals	271



Cars	65	121	83	269
Trucks	0	6	4	10
Heavys	0	0	0	0
Totals	65	127	87	

Peds Cross: \times
South Peds: 157
South Entering: 279
South Leg Total: 550

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600063
Intersection: University Ave & Ouellette Ave
TFR File #: 16
Count date: 27-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave runs W/E

North Leg Total: 402
North Entering: 169
North Peds: 91
Peds Cross: \times

Heavys	0	0	0	0
Trucks	1	2	0	3
Cars	32	102	32	166
Totals	33	104	32	



Heavys	0
Trucks	5
Cars	228
Totals	233

East Leg Total: 673
East Entering: 340
East Peds: 252
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	10	352	363

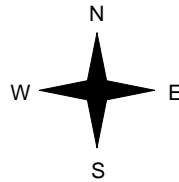


Ouellette Ave

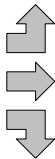
Cars	Trucks	Heavys	Totals
33	1	0	34
269	9	1	279
27	0	0	27
329	10	1	



University Ave



Heavys	Trucks	Cars	Totals
0	1	59	60
0	7	241	248
0	0	51	51
0	8	351	



University Ave



Cars	Trucks	Heavys	Totals
326	7	0	333

Peds Cross: \times
West Peds: 198
West Entering: 359
West Leg Total: 722

Cars	180	Cars	51	136	53	240
Trucks	2	Trucks	0	3	0	3
Heavys	0	Heavys	0	0	0	0
Totals	182	Totals	51	139	53	



Ouellette Ave

Peds Cross: \times
South Peds: 126
South Entering: 243
South Leg Total: 425

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600063
Intersection: University Ave & Ouellette Ave
TFR File #: 16
Count date: 27-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave runs W/E

North Leg Total: 3144
 North Entering: 1437
 North Peds: 941
 Peds Cross: ⚡

Heavys	2	6	1	9
Trucks	2	24	8	34
Cars	243	928	223	1394
Totals	247	958	232	



Heavys	3
Trucks	39
Cars	1665
Totals	1707

East Leg Total: 4783
 East Entering: 1997
 East Peds: 1839
 Peds Cross: ⚡

Heavys	Trucks	Cars	Totals
16	85	2039	2140

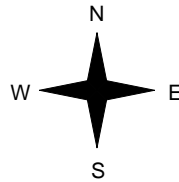


Ouellette Ave

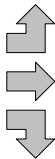
Cars	Trucks	Heavys	Totals
253	5	0	258
1446	81	11	1538
197	3	1	201
1896	89	12	



University Ave



Heavys	Trucks	Cars	Totals
2	10	493	505
4	55	2088	2147
4	6	352	362
10	71	2933	



Ouellette Ave



University Ave



Cars	Trucks	Heavys	Totals
2704	77	5	2786

Peds Cross: ⚡
 West Peds: 1953
 West Entering: 3014
 West Leg Total: 5154

Cars	1477	Cars	350	919	393	1662
Trucks	33	Trucks	2	24	14	40
Heavys	11	Heavys	3	1	0	4
Totals	1521	Totals	355	944	407	



Peds Cross: ⚡
 South Peds: 924
 South Entering: 1706
 South Leg Total: 3227

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave & Ouellette Ave

Count Date: 27-Sep-17

Municipality: Windsor

North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	13	35	17	65	29	180	8:00:00	29	65	21	115	21
9:00:00	23	90	32	145	81	276	9:00:00	25	70	36	131	78
10:00:00	20	122	29	171	122	334	10:00:00	24	93	46	163	69
11:00:00	0	2	1	3	0	11	11:00:00	0	7	1	8	0
12:00:00	30	102	20	152	126	335	12:00:00	43	95	45	183	102
13:00:00	49	137	32	218	137	485	13:00:00	63	120	84	267	138
14:00:00	19	126	22	167	190	348	14:00:00	30	105	46	181	166
15:00:00	0	5	0	5	1	9	15:00:00	0	2	2	4	0
16:00:00	23	121	22	166	81	361	16:00:00	32	126	37	195	127
17:00:00	32	104	33	169	91	412	17:00:00	51	139	53	243	126
18:00:00	23	114	39	176	83	392	18:00:00	58	122	36	216	97
Totals:	232	958	247	1437	941	3143		355	944	407	1706	924
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	1	7:00:00	1	0	0	1	0
8:00:00	8	60	13	81	47	281	8:00:00	20	173	7	200	55
9:00:00	14	144	22	180	103	545	9:00:00	32	298	35	365	122
10:00:00	16	110	23	149	208	448	10:00:00	66	199	34	299	185
11:00:00	0	8	3	11	10	25	11:00:00	6	7	1	14	12
12:00:00	22	141	37	200	214	505	12:00:00	37	213	55	305	204
13:00:00	46	206	33	285	359	686	13:00:00	82	256	63	401	405
14:00:00	26	174	32	232	266	570	14:00:00	50	250	38	338	327
15:00:00	0	0	0	0	2	6	15:00:00	0	6	0	6	0
16:00:00	14	181	27	222	174	538	16:00:00	59	214	43	316	241
17:00:00	27	279	34	340	252	699	17:00:00	60	248	51	359	198
18:00:00	28	234	34	296	204	699	18:00:00	92	276	35	403	204
Totals:	201	1537	258	1996	1839	5003		505	2140	362	3007	1953
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00		14:00	16:00	17:00	18:00			
Crossing Values:	363	559	593	1013		768	596	672	611			

Ontario Traffic Inc.

Count Date: 27-Sep-17 Site #: 1700600063

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	5	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4	4
7:30:00	3	3	16	11	4	3	0	0	0	0	0	0	0	0	0	0	0	0	11	7
7:45:00	7	4	26	10	9	5	0	0	0	0	0	0	0	0	0	0	0	0	20	9
8:00:00	11	4	35	9	17	8	2	2	0	0	0	0	0	0	0	0	0	0	29	9
8:15:00	19	8	52	17	24	7	2	0	0	0	0	0	0	0	0	0	1	1	38	9
8:30:00	24	5	78	26	29	5	3	1	2	2	0	0	0	0	0	0	1	0	65	27
8:45:00	28	4	97	19	40	11	3	0	4	2	0	0	1	1	0	0	1	0	82	17
9:00:00	32	4	121	24	48	8	3	0	4	0	0	0	1	0	0	0	1	0	110	28
9:15:00	35	3	159	38	60	12	3	0	7	3	0	0	1	0	1	1	1	0	156	46
9:30:00	43	8	189	30	66	6	3	0	8	1	0	0	1	0	1	0	2	1	188	32
9:45:00	45	2	212	23	68	2	3	0	9	1	0	0	1	0	1	0	2	0	207	19
10:00:00	51	6	235	23	76	8	4	1	11	2	0	0	1	0	1	0	2	0	232	25
10:02:33	51	0	237	2	77	1	4	0	11	0	0	0	1	0	1	0	2	0	232	0
11:00:00	51	0	237	0	77	0	4	0	11	0	0	0	1	0	1	0	2	0	232	0
11:15:00	58	7	258	21	86	9	4	0	11	0	0	0	1	0	1	0	2	0	260	28
11:30:00	65	7	276	18	89	3	4	0	11	0	0	0	1	0	1	0	2	0	295	35
11:45:00	74	9	304	28	94	5	4	0	11	0	0	0	1	0	1	0	2	0	333	38
12:00:00	81	7	339	35	97	3	4	0	11	0	0	0	1	0	1	0	2	0	358	25
12:15:00	83	2	364	25	100	3	5	1	11	0	0	0	1	0	1	0	2	0	394	36
12:30:00	89	6	397	33	106	6	6	1	12	1	0	0	1	0	2	1	2	0	421	27
12:45:00	109	20	428	31	113	7	7	1	12	0	0	0	1	0	3	1	2	0	438	17
13:00:00	127	18	471	43	128	15	7	0	13	1	1	1	1	0	4	1	2	0	495	57
13:15:00	132	5	526	55	138	10	7	0	14	1	1	0	1	0	4	0	2	0	550	55
13:30:00	137	5	548	22	139	1	7	0	17	3	1	0	1	0	4	0	2	0	613	63
13:45:00	141	4	565	17	143	4	7	0	17	0	1	0	1	0	4	0	2	0	652	39
14:00:00	145	4	593	28	150	7	8	1	17	0	1	0	1	0	4	0	2	0	685	33
14:00:32	145	0	598	5	150	0	8	0	17	0	1	0	1	0	4	0	2	0	686	1
15:00:00	145	0	598	0	150	0	8	0	17	0	1	0	1	0	4	0	2	0	686	0
15:15:00	154	9	625	27	154	4	8	0	18	1	1	0	1	0	4	0	2	0	708	22
15:30:00	157	3	647	22	157	3	8	0	18	0	1	0	1	0	4	0	2	0	742	34
15:45:00	165	8	686	39	165	8	8	0	19	1	1	0	1	0	4	0	2	0	762	20
16:00:00	168	3	716	30	172	7	8	0	20	1	1	0	1	0	4	0	2	0	767	5
16:15:00	180	12	749	33	185	13	8	0	21	1	1	0	1	0	4	0	2	0	800	33
16:30:00	188	8	774	25	192	7	8	0	22	1	1	0	1	0	4	0	2	0	816	16
16:45:00	192	4	800	26	198	6	8	0	22	0	1	0	1	0	4	0	2	0	846	30
17:00:00	200	8	818	18	204	6	8	0	22	0	2	1	1	0	4	0	2	0	858	12
17:15:00	207	7	843	25	208	4	8	0	22	0	2	0	1	0	4	0	2	0	882	24
17:30:00	213	6	876	33	222	14	8	0	22	0	2	0	1	0	5	1	2	0	901	19
17:45:00	221	8	899	23	231	9	8	0	22	0	2	0	1	0	5	0	2	0	929	28

Ontario Traffic Inc.

Count Date: 27-Sep-17 Site #: 1700600063

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	0	0	10	10	5	5	0	0	2	2	0	0	0	0	0	0	0	0	4	4
7:30:00	2	2	15	5	7	2	1	1	3	1	0	0	0	0	0	0	0	0	17	13
7:45:00	4	2	38	23	9	2	1	0	4	1	0	0	0	0	0	0	0	0	39	22
8:00:00	7	3	53	15	13	4	1	0	7	3	0	0	0	0	0	0	0	0	47	8
8:15:00	9	2	81	28	16	3	1	0	8	1	1	1	0	0	1	1	0	0	68	21
8:30:00	15	6	111	30	21	5	1	0	11	3	1	0	0	0	2	1	0	0	99	31
8:45:00	20	5	138	27	27	6	1	0	13	2	1	0	0	0	2	0	0	0	125	26
9:00:00	21	1	189	51	34	7	1	0	13	0	1	0	0	0	2	0	0	0	150	25
9:15:00	25	4	218	29	42	8	1	0	19	6	1	0	0	0	3	1	0	0	204	54
9:30:00	27	2	240	22	45	3	1	0	21	2	1	0	0	0	4	1	0	0	243	39
9:45:00	32	5	263	23	52	7	1	0	22	1	1	0	0	0	4	0	0	0	301	58
10:00:00	37	5	286	23	57	5	1	0	24	2	1	0	0	0	4	0	0	0	358	57
10:02:33	37	0	294	8	60	3	1	0	24	0	1	0	0	0	4	0	0	0	368	10
11:00:00	37	0	294	0	60	0	1	0	24	0	1	0	0	0	4	0	0	0	368	0
11:15:00	43	6	329	35	72	12	1	0	26	2	2	1	0	0	5	1	0	0	425	57
11:30:00	49	6	359	30	79	7	1	0	27	1	2	0	1	1	5	0	0	0	472	47
11:45:00	57	8	394	35	87	8	1	0	29	2	2	0	1	0	5	0	0	0	515	43
12:00:00	58	1	427	33	95	8	1	0	30	1	3	1	1	0	6	1	0	0	582	67
12:15:00	70	12	478	51	101	6	2	1	32	2	3	0	1	0	6	0	0	0	651	69
12:30:00	78	8	531	53	114	13	2	0	37	5	3	0	1	0	7	1	0	0	752	101
12:45:00	87	9	572	41	117	3	2	0	39	2	3	0	1	0	8	1	0	0	815	63
13:00:00	103	16	620	48	127	10	2	0	40	1	4	1	1	0	9	1	0	0	941	126
13:15:00	109	6	674	54	142	15	2	0	45	5	4	0	1	0	9	0	0	0	1026	85
13:30:00	116	7	718	44	152	10	2	0	47	2	4	0	1	0	9	0	0	0	1101	75
13:45:00	119	3	753	35	157	5	2	0	49	2	4	0	1	0	9	0	0	0	1145	44
14:00:00	129	10	784	31	159	2	2	0	50	1	4	0	1	0	9	0	0	0	1207	62
14:00:32	129	0	784	0	159	0	2	0	50	0	4	0	1	0	9	0	0	0	1209	2
15:00:00	129	0	784	0	159	0	2	0	50	0	4	0	1	0	9	0	0	0	1209	0
15:15:00	132	3	827	43	162	3	2	0	54	4	4	0	1	0	9	0	0	0	1269	60
15:30:00	136	4	863	36	175	13	3	1	57	3	4	0	1	0	9	0	0	0	1302	33
15:45:00	142	6	925	62	184	9	3	0	62	5	4	0	1	0	9	0	0	0	1363	61
16:00:00	142	0	953	28	186	2	3	0	62	0	4	0	1	0	9	0	0	0	1383	20
16:15:00	149	7	1036	83	198	12	3	0	64	2	5	1	1	0	9	0	0	0	1435	52
16:30:00	153	4	1087	51	209	11	3	0	65	1	5	0	1	0	9	0	0	0	1491	56
16:45:00	159	6	1165	78	212	3	3	0	69	4	5	0	1	0	10	1	0	0	1551	60
17:00:00	169	10	1222	57	219	7	3	0	71	2	5	0	1	0	10	0	0	0	1635	84
17:15:00	175	6	1287	65	224	5	3	0	73	2	5	0	1	0	10	0	0	0	1686	51
17:30:00	185	10	1343	56	236	12	3	0	76	3	5	0	1	0	11	1	0	0	1742	56
17:45:00	189	4	1389	46	241	5	3	0	79	3	5	0	1	0	11	0	0	0	1807	65

Ontario Traffic Inc.

Count Date: 27-Sep-17 Site #: 1700600063

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	0
7:15:00	7	7	16	16	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
7:30:00	9	2	30	14	5	3	0	0	0	0	1	1	0	0	0	0	0	0	0	7	2
7:45:00	17	8	58	28	13	8	0	0	0	0	2	1	0	0	0	0	0	0	0	17	10
8:00:00	29	12	65	7	19	6	0	0	0	0	2	0	0	0	0	0	0	0	0	21	4
8:15:00	36	7	75	10	24	5	0	0	0	0	3	1	0	0	0	0	0	0	0	39	18
8:30:00	47	11	92	17	31	7	0	0	0	0	4	1	0	0	0	0	0	0	0	56	17
8:45:00	50	3	104	12	40	9	0	0	2	2	4	0	0	0	1	1	0	0	0	82	26
9:00:00	54	4	131	27	52	12	0	0	3	1	5	1	0	0	1	0	0	0	0	99	17
9:15:00	63	9	155	24	66	14	0	0	10	7	5	0	0	0	1	0	0	0	0	126	27
9:30:00	66	3	176	21	75	9	0	0	10	0	5	0	0	0	1	0	0	0	0	142	16
9:45:00	73	7	195	19	88	13	0	0	10	0	5	0	0	0	1	0	0	0	0	154	12
10:00:00	78	5	217	22	98	10	0	0	10	0	5	0	0	0	1	0	0	0	0	168	14
10:02:33	78	0	224	7	99	1	0	0	10	0	5	0	0	0	1	0	0	0	0	168	0
11:00:00	78	0	224	0	99	0	0	0	10	0	5	0	0	0	1	0	0	0	0	168	0
11:15:00	92	14	240	16	107	8	0	0	10	0	6	1	0	0	1	0	0	0	0	193	25
11:30:00	98	6	257	17	120	13	0	0	10	0	6	0	0	0	1	0	0	0	0	214	21
11:45:00	111	13	292	35	132	12	0	0	10	0	6	0	0	0	1	0	0	0	0	245	31
12:00:00	121	10	319	27	142	10	0	0	10	0	7	1	0	0	1	0	0	0	0	270	25
12:15:00	132	11	342	23	156	14	0	0	12	2	8	1	0	0	1	0	0	0	0	310	40
12:30:00	148	16	364	22	176	20	0	0	13	1	9	1	0	0	1	0	0	0	0	349	39
12:45:00	174	26	395	31	197	21	0	0	14	1	12	3	0	0	1	0	0	0	0	366	17
13:00:00	184	10	433	38	221	24	0	0	16	2	12	0	0	0	1	0	0	0	0	408	42
13:15:00	197	13	463	30	239	18	0	0	18	2	12	0	0	0	1	0	0	0	0	467	59
13:30:00	202	5	486	23	248	9	0	0	18	0	12	0	0	0	1	0	0	0	0	504	37
13:45:00	208	6	507	21	254	6	1	1	18	0	12	0	0	0	1	0	0	0	0	521	17
14:00:00	213	5	535	28	266	12	1	0	19	1	13	1	0	0	1	0	0	0	0	574	53
14:00:32	213	0	535	0	266	0	1	0	19	0	13	0	0	0	1	0	0	0	0	574	0
15:00:00	213	0	537	2	268	2	1	0	19	0	13	0	0	0	1	0	0	0	0	574	0
15:15:00	219	6	564	27	279	11	2	1	19	0	14	1	0	0	1	0	0	0	0	600	26
15:30:00	233	14	600	36	286	7	2	0	20	1	14	0	0	0	1	0	0	0	0	639	39
15:45:00	238	5	636	36	294	8	2	0	20	0	14	0	0	0	1	0	0	0	0	689	50
16:00:00	244	6	662	26	304	10	2	0	20	0	14	0	0	0	1	0	0	0	0	701	12
16:15:00	256	12	694	32	327	23	2	0	21	1	14	0	0	0	1	0	0	0	0	733	32
16:30:00	268	12	733	39	335	8	2	0	22	1	14	0	0	0	1	0	0	0	0	776	43
16:45:00	281	13	770	37	343	8	2	0	22	0	14	0	0	0	1	0	0	0	0	800	24
17:00:00	295	14	798	28	357	14	2	0	23	1	14	0	0	0	1	0	0	0	0	827	27
17:15:00	309	14	838	40	375	18	2	0	23	0	14	0	0	0	1	0	0	0	0	858	31
17:30:00	331	22	864	26	379	4	2	0	24	1	14	0	0	0	1	0	0	0	0	893	35
17:45:00	340	9	900	36	389	10	2	0	24	0	14	0	3	3	1	0	0	0	0	910	17

Ontario Traffic Inc.

Count Date: 27-Sep-17 Site #: 1700600063

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15:00	3	2	29	29	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	11	11
7:30:00	7	4	66	37	2	1	0	0	2	1	0	0	0	0	0	0	0	0	0	26	15
7:45:00	11	4	110	44	5	3	0	0	4	2	0	0	0	0	0	0	0	0	0	38	12
8:00:00	20	9	168	58	7	2	1	1	5	1	0	0	0	0	0	0	0	0	0	55	17
8:15:00	24	4	250	82	14	7	1	0	6	1	0	0	0	0	0	0	0	0	0	71	16
8:30:00	34	10	321	71	19	5	1	0	8	2	1	1	0	0	0	0	0	0	0	112	41
8:45:00	40	6	393	72	30	11	1	0	10	2	1	0	0	0	0	0	0	0	0	136	24
9:00:00	51	11	460	67	40	10	2	1	11	1	1	0	0	0	0	0	1	1	1	177	41
9:15:00	71	20	521	61	51	11	3	1	15	4	1	0	0	0	0	0	1	0	0	213	36
9:30:00	88	17	569	48	54	3	4	1	16	1	1	0	0	0	0	0	1	0	0	255	42
9:45:00	105	17	610	41	66	12	5	1	17	1	1	0	0	0	0	0	2	1	1	305	50
10:00:00	113	8	651	41	73	7	6	1	18	1	1	0	0	0	1	1	2	0	0	362	57
10:02:33	119	6	658	7	74	1	6	0	18	0	1	0	0	0	1	0	2	0	0	374	12
11:00:00	119	0	658	0	74	0	6	0	18	0	1	0	0	0	1	0	2	0	0	374	0
11:15:00	126	7	702	44	82	8	6	0	19	1	1	0	0	0	2	1	2	0	0	425	51
11:30:00	132	6	756	54	97	15	6	0	20	1	1	0	0	0	2	0	2	0	0	471	46
11:45:00	145	13	817	61	110	13	6	0	20	0	3	2	0	0	2	0	2	0	0	529	58
12:00:00	156	11	866	49	125	15	6	0	22	2	3	0	0	0	2	0	4	2	0	578	49
12:15:00	175	19	929	63	140	15	8	2	24	2	3	0	0	0	2	0	4	0	0	681	103
12:30:00	198	23	1013	84	151	11	8	0	27	3	3	0	0	0	3	1	4	0	0	774	93
12:45:00	216	18	1061	48	161	10	8	0	31	4	3	0	0	0	3	0	4	0	0	859	85
13:00:00	236	20	1111	50	186	25	8	0	32	1	5	2	0	0	3	0	4	0	0	983	124
13:15:00	257	21	1195	84	202	16	8	0	34	2	5	0	0	0	3	0	4	0	0	1085	102
13:30:00	267	10	1256	61	213	11	8	0	34	0	5	0	2	2	3	0	4	0	0	1172	87
13:45:00	272	5	1302	46	215	2	8	0	36	2	5	0	2	0	3	0	4	0	0	1236	64
14:00:00	284	12	1354	52	224	9	8	0	39	3	5	0	2	0	3	0	4	0	0	1310	74
14:00:32	284	0	1356	2	224	0	8	0	39	0	5	0	2	0	3	0	4	0	0	1310	0
15:00:00	284	0	1360	4	224	0	8	0	39	0	5	0	2	0	3	0	4	0	0	1310	0
15:15:00	301	17	1414	54	239	15	8	0	40	1	5	0	2	0	3	0	4	0	0	1367	57
15:30:00	327	26	1467	53	252	13	8	0	40	0	6	1	2	0	4	1	4	0	0	1454	87
15:45:00	338	11	1527	60	258	6	8	0	42	2	6	0	2	0	4	0	4	0	0	1526	72
16:00:00	343	5	1570	43	266	8	8	0	42	0	6	0	2	0	4	0	4	0	0	1551	25
16:15:00	353	10	1633	63	285	19	9	1	45	3	6	0	2	0	4	0	4	0	0	1594	43
16:30:00	366	13	1695	62	297	12	9	0	47	2	6	0	2	0	4	0	4	0	0	1639	45
16:45:00	387	21	1760	65	309	12	9	0	49	2	6	0	2	0	4	0	4	0	0	1701	62
17:00:00	402	15	1811	51	317	8	9	0	49	0	6	0	2	0	4	0	4	0	0	1749	48
17:15:00	423	21	1883	72	321	4	10	1	51	2	6	0	2	0	4	0	4	0	0	1793	44
17:30:00	460	37	1930	47	326	5	10	0	53	2	6	0	2	0	4	0	4	0	0	1874	81
17:45:00	472	12	2003	73	343	17	10	0	54	1	6	0	2	0	4	0	4	0	0	1901	27

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:15:00
To: 9:15:00

Municipality: Windsor
Site #: 1700600066
Intersection: University Ave E & Goyeau St
TFR File #: 2
Count date: 26-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave E runs W/E

North Leg Total: 347
North Entering: 215
North Peds: 23
Peds Cross: \times

Heavys	0	0	0	0
Trucks	1	4	12	17
Cars	25	133	40	198
Totals	26	137	52	



Heavys	0
Trucks	3
Cars	129
Totals	132

East Leg Total: 480
East Entering: 217
East Peds: 20
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	14	184	199



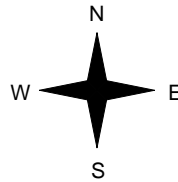
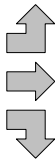
Goyeau St

Cars	Trucks	Heavys	Totals
23	3	0	26
140	11	1	152
39	0	0	39
202	14	1	



University Ave E

Heavys	Trucks	Cars	Totals
0	0	38	38
1	6	183	190
1	1	96	98
2	7	317	



University Ave E



Peds Cross: \times
West Peds: 26
West Entering: 326
West Leg Total: 525

Cars	268	Cars	19	68	21	108
Trucks	5	Trucks	2	0	0	2
Heavys	1	Heavys	0	0	0	0
Totals	274	Totals	21	68	21	



Peds Cross: \times
South Peds: 27
South Entering: 110
South Leg Total: 384

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600066
Intersection: University Ave E & Goyeau St
TFR File #: 2
Count date: 26-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave E runs W/E

North Leg Total: 369
North Entering: 237
North Peds: 59
Peds Cross: \times

Heavys	0	1	1	2
Trucks	0	6	9	15
Cars	34	114	72	220
Totals	34	121	82	



Heavys	0
Trucks	5
Cars	127
Totals	132

East Leg Total: 459
East Entering: 201
East Peds: 37
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	10	205	216



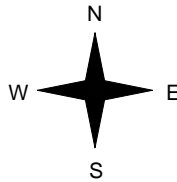
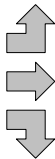
Goyeau St

Cars	Trucks	Heavys	Totals
27	2	0	29
145	8	0	153
19	0	0	19
191	10	0	



University Ave E

Heavys	Trucks	Cars	Totals
0	1	29	30
1	6	130	137
1	1	86	88
2	8	245	



University Ave E



Cars	Trucks	Heavys	Totals
240	16	2	258

Peds Cross: \times
West Peds: 43
West Entering: 255
West Leg Total: 471

Cars	219
Trucks	7
Heavys	2
Totals	228

Cars	26	71	38	135
Trucks	2	2	1	5
Heavys	1	0	0	1
Totals	29	73	39	



Peds Cross: \times
South Peds: 66
South Entering: 141
South Leg Total: 369

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600066
Intersection: University Ave E & Goyeau St
TFR File #: 2
Count date: 26-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave E runs W/E

North Leg Total: 455
North Entering: 212
North Peds: 16
Peds Cross: \times

Heavys	0	0	0	0
Trucks	3	3	12	18
Cars	44	94	56	194
Totals	47	97	68	



Heavys	1
Trucks	4
Cars	238
Totals	243

East Leg Total: 622
East Entering: 269
East Peds: 10
Peds Cross: \times

Heavys	0	Trucks	9	Cars	276	Totals	285
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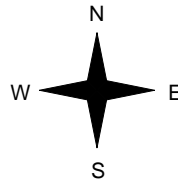


Goyeau St

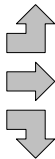
Cars	37	Trucks	3	Heavys	0	Totals	40
Cars	206	Trucks	6	Heavys	0	Totals	212
Cars	17	Trucks	0	Heavys	0	Totals	17
Totals	260	9	0				



University Ave E



Heavys	0	Trucks	1	Cars	51	Totals	52
Heavys	2	Trucks	6	Cars	240	Totals	248
Heavys	0	Trucks	2	Cars	68	Totals	70
Totals	2	9	359				



University Ave E



Cars	333	Trucks	18	Heavys	2	Totals	353
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Peds Cross: \times
West Peds: 32
West Entering: 370
West Leg Total: 655

Cars	179	Cars	26	150	37	213
Trucks	5	Trucks	0	0	0	0
Heavys	0	Heavys	0	1	0	1
Totals	184	Totals	26	151	37	



Peds Cross: \times
South Peds: 34
South Entering: 214
South Leg Total: 398

Goyeau St



Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600066
Intersection: University Ave E & Goyeau St
TFR File #: 2
Count date: 26-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave E runs W/E

North Leg Total: 3077
 North Entering: 1761
 North Peds: 272
 Peds Cross: \times

Heavys	0	4	4	8
Trucks	5	32	102	139
Cars	237	932	445	1614
Totals	242	968	551	



Heavys	3
Trucks	27
Cars	1286
Totals	1316

East Leg Total: 4031
 East Entering: 1724
 East Peds: 196
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
10	88	1608	1706

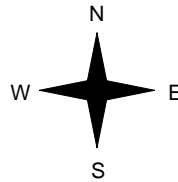


Goyeau St

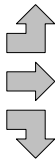
Cars	Trucks	Heavys	Totals
240	11	1	252
1199	79	8	1286
182	1	3	186
1621	91	12	



University Ave E



Heavys	Trucks	Cars	Totals
0	6	285	291
12	61	1414	1487
4	18	645	667
16	85	2344	



Goyeau St

University Ave E



Cars	Trucks	Heavys	Totals
2124	166	17	2307

Peds Cross: \times
 West Peds: 297
 West Entering: 2445
 West Leg Total: 4151

Cars	1759
Trucks	51
Heavys	11
Totals	1821



Cars	172	761	265	1198
Trucks	4	10	3	17
Heavys	2	2	1	5
Totals	178	773	269	

Peds Cross: \times
 South Peds: 366
 South Entering: 1220
 South Leg Total: 3041

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave E & Goyeau St

Count Date: 26-Sep-17

Municipality: Windsor

North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	78	9	120	8	183	8:00:00	7	44	12	63	14
9:00:00	36	134	21	191	20	297	9:00:00	16	67	23	106	19
10:00:00	80	105	26	211	26	333	10:00:00	24	69	29	122	35
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	51	100	20	171	7	284	12:00:00	20	63	30	113	22
13:00:00	79	114	32	225	73	376	13:00:00	25	83	43	151	81
14:00:00	57	107	21	185	48	321	14:00:00	21	76	39	136	76
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	73	114	40	227	48	380	16:00:00	24	102	27	153	52
17:00:00	78	120	36	234	29	415	17:00:00	23	127	31	181	46
18:00:00	64	93	37	194	13	388	18:00:00	18	142	34	194	21
Totals:	551	965	242	1758	272	2977		178	773	268	1219	366
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	1	7:00:00	0	1	0	1	0
8:00:00	14	72	12	98	9	279	8:00:00	20	94	67	181	6
9:00:00	34	147	25	206	11	548	9:00:00	35	192	115	342	13
10:00:00	28	117	28	173	34	429	10:00:00	32	141	83	256	36
11:00:00	0	0	0	0	0	2	11:00:00	0	2	0	2	1
12:00:00	19	110	22	151	13	360	12:00:00	22	133	54	209	22
13:00:00	19	152	21	192	43	454	13:00:00	34	140	88	262	63
14:00:00	18	130	35	183	35	451	14:00:00	25	163	80	268	63
15:00:00	0	0	0	0	0	2	15:00:00	0	2	0	2	3
16:00:00	18	167	33	218	23	501	16:00:00	45	183	55	283	37
17:00:00	18	231	35	284	23	599	17:00:00	33	216	66	315	26
18:00:00	18	155	41	214	3	534	18:00:00	45	216	59	320	27
Totals:	186	1281	252	1719	194	4160		291	1483	667	2441	297
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00		14:00	16:00	17:00	18:00			
Crossing Values:	210	279	206	324		283	271	277	254			

Ontario Traffic Inc.

Count Date: 26-Sep-17 Site #: 1700600066

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	1	1	5	5	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	5	4	28	23	3	3	3	2	0	0	0	0	0	0	0	0	0	0	4	2
7:45:00	14	9	49	21	6	3	6	3	3	3	0	0	0	0	0	0	0	0	4	0
8:00:00	24	10	74	25	9	3	8	2	3	0	0	1	1	1	1	0	0	0	8	4
8:15:00	29	5	104	30	13	4	11	3	4	1	0	0	1	0	1	0	0	0	9	1
8:30:00	35	6	138	34	17	4	14	3	4	0	0	0	1	0	1	0	0	0	11	2
8:45:00	41	6	175	37	24	7	17	3	6	2	0	0	1	0	1	0	0	0	21	10
9:00:00	49	8	204	29	30	6	19	2	7	1	0	0	1	0	1	0	0	0	28	7
9:15:00	69	20	237	33	38	8	23	4	8	1	1	1	1	0	1	0	0	0	32	4
9:30:00	85	16	253	16	40	2	26	3	10	2	1	0	1	0	1	0	0	0	48	16
9:45:00	108	23	282	29	46	6	30	4	11	1	1	0	1	0	1	0	0	0	50	2
10:00:00	115	7	305	23	55	9	33	3	11	0	1	0	1	0	1	0	0	0	54	4
10:00:12	115	0	305	0	55	0	33	0	11	0	1	0	1	0	1	0	0	0	54	0
11:00:00	115	0	305	0	55	0	33	0	11	0	1	0	1	0	1	0	0	0	54	0
11:15:00	128	13	329	24	61	6	36	3	11	0	1	0	3	2	1	0	0	0	54	0
11:30:00	137	9	346	17	65	4	37	1	11	0	1	0	3	0	1	0	0	0	57	3
11:45:00	143	6	375	29	67	2	41	4	12	1	1	0	3	0	1	0	0	0	58	1
12:00:00	153	10	404	29	75	8	44	3	12	0	1	0	3	0	1	0	0	0	61	3
12:15:00	172	19	434	30	83	8	45	1	16	4	1	0	4	1	2	1	0	0	81	20
12:30:00	198	26	460	26	93	10	49	4	16	0	1	0	4	0	2	0	0	0	97	16
12:45:00	215	17	489	29	101	8	50	1	18	2	1	0	4	0	2	0	0	0	117	20
13:00:00	220	5	509	20	107	6	55	5	19	1	1	0	4	0	3	1	0	0	134	17
13:15:00	232	12	539	30	111	4	58	3	21	2	1	0	4	0	3	0	0	0	157	23
13:30:00	247	15	558	19	119	8	61	3	21	0	1	0	4	0	3	0	0	0	169	12
13:45:00	259	12	587	29	122	3	63	2	22	1	1	0	4	0	4	1	0	0	174	5
14:00:00	267	8	610	23	128	6	65	2	24	2	1	0	4	0	4	0	0	0	182	8
14:00:15	267	0	610	0	128	0	65	0	24	0	1	0	4	0	4	0	0	0	182	0
15:00:00	267	0	610	0	128	0	65	0	24	0	1	0	4	0	4	0	0	0	182	0
15:15:00	285	18	638	28	137	9	70	5	25	1	2	1	4	0	4	0	0	0	204	22
15:30:00	298	13	664	26	143	6	73	3	25	0	2	0	4	0	4	0	0	0	210	6
15:45:00	315	17	690	26	151	8	77	4	26	1	2	0	4	0	4	0	0	0	222	12
16:00:00	327	12	722	32	167	16	78	1	26	0	2	0	4	0	4	0	0	0	230	8
16:15:00	349	22	755	33	175	8	84	6	27	1	2	0	4	0	4	0	0	0	237	7
16:30:00	360	11	784	29	180	5	86	2	27	0	2	0	4	0	4	0	0	0	243	6
16:45:00	381	21	809	25	191	11	91	5	28	1	2	0	4	0	4	0	0	0	250	7
17:00:00	390	9	839	30	202	11	93	2	29	1	3	1	4	0	4	0	0	0	259	9
17:15:00	401	11	855	16	211	9	95	2	30	1	4	1	4	0	4	0	0	0	259	0
17:30:00	416	15	878	23	224	13	98	3	30	0	5	1	4	0	4	0	0	0	259	0
17:45:00	432	16	905	27	229	5	100	2	31	1	5	0	4	0	4	0	0	0	266	7

Ontario Traffic Inc.

Count Date: 26-Sep-17 Site #: 1700600066

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	5	5	12	12	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2
7:30:00	7	2	22	10	3	3	1	1	3	1	0	0	0	0	0	0	0	0	5	3
7:45:00	9	2	40	18	8	5	1	0	7	4	0	0	0	0	2	2	0	0	5	0
8:00:00	13	4	60	20	12	4	1	0	10	3	0	0	0	0	2	0	0	0	9	4
8:15:00	17	4	83	23	16	4	1	0	11	1	0	0	0	0	2	0	1	1	12	3
8:30:00	22	5	103	20	20	4	1	0	13	2	1	1	0	0	2	0	1	0	13	1
8:45:00	34	12	138	35	22	2	1	0	16	3	2	1	0	0	2	0	1	0	17	4
9:00:00	47	13	197	59	33	11	1	0	19	3	3	1	0	0	3	1	1	0	20	3
9:15:00	56	9	223	26	39	6	1	0	22	3	3	0	0	0	3	0	1	0	32	12
9:30:00	59	3	250	27	50	11	1	0	24	2	3	0	0	0	3	0	1	0	39	7
9:45:00	70	11	278	28	53	3	1	0	26	2	3	0	0	0	3	0	1	0	48	9
10:00:00	75	5	302	24	61	8	1	0	30	4	3	0	0	0	4	1	1	0	54	6
10:00:12	75	0	302	0	61	0	1	0	30	0	3	0	0	0	4	0	1	0	54	0
11:00:00	75	0	302	0	61	0	1	0	30	0	3	0	0	0	4	0	1	0	54	0
11:15:00	78	3	333	31	66	5	1	0	31	1	3	0	0	0	4	0	1	0	55	1
11:30:00	82	4	347	14	67	1	1	0	32	1	3	0	1	1	5	1	1	0	55	0
11:45:00	87	5	370	23	68	1	1	0	32	0	4	1	1	0	5	0	1	0	61	6
12:00:00	93	6	407	37	81	13	1	0	34	2	5	1	1	0	5	0	1	0	67	6
12:15:00	98	5	450	43	88	7	1	0	35	1	5	0	1	0	5	0	1	0	74	7
12:30:00	103	5	484	34	89	1	1	0	38	3	5	0	1	0	5	0	1	0	86	12
12:45:00	106	3	515	31	95	6	1	0	40	2	6	1	1	0	5	0	1	0	98	12
13:00:00	111	5	551	36	101	6	1	0	41	1	6	0	2	1	6	1	1	0	110	12
13:15:00	113	2	574	23	109	8	1	0	44	3	6	0	2	0	6	0	1	0	122	12
13:30:00	118	5	606	32	112	3	1	0	46	2	6	0	2	0	6	0	1	0	132	10
13:45:00	122	4	638	32	123	11	1	0	49	3	6	0	2	0	6	0	1	0	137	5
14:00:00	129	7	671	33	136	13	1	0	50	1	6	0	2	0	7	1	1	0	145	8
14:00:15	129	0	671	0	136	0	1	0	50	0	6	0	2	0	7	0	1	0	145	0
15:00:00	129	0	671	0	136	0	1	0	50	0	6	0	2	0	7	0	1	0	145	0
15:15:00	135	6	705	34	141	5	1	0	53	3	6	0	2	0	7	0	1	0	156	11
15:30:00	139	4	734	29	147	6	1	0	56	3	6	0	2	0	8	1	1	0	156	0
15:45:00	146	7	774	40	156	9	1	0	58	2	6	0	2	0	8	0	1	0	162	6
16:00:00	147	1	825	51	168	12	1	0	62	4	7	1	2	0	8	0	1	0	168	6
16:15:00	153	6	882	57	179	11	1	0	66	4	7	0	3	1	8	0	1	0	173	5
16:30:00	156	3	931	49	181	2	1	0	67	1	8	1	3	0	8	0	1	0	181	8
16:45:00	160	4	1004	73	194	13	1	0	69	2	9	1	3	0	8	0	1	0	185	4
17:00:00	164	4	1048	44	201	7	1	0	70	1	9	0	3	0	8	0	1	0	191	6
17:15:00	167	3	1095	47	209	8	1	0	71	1	10	1	3	0	8	0	1	0	191	0
17:30:00	173	6	1137	42	218	9	1	0	73	2	11	1	3	0	8	0	1	0	191	0
17:45:00	180	7	1164	27	232	14	1	0	76	3	11	0	3	0	8	0	1	0	192	1

Ontario Traffic Inc.

Count Date: 26-Sep-17 Site #: 1700600066

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	1	1	2	2	3	3	0	0	0	0	0	0	0	0	0	0	0	0	6	6
7:30:00	3	2	18	16	5	2	0	0	0	0	0	0	0	0	0	0	0	7	1	
7:45:00	4	1	28	10	8	3	0	0	0	0	0	0	1	1	0	0	0	8	1	
8:00:00	6	2	44	16	12	4	0	0	0	0	0	0	1	0	0	0	0	14	6	
8:15:00	9	3	61	17	21	9	0	0	0	0	0	0	1	0	0	0	0	15	1	
8:30:00	11	2	81	20	28	7	1	1	0	0	0	0	1	0	0	0	0	20	5	
8:45:00	16	5	95	14	31	3	2	1	0	0	0	0	1	0	0	0	0	24	4	
9:00:00	20	4	111	16	35	4	2	0	0	0	0	0	1	0	0	0	0	33	9	
9:15:00	28	8	129	18	42	7	2	0	0	0	0	0	1	0	0	0	0	42	9	
9:30:00	36	8	144	15	47	5	2	0	0	0	0	0	1	0	0	0	0	47	5	
9:45:00	38	2	164	20	54	7	2	0	0	0	1	1	1	0	0	0	0	60	13	
10:00:00	44	6	180	16	62	8	2	0	0	0	1	0	1	0	0	0	1	68	8	
10:00:12	44	0	180	0	62	0	2	0	0	0	1	0	1	0	0	0	1	68	0	
11:00:00	44	0	180	0	62	0	2	0	0	0	1	0	1	0	0	0	1	68	0	
11:15:00	50	6	202	22	73	11	2	0	0	0	2	1	1	0	0	0	1	71	3	
11:30:00	54	4	213	11	80	7	2	0	0	0	2	0	1	0	0	0	1	78	7	
11:45:00	57	3	227	14	82	2	2	0	1	1	2	0	1	0	0	0	1	80	2	
12:00:00	64	7	242	15	91	9	2	0	1	0	2	0	1	0	0	0	1	90	10	
12:15:00	74	10	260	18	96	5	3	1	3	2	2	0	1	0	0	0	1	116	26	
12:30:00	79	5	279	19	110	14	4	1	3	0	2	0	2	1	0	0	1	136	20	
12:45:00	83	4	298	19	120	10	4	0	3	0	3	1	2	0	0	0	1	146	10	
13:00:00	86	3	321	23	133	13	4	0	5	2	3	0	2	0	0	0	1	171	25	
13:15:00	93	7	341	20	144	11	4	0	5	0	3	0	2	0	0	0	1	200	29	
13:30:00	100	7	354	13	153	9	4	0	6	1	3	0	2	0	0	0	1	218	18	
13:45:00	105	5	378	24	164	11	4	0	8	2	3	0	2	0	0	0	1	230	12	
14:00:00	107	2	394	16	172	8	4	0	8	0	3	0	2	0	0	0	1	247	17	
14:00:15	107	0	394	0	172	0	4	0	8	0	3	0	2	0	0	0	1	247	0	
15:00:00	107	0	394	0	172	0	4	0	8	0	3	0	2	0	0	0	1	247	0	
15:15:00	115	8	414	20	179	7	4	0	8	0	3	0	2	0	0	0	1	268	21	
15:30:00	120	5	429	15	183	4	4	0	9	1	3	0	2	0	1	1	1	281	13	
15:45:00	126	6	459	30	193	10	4	0	9	0	3	0	2	0	1	0	1	289	8	
16:00:00	131	5	493	34	199	6	4	0	10	1	3	0	2	0	1	0	1	299	10	
16:15:00	136	5	520	27	204	5	4	0	10	0	3	0	2	0	1	0	1	306	7	
16:30:00	139	3	551	31	210	6	4	0	10	0	3	0	2	0	1	0	1	322	16	
16:45:00	148	9	589	38	220	10	4	0	10	0	3	0	2	0	1	0	1	335	13	
17:00:00	154	6	620	31	230	10	4	0	10	0	3	0	2	0	1	0	1	345	10	
17:15:00	159	5	663	43	242	12	4	0	10	0	3	0	2	0	2	1	1	351	6	
17:30:00	165	6	701	38	247	5	4	0	10	0	3	0	2	0	2	0	1	356	5	
17:45:00	170	5	733	32	253	6	4	0	10	0	3	0	2	0	2	0	1	362	6	

Ontario Traffic Inc.

Count Date: 26-Sep-17 Site #: 1700600066

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	7	7	14	13	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	7	0	34	20	35	14	1	1	1	1	0	0	0	0	0	0	1	1	1	1
7:45:00	12	5	57	23	53	18	2	1	4	3	0	0	0	0	1	1	1	0	1	0
8:00:00	18	6	87	30	66	13	2	0	7	3	0	0	0	0	1	0	1	0	6	5
8:15:00	28	10	120	33	94	28	2	0	11	4	1	1	0	0	1	0	1	0	6	0
8:30:00	39	11	175	55	121	27	2	0	13	2	1	0	0	0	1	0	1	0	8	2
8:45:00	48	9	223	48	150	29	2	0	15	2	1	0	0	0	1	0	1	0	14	6
9:00:00	53	5	270	47	179	29	2	0	16	1	1	0	0	0	1	0	2	1	19	5
9:15:00	66	13	303	33	190	11	2	0	17	1	2	1	0	0	2	1	2	0	32	13
9:30:00	74	8	333	30	216	26	2	0	19	2	3	1	0	0	2	0	2	0	35	3
9:45:00	78	4	362	29	241	25	2	0	20	1	3	0	0	0	2	0	2	0	44	9
10:00:00	85	7	402	40	259	18	2	0	23	3	4	1	0	0	3	1	2	0	55	11
10:00:12	85	0	403	1	259	0	2	0	23	0	4	0	0	0	3	0	2	0	56	1
11:00:00	85	0	404	1	259	0	2	0	23	0	4	0	0	0	3	0	2	0	56	0
11:15:00	90	5	439	35	271	12	2	0	26	3	5	1	0	0	3	0	2	0	59	3
11:30:00	94	4	468	29	281	10	2	0	28	2	7	2	0	0	3	0	2	0	62	3
11:45:00	101	7	492	24	291	10	2	0	30	2	8	1	0	0	3	0	2	0	71	9
12:00:00	107	6	528	36	309	18	2	0	32	2	8	0	0	0	3	0	2	0	78	7
12:15:00	110	3	563	35	327	18	2	0	33	1	9	1	0	0	3	0	3	1	87	9
12:30:00	124	14	588	25	353	26	3	1	34	1	9	0	0	0	4	1	3	0	99	12
12:45:00	130	6	622	34	377	24	3	0	36	2	9	0	0	0	4	0	3	0	114	15
13:00:00	140	10	662	40	394	17	3	0	37	1	9	0	0	0	4	0	4	1	141	27
13:15:00	146	6	689	27	406	12	3	0	39	2	9	0	0	0	4	0	4	0	162	21
13:30:00	151	5	747	58	431	25	4	1	40	1	10	1	0	0	6	2	4	0	171	9
13:45:00	161	10	776	29	454	23	4	0	42	2	11	1	0	0	7	1	4	0	189	18
14:00:00	164	3	816	40	471	17	4	0	43	1	12	1	0	0	7	0	4	0	204	15
14:00:15	164	0	817	1	471	0	4	0	43	0	12	0	0	0	7	0	4	0	207	3
15:00:00	164	0	818	1	471	0	4	0	43	0	12	0	0	0	7	0	4	0	207	0
15:15:00	177	13	864	46	483	12	4	0	45	2	12	0	0	0	7	0	4	0	226	19
15:30:00	186	9	900	36	495	12	5	1	48	3	12	0	0	0	7	0	4	0	230	4
15:45:00	193	7	944	44	512	17	5	0	49	1	13	1	0	0	7	0	4	0	236	6
16:00:00	208	15	993	49	525	13	5	0	49	0	13	0	0	0	9	2	4	0	244	8
16:15:00	219	11	1050	57	543	18	5	0	52	3	15	2	0	0	9	0	4	0	251	7
16:30:00	223	4	1087	37	557	14	5	0	54	2	15	0	0	0	9	0	4	0	255	4
16:45:00	233	10	1126	39	572	15	5	0	56	2	16	1	0	0	10	1	4	0	264	9
17:00:00	241	8	1199	73	588	16	5	0	57	1	16	0	0	0	11	1	4	0	270	6
17:15:00	256	15	1268	69	605	17	5	0	59	2	16	0	0	0	11	0	4	0	277	7
17:30:00	274	18	1327	59	625	20	6	1	60	1	17	1	0	0	11	0	4	0	287	10
17:45:00	280	6	1380	53	637	12	6	0	61	1	17	0	0	0	11	0	4	0	293	6

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:00:00
To: 9:00:00

Municipality: Windsor
Site #: 1700600067
Intersection: University Ave E & McDougall St
TFR File #: 3
Count date: 27-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave E runs W/E

North Leg Total: 197
North Entering: 18
North Peds: 0
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	1	0	1
Cars	3	14	0	17
Totals	3	15	0	



Heavys	1
Trucks	16
Cars	162
Totals	179

East Leg Total: 293
East Entering: 193
East Peds: 9
Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	11	303	315

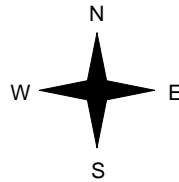


McDougall St

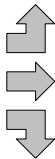
Cars	Trucks	Heavys	Totals
11	0	0	11
132	2	1	135
47	0	0	47
190	2	1	



University Ave E



Heavys	Trucks	Cars	Totals
0	2	39	41
0	0	60	60
1	17	93	111
1	19	192	



University Ave E



Cars	Trucks	Heavys	Totals
99	1	0	100

Peds Cross: \times
West Peds: 10
West Entering: 212
West Leg Total: 527

Cars	154
Trucks	18
Heavys	1
Totals	173



Cars	168	112	39	319
Trucks	9	14	1	24
Heavys	0	1	0	1
Totals	177	127	40	

Peds Cross: \times
South Peds: 1
South Entering: 344
South Leg Total: 517

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 12:45:00

To: 13:45:00

Municipality: Windsor
Site #: 1700600067
Intersection: University Ave E & McDougall St
TFR File #: 3
Count date: 27-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave E runs W/E

North Leg Total: 228

North Entering: 39

North Peds: 1

Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	4	35	0	39
Totals	4	35	0	



Heavys 0

Trucks 11

Cars 178

Totals 189

East Leg Total: 265

East Entering: 165

East Peds: 14

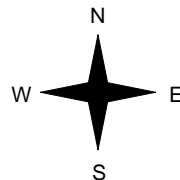
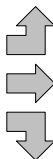
Peds Cross: \times

Heavys	0	Trucks	9	Cars	206	Totals	215
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University Ave E

Heavys	0	Trucks	0	Cars	30	Totals	30
	0		1		65		66
	1		17		162		180
	1		18		257		



McDougall St

Cars	18	Trucks	0	Heavys	0	Totals	18
	95		0		0		95
	52		0		0		52
	165		0		0		



University Ave E



Cars	99	Trucks	1	Heavys	0	Totals	100
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Peds Cross: \times

West Peds: 25

West Entering: 276

West Leg Total: 491

Cars	249	Cars	107	130	34	271
Trucks	17	Trucks	9	11	0	20
Heavys	1	Heavys	0	0	0	0
Totals	267	Totals	116	141	34	



Peds Cross: \times

South Peds: 3

South Entering: 291

South Leg Total: 558

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600067
Intersection: University Ave E & McDougall St
TFR File #: 3
Count date: 27-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave E runs W/E

North Leg Total: 324
North Entering: 29
North Peds: 7
Peds Cross: \times

Heavys	0	1	1	2
Trucks	0	0	0	0
Cars	5	22	0	27
Totals	5	23	1	



Heavys 0
Trucks 15
Cars 280
Totals 295

East Leg Total: 482
East Entering: 259
East Peds: 34
Peds Cross: \times

Heavys	Trucks	Cars	Totals
3	10	249	262

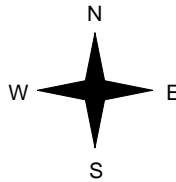


McDougall St

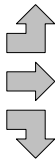
Cars	Trucks	Heavys	Totals
28	0	0	28
156	0	1	157
74	0	0	74
258	0	1	



University Ave E



Heavys	Trucks	Cars	Totals
0	1	85	86
0	2	148	150
0	18	180	198
0	21	413	



University Ave E



Cars	Trucks	Heavys	Totals
220	2	1	223

Peds Cross: \times
West Peds: 21
West Entering: 434
West Leg Total: 696

Cars	276	Cars	88	167	72	327
Trucks	18	Trucks	10	14	0	24
Heavys	1	Heavys	2	0	0	2
Totals	295	Totals	100	181	72	



Peds Cross: \times
South Peds: 6
South Entering: 353
South Leg Total: 648

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600067
Intersection: University Ave E & McDougall St
TFR File #: 3
Count date: 27-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Ave E runs W/E

North Leg Total: 2068
 North Entering: 268
 North Peds: 22
 Peds Cross: \times

Heavys	0	3	1	4
Trucks	0	2	0	2
Cars	32	219	11	262
Totals	32	224	12	



Heavys	1
Trucks	117
Cars	1682
Totals	1800

East Leg Total: 2588
 East Entering: 1521
 East Peds: 123
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
10	83	1818	1911

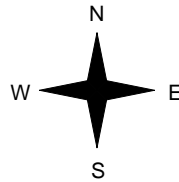


McDougall St

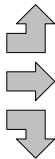
Cars	Trucks	Heavys	Totals
147	2	0	149
916	7	4	927
443	2	0	445
1506	11	4	



University Ave E



Heavys	Trucks	Cars	Totals
0	5	441	446
1	4	709	714
7	145	1126	1278
8	154	2276	



McDougall St

University Ave E



Cars	Trucks	Heavys	Totals
1052	11	4	1067

Peds Cross: \times
 West Peds: 124
 West Entering: 2438
 West Leg Total: 4349

Cars	1788
Trucks	149
Heavys	10
Totals	1947



Cars	870	1094	332	2296
Trucks	76	110	7	193
Heavys	6	1	2	9
Totals	952	1205	341	

Peds Cross: \times
 South Peds: 51
 South Entering: 2498
 South Leg Total: 4445

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: University Ave E & McDougall St													Count Date: 27-Sep-17		Municipality: Windsor	
North Approach Totals						South Approach Totals										
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds				
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total					
7:00:00	0	0	0	0	0	1	7:00:00	0	0	1	1	0				
8:00:00	1	4	2	7	4	143	8:00:00	65	55	16	136	0				
9:00:00	0	15	3	18	0	362	9:00:00	177	127	40	344	1				
10:00:00	1	17	5	23	1	273	10:00:00	106	114	30	250	4				
11:00:00	0	0	0	0	0	4	11:00:00	1	2	1	4	0				
12:00:00	2	33	5	40	5	300	12:00:00	103	127	30	260	5				
13:00:00	1	25	4	30	1	295	13:00:00	90	137	38	265	8				
14:00:00	0	37	3	40	1	297	14:00:00	106	123	28	257	3				
15:00:00	0	0	0	0	0	4	15:00:00	2	1	1	4	0				
16:00:00	4	35	2	41	2	346	16:00:00	108	158	39	305	14				
17:00:00	1	23	5	29	7	382	17:00:00	100	181	72	353	6				
18:00:00	2	35	3	40	1	354	18:00:00	92	177	45	314	10				
Totals:	12	224	32	268	22	2761		950	1202	341	2493	51				
East Approach Totals						West Approach Totals										
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds				
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total					
7:00:00	1	2	0	3	0	4	7:00:00	0	1	0	1	0				
8:00:00	24	51	3	78	2	198	8:00:00	18	41	61	120	3				
9:00:00	47	135	11	193	9	405	9:00:00	41	60	111	212	10				
10:00:00	32	70	6	108	15	340	10:00:00	43	63	126	232	10				
11:00:00	1	0	0	1	0	7	11:00:00	0	5	1	6	0				
12:00:00	49	102	18	169	16	442	12:00:00	49	61	163	273	15				
13:00:00	47	72	20	139	8	347	13:00:00	39	61	108	208	10				
14:00:00	53	99	17	169	12	442	14:00:00	26	63	184	273	21				
15:00:00	0	0	0	0	0	2	15:00:00	0	2	0	2	1				
16:00:00	60	101	23	184	10	520	16:00:00	65	89	182	336	24				
17:00:00	74	157	28	259	34	693	17:00:00	86	150	198	434	21				
18:00:00	57	138	23	218	17	555	18:00:00	79	117	141	337	9				
Totals:	445	927	149	1521	123	3955		446	713	1275	2434	124				
Calculated Values for Traffic Crossing Major Street																
Hours Ending:	9:00	10:00	12:00	13:00			14:00	16:00	17:00	18:00						
Crossing Values:	323	246	263	246			262	304	337	297						

Ontario Traffic Inc.

Count Date: 27-Sep-17 Site #: 1700600067

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8:00:00	1	0	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	4	3
8:15:00	1	0	8	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0
8:30:00	1	0	12	4	3	0	0	0	1	1	0	0	0	0	0	0	0	0	4	0
8:45:00	1	0	15	3	4	1	0	0	1	0	0	0	0	0	0	0	0	0	4	0
9:00:00	1	0	18	3	5	1	0	0	1	0	0	0	0	0	0	0	0	0	4	0
9:15:00	2	1	21	3	5	0	0	0	2	1	0	0	0	0	0	0	0	0	4	0
9:30:00	2	0	24	3	6	1	0	0	2	0	0	0	0	0	0	0	0	0	4	0
9:45:00	2	0	27	3	9	3	0	0	2	0	0	0	0	0	0	0	0	0	5	1
10:00:00	2	0	34	7	10	1	0	0	2	0	0	0	0	0	0	0	0	0	5	0
10:01:07	2	0	34	0	10	0	0	0	2	0	0	0	0	0	0	0	0	0	5	0
11:00:00	2	0	34	0	10	0	0	0	2	0	0	0	0	0	0	0	0	0	5	0
11:15:00	3	1	48	14	12	2	0	0	2	0	0	0	0	0	0	0	0	0	7	2
11:30:00	4	1	57	9	13	1	0	0	2	0	0	0	0	0	0	0	0	0	7	0
11:45:00	4	0	63	6	13	0	0	0	2	0	0	0	0	0	0	0	0	0	7	0
12:00:00	4	0	67	4	15	2	0	0	2	0	0	0	0	0	0	0	0	0	10	3
12:15:00	4	0	71	4	16	1	0	0	2	0	0	0	0	0	0	0	0	0	10	0
12:30:00	4	0	81	10	17	1	0	0	2	0	0	0	0	0	0	0	0	0	11	1
12:45:00	5	1	89	8	17	0	0	0	2	0	0	0	0	0	0	0	0	0	11	0
13:00:00	5	0	92	3	19	2	0	0	2	0	0	0	0	0	0	0	0	0	11	0
13:15:00	5	0	100	8	20	1	0	0	2	0	0	0	0	0	0	0	0	0	11	0
13:30:00	5	0	109	9	21	1	0	0	2	0	0	0	0	0	0	0	0	0	11	0
13:45:00	5	0	124	15	21	0	0	0	2	0	0	0	0	0	0	0	0	0	12	1
14:00:00	5	0	129	5	22	1	0	0	2	0	0	0	0	0	0	0	0	0	12	0
14:00:20	5	0	129	0	22	0	0	0	2	0	0	0	0	0	0	0	0	0	12	0
15:00:00	5	0	129	0	22	0	0	0	2	0	0	0	0	0	0	0	0	0	12	0
15:15:00	5	0	136	7	23	1	0	0	2	0	0	0	0	0	1	1	0	0	12	0
15:30:00	6	1	140	4	23	0	0	0	2	0	0	0	0	0	2	1	0	0	13	1
15:45:00	8	2	150	10	23	0	0	0	2	0	0	0	0	0	2	0	0	0	14	1
16:00:00	9	1	162	12	24	1	0	0	2	0	0	0	0	0	2	0	0	0	14	0
16:15:00	9	0	167	5	26	2	0	0	2	0	0	0	0	0	2	0	0	0	19	5
16:30:00	9	0	173	6	27	1	0	0	2	0	0	0	0	0	3	1	0	0	20	1
16:45:00	9	0	179	6	28	1	0	0	2	0	0	0	0	0	3	0	0	0	20	0
17:00:00	9	0	184	5	29	1	0	0	2	0	0	0	1	1	3	0	0	0	21	1
17:15:00	9	0	191	7	31	2	0	0	2	0	0	0	1	0	3	0	0	0	21	0
17:30:00	10	1	202	11	31	0	0	0	2	0	0	0	1	0	3	0	0	0	22	1
17:45:00	11	1	211	9	32	1	0	0	2	0	0	0	1	0	3	0	0	0	22	0

Ontario Traffic Inc.

Count Date: 27-Sep-17 Site #: 1700600067

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	1	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	6	5	15	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	7	1	17	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:45:00	15	8	33	16	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:00:00	25	10	52	19	3	2	0	0	1	1	0	0	0	0	0	0	0	0	2	1
8:15:00	38	13	84	32	8	5	0	0	1	0	0	0	0	0	1	1	0	0	2	0
8:30:00	51	13	119	35	10	2	0	0	1	0	0	0	0	0	1	0	0	0	7	5
8:45:00	63	12	146	27	13	3	0	0	2	1	0	0	0	0	1	0	0	0	9	2
9:00:00	72	9	184	38	14	1	0	0	3	1	0	0	0	0	1	0	0	0	11	2
9:15:00	84	12	201	17	14	0	0	0	3	0	0	0	0	0	1	0	0	0	13	2
9:30:00	89	5	220	19	17	3	0	0	3	0	0	1	1	0	0	0	0	0	15	2
9:45:00	93	4	237	17	18	1	0	0	3	0	0	1	0	0	0	0	0	0	19	4
10:00:00	104	11	254	17	19	1	0	0	3	0	0	1	0	0	0	0	0	0	26	7
10:01:07	105	1	254	0	19	0	0	0	3	0	0	1	0	0	0	0	0	0	26	0
11:00:00	105	0	254	0	19	0	0	0	3	0	0	1	0	0	0	0	0	0	26	0
11:15:00	118	13	283	29	23	4	0	0	3	0	0	1	0	0	0	0	0	0	29	3
11:30:00	127	9	302	19	25	2	0	0	3	0	0	1	0	0	0	0	0	0	32	3
11:45:00	139	12	325	23	30	5	0	0	3	0	0	1	0	0	0	0	0	0	35	3
12:00:00	153	14	355	30	37	7	1	1	3	0	0	1	0	0	0	2	1	0	42	7
12:15:00	163	10	372	17	42	5	1	0	4	1	0	1	0	0	0	2	0	0	42	0
12:30:00	172	9	395	23	49	7	1	0	4	0	0	1	0	0	0	3	1	0	47	5
12:45:00	182	10	406	11	51	2	1	0	5	1	0	1	0	0	0	3	0	0	48	1
13:00:00	200	18	424	18	57	6	1	0	5	0	0	1	0	0	0	3	0	0	50	2
13:15:00	212	12	456	32	62	5	1	0	5	0	0	1	0	0	0	3	0	0	55	5
13:30:00	222	10	482	26	67	5	1	0	5	0	0	1	0	0	0	3	0	0	60	5
13:45:00	234	12	501	19	69	2	1	0	5	0	0	1	0	0	0	3	0	0	62	2
14:00:00	252	18	523	22	73	4	2	1	5	0	0	2	1	0	0	3	0	0	62	0
14:00:20	252	0	523	0	73	0	2	0	5	0	0	2	0	0	0	3	0	0	62	0
15:00:00	252	0	523	0	73	0	2	0	5	0	0	2	0	0	0	3	0	0	62	0
15:15:00	268	16	541	18	80	7	2	0	5	0	0	2	0	0	0	3	0	0	65	3
15:30:00	280	12	559	18	84	4	2	0	7	2	0	2	0	0	0	3	0	0	68	3
15:45:00	298	18	598	39	91	7	2	0	7	0	0	2	0	0	0	3	0	0	69	1
16:00:00	312	14	622	24	96	5	2	0	7	0	0	2	0	0	0	3	0	0	72	3
16:15:00	338	26	664	42	102	6	2	0	7	0	0	2	0	0	0	3	0	0	79	7
16:30:00	351	13	691	27	108	6	2	0	7	0	0	2	0	0	0	3	0	0	85	6
16:45:00	377	26	742	51	119	11	2	0	7	0	0	2	0	0	0	3	0	0	98	13
17:00:00	386	9	778	36	124	5	2	0	7	0	0	2	0	0	0	4	1	0	106	8
17:15:00	409	23	814	36	127	3	2	0	7	0	0	2	0	0	0	4	0	0	114	8
17:30:00	420	11	850	36	133	6	2	0	7	0	0	2	0	0	0	4	0	0	117	3
17:45:00	433	13	888	38	136	3	2	0	7	0	0	2	0	0	0	4	0	0	121	4

Ontario Traffic Inc.

Count Date: 27-Sep-17 Site #: 1700600067

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	6	6	12	12	4	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	12	6	22	10	7	3	2	1	3	2	0	0	0	0	0	0	0	0	0	0
7:45:00	27	15	36	14	10	3	3	1	5	2	0	0	0	0	0	0	0	0	0	0
8:00:00	56	29	48	12	16	6	7	4	7	2	1	1	2	2	0	0	0	0	0	0
8:15:00	92	36	67	19	24	8	8	1	10	3	1	0	2	0	1	1	0	0	0	0
8:30:00	138	46	92	25	31	7	13	5	13	3	1	0	2	0	1	0	0	0	1	1
8:45:00	181	43	129	37	46	15	15	2	19	6	2	1	2	0	1	0	0	0	1	0
9:00:00	224	43	160	31	55	9	16	1	21	2	2	0	2	0	1	0	0	0	1	0
9:15:00	248	24	184	24	66	11	22	6	23	2	2	0	2	0	1	0	0	0	3	2
9:30:00	274	26	211	27	70	4	24	2	29	6	2	0	2	0	1	0	0	0	3	0
9:45:00	297	23	236	25	77	7	24	0	32	3	3	1	2	0	1	0	0	0	3	0
10:00:00	320	23	261	25	84	7	26	2	34	2	3	0	2	0	1	0	0	0	5	2
10:01:07	321	1	263	2	85	1	26	0	34	0	3	0	2	0	1	0	0	0	5	0
11:00:00	321	0	263	0	85	0	26	0	34	0	3	0	2	0	1	0	0	0	5	0
11:15:00	351	30	286	23	91	6	26	0	37	3	4	1	3	1	1	0	0	0	8	3
11:30:00	370	19	317	31	99	8	30	4	41	4	4	0	3	0	1	0	0	0	10	2
11:45:00	398	28	348	31	107	8	31	1	42	1	4	0	4	1	1	0	0	0	10	0
12:00:00	414	16	378	30	114	7	34	3	46	4	4	0	4	0	1	0	0	0	10	0
12:15:00	428	14	397	19	120	6	34	0	46	0	4	0	4	0	1	0	0	0	10	0
12:30:00	449	21	435	38	126	6	37	3	52	6	4	0	4	0	1	0	0	0	14	4
12:45:00	475	26	463	28	137	11	38	1	53	1	4	0	4	0	1	0	0	0	18	4
13:00:00	499	24	504	41	152	15	39	1	57	4	4	0	4	0	1	0	0	0	18	0
13:15:00	528	29	548	44	158	6	43	4	60	3	4	0	4	0	1	0	0	0	20	2
13:30:00	550	22	567	19	166	8	45	2	62	2	4	0	4	0	1	0	0	0	20	0
13:45:00	582	32	593	26	171	5	47	2	64	2	4	0	4	0	1	0	0	0	21	1
14:00:00	596	14	617	24	178	7	48	1	67	3	5	1	4	0	1	0	1	1	21	0
14:00:20	598	2	618	1	179	1	48	0	67	0	5	0	4	0	1	0	1	0	21	0
15:00:00	598	0	618	0	179	0	48	0	67	0	5	0	4	0	1	0	1	0	21	0
15:15:00	617	19	654	36	187	8	50	2	69	2	5	0	4	0	1	0	1	0	23	2
15:30:00	637	20	694	40	196	9	53	3	72	3	5	0	4	0	1	0	1	0	24	1
15:45:00	669	32	728	34	207	11	55	2	76	4	7	2	4	0	1	0	1	0	31	7
16:00:00	696	27	760	32	216	9	58	3	83	7	7	0	4	0	1	0	1	0	35	4
16:15:00	716	20	811	51	235	19	62	4	84	1	7	0	4	0	1	0	1	0	37	2
16:30:00	740	24	850	39	254	19	64	2	88	4	7	0	4	0	1	0	1	0	38	1
16:45:00	763	23	890	40	271	17	66	2	91	3	7	0	6	2	1	0	1	0	40	2
17:00:00	784	21	927	37	288	17	68	2	97	6	7	0	6	0	1	0	1	0	41	1
17:15:00	801	17	961	34	300	12	71	3	98	1	7	0	6	0	1	0	1	0	41	0
17:30:00	820	19	993	32	309	9	72	1	100	2	7	0	6	0	1	0	1	0	50	9
17:45:00	846	26	1035	42	322	13	75	3	105	5	7	0	6	0	1	0	1	0	51	1

Ontario Traffic Inc.

Count Date: 27-Sep-17 Site #: 1700600067

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	8	8	6	5	8	8	0	0	0	0	3	3	0	0	0	0	0	0	2	2
7:30:00	8	0	10	4	13	5	0	0	0	0	6	3	0	0	0	0	0	0	2	0
7:45:00	14	6	21	11	20	7	0	0	0	0	13	7	0	0	0	0	0	0	2	0
8:00:00	18	4	42	21	43	23	0	0	0	0	18	5	0	0	0	0	0	0	3	1
8:15:00	29	11	57	15	60	17	0	0	0	0	24	6	0	0	0	0	1	1	4	1
8:30:00	41	12	71	14	79	19	1	1	0	0	27	3	0	0	0	0	1	0	8	4
8:45:00	46	5	84	13	103	24	2	1	0	0	32	5	0	0	0	0	1	0	12	4
9:00:00	57	11	102	18	136	33	2	0	0	0	35	3	0	0	0	0	1	0	13	1
9:15:00	65	8	113	11	169	33	4	2	0	0	40	5	0	0	0	0	1	0	16	3
9:30:00	79	14	129	16	193	24	4	0	0	0	44	4	0	0	1	1	1	0	21	5
9:45:00	88	9	148	19	220	27	4	0	1	1	47	3	0	0	1	0	1	0	22	1
10:00:00	98	10	163	15	244	24	4	0	1	0	50	3	0	0	1	0	4	3	23	1
10:01:07	98	0	167	4	245	1	4	0	1	0	50	0	0	0	1	0	4	0	23	0
11:00:00	98	0	168	1	245	0	4	0	1	0	50	0	0	0	1	0	4	0	23	0
11:15:00	112	14	182	14	280	35	4	0	1	0	53	3	0	0	1	0	4	0	27	4
11:30:00	123	11	194	12	313	33	4	0	1	0	57	4	0	0	1	0	4	0	29	2
11:45:00	133	10	216	22	359	46	4	0	1	0	59	2	0	0	1	0	4	0	33	4
12:00:00	147	14	229	13	396	37	4	0	1	0	62	3	0	0	1	0	4	0	38	5
12:15:00	158	11	238	9	408	12	4	0	1	0	65	3	0	0	1	0	4	0	38	0
12:30:00	175	17	251	13	436	28	4	0	1	0	68	3	0	0	1	0	4	0	39	1
12:45:00	181	6	267	16	458	22	4	0	1	0	72	4	0	0	1	0	4	0	42	3
13:00:00	186	5	289	22	489	31	4	0	2	1	77	5	0	0	1	0	4	0	48	6
13:15:00	194	8	302	13	531	42	4	0	2	0	82	5	0	0	1	0	5	1	51	3
13:30:00	203	9	315	13	580	49	4	0	2	0	83	1	0	0	1	0	5	0	62	11
13:45:00	211	8	332	17	620	40	4	0	2	0	89	6	0	0	1	0	5	0	67	5
14:00:00	212	1	352	20	652	32	4	0	2	0	96	7	0	0	1	0	6	1	69	2
14:00:20	212	0	353	1	652	0	4	0	2	0	96	0	0	0	1	0	6	0	70	1
15:00:00	212	0	354	1	652	0	4	0	2	0	96	0	0	0	1	0	6	0	70	0
15:15:00	233	21	376	22	694	42	4	0	2	0	100	4	0	0	1	0	6	0	72	2
15:30:00	245	12	392	16	727	33	4	0	2	0	103	3	0	0	1	0	7	1	83	11
15:45:00	259	14	412	20	770	43	4	0	2	0	106	3	0	0	1	0	7	0	89	6
16:00:00	277	18	443	31	817	47	4	0	2	0	112	6	0	0	1	0	7	0	94	5
16:15:00	297	20	477	34	866	49	4	0	2	0	117	5	0	0	1	0	7	0	103	9
16:30:00	322	25	507	30	908	42	4	0	4	2	122	5	0	0	1	0	7	0	105	2
16:45:00	337	15	555	48	960	52	5	1	4	0	125	3	0	0	1	0	7	0	111	6
17:00:00	362	25	591	36	997	37	5	0	4	0	130	5	0	0	1	0	7	0	115	4
17:15:00	376	14	628	37	1036	39	5	0	4	0	135	5	0	0	1	0	7	0	117	2
17:30:00	405	29	652	24	1068	32	5	0	4	0	137	2	0	0	1	0	7	0	123	6
17:45:00	423	18	680	28	1098	30	5	0	4	0	141	4	0	0	1	0	7	0	123	0

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00
To: 10:00:00

One Hour Peak

From: 8:30:00
To: 9:30:00

Municipality: Windsor
Site #: 1700600061
Intersection: Park St W & Victoria Ave
TFR File #: 14
Count date: 25-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Park St W runs W/E

North Leg Total: 212
North Entering: 210
North Peds: 66
Peds Cross: \times

Heavys	1	1	0	2
Trucks	0	4	0	4
Cars	21	154	29	204
Totals	22	159	29	



Heavys	2
Trucks	0
Cars	0
Totals	2

East Leg Total: 309
East Entering: 263
East Peds: 43
Peds Cross: \times

Heavys	2
Trucks	1
Cars	103
Totals	106

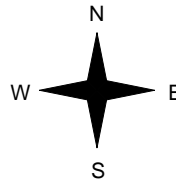


Victoria Ave

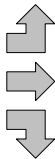
Cars	0	0	0	0
Trucks	82	1	0	83
Heavys	172	7	1	180
Totals	254	8	1	



Park St W



Heavys	1
Trucks	0
Cars	0
Totals	1
Heavys	0
Trucks	2
Cars	15
Totals	17
Heavys	1
Trucks	0
Cars	28
Totals	29
Heavys	2
Trucks	2
Cars	43
Totals	47



Park St W



Cars	44
Trucks	2
Heavys	0
Totals	46

Peds Cross: \times
West Peds: 38
West Entering: 47
West Leg Total: 153

Cars	354
Trucks	11
Heavys	3
Totals	368



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

Peds Cross: \times
South Peds: 40
South Entering: 2
South Leg Total: 370

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period

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

One Hour Peak

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

Municipality: Windsor
Site #: 1700600061
Intersection: Park St W & Victoria Ave
TFR File #: 14
Count date: 25-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Park St W runs W/E

North Leg Total: 304
North Entering: 303
North Peds: 47
Peds Cross: \times

Heavys	0	2	0	2
Trucks	0	2	0	2
Cars	28	229	42	299
Totals	28	233	42	



Heavys	0
Trucks	0
Cars	1
Totals	1

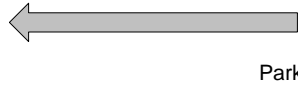
East Leg Total: 490
East Entering: 391
East Peds: 57
Peds Cross: \times

Heavys	Trucks	Cars	Totals
0	4	143	147

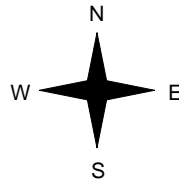


Victoria Ave

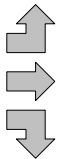
Cars	Trucks	Heavys	Totals
0	0	0	0
115	4	0	119
266	5	1	272
381	9	1	



Park St W



Heavys	Trucks	Cars	Totals
0	0	1	1
1	0	56	57
0	0	44	44
1	0	101	



Park St W



Cars	Trucks	Heavys	Totals
98	0	1	99

Peds Cross: \times
West Peds: 35
West Entering: 102
West Leg Total: 249

Cars	539
Trucks	7
Heavys	3
Totals	549



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

Peds Cross: \times
South Peds: 34
South Entering: 0
South Leg Total: 549

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 15:00:00

To: 16:00:00

Municipality: Windsor
Site #: 1700600061
Intersection: Park St W & Victoria Ave
TFR File #: 14
Count date: 25-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Park St W runs W/E

North Leg Total: 281
 North Entering: 279
 North Peds: 47
 Peds Cross: \bowtie

Heavys	0	3	0	3
Trucks	2	9	0	11
Cars	22	216	27	265
Totals	24	228	27	



Heavys	0
Trucks	0
Cars	2
Totals	2

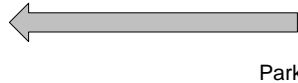
East Leg Total: 470
 East Entering: 380
 East Peds: 58
 Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
1	2	128	131

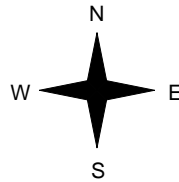


Victoria Ave

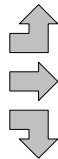
Cars	Trucks	Heavys	Totals
2	0	0	2
106	0	1	107
269	2	0	271
377	2	1	



Park St W



Heavys	Trucks	Cars	Totals
0	0	0	0
2	1	60	63
0	1	69	70
2	2	129	



Park St W



Cars	Trucks	Heavys	Totals
87	1	2	90

Peds Cross: \bowtie
 West Peds: 44
 West Entering: 133
 West Leg Total: 264

Cars	554
Trucks	12
Heavys	3
Totals	569



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

Peds Cross: \bowtie
 South Peds: 43
 South Entering: 0
 South Leg Total: 569

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Windsor
Site #: 1700600061
Intersection: Park St W & Victoria Ave
TFR File #: 14
Count date: 25-Sep-17

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Park St W runs W/E

North Leg Total: 1980
 North Entering: 1973
 North Peds: 420
 Peds Cross: \bowtie

Heavys	1	23	0	24
Trucks	2	45	0	47
Cars	175	1501	226	1902
Totals	178	1569	226	



Heavys	3
Trucks	0
Cars	4
Totals	7

East Leg Total: 3366
 East Entering: 2854
 East Peds: 379
 Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
9	19	943	971

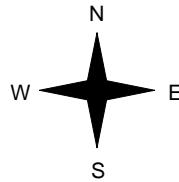


Victoria Ave

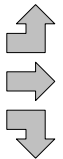
Cars	Trucks	Heavys	Totals
2	0	0	2
768	17	7	792
2028	27	5	2060
2798	44	12	



Park St W



Heavys	Trucks	Cars	Totals
2	0	2	4
3	8	275	286
1	4	398	403
6	12	675	



Park St W



Peds Cross: \bowtie
 West Peds: 266
 West Entering: 693
 West Leg Total: 1664

Cars	3927
Trucks	76
Heavys	29
Totals	4032



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

Peds Cross: \bowtie
 South Peds: 333
 South Entering: 2
 South Leg Total: 4034

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: Park St W & Victoria Ave

Count Date: 25-Sep-17

Municipality: Windsor

North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	9	76	8	93	28	93	8:00:00	0	0	0	0	10
9:00:00	20	127	27	174	64	175	9:00:00	0	1	0	1	32
10:00:00	26	137	14	177	42	178	10:00:00	1	0	0	1	28
11:00:00	0	0	1	1	0	1	11:00:00	0	0	0	0	2
12:00:00	21	133	15	169	33	169	12:00:00	0	0	0	0	40
13:00:00	29	226	27	282	64	282	13:00:00	0	0	0	0	67
14:00:00	42	233	28	303	47	303	14:00:00	0	0	0	0	34
15:00:00	1	7	1	9	0	9	15:00:00	0	0	0	0	0
16:00:00	27	228	24	279	47	279	16:00:00	0	0	0	0	43
17:00:00	26	205	12	243	29	243	17:00:00	0	0	0	0	51
18:00:00	25	195	21	241	66	241	18:00:00	0	0	0	0	26
Totals:	226	1567	178	1971	420	1973		1	1	0	2	333
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				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	88	35	0	123	10	136	8:00:00	0	4	9	13	12
9:00:00	146	87	0	233	32	274	9:00:00	0	15	26	41	27
10:00:00	168	55	0	223	40	259	10:00:00	1	14	21	36	32
11:00:00	3	2	0	5	0	8	11:00:00	0	2	1	3	0
12:00:00	228	83	0	311	37	381	12:00:00	0	22	48	70	27
13:00:00	291	90	0	381	82	506	13:00:00	1	45	79	125	36
14:00:00	272	119	0	391	57	493	14:00:00	1	57	44	102	35
15:00:00	0	0	0	0	1	1	15:00:00	0	1	0	1	0
16:00:00	271	107	2	380	58	513	16:00:00	0	63	70	133	44
17:00:00	299	100	0	399	25	470	17:00:00	1	26	44	71	28
18:00:00	294	114	0	408	37	503	18:00:00	0	34	61	95	25
Totals:	2060	792	2	2854	379	3544		4	283	403	690	266
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	9:00	10:00	12:00	13:00		14:00	16:00	17:00	18:00			
Crossing Values:	206	236	218	373		367	357	284	282			

Ontario Traffic Inc.

Count Date: 25-Sep-17 Site #: 1700600061

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	22	22	1	1	0	0	1	1	0	0	0	0	1	1	0	0	8	8
7:30:00	2	2	38	16	2	1	0	0	2	1	0	0	0	0	1	0	0	0	14	6
7:45:00	7	5	53	15	2	0	0	0	3	1	0	0	0	0	1	0	0	0	21	7
8:00:00	9	2	72	19	8	6	0	0	3	0	0	0	0	0	1	0	0	0	28	7
8:15:00	15	6	101	29	15	7	0	0	4	1	0	0	0	0	1	0	0	0	44	16
8:30:00	20	5	120	19	19	4	0	0	4	0	0	0	0	0	3	2	0	0	53	9
8:45:00	25	5	146	26	28	9	0	0	4	0	0	0	0	0	4	1	0	0	69	16
9:00:00	29	4	193	47	35	7	0	0	6	2	0	0	0	0	4	0	0	0	92	23
9:15:00	32	3	239	46	39	4	0	0	7	1	0	0	0	0	4	0	1	1	109	17
9:30:00	49	17	274	35	40	1	0	0	8	1	0	0	0	0	4	0	1	0	119	10
9:45:00	51	2	296	22	41	1	0	0	9	1	0	0	0	0	5	1	1	0	123	4
10:00:00	55	4	323	27	48	7	0	0	10	1	0	0	0	0	7	2	1	0	134	11
10:01:08	55	0	323	0	49	1	0	0	10	0	0	0	0	0	7	0	1	0	134	0
11:00:00	55	0	323	0	49	0	0	0	10	0	0	0	0	0	7	0	1	0	134	0
11:15:00	59	4	352	29	53	4	0	0	13	3	0	0	0	0	8	1	1	0	142	8
11:30:00	67	8	379	27	58	5	0	0	13	0	0	0	0	0	8	0	1	0	149	7
11:45:00	71	4	418	39	62	4	0	0	15	2	0	0	0	0	9	1	1	0	158	9
12:00:00	76	5	448	30	64	2	0	0	16	1	0	0	0	0	9	0	1	0	167	9
12:15:00	86	10	516	68	77	13	0	0	22	6	0	0	0	0	11	2	1	0	177	10
12:30:00	93	7	554	38	83	6	0	0	24	2	0	0	0	0	14	3	1	0	193	16
12:45:00	98	5	606	52	90	7	0	0	26	2	0	0	0	0	15	1	1	0	220	27
13:00:00	105	7	658	52	91	1	0	0	26	0	0	0	0	0	15	0	1	0	231	11
13:15:00	112	7	694	36	94	3	0	0	26	0	0	0	0	0	15	0	1	0	242	11
13:30:00	121	9	741	47	100	6	0	0	27	1	0	0	0	0	16	1	1	0	263	21
13:45:00	137	16	811	70	107	7	0	0	27	0	0	0	0	0	16	0	1	0	270	7
14:00:00	147	10	887	76	119	12	0	0	28	1	0	0	0	0	17	1	1	0	278	8
14:00:20	148	1	889	2	120	1	0	0	28	0	0	0	0	0	17	0	1	0	278	0
15:00:00	148	0	894	5	120	0	0	0	28	0	0	0	0	0	17	0	1	0	278	0
15:15:00	157	9	954	60	120	0	0	0	29	1	0	0	0	0	18	1	1	0	289	11
15:30:00	166	9	1000	46	127	7	0	0	33	4	2	2	0	0	18	0	1	0	293	4
15:45:00	173	7	1059	59	139	12	0	0	36	3	2	0	0	0	19	1	1	0	307	14
16:00:00	175	2	1110	51	142	3	0	0	37	1	2	0	0	0	20	1	1	0	325	18
16:15:00	178	3	1153	43	142	0	0	0	37	0	2	0	0	0	20	0	1	0	334	9
16:30:00	189	11	1203	50	146	4	0	0	39	2	2	0	0	0	20	0	1	0	340	6
16:45:00	194	5	1241	38	151	5	0	0	40	1	2	0	0	0	21	1	1	0	348	8
17:00:00	201	7	1310	69	154	3	0	0	41	1	2	0	0	0	21	0	1	0	354	6
17:15:00	208	7	1377	67	163	9	0	0	41	0	2	0	0	0	22	1	1	0	377	23
17:30:00	215	7	1403	26	164	1	0	0	42	1	2	0	0	0	22	0	1	0	386	9
17:45:00	219	4	1442	39	169	5	0	0	43	1	2	0	0	0	23	1	1	0	399	13

Ontario Traffic Inc.

Count Date: 25-Sep-17 Site #: 1700600061

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	10	10	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	24	14	15	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
7:45:00	53	29	20	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1
8:00:00	88	35	34	14	0	0	0	0	1	1	0	0	0	0	0	0	0	0	10	6
8:15:00	116	28	51	17	0	0	0	0	2	1	0	0	0	0	1	1	0	0	17	7
8:30:00	145	29	72	21	0	0	0	0	2	0	0	0	0	0	1	0	0	0	21	4
8:45:00	174	29	91	19	0	0	1	1	2	0	0	0	0	0	1	0	0	0	26	5
9:00:00	228	54	118	27	0	0	5	4	3	1	0	0	1	1	1	0	0	0	42	16
9:15:00	264	36	136	18	0	0	7	2	3	0	0	0	1	0	1	0	0	0	53	11
9:30:00	317	53	154	18	0	0	7	0	3	0	0	0	1	0	1	0	0	0	64	11
9:45:00	358	41	163	9	0	0	7	0	3	0	0	0	1	0	1	0	0	0	70	6
10:00:00	393	35	173	10	0	0	8	1	3	0	0	0	1	0	1	0	0	0	82	12
10:01:08	395	2	175	2	0	0	8	0	3	0	0	0	1	0	1	0	0	0	82	0
11:00:00	396	1	175	0	0	0	8	0	3	0	0	0	1	0	1	0	0	0	82	0
11:15:00	448	52	201	26	0	0	11	3	3	0	0	0	1	0	1	0	0	0	84	2
11:30:00	509	61	212	11	0	0	14	3	4	1	0	0	1	0	1	0	0	0	99	15
11:45:00	563	54	237	25	0	0	15	1	4	0	0	0	1	0	1	0	0	0	113	14
12:00:00	617	54	256	19	0	0	15	0	4	0	0	0	1	0	2	1	0	0	119	6
12:15:00	718	101	279	23	0	0	15	0	6	2	0	0	1	0	2	0	0	0	139	20
12:30:00	783	65	305	26	0	0	15	0	6	0	0	0	2	1	2	0	0	0	173	34
12:45:00	857	74	328	23	0	0	17	2	7	1	0	0	2	0	2	0	0	0	189	16
13:00:00	904	47	342	14	0	0	18	1	8	1	0	0	2	0	2	0	0	0	201	12
13:15:00	962	58	365	23	0	0	20	2	9	1	0	0	2	0	2	0	0	0	208	7
13:30:00	1033	71	396	31	0	0	21	1	10	1	0	0	2	0	2	0	0	0	219	11
13:45:00	1092	59	421	25	0	0	23	2	12	2	0	0	3	1	2	0	0	0	235	16
14:00:00	1170	78	457	36	0	0	23	0	12	0	0	0	3	0	2	0	0	0	258	23
14:00:20	1170	0	457	0	0	0	23	0	12	0	0	0	3	0	2	0	0	0	259	1
15:00:00	1170	0	457	0	0	0	23	0	12	0	0	0	3	0	2	0	0	0	259	0
15:15:00	1233	63	486	29	2	2	23	0	12	0	0	0	3	0	2	0	0	0	275	16
15:30:00	1290	57	504	18	2	0	24	1	12	0	0	0	3	0	3	1	0	0	282	7
15:45:00	1383	93	545	41	2	0	25	1	12	0	0	0	3	0	3	0	0	0	304	22
16:00:00	1439	56	563	18	2	0	25	0	12	0	0	0	3	0	3	0	0	0	317	13
16:15:00	1506	67	589	26	2	0	27	2	12	0	0	0	4	1	3	0	0	0	321	4
16:30:00	1580	74	615	26	2	0	27	0	13	1	0	0	4	0	4	1	0	0	329	8
16:45:00	1668	88	638	23	2	0	27	0	15	2	0	0	5	1	5	1	0	0	338	9
17:00:00	1734	66	658	20	2	0	27	0	15	0	0	0	5	0	5	0	0	0	342	4
17:15:00	1816	82	693	35	2	0	27	0	15	0	0	0	5	0	5	0	0	0	347	5
17:30:00	1899	83	717	24	2	0	27	0	15	0	0	0	5	0	5	0	0	0	354	7
17:45:00	1962	63	747	30	2	0	27	0	15	0	0	0	5	0	6	1	0	0	359	5

Ontario Traffic Inc.

Count Date: 25-Sep-17 Site #: 1700600061

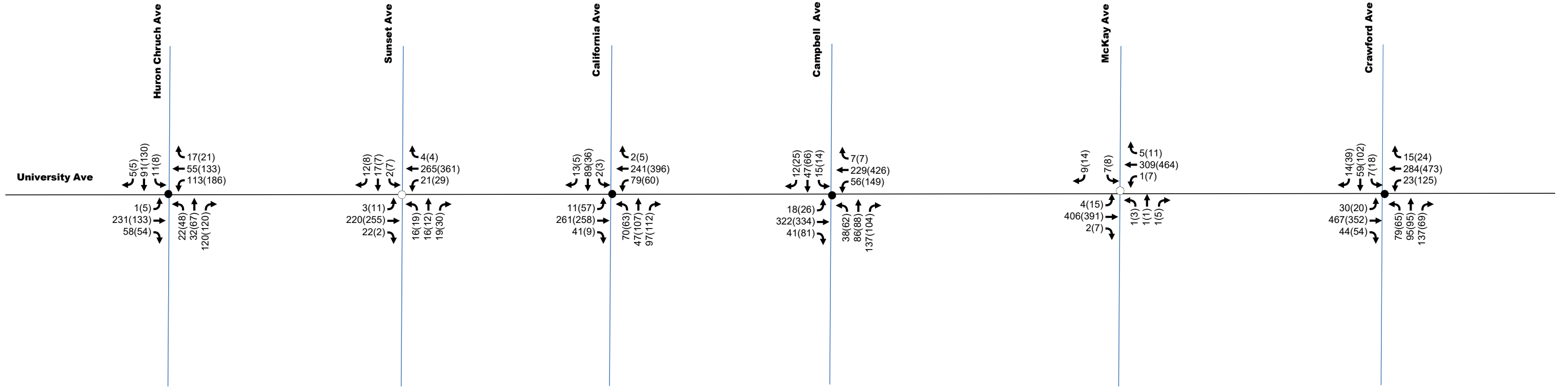
Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	4
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	4
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	5
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	6
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	5
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	42	16
9:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	47	5
9:30:00	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	61	14
9:45:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	67	6
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	70	3
10:01:08	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	72	2
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	72	0
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	75	3
11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	86	11
11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	98	12
12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	112	14
12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	132	20
12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	160	28
12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	171	11
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	179	8
13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	189	10
13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	199	10
13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	205	6
14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	213	8
14:00:20	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	213	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	213	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	224	11
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	231	7
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	246	15
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	256	10
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	264	8
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	269	5
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	295	26
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	307	12
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	317	10
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	323	6
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	327	4

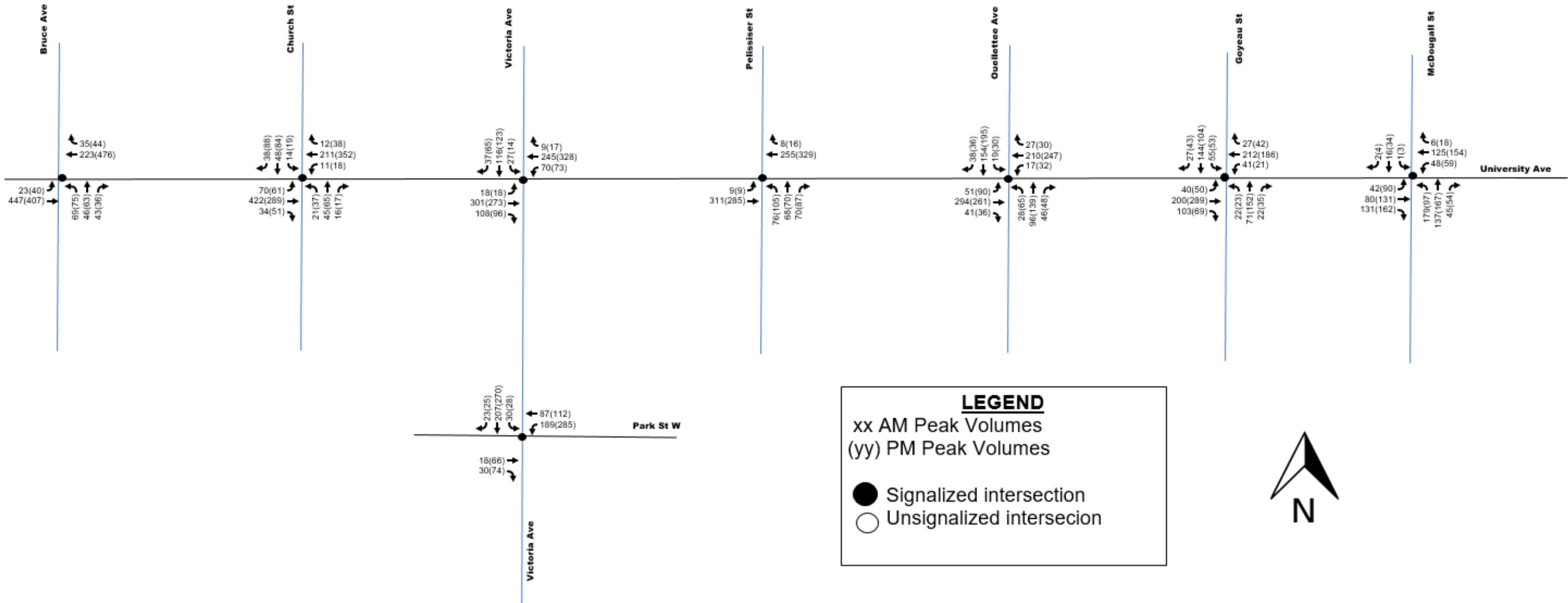
Ontario Traffic Inc.

Count Date: 25-Sep-17 Site #: 1700600061

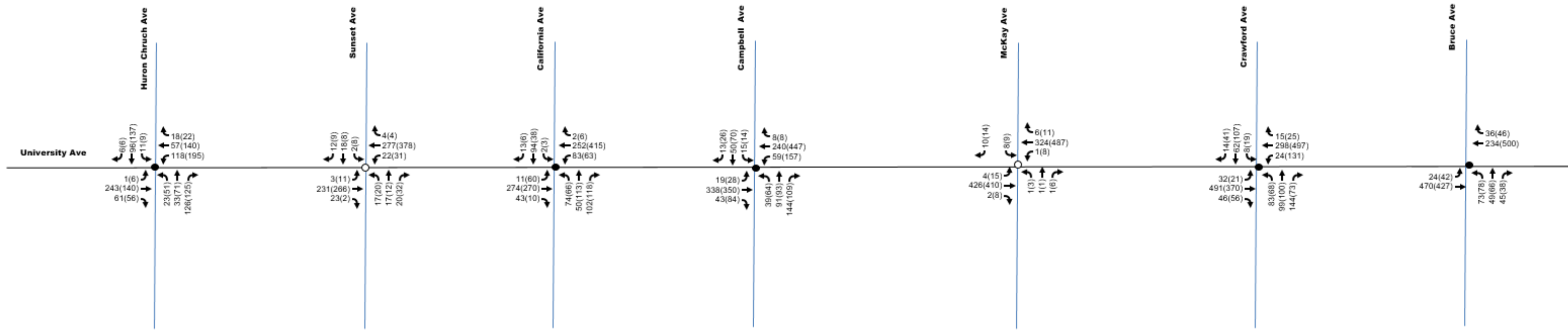
Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	0	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	6	4
7:45:00	0	0	3	1	6	5	0	0	0	0	0	0	0	0	0	0	0	0	7	1
8:00:00	0	0	4	1	9	3	0	0	0	0	0	0	0	0	0	0	0	0	12	5
8:15:00	0	0	6	2	15	6	0	0	0	0	0	0	0	0	0	0	0	0	22	10
8:30:00	0	0	10	4	18	3	0	0	0	0	0	0	0	0	0	0	0	0	27	5
8:45:00	0	0	11	1	22	4	0	0	1	1	0	0	0	0	0	0	0	0	34	7
9:00:00	0	0	18	7	35	13	0	0	1	0	0	0	0	0	0	0	0	0	39	5
9:15:00	0	0	21	3	44	9	0	0	1	0	0	0	1	1	0	0	1	1	59	20
9:30:00	0	0	25	4	46	2	0	0	2	1	0	0	1	0	0	0	1	0	65	6
9:45:00	0	0	29	4	49	3	0	0	2	0	0	0	1	0	0	0	1	0	67	2
10:00:00	0	0	31	2	55	6	0	0	2	0	0	0	1	0	0	0	1	0	71	4
10:01:08	0	0	33	2	55	0	0	0	2	0	0	0	1	0	0	0	1	0	71	0
11:00:00	0	0	33	0	56	1	0	0	2	0	0	0	1	0	0	0	1	0	71	0
11:15:00	0	0	39	6	62	6	0	0	2	0	0	0	1	0	0	0	1	0	75	4
11:30:00	0	0	44	5	77	15	0	0	2	0	0	0	1	0	0	0	1	0	80	5
11:45:00	0	0	49	5	87	10	0	0	2	0	0	0	1	0	0	0	1	0	93	13
12:00:00	0	0	55	6	103	16	0	0	2	0	1	1	1	0	0	0	1	0	98	5
12:15:00	0	0	72	17	150	47	0	0	3	1	2	1	1	0	0	0	1	0	104	6
12:30:00	0	0	92	20	165	15	0	0	4	1	3	1	1	0	0	0	1	0	114	10
12:45:00	0	0	97	5	172	7	0	0	4	0	3	0	1	0	0	0	1	0	129	15
13:00:00	1	1	98	1	180	8	0	0	4	0	3	0	1	0	0	0	1	0	134	5
13:15:00	1	0	107	9	185	5	0	0	4	0	3	0	1	0	0	0	1	0	145	11
13:30:00	2	1	122	15	200	15	0	0	4	0	3	0	1	0	0	0	1	0	152	7
13:45:00	2	0	134	12	211	11	0	0	4	0	3	0	1	0	1	1	1	0	163	11
14:00:00	2	0	154	20	224	13	0	0	4	0	3	0	1	0	1	0	1	0	169	6
14:00:20	2	0	155	1	224	0	0	0	4	0	3	0	1	0	1	0	1	0	169	0
15:00:00	2	0	155	0	224	0	0	0	4	0	3	0	1	0	1	0	1	0	169	0
15:15:00	2	0	164	9	236	12	0	0	4	0	3	0	1	0	1	0	1	0	176	7
15:30:00	2	0	171	7	249	13	0	0	4	0	4	1	1	0	1	0	1	0	184	8
15:45:00	2	0	209	38	281	32	0	0	5	1	4	0	1	0	3	2	1	0	198	14
16:00:00	2	0	215	6	293	12	0	0	5	0	4	0	1	0	3	0	1	0	213	15
16:15:00	2	0	223	8	305	12	0	0	6	1	4	0	1	0	3	0	1	0	214	1
16:30:00	2	0	227	4	316	11	0	0	6	0	4	0	1	0	3	0	1	0	215	1
16:45:00	2	0	232	5	329	13	0	0	7	1	4	0	1	0	3	0	1	0	231	16
17:00:00	2	0	239	7	337	8	0	0	7	0	4	0	2	1	3	0	1	0	241	10
17:15:00	2	0	251	12	362	25	0	0	7	0	4	0	2	0	3	0	1	0	253	12
17:30:00	2	0	258	7	374	12	0	0	7	0	4	0	2	0	3	0	1	0	254	1
17:45:00	2	0	267	9	382	8	0	0	8	1	4	0	2	0	3	0	1	0	256	2

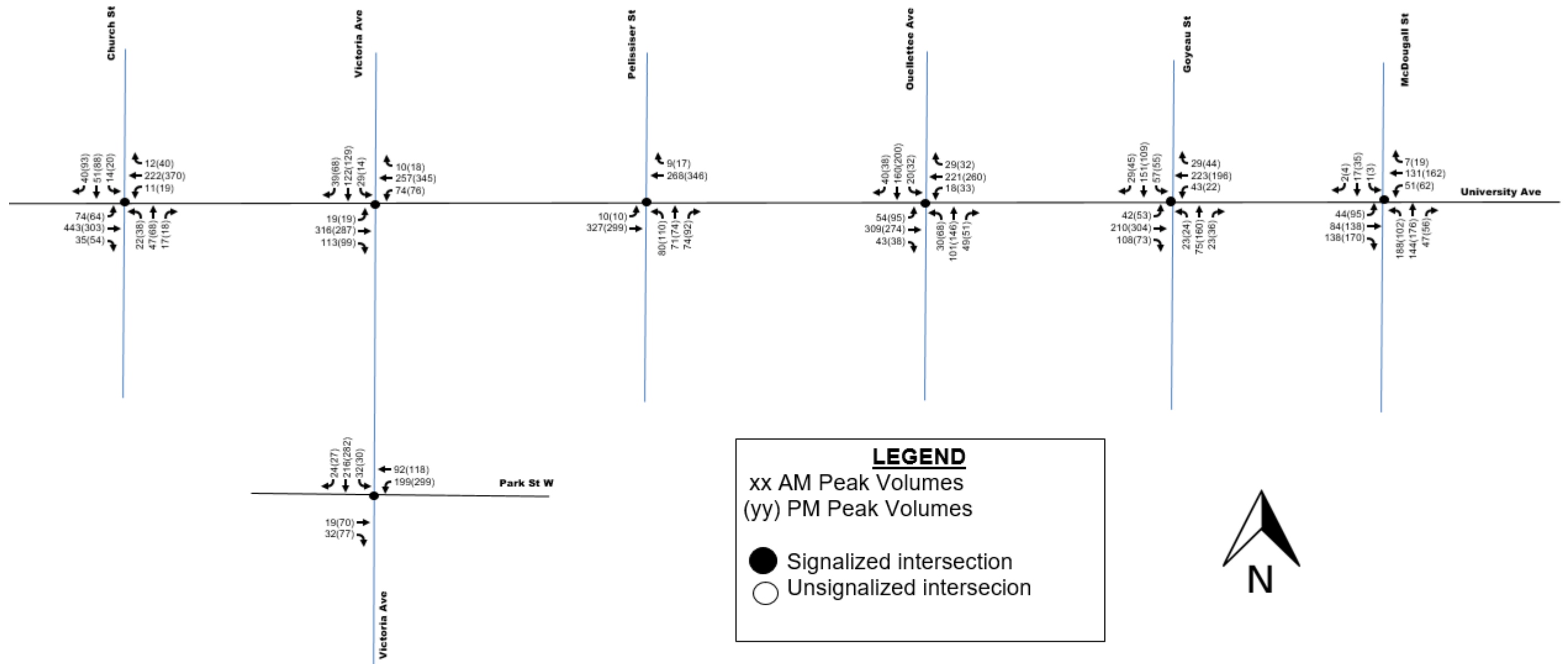
2018 VOLUMES



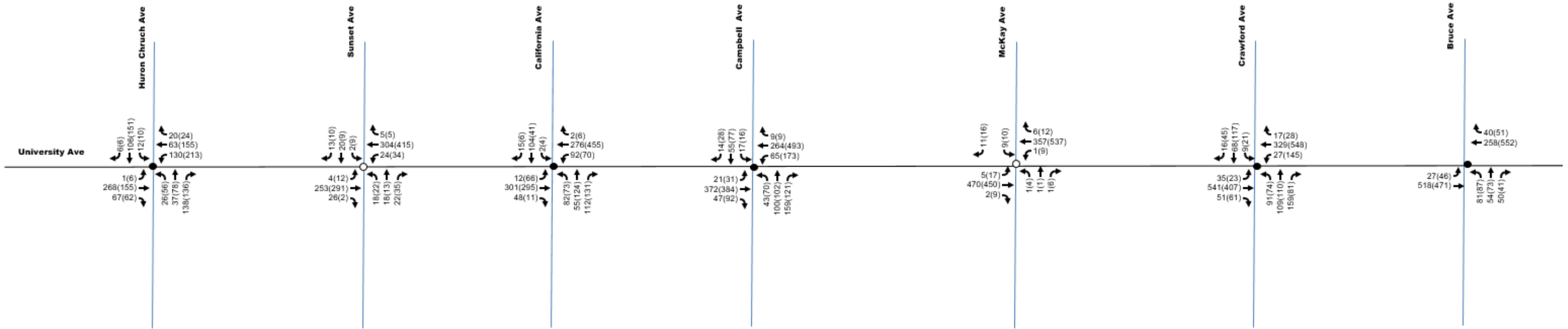


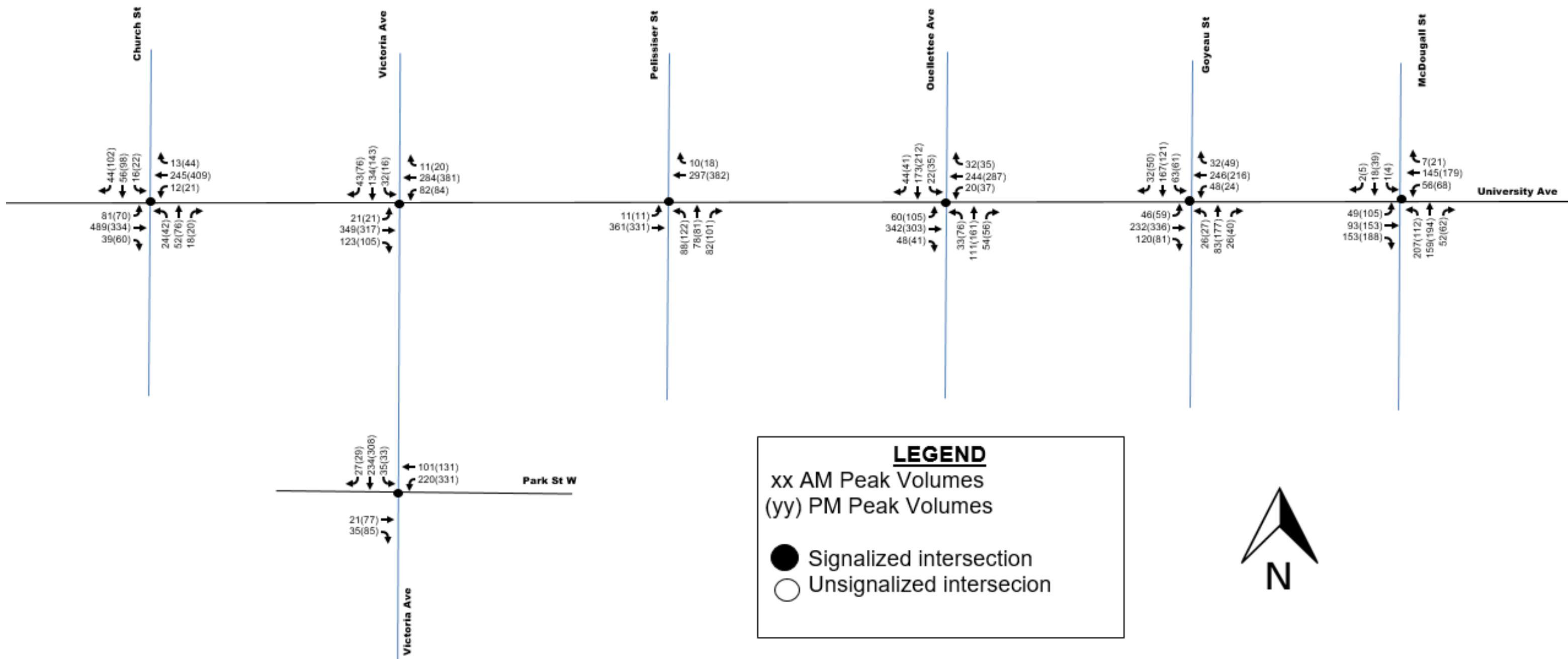
2028 VOLUMES





2038 VOLUMES





B

Appendix B Synchro Reports



Queues
3: Huron Church Rd & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak






















	→	↘	↙	←	↑	↓
Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	240	60	107	74	171	111
v/c Ratio	0.30	0.09	0.23	0.10	0.13	0.14
Control Delay	15.3	4.2	15.2	10.8	5.3	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	4.2	15.2	10.8	5.3	13.1
Queue Length 50th (m)	21.6	0.0	9.3	4.6	2.3	8.9
Queue Length 95th (m)	36.8	6.0	19.4	11.7	7.5	17.9
Internal Link Dist (m)	117.8			282.0	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	794	657	470	754	1320	794
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.09	0.23	0.10	0.13	0.14
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

3: Huron Church Rd & University Avenue

Existing Balanced Volumes

Timing Plan: AM Peak

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	1	220	55	98	52	16	21	30	106	10	87	5		
Future Volume (vph)	1	220	55	98	52	16	21	30	106	10	87	5		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7		
Total Lost time (s)		5.0	5.0	5.0	5.0			5.0			5.0			
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00			
Frpb, ped/bikes		1.00	0.90	1.00	1.00			0.99			1.00			
Flpb, ped/bikes		1.00	1.00	0.94	1.00			1.00			1.00			
Fr t		1.00	0.85	1.00	0.97			0.90			0.99			
Fl t Protected		1.00	1.00	0.95	1.00			0.99			1.00			
Satd. Flow (prot)		1830	1435	1775	1714			3128			1865			
Fl t Permitted		1.00	1.00	0.58	1.00			0.92			0.97			
Satd. Flow (perm)		1829	1435	1083	1714			2891			1824			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	1	239	60	107	57	17	23	33	115	11	95	5		
RTOR Reduction (vph)	0	0	34	0	10	0	0	65	0	0	2	0		
Lane Group Flow (vph)	0	240	26	107	64	0	0	106	0	0	109	0		
Confl. Peds. (#/hr)	6		47	47		6	6		1	1		6		
Heavy Vehicles (%)	0%	5%	2%	0%	2%	31%	5%	3%	2%	0%	2%	0%		
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0		
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA			
Protected Phases		2			2			4				4		
Permitted Phases	2		2	2			4			4				
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0			
Effective Green, g (s)		33.0	33.0	33.0	33.0			33.0			33.0			
Actuated g/C Ratio		0.43	0.43	0.43	0.43			0.43			0.43			
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0			
Lane Grp Cap (vph)		794	623	470	744			1255			792			
v/s Ratio Prot					0.04									
v/s Ratio Perm		c0.13	0.02	0.10				0.04			c0.06			
v/c Ratio		0.30	0.04	0.23	0.09			0.08			0.14			
Uniform Delay, d1		14.0	12.4	13.5	12.6			12.6			12.9			
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00			
Incremental Delay, d2		1.0	0.1	1.1	0.2			0.1			0.4			
Delay (s)		15.0	12.5	14.6	12.9			12.8			13.3			
Level of Service		B	B	B	B			B			B			
Approach Delay (s)		14.5			13.9			12.8			13.3			
Approach LOS		B			B			B			B			
Intersection Summary														
HCM 2000 Control Delay			13.8										HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.22											
Actuated Cycle Length (s)			76.0								10.0		Sum of lost time (s)	
Intersection Capacity Utilization			68.3%										ICU Level of Service	C
Analysis Period (min)			15											
c Critical Lane Group														

Queues
6: California Ave & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

















	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	310	311	222	107
v/c Ratio	0.40	0.47	0.46	0.17
Control Delay	10.5	14.3	15.5	14.8
Queue Delay	0.6	0.0	0.0	0.0
Total Delay	11.1	14.3	15.5	14.8
Queue Length 50th (m)	22.4	24.8	14.7	8.4
Queue Length 95th (m)	15.2	44.0	32.6	18.2
Internal Link Dist (m)	61.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	769	667	486	614
Starvation Cap Reductn	197	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.47	0.46	0.17
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

6: California Ave & University Avenue







Existing Balanced Volumes

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	236	39	75	209	2	67	45	92	2	85	12
Future Volume (vph)	10	236	39	75	209	2	67	45	92	2	85	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.97			1.00			0.96			0.99	
Flpb, ped/bikes		1.00			0.97			0.97			1.00	
Frt		0.98			1.00			0.94			0.98	
Flt Protected		1.00			0.99			0.98			1.00	
Satd. Flow (prot)		1540			1565			1405			1705	
Flt Permitted		0.99			0.84			0.87			1.00	
Satd. Flow (perm)		1523			1334			1243			1699	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	257	42	82	227	2	73	49	100	2	92	13
RTOR Reduction (vph)	0	8	0	0	1	0	0	42	0	0	7	0
Lane Group Flow (vph)	0	302	0	0	311	0	0	180	0	0	100	0
Confl. Peds. (#/hr)	85		95	95		82	60		39	39		60
Heavy Vehicles (%)	0%	4%	3%	0%	4%	0%	3%	2%	5%	50%	1%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		35.0			35.0			25.0				25.0
Effective Green, g (s)		35.0			35.0			25.0				25.0
Actuated g/C Ratio		0.50			0.50			0.36				0.36
Clearance Time (s)		5.0			5.0			5.0				5.0
Lane Grp Cap (vph)		761			667			443				606
v/s Ratio Prot												
v/s Ratio Perm		0.20			c0.23			c0.14				0.06
v/c Ratio		0.40			0.47			0.41				0.16
Uniform Delay, d1		10.9			11.4			16.9				15.4
Progression Factor		0.83			1.00			1.00				1.00
Incremental Delay, d2		1.5			2.3			2.7				0.6
Delay (s)		10.6			13.7			19.7				16.0
Level of Service		B			B			B				B
Approach Delay (s)		10.6			13.7			19.7				16.0
Approach LOS		B			B			B				B
Intersection Summary												
HCM 2000 Control Delay			14.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			63.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
9: Campbell Ave & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak























						
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	18	362	58	231	265	74
v/c Ratio	0.05	0.29	0.16	0.18	0.29	0.09
Control Delay	14.2	14.9	15.8	14.5	8.7	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	14.9	15.8	14.5	8.7	10.7
Queue Length 50th (m)	1.5	16.6	5.1	10.5	13.4	4.9
Queue Length 95th (m)	5.2	25.8	12.6	17.5	27.2	11.6
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	382	1252	359	1257	905	800
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.29	0.16	0.18	0.29	0.09
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

9: Campbell Ave & University Avenue

Existing Balanced Volumes

















Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	17	297	36	53	205	7	32	82	130	14	45	9
Future Volume (vph)	17	297	36	53	205	7	32	82	130	14	45	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00			0.99			1.00	
Flpb, ped/bikes	0.97	1.00		0.96	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.93			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1464	3041		1581	3073			1913			1835	
Flt Permitted	0.61	1.00		0.53	1.00			0.96			0.93	
Satd. Flow (perm)	937	3041		882	3073			1849			1726	
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)	18	323	39	58	223	8	35	89	141	15	49	10
RTOR Reduction (vph)	0	12	0	0	4	0	0	54	0	0	5	0
Lane Group Flow (vph)	18	350	0	58	227	0	0	211	0	0	69	0
Confl. Peds. (#/hr)	21		28	28		21	16		12	12		16
Heavy Vehicles (%)	18%	3%	0%	4%	6%	0%	0%	4%	2%	7%	11%	11%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.46			0.46	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	382	1240		359	1253			851			794	
v/s Ratio Prot		c0.11			0.07							
v/s Ratio Perm	0.02			0.07				c0.11			0.04	
v/c Ratio	0.05	0.28		0.16	0.18			0.25			0.09	
Uniform Delay, d1	13.6	15.1		14.3	14.4			12.5			11.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	0.6		1.0	0.3			0.7			0.2	
Delay (s)	13.8	15.6		15.2	14.7			13.2			11.7	
Level of Service	B	B		B	B			B			B	
Approach Delay (s)		15.5			14.8			13.2			11.7	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.4									B
HCM 2000 Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			76.0						10.0			
Intersection Capacity Utilization			55.8%									B
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 12: McKay Ave & University Avenue

Existing Balanced Volumes
 Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	377	2	1	281	5	1	1	1	7	0	9
Future Volume (Veh/h)	4	377	2	1	281	5	1	1	1	7	0	9
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	410	2	1	305	5	1	1	1	8	0	10
Pedestrians		1			1			5			20	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			59							
pX, platoon unblocked	1.00						1.00	1.00		1.00	1.00	1.00
vC, conflicting volume	330			417			590	756	212	545	754	176
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	317			417			578	745	212	533	744	162
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 %	100			100			100	100	100	98	100	99
cM capacity (veh/h)	1224			1147			386	333	795	413	334	838
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	209	207	154	158	3	18						
Volume Left	4	0	1	0	1	8						
Volume Right	0	2	0	5	1	10						
cSH	1224	1700	1147	1700	438	575						
Volume to Capacity	0.00	0.12	0.00	0.09	0.01	0.03						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.2	0.7						
Control Delay (s)	0.2	0.0	0.1	0.0	13.3	11.5						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.1		0.0		13.3	11.5						
Approach LOS					B	B						
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			23.6%		ICU Level of Service					A		
Analysis Period (min)			15									


















Queues
15: Victoria Ave & Park St W

Existing Balanced Volumes
Timing Plan: AM Peak

	→	←	↓
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	50	286	229
v/c Ratio	0.07	0.48	0.09
Control Delay	7.1	18.9	10.3
Queue Delay	0.0	0.0	0.0
Total Delay	7.1	18.9	10.3
Queue Length 50th (m)	1.4	28.3	4.7
Queue Length 95th (m)	7.0	49.0	7.5
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	698	590	2571
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.07	0.48	0.09
Intersection Summary			








HCM Signalized Intersection Capacity Analysis
 15: Victoria Ave & Park St W

Existing Balanced Volumes
 Timing Plan: AM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations											  		
Traffic Volume (vph)	0	17	29	180	83	0	0	0	0	29	159	22	
Future Volume (vph)	0	17	29	180	83	0	0	0	0	29	159	22	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	
Total Lost time (s)		5.0			5.0						5.0		
Lane Util. Factor		1.00			1.00						0.86		
Frbp, ped/bikes		0.97			1.00						0.99		
Flpb, ped/bikes		1.00			0.98						0.99		
Frt		0.91			1.00						0.98		
Flt Protected		1.00			0.97						0.99		
Satd. Flow (prot)		1566			1722						5892		
Flt Permitted		1.00			0.76						0.99		
Satd. Flow (perm)		1566			1360						5892		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	18	32	196	90	0	0	0	0	32	173	24	
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	14	0	
Lane Group Flow (vph)	0	32	0	0	286	0	0	0	0	0	215	0	
Confl. Peds. (#/hr)			40	40							43	38	
Heavy Vehicles (%)	0%	12%	3%	4%	1%	0%	0%	0%	0%	0%	3%	4%	
Parking (#/hr)												0	
Turn Type		NA		Perm	NA						Perm	NA	
Protected Phases		4			4							2	
Permitted Phases				4						2			
Actuated Green, G (s)		33.0			33.0							33.0	
Effective Green, g (s)		33.0			33.0							33.0	
Actuated g/C Ratio		0.43			0.43							0.43	
Clearance Time (s)		5.0			5.0							5.0	
Lane Grp Cap (vph)		679			590							2558	
v/s Ratio Prot		0.02											
v/s Ratio Perm					c0.21							0.04	
v/c Ratio		0.05			0.48							0.08	
Uniform Delay, d1		12.4			15.4							12.6	
Progression Factor		1.00			1.00							0.90	
Incremental Delay, d2		0.1			2.8							0.1	
Delay (s)		12.5			18.2							11.4	
Level of Service		B			B							B	
Approach Delay (s)		12.5			18.2			0.0				11.4	
Approach LOS		B			B			A				B	
Intersection Summary													
HCM 2000 Control Delay			15.0									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.28										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			49.3%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													




















Queues
17: Crawford Ave & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

							
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	475	43	24	304	301	80
v/c Ratio	0.06	0.47	0.06	0.07	0.18	0.47	0.12
Control Delay	9.3	13.3	3.4	6.3	6.1	18.1	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	13.3	3.4	6.3	6.1	18.1	15.3
Queue Length 50th (m)	2.1	40.1	0.0	1.0	6.2	25.7	6.4
Queue Length 95th (m)	6.0	62.5	4.1	3.0	9.5	46.7	15.1
Internal Link Dist (m)		448.7			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	498	1004	667	360	1658	646	654
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.47	0.06	0.07	0.18	0.47	0.12
Intersection Summary							

HCM Signalized Intersection Capacity Analysis
 17: Crawford Ave & University Avenue

Existing Balanced Volumes
 Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	437	40	22	266	14	66	81	130	7	53	13
Future Volume (vph)	29	437	40	22	266	14	66	81	130	7	53	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.94	1.00	0.99			0.98			1.00	
Flpb, ped/bikes	0.94	1.00	1.00	0.98	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.94			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1586	1908	1230	1649	3141			1925			1946	
Flt Permitted	0.57	1.00	1.00	0.39	1.00			0.91			0.96	
Satd. Flow (perm)	946	1908	1230	685	3141			1769			1887	
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)	32	475	43	24	289	15	72	88	141	8	58	14
RTOR Reduction (vph)	0	0	20	0	5	0	0	41	0	0	9	0
Lane Group Flow (vph)	32	475	23	24	299	0	0	260	0	0	71	0
Confl. Peds. (#/hr)	40		19	19		40	13		9	9		13
Heavy Vehicles (%)	0%	4%	1%	4%	4%	7%	0%	1%	3%	0%	6%	15%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53			0.34			0.34	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	497	1004	647	360	1653			605			645	
v/s Ratio Prot		c0.25			0.10							
v/s Ratio Perm	0.03		0.02	0.04				c0.15			0.04	
v/c Ratio	0.06	0.47	0.03	0.07	0.18			0.43			0.11	
Uniform Delay, d1	8.8	11.4	8.7	8.8	9.4			19.3			17.1	
Progression Factor	1.00	1.00	1.00	0.65	0.63			1.00			1.00	
Incremental Delay, d2	0.2	1.6	0.1	0.3	0.2			2.2			0.3	
Delay (s)	9.1	13.0	8.8	6.1	6.2			21.5			17.4	
Level of Service	A	B	A	A	A			C			B	
Approach Delay (s)		12.4			6.2			21.5			17.4	
Approach LOS		B			A			C			B	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

















Queues
20: Church St & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	533	241	81	103
v/c Ratio	0.53	0.23	0.19	0.24
Control Delay	11.4	5.6	19.5	16.4
Queue Delay	1.6	0.0	0.0	0.0
Total Delay	13.1	5.6	19.5	16.4
Queue Length 50th (m)	62.3	6.2	7.2	7.1
Queue Length 95th (m)	92.9	10.5	17.4	18.5
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	1005	1062	428	422
Starvation Cap Reductn	295	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.75	0.23	0.19	0.24
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 20: Church St & University Avenue

Existing Balanced Volumes
 Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	396	32	10	201	11	17	43	15	13	46	36
Future Volume (vph)	63	396	32	10	201	11	17	43	15	13	46	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.98			0.97	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.99			0.99			0.97			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1768			1792			1677			1544	
Flt Permitted		0.93			0.98			0.93			0.96	
Satd. Flow (perm)		1656			1754			1583			1498	
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)	68	430	35	11	218	12	18	47	16	14	50	39
RTOR Reduction (vph)	0	3	0	0	2	0	0	12	0	0	29	0
Lane Group Flow (vph)	0	530	0	0	239	0	0	69	0	0	74	0
Confl. Peds. (#/hr)	35		51	51		35	26		42	42		26
Heavy Vehicles (%)	8%	3%	0%	0%	7%	0%	0%	5%	20%	0%	4%	22%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		46.0			46.0			20.0			20.0	
Actuated g/C Ratio		0.61			0.61			0.26			0.26	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1002			1061			416			394	
v/s Ratio Prot												
v/s Ratio Perm		c0.32			0.14			0.04			c0.05	
v/c Ratio		0.53			0.22			0.17			0.19	
Uniform Delay, d1		8.7			6.9			21.6			21.7	
Progression Factor		1.07			0.75			1.00			1.00	
Incremental Delay, d2		1.9			0.5			0.9			1.1	
Delay (s)		11.2			5.6			22.4			22.8	
Level of Service		B			A			C			C	
Approach Delay (s)		11.2			5.6			22.4			22.8	
Approach LOS		B			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			12.0				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			66.0%				ICU Level of Service		C			
Analysis Period (min)			15									

c Critical Lane Group

Queues
23: Victoria Ave & University Avenue
















Existing Balanced Volumes
Timing Plan: AM Peak

	→	←	↓
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	425	336	186
v/c Ratio	0.37	0.34	0.51
Control Delay	1.8	7.7	28.0
Queue Delay	0.0	0.7	0.0
Total Delay	1.8	8.4	28.0
Queue Length 50th (m)	3.0	19.9	20.6
Queue Length 95th (m)	7.3	36.1	37.4
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1140	986	543
Starvation Cap Reductn	0	349	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.37	0.53	0.34
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

23: Victoria Ave & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	17	286	88	67	233	9	0	0	0	26	110	35		
Future Volume (vph)	17	286	88	67	233	9	0	0	0	26	110	35		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7		
Total Lost time (s)		5.0			5.0						5.0			
Lane Util. Factor		1.00			1.00						1.00			
Frbp, ped/bikes		0.99			1.00						0.96			
Flpb, ped/bikes		1.00			0.99						0.98			
Frt		0.97			1.00						0.97			
Flt Protected		1.00			0.99						0.99			
Satd. Flow (prot)		1760			1767						1616			
Flt Permitted		0.98			0.85						0.99			
Satd. Flow (perm)		1732			1512						1616			
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)	18	311	96	73	253	10	0	0	0	28	120	38		
RTOR Reduction (vph)	0	10	0	0	1	0	0	0	0	0	14	0		
Lane Group Flow (vph)	0	415	0	0	335	0	0	0	0	0	172	0		
Confl. Peds. (#/hr)	58		48	48		58	95		52	52		95		
Heavy Vehicles (%)	41%	3%	4%	9%	6%	22%	0%	0%	0%	0%	3%	0%		
Parking (#/hr)		0			0									
Turn Type	Perm	NA		Perm	NA					Perm	NA			
Protected Phases		2			2						4			
Permitted Phases	2			2						4				
Actuated Green, G (s)		49.5			49.5						16.5			
Effective Green, g (s)		49.5			49.5						16.5			
Actuated g/C Ratio		0.65			0.65						0.22			
Clearance Time (s)		5.0			5.0						5.0			
Vehicle Extension (s)		4.0			4.0						4.0			
Lane Grp Cap (vph)		1128			984						350			
v/s Ratio Prot														
v/s Ratio Perm		c0.24			0.22						0.11			
v/c Ratio		0.37			0.34						0.49			
Uniform Delay, d1		6.1			5.9						26.1			
Progression Factor		0.16			1.00						1.00			
Incremental Delay, d2		0.8			0.9						1.5			
Delay (s)		1.8			6.9						27.6			
Level of Service		A			A						C			
Approach Delay (s)		1.8			6.9			0.0			27.6			
Approach LOS		A			A			A			C			
Intersection Summary														
HCM 2000 Control Delay			8.6									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.40											
Actuated Cycle Length (s)			76.0								10.0			
Intersection Capacity Utilization			66.7%										ICU Level of Service	C
Analysis Period (min)			15											

c Critical Lane Group

























Queues
26: Ouellette Ave & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	399	262	29	147	20	164
v/c Ratio	0.34	0.36	0.08	0.24	0.06	0.27
Control Delay	14.5	17.4	13.6	10.9	13.2	12.9
Queue Delay	1.5	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	17.4	13.6	10.9	13.2	12.9
Queue Length 50th (m)	18.1	19.6	2.4	9.0	1.6	12.0
Queue Length 95th (m)	28.0	41.8	7.1	20.1	5.4	24.3
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1168	730	342	606	352	613
Starvation Cap Reductn	566	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.36	0.08	0.24	0.06	0.27
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
26: Ouellette Ave & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	 		 	 	
Traffic Volume (vph)	49	280	39	16	200	26	27	91	44	18	115	36
Future Volume (vph)	49	280	39	16	200	26	27	91	44	18	115	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.94		1.00	0.92	
Flpb, ped/bikes		0.98			0.99		0.75	1.00		0.85	1.00	
Fr t		0.98			0.99		1.00	0.95		1.00	0.96	
Fl t Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3006			1723		1146	1344		1163	1378	
Fl t Permitted		0.88			0.97		0.65	1.00		0.66	1.00	
Satd. Flow (perm)		2662			1668		788	1344		812	1378	
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	304	42	17	217	28	29	99	48	20	125	39
RTOR Reduction (vph)	0	12	0	0	6	0	0	23	0	0	15	0
Lane Group Flow (vph)	0	387	0	0	256	0	29	124	0	20	149	0
Confl. Peds. (#/hr)	118		87	87		118	142		136	136		142
Heavy Vehicles (%)	4%	3%	5%	0%	9%	0%	0%	12%	5%	11%	7%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Actuated g/C Ratio		0.43			0.43		0.43	0.43		0.43	0.43	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1155			724		342	583		352	598	
v/s Ratio Prot								0.09				c0.11
v/s Ratio Perm		0.15			c0.15		0.04			0.02		
v/c Ratio		0.34			0.35		0.08	0.21		0.06	0.25	
Uniform Delay, d1		14.2			14.4		12.6	13.4		12.5	13.6	
Progression Factor		1.00			1.13		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			1.3		0.5	0.8		0.3	1.0	
Delay (s)		15.0			17.5		13.1	14.2		12.8	14.6	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		15.0			17.5			14.0			14.4	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			15.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			62.2%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group

















Queues
29: Goyeau St & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	355	290	120	234
v/c Ratio	0.46	0.39	0.17	0.23
Control Delay	8.4	15.0	12.8	13.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.4	15.0	12.8	13.8
Queue Length 50th (m)	7.4	25.2	8.9	9.9
Queue Length 95th (m)	59.8	43.1	18.8	17.2
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	769	742	698	1027
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.46	0.39	0.17	0.23
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
29: Goyeau St & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	190	98	39	202	26	21	68	21	52	137	26
Future Volume (vph)	38	190	98	39	202	26	21	68	21	52	137	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.96			0.99			0.97			0.98	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1725			1742			1806			2841	
Flt Permitted		0.94			0.91			0.92			0.86	
Satd. Flow (perm)		1627			1603			1685			2483	
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	207	107	42	220	28	23	74	23	57	149	28
RTOR Reduction (vph)	0	21	0	0	5	0	0	11	0	0	14	0
Lane Group Flow (vph)	0	335	0	0	285	0	0	109	0	0	220	0
Confl. Peds. (#/hr)	23		27	27		23	26		20	20		26
Heavy Vehicles (%)	0%	7%	2%	0%	8%	11%	9%	0%	0%	23%	3%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		35.0			35.0			31.0			31.0	
Actuated g/C Ratio		0.46			0.46			0.41			0.41	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		749			738			687			1012	
v/s Ratio Prot												
v/s Ratio Perm		c0.21			0.18			0.06			c0.09	
v/c Ratio		0.45			0.39			0.16			0.22	
Uniform Delay, d1		13.9			13.5			14.2			14.6	
Progression Factor		0.51			1.00			1.00			1.00	
Incremental Delay, d2		1.9			1.5			0.5			0.5	
Delay (s)		8.9			15.0			14.7			15.1	
Level of Service		A			B			B			B	
Approach Delay (s)		8.9			15.0			14.7			15.1	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group























Queues
32: McDougall St & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	219	50	136	185	188	1	18
v/c Ratio	0.12	0.38	0.17	0.26	0.32	0.19	0.00	0.02
Control Delay	18.4	10.7	19.4	19.1	9.7	12.6	7.0	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	10.7	19.4	19.1	9.7	12.6	7.0	14.3
Queue Length 50th (m)	4.0	9.1	4.7	12.7	11.3	6.6	0.1	0.7
Queue Length 95th (m)	10.7	24.6	12.3	25.3	21.1	13.1	0.6	2.6
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	345	579	288	520	587	1003	580	968
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.38	0.17	0.26	0.32	0.19	0.00	0.02
Intersection Summary								

HCM Signalized Intersection Capacity Analysis
32: McDougall St & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	40	76	125	46	119	6	170	130	43	1	15	2
Future Volume (vph)	40	76	125	46	119	6	170	130	43	1	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.91		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1559	1574		1515	1647		1388	2839		1524	2821	
Flt Permitted	0.67	1.00		0.57	1.00		0.75	1.00		0.63	1.00	
Satd. Flow (perm)	1100	1574		917	1647		1088	2839		1016	2821	
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)	43	83	136	50	129	7	185	141	47	1	16	2
RTOR Reduction (vph)	0	84	0	0	3	0	0	31	0	0	1	0
Lane Group Flow (vph)	43	135	0	50	133	0	185	157	0	1	17	0
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	10%	0%	13%	0%	2%	0%	8%	10%	2%	0%	13%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		34.0	24.0		34.0	24.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		34.0	24.0		34.0	24.0	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.49	0.34		0.49	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	345	494		288	517		571	973		566	967	
v/s Ratio Prot		c0.09			0.08		c0.05	0.06		0.00	0.01	
v/s Ratio Perm	0.04			0.05			c0.11			0.00		
v/c Ratio	0.12	0.27		0.17	0.26		0.32	0.16		0.00	0.02	
Uniform Delay, d1	17.1	18.0		17.4	17.9		10.7	16.0		9.3	15.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.4		1.3	1.2		1.5	0.4		0.0	0.0	
Delay (s)	17.9	19.4		18.7	19.1		12.2	16.4		9.3	15.2	
Level of Service	B	B		B	B		B	B		A	B	
Approach Delay (s)		19.1			19.0			14.3			14.9	
Approach LOS		B			B			B			B	

















Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

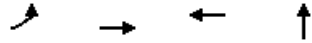
35: Sunset Ave & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	197	21	20	232	4	15	15	18	2	16	11
Future Volume (Veh/h)	3	197	21	20	232	4	15	15	18	2	16	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)	3	214	23	22	252	4	16	16	20	2	17	12
Pedestrians		10			15			25			13	
Lane Width (m)		3.5			3.5			4.0			4.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		306			42							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	269			262			585	570	266	586	579	277
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	228			262			554	538	266	555	548	236
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.1	3.3
p0 queue free %	100			98			96	96	97	99	96	98
cM capacity (veh/h)	1291			1279			379	412	747	378	399	764
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	240	278	52	31								
Volume Left	3	22	16	2								
Volume Right	23	4	20	12								
cSH	1291	1279	482	488								
Volume to Capacity	0.00	0.02	0.11	0.06								
Queue Length 95th (m)	0.1	0.4	2.7	1.5								
Control Delay (s)	0.1	0.8	13.4	12.9								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	0.8	13.4	12.9								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			41.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
38: Bruce Ave & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak




















Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	24	452	263	165
v/c Ratio	0.04	0.46	0.28	0.27
Control Delay	6.0	11.1	12.8	17.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.0	11.1	12.8	17.1
Queue Length 50th (m)	1.4	44.7	22.4	14.3
Queue Length 95th (m)	m3.0	74.0	34.2	28.0
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	564	991	937	617
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	13	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.46	0.28	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
38: Bruce Ave & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	416	0	0	209	33	66	44	41	0	0	0
Future Volume (vph)	22	416	0	0	209	33	66	44	41	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frbp, ped/bikes	1.00	1.00			0.99			0.98				
Flpb, ped/bikes	0.97	1.00			1.00			0.99				
Frt	1.00	1.00			0.98			0.96				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1709	1838			1723			1825				
Flt Permitted	0.58	1.00			1.00			0.98				
Satd. Flow (perm)	1048	1838			1723			1825				
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)	24	452	0	0	227	36	72	48	45	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	17	0	0	0	0
Lane Group Flow (vph)	24	452	0	0	256	0	0	148	0	0	0	0
Confl. Peds. (#/hr)	27		19	19		27	11		17	17		11
Heavy Vehicles (%)	4%	2%	0%	0%	9%	6%	3%	2%	24%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	41.0	41.0			41.0			25.0				
Actuated g/C Ratio	0.54	0.54			0.54			0.33				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	565	991			929			600				
v/s Ratio Prot		c0.25			0.15							
v/s Ratio Perm	0.02							0.08				
v/c Ratio	0.04	0.46			0.28			0.25				
Uniform Delay, d1	8.2	10.7			9.5			18.6				
Progression Factor	0.70	0.88			1.32			1.00				
Incremental Delay, d2	0.1	1.4			0.7			1.0				
Delay (s)	5.9	10.7			13.2			19.6				
Level of Service	A	B			B			B				
Approach Delay (s)		10.5			13.2			19.6			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.0				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			45.8%				ICU Level of Service		A			
Analysis Period (min)			15									

c Critical Lane Group

Queues
40: Pelissier St & University Avenue

Existing Balanced Volumes
Timing Plan: AM Peak


















	→	←	↑
Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	332	273	213
v/c Ratio	0.38	0.32	0.19
Control Delay	13.5	12.8	9.7
Queue Delay	0.8	3.9	0.0
Total Delay	14.3	16.7	9.7
Queue Length 50th (m)	26.5	20.8	6.0
Queue Length 95th (m)	43.8	35.8	12.4
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	877	844	1151
Starvation Cap Reductn	289	479	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.56	0.75	0.19
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

40: Pelissier St & University Avenue

Existing Balanced Volumes

Timing Plan: AM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	9	296	0	0	243	8	72	57	67	0	0	0	
Future Volume (vph)	9	296	0	0	243	8	72	57	67	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7	
Total Lost time (s)		5.0			5.0			5.0					
Lane Util. Factor		1.00			1.00			0.95					
Frbp, ped/bikes		1.00			1.00			0.99					
Flpb, ped/bikes		1.00			1.00			0.98					
Frt		1.00			1.00			0.95					
Flt Protected		1.00			1.00			0.98					
Satd. Flow (prot)		1878			1786			2868					
Flt Permitted		0.99			1.00			0.98					
Satd. Flow (perm)		1862			1786			2868					
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	322	0	0	264	9	78	62	73	0	0	0	
RTOR Reduction (vph)	0	0	0	0	2	0	0	45	0	0	0	0	
Lane Group Flow (vph)	0	332	0	0	271	0	0	168	0	0	0	0	
Confl. Peds. (#/hr)	47		50	50		47	25		14	14		25	
Heavy Vehicles (%)	0%	3%	0%	0%	8%	0%	0%	4%	1%	0%	0%	0%	
Turn Type	Perm	NA			NA		Perm	NA					
Protected Phases		2			2			4					
Permitted Phases	2						4						
Actuated Green, G (s)		33.0			33.0			27.0					
Effective Green, g (s)		33.0			33.0			27.0					
Actuated g/C Ratio		0.47			0.47			0.39					
Clearance Time (s)		5.0			5.0			5.0					
Lane Grp Cap (vph)		877			841			1106					
v/s Ratio Prot					0.15								
v/s Ratio Perm		c0.18						0.06					
v/c Ratio		0.38			0.32			0.15					
Uniform Delay, d1		11.9			11.5			14.0					
Progression Factor		1.00			1.00			1.00					
Incremental Delay, d2		1.2			1.0			0.3					
Delay (s)		13.1			12.5			14.3					
Level of Service		B			B			B					
Approach Delay (s)		13.1			12.5			14.3				0.0	
Approach LOS		B			B			B				A	
Intersection Summary													
HCM 2000 Control Delay			13.3				HCM 2000 Level of Service		B				
HCM 2000 Volume to Capacity ratio			0.28										
Actuated Cycle Length (s)			70.0				Sum of lost time (s)		10.0				
Intersection Capacity Utilization			48.7%				ICU Level of Service		A				
Analysis Period (min)			15										

c Critical Lane Group

Queues
3: Huron Church Rd & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak



















	→	↘	↙	←	↑	↓
Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	143	55	174	160	224	149
v/c Ratio	0.18	0.08	0.33	0.20	0.17	0.18
Control Delay	13.9	4.3	25.1	20.7	7.4	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	4.3	25.1	20.7	7.4	13.7
Queue Length 50th (m)	12.1	0.0	22.3	19.0	5.1	12.4
Queue Length 95th (m)	22.6	5.8	45.6	40.4	11.2	23.1
Internal Link Dist (m)	117.8			283.7	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	804	658	522	795	1319	815
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.08	0.33	0.20	0.17	0.18
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

3: Huron Church Rd & University Avenue

Existing Balanced Volumes

Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	127	51	160	127	20	46	64	96	8	124	5
Future Volume (vph)	5	127	51	160	127	20	46	64	96	8	124	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frpb, ped/bikes		1.00	0.88	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Fr t		1.00	0.85	1.00	0.98			0.93			1.00	
Fl t Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1863	1444	1717	1816			3305			1904	
Fl t Permitted		0.99	1.00	0.67	1.00			0.87			0.98	
Satd. Flow (perm)		1853	1444	1203	1816			2903			1875	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	138	55	174	138	22	50	70	104	9	135	5
RTOR Reduction (vph)	0	0	31	0	7	0	0	59	0	0	2	0
Lane Group Flow (vph)	0	143	24	174	153	0	0	165	0	0	147	0
Confl. Peds. (#/hr)	11		54	54		11	9		6	6		9
Heavy Vehicles (%)	0%	3%	0%	1%	0%	30%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Actuated g/C Ratio		0.43	0.43	0.43	0.43			0.43			0.43	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		804	627	522	788			1260			814	
v/s Ratio Prot					0.08							
v/s Ratio Perm		0.08	0.02	c0.14				0.06			c0.08	
v/c Ratio		0.18	0.04	0.33	0.19			0.13			0.18	
Uniform Delay, d1		13.2	12.4	14.2	13.3			12.9			13.2	
Progression Factor		1.00	1.00	1.58	1.61			1.00			1.00	
Incremental Delay, d2		0.5	0.1	1.7	0.5			0.2			0.5	
Delay (s)		13.7	12.5	24.2	21.9			13.1			13.7	
Level of Service		B	B	C	C			B			B	
Approach Delay (s)		13.3			23.1			13.1			13.7	
Approach LOS		B			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			17.0									B
HCM 2000 Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			76.0						10.0			
Intersection Capacity Utilization			69.9%									C
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: California Ave & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

















	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	304	449	292	45
v/c Ratio	0.41	0.58	0.61	0.08
Control Delay	9.3	8.9	24.2	16.7
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	10.1	8.9	24.2	16.7
Queue Length 50th (m)	19.9	51.1	28.9	3.9
Queue Length 95th (m)	11.1	85.9	53.7	10.6
Internal Link Dist (m)	59.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	733	780	480	539
Starvation Cap Reductn	196	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.57	0.58	0.61	0.08
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

6: California Ave & University Avenue

Existing Balanced Volumes







Timing Plan: PM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	54	216	9	57	351	5	60	102	107	3	34	5	
Future Volume (vph)	54	216	9	57	351	5	60	102	107	3	34	5	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7	
Total Lost time (s)		5.0			5.0			5.0			5.0		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frbp, ped/bikes		0.98			1.00			0.94			0.99		
Flpb, ped/bikes		0.98			0.96			0.98			1.00		
Frt		1.00			1.00			0.95			0.98		
Flt Protected		0.99			0.99			0.99			1.00		
Satd. Flow (prot)		1564			1567			1462			1656		
Flt Permitted		0.86			0.92			0.92			0.98		
Satd. Flow (perm)		1357			1446			1366			1630		
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	235	10	62	382	5	65	111	116	3	37	5	
RTOR Reduction (vph)	0	1	0	0	0	0	0	32	0	0	3	0	
Lane Group Flow (vph)	0	303	0	0	449	0	0	260	0	0	42	0	
Confl. Peds. (#/hr)	81		201	201		81	44		70	70		44	
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	3%	20%	
Parking (#/hr)		0			0			0					
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		2			2			4			4		
Permitted Phases	2			2			4			4			
Actuated Green, G (s)		41.0			41.0			25.0			25.0		
Effective Green, g (s)		41.0			41.0			25.0			25.0		
Actuated g/C Ratio		0.54			0.54			0.33			0.33		
Clearance Time (s)		5.0			5.0			5.0			5.0		
Lane Grp Cap (vph)		732			780			449			536		
v/s Ratio Prot													
v/s Ratio Perm		0.22			c0.31			c0.19			0.03		
v/c Ratio		0.41			0.58			0.58			0.08		
Uniform Delay, d1		10.4			11.7			21.1			17.6		
Progression Factor		0.71			0.48			1.00			1.00		
Incremental Delay, d2		1.7			3.0			5.4			0.3		
Delay (s)		9.0			8.6			26.5			17.8		
Level of Service		A			A			C			B		
Approach Delay (s)		9.0			8.6			26.5			17.8		
Approach LOS		A			A			C			B		
Intersection Summary													
HCM 2000 Control Delay			13.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			59.1%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

Queues
9: Campbell Ave & University Avenue

Existing Balanced Volumes

Timing Plan: PM Peak

						
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	27	397	154	437	254	99
v/c Ratio	0.08	0.33	0.47	0.33	0.30	0.12
Control Delay	16.0	15.3	14.3	8.7	10.5	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	15.3	14.3	8.7	10.5	10.3
Queue Length 50th (m)	2.2	17.5	7.3	10.5	15.6	6.4
Queue Length 95th (m)	m5.8	29.1	21.0	6.0	29.8	14.2
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	347	1210	329	1305	852	857
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.33	0.47	0.33	0.30	0.12























Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

9: Campbell Ave & University Avenue

















Existing Balanced Volumes
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	25	296	69	142	395	7	51	84	99	13	63	16
Future Volume (vph)	25	296	69	142	395	7	51	84	99	13	63	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	0.96	1.00		0.89	1.00			0.99			1.00	
Fr t	1.00	0.97		1.00	1.00			0.94			0.98	
Fl t Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1712	2902		1525	3198			1901			1920	
Fl t Permitted	0.47	1.00		0.50	1.00			0.92			0.95	
Satd. Flow (perm)	852	2902		807	3198			1773			1842	
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	322	75	154	429	8	55	91	108	14	68	17
RTOR Reduction (vph)	0	27	0	0	2	0	0	35	0	0	9	0
Lane Group Flow (vph)	27	370	0	154	435	0	0	219	0	0	90	0
Confl. Peds. (#/hr)	37		89	89		37	37		36	36		37
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%	4%	5%	1%	0%	5%	6%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.46			0.46	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	347	1183		329	1304			816			848	
v/s Ratio Prot		0.13			0.14							
v/s Ratio Perm	0.03			c0.19				c0.12			0.05	
v/c Ratio	0.08	0.31		0.47	0.33			0.27			0.11	
Uniform Delay, d1	13.8	15.3		16.5	15.4			12.6			11.6	
Progression Factor	1.09	1.06		0.54	0.52			1.00			1.00	
Incremental Delay, d2	0.4	0.6		4.7	0.7			0.8			0.3	
Delay (s)	15.5	16.9		13.7	8.7			13.4			11.9	
Level of Service	B	B		B	A			B			B	
Approach Delay (s)		16.8			10.0			13.4			11.9	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM 2000 Control Delay			12.9									B
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			76.0							10.0		
Intersection Capacity Utilization			57.0%									B
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 12: McKay Ave & University Avenue

Existing Balanced Volumes
 Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	350	7	7	431	10	3	1	5	8	0	13
Future Volume (Veh/h)	14	350	7	7	431	10	3	1	5	8	0	13
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)	15	380	8	8	468	11	3	1	5	9	0	14
Pedestrians								14			11	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			60							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	490			402			692	934	208	726	932	250
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	424			402			631	880	208	666	878	178
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			99	100	99	97	100	98
cM capacity (veh/h)	1105			1152			337	268	793	322	269	810
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	205	198	242	245	9	23						
Volume Left	15	0	8	0	3	9						
Volume Right	0	8	0	11	5	14						
cSH	1105	1700	1152	1700	475	508						
Volume to Capacity	0.01	0.12	0.01	0.14	0.02	0.05						
Queue Length 95th (m)	0.3	0.0	0.2	0.0	0.4	1.1						
Control Delay (s)	0.7	0.0	0.3	0.0	12.7	12.4						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.4		0.2		12.7	12.4						
Approach LOS					B	B						
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			30.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
15: Victoria Ave & Park St W

Existing Balanced Volumes
Timing Plan: PM Peak


















	→	←	↓
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	144	411	303
v/c Ratio	0.19	0.74	0.12
Control Delay	7.5	28.1	9.0
Queue Delay	0.0	0.0	0.0
Total Delay	7.5	28.1	9.0
Queue Length 50th (m)	5.6	47.3	4.3
Queue Length 95th (m)	15.4	#91.1	7.2
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	759	554	2537
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.19	0.74	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.








HCM Signalized Intersection Capacity Analysis
 15: Victoria Ave & Park St W

Existing Balanced Volumes
 Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	63	70	271	107	0	0	0	0	27	228	24
Future Volume (vph)	0	63	70	271	107	0	0	0	0	27	228	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		5.0			5.0						5.0	
Lane Util. Factor		1.00			1.00						0.86	
Frbp, ped/bikes		0.97			1.00						0.99	
Flpb, ped/bikes		1.00			0.98						0.99	
Frt		0.93			1.00						0.99	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1651			1767						5812	
Flt Permitted		1.00			0.70						1.00	
Satd. Flow (perm)		1651			1278						5812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	68	76	295	116	0	0	0	0	29	248	26
RTOR Reduction (vph)	0	43	0	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	101	0	0	411	0	0	0	0	0	288	0
Confl. Peds. (#/hr)			43	43						58		44
Heavy Vehicles (%)	0%	5%	1%	0%	1%	0%	0%	0%	0%	0%	5%	8%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA						Perm	NA
Protected Phases		4			4							2
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		33.0			33.0						33.0	
Actuated g/C Ratio		0.43			0.43						0.43	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		716			554						2523	
v/s Ratio Prot		0.06										
v/s Ratio Perm					c0.32						0.05	
v/c Ratio		0.14			0.74						0.11	
Uniform Delay, d1		13.0			17.9						12.8	
Progression Factor		1.00			1.00						0.75	
Incremental Delay, d2		0.4			8.7						0.1	
Delay (s)		13.4			26.6						9.7	
Level of Service		B			C						A	
Approach Delay (s)		13.4			26.6			0.0			9.7	
Approach LOS		B			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			18.4								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			76.0							10.0		
Intersection Capacity Utilization			74.0%								ICU Level of Service	D
Analysis Period (min)			15									
c Critical Lane Group												





















Queues
17: Crawford Ave & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

							
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	21	351	46	129	509	226	154
v/c Ratio	0.05	0.34	0.07	0.28	0.30	0.37	0.23
Control Delay	9.9	15.6	6.1	5.7	4.4	17.9	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	15.6	6.1	5.7	4.4	17.9	16.0
Queue Length 50th (m)	2.0	39.9	0.9	3.5	6.9	20.1	12.9
Queue Length 95th (m)	6.5	69.8	9.3	6.4	9.6	37.0	25.5
Internal Link Dist (m)		448.3			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	407	1024	661	465	1697	619	665
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.34	0.07	0.28	0.30	0.37	0.23
Intersection Summary							

HCM Signalized Intersection Capacity Analysis
 17: Crawford Ave & University Avenue

Existing Balanced Volumes
 Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	323	42	119	445	23	56	86	66	17	88	37
Future Volume (vph)	19	323	42	119	445	23	56	86	66	17	88	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.92	1.00	1.00			0.99			0.99	
Flpb, ped/bikes	0.97	1.00	1.00	0.97	1.00			1.00			1.00	
Fr _t	1.00	1.00	0.85	1.00	0.99			0.96			0.96	
Fl _t Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1635	1946	1216	1685	3214			1952			1975	
Fl _t Permitted	0.45	1.00	1.00	0.50	1.00			0.88			0.95	
Satd. Flow (perm)	773	1946	1216	886	3214			1744			1896	
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)	21	351	46	129	484	25	61	93	72	18	96	40
RTOR Reduction (vph)	0	0	22	0	5	0	0	22	0	0	16	0
Lane Group Flow (vph)	21	351	24	129	504	0	0	204	0	0	138	0
Confl. Peds. (#/hr)	28		28	28		28	15		16	16		15
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	6%	0%	0%	6%	0%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53			0.34			0.34	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	406	1024	640	466	1691			596			648	
v/s Ratio Prot		c0.18			0.16							
v/s Ratio Perm	0.03		0.02	0.15				c0.12			0.07	
v/c Ratio	0.05	0.34	0.04	0.28	0.30			0.34			0.21	
Uniform Delay, d1	8.8	10.4	8.7	10.0	10.1			18.6			17.7	
Progression Factor	1.07	1.38	1.89	0.41	0.40			1.00			1.00	
Incremental Delay, d2	0.2	0.9	0.1	1.3	0.4			1.6			0.7	
Delay (s)	9.6	15.2	16.6	5.4	4.5			20.2			18.5	
Level of Service	A	B	B	A	A			C			B	
Approach Delay (s)		15.1			4.7			20.2			18.5	
Approach LOS		B			A			C			B	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

















Queues
20: Church St & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	401	421	117	198
v/c Ratio	0.43	0.39	0.27	0.46
Control Delay	5.6	7.2	22.1	20.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.6	7.2	22.1	20.7
Queue Length 50th (m)	8.2	15.0	12.0	16.7
Queue Length 95th (m)	21.6	55.0	24.7	34.9
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	938	1083	431	434
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	29	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.40	0.27	0.46
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 20: Church St & University Avenue

Existing Balanced Volumes
 Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	267	49	17	335	36	30	62	16	18	80	84
Future Volume (vph)	53	267	49	17	335	36	30	62	16	18	80	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.98			0.98			0.95	
Flpb, ped/bikes		0.99			1.00			0.98			0.99	
Frt		0.98			0.99			0.98			0.94	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1704			1818			1785			1542	
Flt Permitted		0.90			0.98			0.89			0.97	
Satd. Flow (perm)		1540			1783			1610			1497	
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)	58	290	53	18	364	39	33	67	17	20	87	91
RTOR Reduction (vph)	0	7	0	0	5	0	0	8	0	0	41	0
Lane Group Flow (vph)	0	394	0	0	416	0	0	109	0	0	157	0
Confl. Peds. (#/hr)	77		42	42		77	41		69	69		41
Heavy Vehicles (%)	7%	5%	2%	0%	3%	0%	0%	0%	0%	5%	0%	14%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		46.0			46.0			20.0			20.0	
Actuated g/C Ratio		0.61			0.61			0.26			0.26	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		932			1079			423			393	
v/s Ratio Prot												
v/s Ratio Perm		c0.26			0.23			0.07			c0.11	
v/c Ratio		0.42			0.39			0.26			0.40	
Uniform Delay, d1		8.0			7.7			22.1			23.1	
Progression Factor		0.54			0.80			1.00			1.00	
Incremental Delay, d2		1.3			1.0			1.5			3.0	
Delay (s)		5.6			7.1			23.6			26.1	
Level of Service		A			A			C			C	
Approach Delay (s)		5.6			7.1			23.6			26.1	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			11.6				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			62.2%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group
















Queues
23: Victoria Ave & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

	→	←	↓
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	359	431	208
v/c Ratio	0.31	0.40	0.59
Control Delay	6.1	4.3	28.8
Queue Delay	0.0	0.1	0.0
Total Delay	6.1	4.4	28.8
Queue Length 50th (m)	33.0	11.9	21.4
Queue Length 95th (m)	49.9	19.5	39.1
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1154	1090	554
Starvation Cap Reductn	0	119	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.31	0.44	0.38
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
23: Victoria Ave & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	17	260	53	69	312	16	0	0	0	13	117	62	
Future Volume (vph)	17	260	53	69	312	16	0	0	0	13	117	62	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7	
Total Lost time (s)		5.0			5.0						5.0		
Lane Util. Factor		1.00			1.00						1.00		
Frbp, ped/bikes		0.99			1.00						0.95		
Flpb, ped/bikes		1.00			1.00						1.00		
Frt		0.98			0.99						0.96		
Flt Protected		1.00			0.99						1.00		
Satd. Flow (prot)		1767			1834						1614		
Flt Permitted		0.97			0.88						1.00		
Satd. Flow (perm)		1725			1636						1614		
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)	18	283	58	75	339	17	0	0	0	14	127	67	
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	0	0	27	0	
Lane Group Flow (vph)	0	352	0	0	430	0	0	0	0	0	181	0	
Confl. Peds. (#/hr)	32		50	50		32	61		25	25		61	
Heavy Vehicles (%)	41%	4%	4%	6%	3%	0%	0%	0%	0%	0%	3%	0%	
Parking (#/hr)		0			0								
Turn Type	Perm	NA		Perm	NA					Perm	NA		
Protected Phases		2			2						4		
Permitted Phases	2			2						4			
Actuated Green, G (s)		50.6			50.6						15.4		
Effective Green, g (s)		50.6			50.6						15.4		
Actuated g/C Ratio		0.67			0.67						0.20		
Clearance Time (s)		5.0			5.0						5.0		
Vehicle Extension (s)		4.0			4.0						4.0		
Lane Grp Cap (vph)		1148			1089						327		
v/s Ratio Prot													
v/s Ratio Perm		0.20			0.26						0.11		
v/c Ratio		0.31			0.39						0.55		
Uniform Delay, d1		5.3			5.8						27.2		
Progression Factor		0.90			0.47						1.00		
Incremental Delay, d2		0.7			1.0						2.5		
Delay (s)		5.5			3.7						29.7		
Level of Service		A			A						C		
Approach Delay (s)		5.5			3.7			0.0			29.7		
Approach LOS		A			A			A			C		
Intersection Summary													
HCM 2000 Control Delay			9.8									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			70.4%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

























Queues
26: Ouellette Ave & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	400	320	67	193	32	146
v/c Ratio	0.37	0.55	0.24	0.30	0.10	0.24
Control Delay	6.1	24.0	16.4	13.3	13.7	12.1
Queue Delay	0.5	0.1	0.0	0.0	0.0	0.0
Total Delay	6.6	24.0	16.4	13.3	13.7	12.1
Queue Length 50th (m)	6.8	38.1	5.8	14.5	2.6	10.1
Queue Length 95th (m)	11.0	67.4	14.4	28.1	7.6	21.4
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1067	585	283	645	336	611
Starvation Cap Reductn	304	0	0	0	0	0
Spillback Cap Reductn	0	9	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.56	0.24	0.30	0.10	0.24
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
26: Ouellette Ave & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	 		 	 	
Traffic Volume (vph)	86	248	34	30	235	29	62	132	46	29	100	34
Future Volume (vph)	86	248	34	30	235	29	62	132	46	29	100	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.92		1.00	0.89	
Flpb, ped/bikes		0.98			0.99		0.64	1.00		0.77	1.00	
Fr t		0.99			0.99		1.00	0.96		1.00	0.96	
Fl t Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3028			1427		933	1449		1161	1370	
Fl t Permitted		0.80			0.93		0.66	1.00		0.63	1.00	
Satd. Flow (perm)		2435			1338		652	1449		774	1370	
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)	93	270	37	33	255	32	67	143	50	32	109	37
RTOR Reduction (vph)	0	10	0	0	5	0	0	16	0	0	16	0
Lane Group Flow (vph)	0	390	0	0	315	0	67	177	0	32	130	0
Confl. Peds. (#/hr)	91		126	126		91	198		252	252		198
Heavy Vehicles (%)	1%	2%	0%	0%	37%	0%	5%	1%	0%	0%	1%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Actuated g/C Ratio		0.43			0.43		0.43	0.43		0.43	0.43	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1057			580		283	629		336	594	
v/s Ratio Prot								c0.12				0.09
v/s Ratio Perm		0.16			c0.24		0.10			0.04		
v/c Ratio		0.37			0.54		0.24	0.28		0.10	0.22	
Uniform Delay, d1		14.5			15.9		13.6	13.9		12.7	13.4	
Progression Factor		0.36			1.26		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			3.6		2.0	1.1		0.6	0.8	
Delay (s)		6.2			23.6		15.5	15.0		13.3	14.3	
Level of Service		A			C		B	B		B	B	
Approach Delay (s)		6.2			23.6			15.1			14.1	
Approach LOS		A			C			B			B	

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

















Queues
29: Goyeau St & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	423	257	218	207
v/c Ratio	0.53	0.33	0.30	0.21
Control Delay	18.0	12.0	15.4	11.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.0	12.0	15.4	11.9
Queue Length 50th (m)	51.2	23.7	18.8	7.5
Queue Length 95th (m)	73.9	39.4	33.7	14.2
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	793	788	734	991
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.53	0.33	0.30	0.21
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
29: Goyeau St & University Avenue









Existing Balanced Volumes
Timing Plan: PM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	48	275	66	20	177	40	22	145	33	50	99	41	
Future Volume (vph)	48	275	66	20	177	40	22	145	33	50	99	41	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7	
Total Lost time (s)		5.0			5.0			5.0			5.0		
Lane Util. Factor		1.00			1.00			1.00			0.95		
Frbp, ped/bikes		0.99			0.99			0.99			0.98		
Flpb, ped/bikes		1.00			1.00			0.99			1.00		
Frt		0.98			0.98			0.98			0.97		
Flt Protected		0.99			1.00			0.99			0.99		
Satd. Flow (prot)		1813			1770			1850			2788		
Flt Permitted		0.93			0.95			0.96			0.84		
Satd. Flow (perm)		1703			1691			1778			2367		
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)	52	299	72	22	192	43	24	158	36	54	108	45	
RTOR Reduction (vph)	0	10	0	0	10	0	0	9	0	0	27	0	
Lane Group Flow (vph)	0	413	0	0	247	0	0	209	0	0	180	0	
Confl. Peds. (#/hr)	16		34	34		16	32		10	10		32	
Heavy Vehicles (%)	2%	2%	1%	0%	5%	5%	0%	1%	0%	18%	3%	7%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			4			2			2		
Permitted Phases	4			4			2			2			
Actuated Green, G (s)		35.0			35.0			31.0			31.0		
Effective Green, g (s)		35.0			35.0			31.0			31.0		
Actuated g/C Ratio		0.46			0.46			0.41			0.41		
Clearance Time (s)		5.0			5.0			5.0			5.0		
Lane Grp Cap (vph)		784			778			725			965		
v/s Ratio Prot													
v/s Ratio Perm		c0.24			0.15			c0.12			0.08		
v/c Ratio		0.53			0.32			0.29			0.19		
Uniform Delay, d1		14.6			13.0			15.1			14.4		
Progression Factor		1.07			0.88			1.00			1.00		
Incremental Delay, d2		2.5			1.1			1.0			0.4		
Delay (s)		18.1			12.5			16.1			14.9		
Level of Service		B			B			B			B		
Approach Delay (s)		18.1			12.5			16.1			14.9		
Approach LOS		B			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			15.8									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.41										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			75.4%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

Queues
32: McDougall St & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	93	303	61	178	100	228	3	39
v/c Ratio	0.21	0.45	0.21	0.28	0.20	0.22	0.01	0.04
Control Delay	17.3	15.5	18.2	16.9	11.5	13.5	10.0	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	15.5	18.2	16.9	11.5	13.5	10.0	16.2
Queue Length 50th (m)	11.7	30.6	5.7	16.3	7.3	8.8	0.2	1.7
Queue Length 95th (m)	m22.7	49.9	14.1	30.1	15.1	16.2	1.5	4.8
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	438	678	294	634	494	1046	333	1037
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.45	0.21	0.28	0.20	0.22	0.01	0.04

Intersection Summary























m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

32: McDougall St & University Avenue

Existing Balanced Volumes

Timing Plan: PM Peak

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	86	125	154	56	147	17	92	159	51	3	32	4
Future Volume (vph)	86	125	154	56	147	17	92	159	51	3	32	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00		0.97	1.00	
Fr t	1.00	0.92		1.00	0.98		1.00	0.96		1.00	0.98	
Fl t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1627		1510	1647		1349	2844		1124	3145	
Fl t Permitted	0.64	1.00		0.49	1.00		0.68	1.00		0.61	1.00	
Satd. Flow (perm)	1150	1627		772	1647		960	2844		722	3145	
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)	93	136	167	61	160	18	100	173	55	3	35	4
RTOR Reduction (vph)	0	58	0	0	6	0	0	35	0	0	3	0
Lane Group Flow (vph)	93	245	0	61	172	0	100	193	0	3	36	0
Confl. Peds. (#/hr)	7		6	6		7	21		34	34		21
Heavy Vehicles (%)	0%	0%	10%	0%	1%	0%	10%	9%	0%	33%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		35.0	27.0		31.0	25.0	
Effective Green, g (s)	29.0	29.0		29.0	29.0		35.0	27.0		31.0	25.0	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.46	0.36		0.41	0.33	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	438	620		294	628		483	1010		326	1034	
v/s Ratio Prot		c0.15			0.10		c0.02	0.07		0.00	0.01	
v/s Ratio Perm	0.08			0.08			c0.07			0.00		
v/c Ratio	0.21	0.39		0.21	0.27		0.21	0.19		0.01	0.04	
Uniform Delay, d1	15.8	17.1		15.8	16.2		12.0	16.9		13.4	17.3	
Progression Factor	0.99	1.12		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	1.7		1.6	1.1		1.0	0.4		0.1	0.1	
Delay (s)	16.7	20.8		17.4	17.3		12.9	17.4		13.4	17.4	
Level of Service	B	C		B	B		B	B		B	B	
Approach Delay (s)		19.9			17.3			16.0			17.1	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

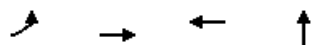
HCM Unsignalized Intersection Capacity Analysis
 35: Sunset Ave & University Avenue

Existing Balanced Volumes
 Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	213	2	28	318	4	18	11	29	7	7	8
Future Volume (Veh/h)	10	213	2	28	318	4	18	11	29	7	7	8
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	232	2	30	346	4	20	12	32	8	8	9
Pedestrians								71			6	
Lane Width (m)								4.0			4.0	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								8			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			42							
pX, platoon unblocked	0.95						0.95	0.95		0.95	0.95	0.95
vC, conflicting volume	356			305			747	742	304	707	741	354
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	296			305			707	702	304	665	701	294
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			97			93	96	95	97	97	99
cM capacity (veh/h)	1206			1172			274	308	685	300	308	708
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	245	380	64	25								
Volume Left	11	30	20	8								
Volume Right	2	4	32	9								
cSH	1206	1172	403	383								
Volume to Capacity	0.01	0.03	0.16	0.07								
Queue Length 95th (m)	0.2	0.6	4.2	1.6								
Control Delay (s)	0.4	0.9	15.6	15.1								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	0.9	15.6	15.1								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			38.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
38: Bruce Ave & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak




















Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	41	408	533	179
v/c Ratio	0.11	0.41	0.54	0.29
Control Delay	8.2	12.5	15.5	18.4
Queue Delay	0.0	0.0	0.4	0.0
Total Delay	8.2	12.5	15.9	18.4
Queue Length 50th (m)	3.8	49.7	68.3	16.7
Queue Length 95th (m)	9.8	80.1	102.6	31.3
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	365	991	986	628
Starvation Cap Reductn	0	0	137	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.41	0.63	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis

38: Bruce Ave & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	375	0	0	448	42	71	60	34	0	0	0
Future Volume (vph)	38	375	0	0	448	42	71	60	34	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frbp, ped/bikes	1.00	1.00			1.00			0.99				
Flpb, ped/bikes	0.99	1.00			1.00			0.99				
Frt	1.00	1.00			0.99			0.97				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1812	1838			1822			1874				
Flt Permitted	0.36	1.00			1.00			0.98				
Satd. Flow (perm)	678	1838			1822			1874				
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	408	0	0	487	46	77	65	37	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	12	0	0	0	0
Lane Group Flow (vph)	41	408	0	0	528	0	0	167	0	0	0	0
Confl. Peds. (#/hr)	15		17	17		15	14		16	16		14
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	3%	2%	23%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	41.0	41.0			41.0			25.0				
Actuated g/C Ratio	0.54	0.54			0.54			0.33				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	365	991			982			616				
v/s Ratio Prot		0.22			c0.29							
v/s Ratio Perm	0.06							0.09				
v/c Ratio	0.11	0.41			0.54			0.27				
Uniform Delay, d1	8.6	10.4			11.4			18.8				
Progression Factor	0.84	1.05			1.16			1.00				
Incremental Delay, d2	0.6	1.2			2.0			1.1				
Delay (s)	7.8	12.1			15.2			19.9				
Level of Service	A	B			B			B				
Approach Delay (s)		11.7			15.2			19.9			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			14.6				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			56.1%				ICU Level of Service		B			
Analysis Period (min)			15									

c Critical Lane Group

Queues
40: Pelissier St & University Avenue


















Existing Balanced Volumes
Timing Plan: PM Peak

	→	←	↑
Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	305	356	269
v/c Ratio	0.32	0.37	0.25
Control Delay	9.7	9.2	12.1
Queue Delay	0.3	1.1	0.0
Total Delay	10.0	10.3	12.1
Queue Length 50th (m)	13.8	16.2	9.1
Queue Length 95th (m)	21.9	23.6	17.2
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	952	950	1070
Starvation Cap Reductn	239	365	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.43	0.61	0.25
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

40: Pelissier St & University Avenue

Existing Balanced Volumes
Timing Plan: PM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	9	271	0	0	313	15	100	64	83	0	0	0	
Future Volume (vph)	9	271	0	0	313	15	100	64	83	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7	
Total Lost time (s)		5.0			5.0			5.0					
Lane Util. Factor		1.00			1.00			0.95					
Frbp, ped/bikes		1.00			1.00			0.98					
Flpb, ped/bikes		1.00			1.00			0.97					
Frt		1.00			0.99			0.95					
Flt Protected		1.00			1.00			0.98					
Satd. Flow (prot)		1878			1848			2850					
Flt Permitted		0.99			1.00			0.98					
Satd. Flow (perm)		1857			1848			2850					
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	295	0	0	340	16	109	70	90	0	0	0	
RTOR Reduction (vph)	0	0	0	0	2	0	0	58	0	0	0	0	
Lane Group Flow (vph)	0	305	0	0	354	0	0	211	0	0	0	0	
Confl. Peds. (#/hr)	50					50	34		35				
Heavy Vehicles (%)	0%	3%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	
Turn Type	Perm	NA			NA		Perm	NA					
Protected Phases		2			2			4					
Permitted Phases	2						4						
Actuated Green, G (s)		39.0			39.0			27.0					
Effective Green, g (s)		39.0			39.0			27.0					
Actuated g/C Ratio		0.51			0.51			0.36					
Clearance Time (s)		5.0			5.0			5.0					
Lane Grp Cap (vph)		952			948			1012					
v/s Ratio Prot					c0.19								
v/s Ratio Perm		0.16						0.07					
v/c Ratio		0.32			0.37			0.21					
Uniform Delay, d1		10.8			11.1			17.1					
Progression Factor		0.80			0.72			1.00					
Incremental Delay, d2		0.9			1.0			0.5					
Delay (s)		9.5			9.1			17.5					
Level of Service		A			A			B					
Approach Delay (s)		9.5			9.1			17.5				0.0	
Approach LOS		A			A			B				A	
Intersection Summary													
HCM 2000 Control Delay			11.7				HCM 2000 Level of Service		B				
HCM 2000 Volume to Capacity ratio			0.31										
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		10.0				
Intersection Capacity Utilization			47.3%				ICU Level of Service		A				
Analysis Period (min)			15										

c Critical Lane Group

Queues
1: Huron Church Rd & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	240	60	117	74	181	111
v/c Ratio	0.29	0.09	0.25	0.10	0.13	0.14
Control Delay	14.6	4.0	14.9	10.3	4.8	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	4.0	14.9	10.3	4.8	12.5
Queue Length 50th (m)	21.0	0.0	10.0	4.5	2.3	8.7
Queue Length 95th (m)	35.7	5.8	20.5	11.3	7.4	17.4
Internal Link Dist (m)	117.8			282.0	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	818	675	472	776	1361	818
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.09	0.25	0.10	0.13	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Huron Church Rd & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	1	220	55	108	52	16	21	30	115	10	87	5
Future Volume (vph)	1	220	55	108	52	16	21	30	115	10	87	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.90	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.94	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.97			0.90			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1830	1435	1777	1714			3120			1865	
Flt Permitted		1.00	1.00	0.57	1.00			0.92			0.97	
Satd. Flow (perm)		1829	1435	1058	1714			2891			1824	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	239	60	117	57	17	23	33	125	11	95	5
RTOR Reduction (vph)	0	0	33	0	9	0	0	69	0	0	2	0
Lane Group Flow (vph)	0	240	27	117	65	0	0	112	0	0	109	0
Confl. Peds. (#/hr)	6		47	47		6	6		1	1		6
Heavy Vehicles (%)	0%	5%	2%	0%	2%	31%	5%	3%	2%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		818	641	473	766			1293			816	
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.13	0.02	0.11				0.04			c0.06	
v/c Ratio		0.29	0.04	0.25	0.08			0.09			0.13	
Uniform Delay, d1		13.4	11.8	13.0	12.1			12.1			12.3	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		0.9	0.1	1.2	0.2			0.1			0.3	
Delay (s)		14.3	11.9	14.3	12.3			12.2			12.7	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		13.8			13.5			12.2			12.7	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Sunset Ave & University Avenue

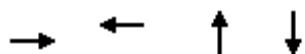
2018_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	3	210	21	20	253	4	15	15	18	2	16	11
Future Volume (Veh/h)	3	210	21	20	253	4	15	15	18	2	16	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)	3	228	23	22	275	4	16	16	20	2	17	12
Pedestrians		10			15			25			13	
Lane Width (m)		3.5			3.5			4.0			4.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		306			42							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	292			276			622	606	280	622	616	300
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	253			276			594	578	280	594	587	261
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.1	3.3
p0 queue free %	100			98			96	96	97	99	96	98
cM capacity (veh/h)	1265			1264			356	392	734	356	379	740
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	254	301	52	31								
Volume Left	3	22	16	2								
Volume Right	23	4	20	12								
cSH	1265	1264	460	465								
Volume to Capacity	0.00	0.02	0.11	0.07								
Queue Length 95th (m)	0.1	0.4	2.9	1.6								
Control Delay (s)	0.1	0.7	13.8	13.3								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	0.7	13.8	13.3								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			42.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	324	334	222	107
v/c Ratio	0.41	0.48	0.44	0.17
Control Delay	10.1	13.8	14.6	14.1
Queue Delay	0.7	0.0	0.0	0.0
Total Delay	10.8	13.8	14.6	14.1
Queue Length 50th (m)	22.9	26.1	14.2	8.2
Queue Length 95th (m)	15.6	46.1	31.5	17.7
Internal Link Dist (m)	61.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	792	696	506	638
Starvation Cap Reductn	204	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.48	0.44	0.17
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	10	249	39	75	230	2	67	45	92	2	85	12
Future Volume (vph)	10	249	39	75	230	2	67	45	92	2	85	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.97			1.00			0.96			0.99	
Flpb, ped/bikes		1.00			0.97			0.97			1.00	
Frt		0.98			1.00			0.94			0.98	
Flt Protected		1.00			0.99			0.98			1.00	
Satd. Flow (prot)		1544			1572			1406			1705	
Flt Permitted		0.99			0.85			0.88			1.00	
Satd. Flow (perm)		1527			1354			1251			1700	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	271	42	82	250	2	73	49	100	2	92	13
RTOR Reduction (vph)	0	8	0	0	0	0	0	42	0	0	7	0
Lane Group Flow (vph)	0	316	0	0	334	0	0	180	0	0	100	0
Confl. Peds. (#/hr)	85		95	95		82	60		39	39		60
Heavy Vehicles (%)	0%	4%	3%	0%	4%	0%	3%	2%	5%	50%	1%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		35.0			35.0			25.0			25.0	
Effective Green, g (s)		36.0			36.0			26.0			26.0	
Actuated g/C Ratio		0.51			0.51			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		785			696			464			631	
v/s Ratio Prot												
v/s Ratio Perm		0.21			0.25			0.14			0.06	
v/c Ratio		0.40			0.48			0.39			0.16	
Uniform Delay, d1		10.4			11.0			16.2			14.7	
Progression Factor		0.83			1.00			1.00			1.00	
Incremental Delay, d2		1.5			2.4			2.4			0.5	
Delay (s)		10.2			13.3			18.6			15.2	
Level of Service		B			B			B			B	
Approach Delay (s)		10.2			13.3			18.6			15.2	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak





















Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	18	376	58	246	269	77
v/c Ratio	0.05	0.29	0.16	0.19	0.29	0.09
Control Delay	13.5	14.4	15.3	14.0	8.5	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	14.4	15.3	14.0	8.5	10.3
Queue Length 50th (m)	1.5	16.9	5.0	11.0	13.5	5.0
Queue Length 95th (m)	5.1	26.1	12.4	18.1	27.1	11.7
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	389	1291	354	1297	925	812
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.29	0.16	0.19	0.29	0.09

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	17	307	39	53	219	7	36	82	130	17	45	9	
Future Volume (vph)	17	307	39	53	219	7	36	82	130	17	45	9	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0		
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00		
Frbp, ped/bikes	1.00	0.99		1.00	1.00			0.99			1.00		
Flpb, ped/bikes	0.97	1.00		0.97	1.00			1.00			1.00		
Frt	1.00	0.98		1.00	1.00			0.93			0.98		
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99		
Satd. Flow (prot)	1465	3038		1584	3074			1914			1835		
Flt Permitted	0.60	1.00		0.50	1.00			0.96			0.92		
Satd. Flow (perm)	924	3038		842	3074			1844			1706		
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)	18	334	42	58	238	8	39	89	141	18	49	10	
RTOR Reduction (vph)	0	13	0	0	3	0	0	52	0	0	5	0	
Lane Group Flow (vph)	18	363	0	58	243	0	0	217	0	0	72	0	
Confl. Peds. (#/hr)	21		28	28		21	16		12	12		16	
Heavy Vehicles (%)	18%	3%	0%	4%	6%	0%	0%	4%	2%	7%	11%	11%	
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0	
Parking (#/hr)		0			0								
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		2			2			4			4		
Permitted Phases	2			2			4			4			
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0		
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0		
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47		
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0		
Lane Grp Cap (vph)	389	1279		354	1294			873			808		
v/s Ratio Prot		c0.12			0.08								
v/s Ratio Perm	0.02			0.07				c0.12			0.04		
v/c Ratio	0.05	0.28		0.16	0.19			0.25			0.09		
Uniform Delay, d1	13.0	14.5		13.7	13.8			11.9			11.0		
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00		
Incremental Delay, d2	0.2	0.6		1.0	0.3			0.7			0.2		
Delay (s)	13.2	15.0		14.7	14.2			12.6			11.2		
Level of Service	B	B		B	B			B			B		
Approach Delay (s)		14.9			14.3			12.6			11.2		
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			0.27										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			53.3%									ICU Level of Service	A
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 5: McKay Ave & University Avenue

2018_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (veh/h)	4	387	2	1	295	5	1	1	1	7	0	9
Future Volume (Veh/h)	4	387	2	1	295	5	1	1	1	7	0	9
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	421	2	1	321	5	1	1	1	8	0	10
Pedestrians		1			1			5			20	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			59							
pX, platoon unblocked	1.00						1.00	1.00		1.00	1.00	1.00
vC, conflicting volume	346			428			608	783	218	566	782	184
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	337			428			601	776	218	558	774	175
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 %	100			100			100	100	100	98	100	99
cM capacity (veh/h)	1205			1137			372	321	788	396	321	825
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	214	212	162	166	3	18						
Volume Left	4	0	1	0	1	8						
Volume Right	0	2	0	5	1	10						
cSH	1205	1700	1137	1700	424	557						
Volume to Capacity	0.00	0.13	0.00	0.10	0.01	0.03						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.2	0.8						
Control Delay (s)	0.2	0.0	0.1	0.0	13.6	11.7						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.1		0.0		13.6	11.7						
Approach LOS					B	B						
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			23.9%	ICU Level of Service	A							
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	484	46	24	308	323	83
v/c Ratio	0.06	0.47	0.07	0.07	0.18	0.49	0.12
Control Delay	8.8	12.7	3.1	6.3	5.9	18.5	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	12.7	3.1	6.3	5.9	18.5	14.8
Queue Length 50th (m)	2.0	39.7	0.0	0.9	6.2	28.7	6.5
Queue Length 95th (m)	5.8	61.9	4.2	2.8	9.5	50.6	15.1
Internal Link Dist (m)		448.7			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	508	1029	684	358	1699	664	680
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.47	0.07	0.07	0.18	0.49	0.12

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	445	42	22	270	14	76	91	130	7	56	13
Future Volume (vph)	29	445	42	22	270	14	76	91	130	7	56	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.99			0.99			1.00	
Flpb, ped/bikes	0.94	1.00	1.00	0.98	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.94			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1586	1908	1230	1651	3141			1936			1949	
Flt Permitted	0.56	1.00	1.00	0.38	1.00			0.90			0.97	
Satd. Flow (perm)	943	1908	1230	664	3141			1767			1891	
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)	32	484	46	24	293	15	83	99	141	8	61	14
RTOR Reduction (vph)	0	0	21	0	5	0	0	37	0	0	9	0
Lane Group Flow (vph)	32	484	25	24	303	0	0	286	0	0	74	0
Confl. Peds. (#/hr)	40		19	19		40	13		9	9		13
Heavy Vehicles (%)	0%	4%	1%	4%	4%	7%	0%	1%	3%	0%	6%	15%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	508	1029	663	358	1694			627			671	
v/s Ratio Prot		c0.25			0.10							
v/s Ratio Perm	0.03		0.02	0.04				c0.16			0.04	
v/c Ratio	0.06	0.47	0.04	0.07	0.18			0.46			0.11	
Uniform Delay, d1	8.3	10.8	8.2	8.4	8.9			18.9			16.4	
Progression Factor	1.00	1.00	1.00	0.68	0.65			1.00			1.00	
Incremental Delay, d2	0.2	1.5	0.1	0.4	0.2			2.4			0.3	
Delay (s)	8.6	12.3	8.3	6.0	6.0			21.2			16.8	
Level of Service	A	B	A	A	A			C			B	
Approach Delay (s)		11.8			6.0			21.2			16.8	
Approach LOS		B			A			C			B	

Intersection Summary		
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.46	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	54.8%	8.0
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	24	463	266	165
v/c Ratio	0.04	0.46	0.28	0.26
Control Delay	5.9	10.8	12.4	16.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.9	10.8	12.4	16.3
Queue Length 50th (m)	1.4	45.0	22.1	13.9
Queue Length 95th (m)	m2.8	74.3	33.8	27.2
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	565	1015	960	642
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	21	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.47	0.28	0.26

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



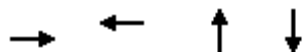
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	426	0	0	212	33	66	44	41	0	0	0
Future Volume (vph)	22	426	0	0	212	33	66	44	41	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frpb, ped/bikes	1.00	1.00			0.99			0.98				
Flpb, ped/bikes	0.97	1.00			1.00			0.99				
Frt	1.00	1.00			0.98			0.96				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1711	1838			1723			1825				
Flt Permitted	0.57	1.00			1.00			0.98				
Satd. Flow (perm)	1024	1838			1723			1825				
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)	24	463	0	0	230	36	72	48	45	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	18	0	0	0	0
Lane Group Flow (vph)	24	463	0	0	258	0	0	147	0	0	0	0
Confl. Peds. (#/hr)	27		19	19		27	11		17	17		11
Heavy Vehicles (%)	4%	2%	0%	0%	9%	6%	3%	2%	24%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	565	1015			952			624				
v/s Ratio Prot		c0.25			0.15							
v/s Ratio Perm	0.02							0.08				
v/c Ratio	0.04	0.46			0.27			0.24				
Uniform Delay, d1	7.8	10.2			8.9			17.9				
Progression Factor	0.72	0.90			1.36			1.00				
Incremental Delay, d2	0.1	1.3			0.7			0.9				
Delay (s)	5.7	10.5			12.9			18.8				
Level of Service	A	B			B			B				
Approach Delay (s)		10.2			12.9			18.8			0.0	
Approach LOS		B			B			B			A	

Intersection Summary		
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.37	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	44.7%	8.0
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

Queues
8: Church St & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	545	241	85	103
v/c Ratio	0.53	0.22	0.19	0.23
Control Delay	11.3	5.4	19.1	15.7
Queue Delay	1.5	0.0	0.0	0.0
Total Delay	12.8	5.4	19.1	15.7
Queue Length 50th (m)	62.9	6.2	7.6	6.9
Queue Length 95th (m)	94.3	10.5	17.8	18.2
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	1023	1086	445	442
Starvation Cap Reductn	291	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.74	0.22	0.19	0.23
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak

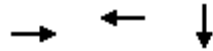


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	67	402	32	10	201	11	20	43	15	13	46	36
Future Volume (vph)	67	402	32	10	201	11	20	43	15	13	46	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.98			0.97	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.99			0.99			0.97			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1767			1792			1681			1545	
Flt Permitted		0.93			0.98			0.92			0.96	
Satd. Flow (perm)		1651			1754			1572			1500	
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)	73	437	35	11	218	12	22	47	16	14	50	39
RTOR Reduction (vph)	0	3	0	0	3	0	0	11	0	0	28	0
Lane Group Flow (vph)	0	542	0	0	238	0	0	74	0	0	75	0
Confl. Peds. (#/hr)	35		51	51		35	26		42	42		26
Heavy Vehicles (%)	8%	3%	0%	0%	7%	0%	0%	5%	20%	0%	4%	22%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1021			1084			434			414	
v/s Ratio Prot												
v/s Ratio Perm		c0.33			0.14			0.05			c0.05	
v/c Ratio		0.53			0.22			0.17			0.18	
Uniform Delay, d1		8.2			6.4			20.9			20.9	
Progression Factor		1.12			0.77			1.00			1.00	
Incremental Delay, d2		1.8			0.4			0.9			1.0	
Delay (s)		11.0			5.4			21.7			21.9	
Level of Service		B			A			C			C	
Approach Delay (s)		11.0			5.4			21.7			21.9	
Approach LOS		B			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			11.7				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			64.0%				ICU Level of Service		C			
Analysis Period (min)			15									

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	442	336	186
v/c Ratio	0.38	0.33	0.48
Control Delay	1.6	7.2	26.5
Queue Delay	0.0	0.7	0.0
Total Delay	1.6	7.9	26.5
Queue Length 50th (m)	2.7	19.0	20.2
Queue Length 95th (m)	6.6	34.6	36.7
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1158	1005	564
Starvation Cap Reductn	0	363	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.38	0.52	0.33
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2018_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Traffic Volume (vph)	17	286	104	67	233	9	0	0	0	26	110	35
Future Volume (vph)	17	286	104	67	233	9	0	0	0	26	110	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.99			1.00						0.96	
Flpb, ped/bikes		1.00			0.99						0.98	
Frt		0.97			1.00						0.97	
Flt Protected		1.00			0.99						0.99	
Satd. Flow (prot)		1751			1767						1616	
Flt Permitted		0.98			0.85						0.99	
Satd. Flow (perm)		1724			1510						1616	
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)	18	311	113	73	253	10	0	0	0	28	120	38
RTOR Reduction (vph)	0	12	0	0	1	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	430	0	0	335	0	0	0	0	0	172	0
Confl. Peds. (#/hr)	58		48	48		58	95		52	52		95
Heavy Vehicles (%)	41%	3%	4%	9%	6%	22%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		49.5			49.5						16.5	
Effective Green, g (s)		50.5			50.5						17.5	
Actuated g/C Ratio		0.66			0.66						0.23	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1145			1003						372	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.22						0.11	
v/c Ratio		0.38			0.33						0.46	
Uniform Delay, d1		5.7			5.5						25.2	
Progression Factor		0.13			1.00						1.00	
Incremental Delay, d2		0.8			0.9						1.2	
Delay (s)		1.6			6.4						26.4	
Level of Service		A			A						C	
Approach Delay (s)		1.6			6.4			0.0			26.4	
Approach LOS		A			A			A			C	

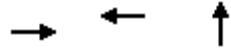
Intersection Summary

HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	332	273	222
v/c Ratio	0.37	0.31	0.19
Control Delay	12.8	12.1	9.5
Queue Delay	0.8	3.7	0.0
Total Delay	13.6	15.7	9.5
Queue Length 50th (m)	25.6	20.2	6.2
Queue Length 95th (m)	42.4	34.7	12.6
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	904	869	1195
Starvation Cap Reductn	310	499	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.56	0.74	0.19
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 10: Pelissier St & University Avenue

2018_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕				
Traffic Volume (vph)	9	296	0	0	243	8	72	65	67	0	0	0
Future Volume (vph)	9	296	0	0	243	8	72	65	67	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		1.00			1.00			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1786			2877				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1862			1786			2877				
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	322	0	0	264	9	78	71	73	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	44	0	0	0	0
Lane Group Flow (vph)	0	332	0	0	271	0	0	178	0	0	0	0
Confl. Peds. (#/hr)	47		50	50		47	25		14	14		25
Heavy Vehicles (%)	0%	3%	0%	0%	8%	0%	0%	4%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		33.0			33.0			27.0				
Effective Green, g (s)		34.0			34.0			28.0				
Actuated g/C Ratio		0.49			0.49			0.40				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		904			867			1150				
v/s Ratio Prot					0.15							
v/s Ratio Perm		c0.18						0.06				
v/c Ratio		0.37			0.31			0.15				
Uniform Delay, d1		11.3			10.9			13.4				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.2			0.9			0.3				
Delay (s)		12.4			11.9			13.7				
Level of Service		B			B			B				
Approach Delay (s)		12.4			11.9			13.7			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.6				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.27									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			47.0%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	399	262	29	147	20	200
v/c Ratio	0.33	0.35	0.09	0.24	0.06	0.31
Control Delay	13.8	15.1	13.0	10.3	12.6	13.7
Queue Delay	1.4	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	15.1	13.0	10.3	12.6	13.7
Queue Length 50th (m)	17.6	17.1	2.3	8.7	1.6	15.6
Queue Length 95th (m)	27.3	38.8	6.9	19.4	5.3	29.6
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1205	752	338	624	363	640
Starvation Cap Reductn	596	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.35	0.09	0.24	0.06	0.31

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

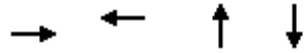
2018_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↗	↘		↗	↘	
Traffic Volume (vph)	49	280	39	16	200	26	27	91	44	18	148	36
Future Volume (vph)	49	280	39	16	200	26	27	91	44	18	148	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.94		1.00	0.94	
Flpb, ped/bikes		0.98			0.99		0.77	1.00		0.85	1.00	
Frt		0.98			0.99		1.00	0.95		1.00	0.97	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3007			1723		1179	1344		1163	1405	
Flt Permitted		0.88			0.97		0.61	1.00		0.66	1.00	
Satd. Flow (perm)		2670			1670		756	1344		812	1405	
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	304	42	17	217	28	29	99	48	20	161	39
RTOR Reduction (vph)	0	12	0	0	6	0	0	23	0	0	12	0
Lane Group Flow (vph)	0	387	0	0	256	0	29	124	0	20	188	0
Confl. Peds. (#/hr)	118		87	87		118	142		136	136		142
Heavy Vehicles (%)	4%	3%	5%	0%	9%	0%	0%	12%	5%	11%	7%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1194			747		338	601		363	628	
v/s Ratio Prot								0.09				c0.13
v/s Ratio Perm		0.15			c0.15		0.04			0.02		
v/c Ratio		0.32			0.34		0.09	0.21		0.06	0.30	
Uniform Delay, d1		13.6			13.7		12.1	12.8		11.9	13.4	
Progression Factor		1.00			1.03		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7			1.2		0.5	0.8		0.3	1.2	
Delay (s)		14.3			15.3		12.6	13.6		12.2	14.6	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		14.3			15.3			13.4			14.4	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.4				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			59.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
12: Goyeau St & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	355	290	120	234
v/c Ratio	0.45	0.38	0.17	0.22
Control Delay	8.1	14.2	12.2	13.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.1	14.2	12.2	13.2
Queue Length 50th (m)	7.2	24.4	8.6	9.6
Queue Length 95th (m)	58.4	41.6	18.3	16.7
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	791	766	722	1063
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.38	0.17	0.22
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
12: Goyeau St & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	38	190	98	39	202	26	21	68	21	52	137	26	
Future Volume (vph)	38	190	98	39	202	26	21	68	21	52	137	26	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7	
Total Lost time (s)		4.0			4.0			4.0			4.0		
Lane Util. Factor		1.00			1.00			1.00			0.95		
Frbp, ped/bikes		0.99			0.99			0.99			0.99		
Flpb, ped/bikes		1.00			1.00			0.99			0.99		
Frt		0.96			0.99			0.97			0.98		
Flt Protected		0.99			0.99			0.99			0.99		
Satd. Flow (prot)		1725			1742			1806			2841		
Flt Permitted		0.94			0.92			0.93			0.87		
Satd. Flow (perm)		1630			1607			1689			2493		
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	207	107	42	220	28	23	74	23	57	149	28	
RTOR Reduction (vph)	0	21	0	0	5	0	0	11	0	0	14	0	
Lane Group Flow (vph)	0	334	0	0	285	0	0	109	0	0	220	0	
Confl. Peds. (#/hr)	23		27	27		23	26		20	20		26	
Heavy Vehicles (%)	0%	7%	2%	0%	8%	11%	9%	0%	0%	23%	3%	4%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			4			2			2		
Permitted Phases	4			4			2			2			
Actuated Green, G (s)		35.0			35.0			31.0			31.0		
Effective Green, g (s)		36.0			36.0			32.0			32.0		
Actuated g/C Ratio		0.47			0.47			0.42			0.42		
Clearance Time (s)		5.0			5.0			5.0			5.0		
Lane Grp Cap (vph)		772			761			711			1049		
v/s Ratio Prot													
v/s Ratio Perm		c0.21			0.18			0.06			c0.09		
v/c Ratio		0.43			0.37			0.15			0.21		
Uniform Delay, d1		13.2			12.8			13.6			14.0		
Progression Factor		0.52			1.00			1.00			1.00		
Incremental Delay, d2		1.7			1.4			0.5			0.5		
Delay (s)		8.6			14.2			14.1			14.4		
Level of Service		A			B			B			B		
Approach Delay (s)		8.6			14.2			14.1			14.4		
Approach LOS		A			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			12.3									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.33										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			59.1%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

Queues
13: McDougall St & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	219	50	136	185	188	1	18
v/c Ratio	0.12	0.36	0.17	0.25	0.32	0.18	0.00	0.02
Control Delay	17.6	10.0	18.7	18.2	9.7	12.0	7.0	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	10.0	18.7	18.2	9.7	12.0	7.0	13.6
Queue Length 50th (m)	3.9	8.6	4.6	12.5	11.3	6.4	0.1	0.6
Queue Length 95th (m)	10.4	23.6	12.0	24.7	21.1	12.8	0.6	2.6
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	361	601	290	543	587	1043	580	1008
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.36	0.17	0.25	0.32	0.18	0.00	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
13: McDougall St & University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



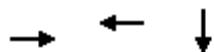
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	40	76	125	46	119	6	170	130	43	1	15	2
Future Volume (vph)	40	76	125	46	119	6	170	130	43	1	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Fr _t	1.00	0.91		1.00	0.99		1.00	0.96		1.00	0.98	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1559	1574		1515	1647		1388	2839		1524	2821	
Fl _t Permitted	0.67	1.00		0.55	1.00		0.75	1.00		0.63	1.00	
Satd. Flow (perm)	1100	1574		883	1647		1088	2839		1016	2821	
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)	43	83	136	50	129	7	185	141	47	1	16	2
RTOR Reduction (vph)	0	85	0	0	3	0	0	30	0	0	1	0
Lane Group Flow (vph)	43	134	0	50	133	0	185	158	0	1	17	0
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	10%	0%	13%	0%	2%	0%	8%	10%	2%	0%	13%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		34.0	24.0		34.0	24.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		34.0	25.0		34.0	25.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.49	0.36		0.49	0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	361	517		290	541		571	1013		566	1007	
v/s Ratio Prot		c0.09			0.08		c0.05	0.06		0.00	0.01	
v/s Ratio Perm	0.04			0.06			c0.11			0.00		
v/c Ratio	0.12	0.26		0.17	0.25		0.32	0.16		0.00	0.02	
Uniform Delay, d ₁	16.4	17.3		16.7	17.2		10.7	15.3		9.3	14.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	0.7	1.2		1.3	1.1		1.5	0.3		0.0	0.0	
Delay (s)	17.1	18.5		18.0	18.3		12.2	15.6		9.3	14.6	
Level of Service	B	B		B	B		B	B		A	B	
Approach Delay (s)		18.2			18.2			13.9			14.3	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W

2018_Future - Do Nothing
Timing Plan: AM Peak



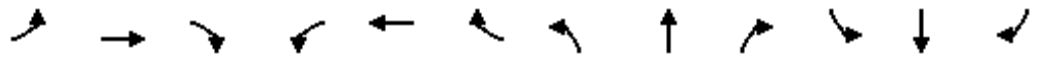
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	50	286	272
v/c Ratio	0.07	0.47	0.10
Control Delay	6.7	17.9	10.6
Queue Delay	0.0	0.0	0.0
Total Delay	6.7	17.9	10.6
Queue Length 50th (m)	1.4	27.5	5.9
Queue Length 95th (m)	6.8	47.6	9.0
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	718	608	2665
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.07	0.47	0.10
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2018_Future - Do Nothing

14: Victoria Ave & Park St W

Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔↔	
Traffic Volume (vph)	0	17	29	180	83	0	0	0	0	29	199	22
Future Volume (vph)	0	17	29	180	83	0	0	0	0	29	199	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.86	
Frbp, ped/bikes		0.97			1.00						0.99	
Flpb, ped/bikes		1.00			0.98						0.99	
Frt		0.91			1.00						0.99	
Flt Protected		1.00			0.97						0.99	
Satd. Flow (prot)		1566			1722						5928	
Flt Permitted		1.00			0.76						0.99	
Satd. Flow (perm)		1566			1361						5928	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	18	32	196	90	0	0	0	0	32	216	24
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	32	0	0	286	0	0	0	0	0	259	0
Confl. Peds. (#/hr)			40	40						43		38
Heavy Vehicles (%)	0%	12%	3%	4%	1%	0%	0%	0%	0%	0%	3%	4%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		700			608						2652	
v/s Ratio Prot		0.02										
v/s Ratio Perm					c0.21						0.04	
v/c Ratio		0.05			0.47						0.10	
Uniform Delay, d1		11.9			14.7						12.1	
Progression Factor		1.00			1.00						0.95	
Incremental Delay, d2		0.1			2.6						0.1	
Delay (s)		12.0			17.3						11.6	
Level of Service		B			B						B	
Approach Delay (s)		12.0			17.3			0.0			11.6	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.3		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			47.7%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2018_Future - Do Nothing

49:

Timing Plan: AM Peak















Lane Group	EBT	WBT
Lane Group Flow (vph)	247	289
v/c Ratio	0.17	0.19
Control Delay	2.7	1.6
Queue Delay	0.0	0.0
Total Delay	2.7	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	24.8	15.2
Internal Link Dist (m)	17.8	61.7
Turn Bay Length (m)		
Base Capacity (vph)	1496	1524
Starvation Cap Reductn	0	89
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.17	0.20
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

2018_Future - Do Nothing

49:

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	227	0	0	266	0	0	0	0	0	0	0
Future Volume (vph)	0	227	0	0	266	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1631			1662							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1631			1662							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	247	0	0	289	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	247	0	0	289	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							10		15	15		10
Heavy Vehicles (%)	0%	6%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		56.0			56.0							
Effective Green, g (s)		57.0			57.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1328			1353							
v/s Ratio Prot		0.15			0.17							
v/s Ratio Perm												
v/c Ratio		0.19			0.21							
Uniform Delay, d1		1.4			1.5							
Progression Factor		1.00			0.53							
Incremental Delay, d2		0.3			0.3							
Delay (s)		1.7			1.1							
Level of Service		A			A							
Approach Delay (s)		1.7			1.1			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.20									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			17.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	427	316
v/c Ratio	0.14	0.10
Control Delay	3.4	3.3
Queue Delay	0.0	0.0
Total Delay	3.4	3.3
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	26.2	19.5
Internal Link Dist (m)	35.4	448.7
Turn Bay Length (m)		
Base Capacity (vph)	3009	3068
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.14	0.10
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2018_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	393	0	0	291	0	0	0	0	0	0	0
Future Volume (vph)	0	393	0	0	291	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.95			0.95							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3334			3400							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3334			3400							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	427	0	0	316	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	427	0	0	316	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							1		1	1		1
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		64.0			64.0							
Effective Green, g (s)		65.0			65.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		2708			2762							
v/s Ratio Prot		0.13			0.09							
v/s Ratio Perm												
v/c Ratio		0.16			0.11							
Uniform Delay, d1		1.6			1.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.1			0.1							
Delay (s)		1.7			1.6							
Level of Service		A			A							
Approach Delay (s)		1.7			1.6			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.7		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.14									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			14.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	143	55	193	160	245	149
v/c Ratio	0.17	0.08	0.36	0.20	0.18	0.18
Control Delay	13.3	4.1	25.1	20.0	6.6	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	4.1	25.1	20.0	6.6	13.1
Queue Length 50th (m)	11.8	0.0	25.3	18.9	5.0	12.0
Queue Length 95th (m)	22.0	5.6	49.4	39.9	11.2	22.5
Internal Link Dist (m)	117.8			283.7	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	828	676	538	819	1368	839
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.08	0.36	0.20	0.18	0.18

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Huron Church Rd & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	5	127	51	178	127	20	46	64	115	8	124	5
Future Volume (vph)	5	127	51	178	127	20	46	64	115	8	124	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frpb, ped/bikes		1.00	0.88	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.98			0.92			1.00	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1863	1444	1717	1816			3280			1904	
Flt Permitted		0.99	1.00	0.67	1.00			0.88			0.98	
Satd. Flow (perm)		1853	1444	1203	1816			2907			1874	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	138	55	193	138	22	50	70	125	9	135	5
RTOR Reduction (vph)	0	0	30	0	8	0	0	69	0	0	2	0
Lane Group Flow (vph)	0	143	25	193	152	0	0	176	0	0	147	0
Confl. Peds. (#/hr)	11		54	54		11	9		6	6		9
Heavy Vehicles (%)	0%	3%	0%	1%	0%	30%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		828	646	538	812			1300			838	
v/s Ratio Prot					0.08							
v/s Ratio Perm		0.08	0.02	c0.16				0.06			c0.08	
v/c Ratio		0.17	0.04	0.36	0.19			0.14			0.18	
Uniform Delay, d1		12.6	11.8	13.8	12.7			12.4			12.6	
Progression Factor		1.00	1.00	1.62	1.65			1.00			1.00	
Incremental Delay, d2		0.5	0.1	1.8	0.5			0.2			0.5	
Delay (s)		13.0	11.9	24.2	21.4			12.6			13.1	
Level of Service		B	B	C	C			B			B	
Approach Delay (s)		12.7			22.9			12.6			13.1	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Sunset Ave & University Avenue

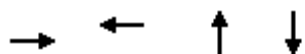
2018_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	10	244	2	28	345	4	18	11	29	7	7	8
Future Volume (Veh/h)	10	244	2	28	345	4	18	11	29	7	7	8
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	265	2	30	375	4	20	12	32	8	8	9
Pedestrians								71			6	
Lane Width (m)								4.0			4.0	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								8			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			42							
pX, platoon unblocked	0.95						0.95	0.95		0.95	0.95	0.95
vC, conflicting volume	385			338			809	804	337	769	803	383
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	326			338			772	767	337	730	766	324
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			97			92	96	95	97	97	99
cM capacity (veh/h)	1175			1140			247	282	656	270	282	681
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	278	409	64	25								
Volume Left	11	30	20	8								
Volume Right	2	4	32	9								
cSH	1175	1140	371	351								
Volume to Capacity	0.01	0.03	0.17	0.07								
Queue Length 95th (m)	0.2	0.6	4.7	1.7								
Control Delay (s)	0.4	0.9	16.7	16.0								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	0.9	16.7	16.0								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			40.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	337	478	292	45
v/c Ratio	0.44	0.59	0.59	0.08
Control Delay	9.4	9.2	22.7	16.0
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	10.2	9.2	22.7	16.0
Queue Length 50th (m)	22.3	56.4	28.2	3.8
Queue Length 95th (m)	12.4	89.7	52.4	10.3
Internal Link Dist (m)	59.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	762	806	499	561
Starvation Cap Reductn	196	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	0.59	0.59	0.08
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	54	247	9	57	378	5	60	102	107	3	34	5
Future Volume (vph)	54	247	9	57	378	5	60	102	107	3	34	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			1.00			0.94			0.99	
Flpb, ped/bikes		0.99			0.97			0.98			1.00	
Frt		1.00			1.00			0.95			0.98	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1572			1577			1462			1656	
Flt Permitted		0.87			0.92			0.93			0.98	
Satd. Flow (perm)		1377			1458			1370			1632	
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	268	10	62	411	5	65	111	116	3	37	5
RTOR Reduction (vph)	0	1	0	0	0	0	0	31	0	0	3	0
Lane Group Flow (vph)	0	336		0	0	478	0	0	261	0	0	42
Confl. Peds. (#/hr)	81		201	201			81	44		70	70	44
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	3%	20%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		41.0			41.0			25.0			25.0	
Effective Green, g (s)		42.0			42.0			26.0			26.0	
Actuated g/C Ratio		0.55			0.55			0.34			0.34	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		760			805			468			558	
v/s Ratio Prot												
v/s Ratio Perm		0.24			c0.33			c0.19			0.03	
v/c Ratio		0.44			0.59			0.56			0.07	
Uniform Delay, d1		10.1			11.3			20.3			16.9	
Progression Factor		0.72			0.51			1.00			1.00	
Incremental Delay, d2		1.8			3.1			4.7			0.3	
Delay (s)		9.1			8.9			25.1			17.1	
Level of Service		A			A			C			B	
Approach Delay (s)		9.1			8.9			25.1			17.1	
Approach LOS		A			A			C			B	

Intersection Summary

HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak

























Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	27	431	154	449	263	108
v/c Ratio	0.08	0.35	0.49	0.33	0.30	0.13
Control Delay	15.6	14.9	15.2	8.7	10.3	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	14.9	15.2	8.7	10.3	9.9
Queue Length 50th (m)	2.1	18.5	9.7	11.0	16.2	6.9
Queue Length 95th (m)	m5.5	30.4	23.4	6.2	30.5	14.9
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	343	1247	316	1347	863	854
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.35	0.49	0.33	0.30	0.13

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	25	319	77	142	406	7	59	84	99	21	63	16
Future Volume (vph)	25	319	77	142	406	7	59	84	99	21	63	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	0.96	1.00		0.90	1.00			0.99			1.00	
Frt	1.00	0.97		1.00	1.00			0.94			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1716	2896		1540	3198			1902			1923	
Flt Permitted	0.45	1.00		0.46	1.00			0.91			0.92	
Satd. Flow (perm)	816	2896		753	3198			1752			1786	
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	347	84	154	441	8	64	91	108	23	68	17
RTOR Reduction (vph)	0	28	0	0	2	0	0	33	0	0	9	0
Lane Group Flow (vph)	27	403	0	154	447	0	0	230	0	0	99	0
Confl. Peds. (#/hr)	37		89	89		37	37		36	36		37
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%	4%	5%	1%	0%	5%	6%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	343	1219		317	1346			829			846	
v/s Ratio Prot		0.14			0.14							
v/s Ratio Perm	0.03			c0.20				c0.13			0.06	
v/c Ratio	0.08	0.33		0.49	0.33			0.28			0.12	
Uniform Delay, d1	13.2	14.8		16.0	14.8			12.1			11.1	
Progression Factor	1.11	1.07		0.58	0.54			1.00			1.00	
Incremental Delay, d2	0.4	0.7		5.2	0.7			0.8			0.3	
Delay (s)	15.1	16.5		14.5	8.7			12.9			11.4	
Level of Service	B	B		B	A			B			B	
Approach Delay (s)		16.4			10.2			12.9			11.4	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			12.8								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			76.0								Sum of lost time (s)	8.0
Intersection Capacity Utilization			54.5%								ICU Level of Service	A
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 5: McKay Ave & University Avenue

2018_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	14	373	7	7	442	10	3	1	5	8	0	13
Future Volume (Veh/h)	14	373	7	7	442	10	3	1	5	8	0	13
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)	15	405	8	8	480	11	3	1	5	9	0	14
Pedestrians								14			11	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			60							
pX, platoon unblocked	0.98						0.98	0.98		0.98	0.98	0.98
vC, conflicting volume	502			427			723	971	220	750	970	256
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	442			427			669	923	220	697	921	191
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			99	100	99	97	100	98
cM capacity (veh/h)	1090			1128			318	254	779	307	254	797
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	218	210	248	251	9	23						
Volume Left	15	0	8	0	3	9						
Volume Right	0	8	0	11	5	14						
cSH	1090	1700	1128	1700	454	490						
Volume to Capacity	0.01	0.12	0.01	0.15	0.02	0.05						
Queue Length 95th (m)	0.3	0.0	0.2	0.0	0.5	1.1						
Control Delay (s)	0.7	0.0	0.3	0.0	13.1	12.7						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.4		0.2		13.1	12.7						
Approach LOS					B	B						
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			30.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	21	365	57	129	514	238	165
v/c Ratio	0.05	0.35	0.08	0.28	0.30	0.37	0.24
Control Delay	9.6	15.3	5.8	5.6	4.3	17.7	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	15.3	5.8	5.6	4.3	17.7	15.8
Queue Length 50th (m)	1.9	41.1	1.2	3.5	6.8	21.3	13.8
Queue Length 95th (m)	6.1	72.2	11.1	6.4	9.5	38.8	26.8
Internal Link Dist (m)		448.3			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	406	1049	682	459	1739	637	692
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.35	0.08	0.28	0.30	0.37	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	336	52	119	450	23	62	91	66	17	98	37
Future Volume (vph)	19	336	52	119	450	23	62	91	66	17	98	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.92	1.00	1.00			0.99			0.99	
Flpb, ped/bikes	0.97	1.00	1.00	0.97	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.96			0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1636	1946	1216	1689	3215			1956			1979	
Flt Permitted	0.44	1.00	1.00	0.48	1.00			0.88			0.96	
Satd. Flow (perm)	754	1946	1216	851	3215			1737			1906	
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)	21	365	57	129	489	25	67	99	72	18	107	40
RTOR Reduction (vph)	0	0	26	0	5	0	0	21	0	0	15	0
Lane Group Flow (vph)	21	365	31	129	509	0	0	217	0	0	150	0
Confl. Peds. (#/hr)	28		28	28		28	15		16	16		15
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	6%	0%	0%	6%	0%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	406	1049	656	459	1734			617			677	
v/s Ratio Prot		c0.19			0.16							
v/s Ratio Perm	0.03		0.03	0.15				c0.13			0.08	
v/c Ratio	0.05	0.35	0.05	0.28	0.29			0.35			0.22	
Uniform Delay, d1	8.3	9.9	8.3	9.5	9.6			18.1			17.1	
Progression Factor	1.09	1.41	2.05	0.42	0.41			1.00			1.00	
Incremental Delay, d2	0.2	0.9	0.1	1.4	0.4			1.6			0.8	
Delay (s)	9.3	14.9	17.1	5.4	4.3			19.6			17.9	
Level of Service	A	B	B	A	A			B			B	
Approach Delay (s)		14.9			4.5			19.6			17.9	
Approach LOS		B			A			B			B	

Intersection Summary

HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	41	422	538	179
v/c Ratio	0.11	0.42	0.53	0.27
Control Delay	7.8	12.2	15.4	17.5
Queue Delay	0.0	0.0	0.4	0.0
Total Delay	7.8	12.2	15.8	17.5
Queue Length 50th (m)	3.6	51.2	67.4	16.3
Queue Length 95th (m)	9.3	81.8	102.1	30.4
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	366	1015	1010	653
Starvation Cap Reductn	0	0	149	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.42	0.62	0.27

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak

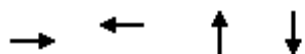


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	38	388	0	0	453	42	71	60	34	0	0	0	
Future Volume (vph)	38	388	0	0	453	42	71	60	34	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7	
Total Lost time (s)	4.0	4.0			4.0			4.0					
Lane Util. Factor	1.00	1.00			1.00			1.00					
Frbp, ped/bikes	1.00	1.00			1.00			0.99					
Flpb, ped/bikes	0.99	1.00			1.00			0.99					
Frt	1.00	1.00			0.99			0.97					
Flt Protected	0.95	1.00			1.00			0.98					
Satd. Flow (prot)	1813	1838			1822			1874					
Flt Permitted	0.35	1.00			1.00			0.98					
Satd. Flow (perm)	664	1838			1822			1874					
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	422	0	0	492	46	77	65	37	0	0	0	
RTOR Reduction (vph)	0	0	0	0	4	0	0	13	0	0	0	0	
Lane Group Flow (vph)	41	422	0	0	534	0	0	167	0	0	0	0	
Confl. Peds. (#/hr)	15		17	17		15	14		16	16		14	
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	3%	2%	23%	0%	0%	0%	
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)					0								
Turn Type	Perm	NA			NA		Perm	NA					
Protected Phases		2			2			4					
Permitted Phases	2						4						
Actuated Green, G (s)	41.0	41.0			41.0			25.0					
Effective Green, g (s)	42.0	42.0			42.0			26.0					
Actuated g/C Ratio	0.55	0.55			0.55			0.34					
Clearance Time (s)	5.0	5.0			5.0			5.0					
Lane Grp Cap (vph)	366	1015			1006			641					
v/s Ratio Prot		0.23			0.29								
v/s Ratio Perm	0.06							0.09					
v/c Ratio	0.11	0.42			0.53			0.26					
Uniform Delay, d1	8.1	9.9			10.8			18.1					
Progression Factor	0.84	1.08			1.23			1.00					
Incremental Delay, d2	0.6	1.2			1.9			1.0					
Delay (s)	7.4	11.9			15.1			19.0					
Level of Service	A	B			B			B					
Approach Delay (s)		11.5			15.1			19.0			0.0		
Approach LOS		B			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			14.3									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			54.4%									ICU Level of Service	A
Analysis Period (min)			15										

c Critical Lane Group

Queues
8: Church St & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	415	421	122	198
v/c Ratio	0.43	0.38	0.27	0.44
Control Delay	5.5	6.7	21.5	19.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.5	6.7	21.5	19.5
Queue Length 50th (m)	9.3	14.1	12.3	16.2
Queue Length 95th (m)	21.0	51.3	25.2	34.0
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	955	1107	450	455
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	21	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.39	0.27	0.44
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	58	275	49	17	335	36	35	62	16	18	80	84
Future Volume (vph)	58	275	49	17	335	36	35	62	16	18	80	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.98			0.98			0.95	
Flpb, ped/bikes		0.99			1.00			0.98			0.99	
Frt		0.98			0.99			0.98			0.94	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1704			1819			1783			1543	
Flt Permitted		0.89			0.98			0.89			0.97	
Satd. Flow (perm)		1533			1783			1603			1499	
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)	63	299	53	18	364	39	38	67	17	20	87	91
RTOR Reduction (vph)	0	7	0	0	5	0	0	8	0	0	41	0
Lane Group Flow (vph)	0	408		0	416		0	114		0	157	
Confl. Peds. (#/hr)	77		42	42		77	41		69	69		41
Heavy Vehicles (%)	7%	5%	2%	0%	3%	0%	0%	0%	0%	5%	0%	14%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		948			1102			442			414	
v/s Ratio Prot												
v/s Ratio Perm		c0.27			0.23			0.07			c0.11	
v/c Ratio		0.43			0.38			0.26			0.38	
Uniform Delay, d1		7.5			7.2			21.4			22.2	
Progression Factor		0.55			0.80			1.00			1.00	
Incremental Delay, d2		1.3			0.9			1.4			2.6	
Delay (s)		5.5			6.7			22.8			24.9	
Level of Service		A			A			C			C	
Approach Delay (s)		5.5			6.7			22.8			24.9	
Approach LOS		A			A			C			C	

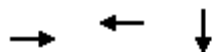
Intersection Summary

HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	402	431	208
v/c Ratio	0.34	0.39	0.55
Control Delay	6.2	4.3	26.9
Queue Delay	0.0	0.1	0.0
Total Delay	6.2	4.4	26.9
Queue Length 50th (m)	35.5	12.2	21.0
Queue Length 95th (m)	53.8	19.5	38.3
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1167	1104	574
Starvation Cap Reductn	0	131	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.34	0.44	0.36
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2018_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	17	260	93	69	312	16	0	0	0	13	117	62
Future Volume (vph)	17	260	93	69	312	16	0	0	0	13	117	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.98			1.00						0.95	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.97			0.99						0.96	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1739			1835						1614	
Flt Permitted		0.98			0.88						1.00	
Satd. Flow (perm)		1704			1625						1614	
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)	18	283	101	75	339	17	0	0	0	14	127	67
RTOR Reduction (vph)	0	12	0	0	1	0	0	0	0	0	27	0
Lane Group Flow (vph)	0	390		0	0	430	0	0	0	0	181	0
Confl. Peds. (#/hr)	32		50	50		32	61		25	25		61
Heavy Vehicles (%)	41%	4%	4%	6%	3%	0%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		50.6			50.6						15.4	
Effective Green, g (s)		51.6			51.6						16.4	
Actuated g/C Ratio		0.68			0.68						0.22	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1156			1103						348	
v/s Ratio Prot												
v/s Ratio Perm		0.23			0.26						0.11	
v/c Ratio		0.34			0.39						0.52	
Uniform Delay, d1		5.1			5.3						26.3	
Progression Factor		0.97			0.52						1.00	
Incremental Delay, d2		0.8			1.0						1.8	
Delay (s)		5.7			3.8						28.2	
Level of Service		A			A						C	
Approach Delay (s)		5.7			3.8			0.0			28.2	
Approach LOS		A			A			A			C	

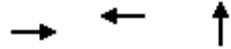
Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	305	356	272
v/c Ratio	0.31	0.37	0.25
Control Delay	9.4	8.9	11.6
Queue Delay	0.3	1.0	0.0
Total Delay	9.7	9.9	11.6
Queue Length 50th (m)	13.8	16.1	9.0
Queue Length 95th (m)	21.5	23.6	17.0
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	977	975	1107
Starvation Cap Reductn	257	373	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.42	0.59	0.25
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 10: Pelissier St & University Avenue

2018_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	9	271	0	0	313	15	100	67	83	0	0	0
Future Volume (vph)	9	271	0	0	313	15	100	67	83	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			0.97				
Frt		1.00			0.99			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1848			2854				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1858			1848			2854				
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	295	0	0	340	16	109	73	90	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	57	0	0	0	0
Lane Group Flow (vph)	0	305	0	0	354	0	0	215	0	0	0	0
Confl. Peds. (#/hr)	50					50	34		35			
Heavy Vehicles (%)	0%	3%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		39.0			39.0			27.0				
Effective Green, g (s)		40.0			40.0			28.0				
Actuated g/C Ratio		0.53			0.53			0.37				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		977			972			1051				
v/s Ratio Prot					c0.19							
v/s Ratio Perm		0.16						0.08				
v/c Ratio		0.31			0.36			0.20				
Uniform Delay, d1		10.2			10.5			16.4				
Progression Factor		0.82			0.75			1.00				
Incremental Delay, d2		0.8			1.0			0.4				
Delay (s)		9.2			8.8			16.8				
Level of Service		A			A			B				
Approach Delay (s)		9.2			8.8			16.8			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.3				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			45.6%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	400	320	67	193	32	244
v/c Ratio	0.36	0.53	0.25	0.29	0.09	0.37
Control Delay	6.1	23.2	16.1	12.6	13.1	15.0
Queue Delay	0.5	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	23.2	16.1	12.6	13.1	15.0
Queue Length 50th (m)	7.0	37.8	5.7	14.0	2.6	20.6
Queue Length 95th (m)	11.1	66.3	14.3	27.2	7.4	37.0
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1110	605	273	664	340	664
Starvation Cap Reductn	336	0	0	0	0	0
Spillback Cap Reductn	0	9	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.54	0.25	0.29	0.09	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

2018_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔		↔	↔	
Traffic Volume (vph)	86	248	34	30	235	29	62	132	46	29	190	34
Future Volume (vph)	86	248	34	30	235	29	62	132	46	29	190	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.92		1.00	0.93	
Flpb, ped/bikes		0.98			0.99		0.71	1.00		0.77	1.00	
Frt		0.99			0.99		1.00	0.96		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3029			1427		1035	1449		1170	1468	
Flt Permitted		0.80			0.93		0.56	1.00		0.62	1.00	
Satd. Flow (perm)		2460			1341		612	1449		760	1468	
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)	93	270	37	33	255	32	67	143	50	32	207	37
RTOR Reduction (vph)	0	10	0	0	6	0	0	17	0	0	8	0
Lane Group Flow (vph)	0	390	0	0	314	0	67	176	0	32	236	0
Confl. Peds. (#/hr)	91		126	126		91	198		252	252		198
Heavy Vehicles (%)	1%	2%	0%	0%	37%	0%	5%	1%	0%	0%	1%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1100			599		273	648		340	656	
v/s Ratio Prot								0.12			c0.16	
v/s Ratio Perm		0.16			c0.23		0.11			0.04		
v/c Ratio		0.35			0.52		0.25	0.27		0.09	0.36	
Uniform Delay, d1		13.8			15.2		13.0	13.2		12.1	13.8	
Progression Factor		0.39			1.30		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			3.2		2.1	1.0		0.5	1.5	
Delay (s)		6.3			22.9		15.2	14.3		12.7	15.4	
Level of Service		A			C		B	B		B	B	
Approach Delay (s)		6.3			22.9			14.5			15.0	
Approach LOS		A			C			B			B	

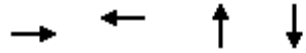
Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	423	257	218	207
v/c Ratio	0.52	0.32	0.29	0.20
Control Delay	17.6	11.5	14.7	11.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.6	11.5	14.7	11.4
Queue Length 50th (m)	50.7	23.0	18.3	7.3
Queue Length 95th (m)	73.7	38.5	32.8	13.8
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	817	810	758	1026
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.32	0.29	0.20
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 12: Goyeau St & University Avenue

2018_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	48	275	66	20	177	40	22	145	33	50	99	41
Future Volume (vph)	48	275	66	20	177	40	22	145	33	50	99	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.98			0.98			0.98			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1813			1770			1850			2788	
Flt Permitted		0.94			0.95			0.96			0.84	
Satd. Flow (perm)		1706			1693			1781			2379	
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)	52	299	72	22	192	43	24	158	36	54	108	45
RTOR Reduction (vph)	0	9	0	0	9	0	0	9	0	0	26	0
Lane Group Flow (vph)	0	414	0	0	248	0	0	209	0	0	181	0
Confl. Peds. (#/hr)	16		34	34		16	32		10	10		32
Heavy Vehicles (%)	2%	2%	1%	0%	5%	5%	0%	1%	0%	18%	3%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		808			801			749			1001	
v/s Ratio Prot												
v/s Ratio Perm		c0.24			0.15			c0.12			0.08	
v/c Ratio		0.51			0.31			0.28			0.18	
Uniform Delay, d1		13.9			12.3			14.4			13.8	
Progression Factor		1.11			0.89			1.00			1.00	
Incremental Delay, d2		2.3			1.0			0.9			0.4	
Delay (s)		17.7			12.0			15.4			14.2	
Level of Service		B			B			B			B	
Approach Delay (s)		17.7			12.0			15.4			14.2	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	93	303	61	178	100	228	3	39
v/c Ratio	0.21	0.43	0.21	0.27	0.20	0.21	0.01	0.04
Control Delay	17.2	15.3	17.5	16.2	11.5	12.9	10.0	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	15.3	17.5	16.2	11.5	12.9	10.0	15.6
Queue Length 50th (m)	11.7	30.3	5.6	15.9	7.3	8.6	0.2	1.7
Queue Length 95th (m)	m23.1	49.6	13.8	29.4	15.1	15.8	1.5	4.7
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	440	699	297	655	494	1082	333	1079
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.43	0.21	0.27	0.20	0.21	0.01	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 13: McDougall St & University Avenue

2018_Future - Do Nothing
 Timing Plan: PM Peak

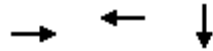


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	86	125	154	56	147	17	92	159	51	3	32	4
Future Volume (vph)	86	125	154	56	147	17	92	159	51	3	32	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00		0.97	1.00	
Fr _t	1.00	0.92		1.00	0.98		1.00	0.96		1.00	0.98	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1627		1510	1647		1349	2844		1124	3145	
Fl _t Permitted	0.62	1.00		0.47	1.00		0.68	1.00		0.61	1.00	
Satd. Flow (perm)	1116	1627		753	1647		960	2844		722	3145	
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)	93	136	167	61	160	18	100	173	55	3	35	4
RTOR Reduction (vph)	0	58	0	0	5	0	0	35	0	0	3	0
Lane Group Flow (vph)	93	245	0	61	173	0	100	193	0	3	36	0
Confl. Peds. (#/hr)	7		6	6		7	21		34	34		21
Heavy Vehicles (%)	0%	0%	10%	0%	1%	0%	10%	9%	0%	33%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		35.0	27.0		31.0	25.0	
Effective Green, g (s)	30.0	30.0		30.0	30.0		35.0	28.0		31.0	26.0	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.46	0.37		0.41	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	440	642		297	650		483	1047		326	1075	
v/s Ratio Prot		c0.15			0.10		c0.02	0.07		0.00	0.01	
v/s Ratio Perm	0.08			0.08			c0.07			0.00		
v/c Ratio	0.21	0.38		0.21	0.27		0.21	0.18		0.01	0.03	
Uniform Delay, d ₁	15.2	16.4		15.1	15.6		12.0	16.3		13.4	16.6	
Progression Factor	1.03	1.17		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	1.0	1.6		1.6	1.0		1.0	0.4		0.1	0.1	
Delay (s)	16.6	20.8		16.7	16.5		12.9	16.7		13.4	16.7	
Level of Service	B	C		B	B		B	B		B	B	
Approach Delay (s)		19.8			16.6			15.5			16.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	144	411	335
v/c Ratio	0.18	0.72	0.13
Control Delay	7.1	26.0	8.2
Queue Delay	0.0	0.0	0.0
Total Delay	7.1	26.0	8.2
Queue Length 50th (m)	5.4	46.1	4.4
Queue Length 95th (m)	15.0	#81.5	7.8
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	780	571	2622
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.18	0.72	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2018_Future - Do Nothing

14: Victoria Ave & Park St W

Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔			↔						↔↔↔		
Traffic Volume (vph)	0	63	70	271	107	0	0	0	0	27	258	24	
Future Volume (vph)	0	63	70	271	107	0	0	0	0	27	258	24	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	
Total Lost time (s)		4.0			4.0						4.0		
Lane Util. Factor		1.00			1.00						0.86		
Frbp, ped/bikes		0.97			1.00						0.99		
Flpb, ped/bikes		1.00			0.98						0.99		
Frt		0.93			1.00						0.99		
Flt Protected		1.00			0.97						1.00		
Satd. Flow (prot)		1651			1767						5830		
Flt Permitted		1.00			0.70						1.00		
Satd. Flow (perm)		1651			1278						5830		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	68	76	295	116	0	0	0	0	29	280	26	
RTOR Reduction (vph)	0	42	0	0	0	0	0	0	0	0	14	0	
Lane Group Flow (vph)	0	102	0	0	411	0	0	0	0	0	321	0	
Confl. Peds. (#/hr)			43	43						58		44	
Heavy Vehicles (%)	0%	5%	1%	0%	1%	0%	0%	0%	0%	0%	5%	8%	
Parking (#/hr)											0		
Turn Type		NA		Perm	NA						Perm	NA	
Protected Phases		4			4							2	
Permitted Phases				4							2		
Actuated Green, G (s)		33.0			33.0						33.0		
Effective Green, g (s)		34.0			34.0						34.0		
Actuated g/C Ratio		0.45			0.45						0.45		
Clearance Time (s)		5.0			5.0						5.0		
Lane Grp Cap (vph)		738			571						2608		
v/s Ratio Prot		0.06											
v/s Ratio Perm					0.32						0.05		
v/c Ratio		0.14			0.72						0.12		
Uniform Delay, d1		12.4			17.1						12.3		
Progression Factor		1.00			1.00						0.72		
Incremental Delay, d2		0.4			7.6						0.1		
Delay (s)		12.8			24.8						8.9		
Level of Service		B			C						A		
Approach Delay (s)		12.8			24.8			0.0			8.9		
Approach LOS		B			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			16.8									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			71.5%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

Queues
49: University Avenue













2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	293	404
v/c Ratio	0.19	0.26
Control Delay	2.9	1.0
Queue Delay	0.0	0.0
Total Delay	2.9	1.0
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	26.8	12.2
Internal Link Dist (m)	18.1	59.7
Turn Bay Length (m)		
Base Capacity (vph)	1535	1566
Starvation Cap Reductn	0	95
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.19	0.27
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
49: University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	270	0	0	372	0	0	0	0	0	0	0
Future Volume (vph)	0	270	0	0	372	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	293	0	0	404	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	293	0	0	404	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							7		26	26		7
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		62.0			62.0							
Effective Green, g (s)		63.0			63.0							
Actuated g/C Ratio		0.83			0.83							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1377			1405							
v/s Ratio Prot		0.18			0.24							
v/s Ratio Perm												
v/c Ratio		0.21			0.29							
Uniform Delay, d1		1.3			1.5							
Progression Factor		1.13			0.29							
Incremental Delay, d2		0.4			0.4							
Delay (s)		1.9			0.8							
Level of Service		A			A							
Approach Delay (s)		1.9			0.8			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.3		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.27									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			22.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	409	492
v/c Ratio	0.14	0.16
Control Delay	3.7	1.6
Queue Delay	0.0	0.0
Total Delay	3.7	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	32.5	11.7
Internal Link Dist (m)	35.9	448.3
Turn Bay Length (m)		
Base Capacity (vph)	2992	3051
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.14	0.16
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2018_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	376	0	0	453	0	0	0	0	0	0	0
Future Volume (vph)	0	376	0	0	453	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.95			0.95							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3334			3400							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3334			3400							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	409	0	0	492	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	409	0	0	492	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		60.0			60.0							
Effective Green, g (s)		61.0			61.0							
Actuated g/C Ratio		0.80			0.80							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		2675			2728							
v/s Ratio Prot		0.12			0.14							
v/s Ratio Perm												
v/c Ratio		0.15			0.18							
Uniform Delay, d1		1.7			1.7							
Progression Factor		1.03			0.43							
Incremental Delay, d2		0.1			0.1							
Delay (s)		1.9			0.9							
Level of Service		A			A							
Approach Delay (s)		1.9			0.9			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.3		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.16									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			15.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	252	63	123	78	189	116
v/c Ratio	0.31	0.09	0.27	0.10	0.14	0.14
Control Delay	14.8	4.0	15.2	10.3	4.8	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	4.0	15.2	10.3	4.8	12.6
Queue Length 50th (m)	22.2	0.0	10.6	4.7	2.4	9.1
Queue Length 95th (m)	37.6	6.0	21.7	11.8	7.7	18.0
Internal Link Dist (m)	117.8			282.0	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	818	676	463	775	1365	815
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.09	0.27	0.10	0.14	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Huron Church Rd & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	1	231	58	113	55	17	22	32	120	11	91	5
Future Volume (vph)	1	231	58	113	55	17	22	32	120	11	91	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.90	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.94	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.97			0.90			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)		1830	1435	1780	1713			3122			1866	
Flt Permitted		1.00	1.00	0.55	1.00			0.92			0.97	
Satd. Flow (perm)		1829	1435	1035	1713			2889			1820	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	251	63	123	60	18	24	35	130	12	99	5
RTOR Reduction (vph)	0	0	35	0	10	0	0	72	0	0	2	0
Lane Group Flow (vph)	0	252	28	123	68	0	0	117	0	0	114	0
Confl. Peds. (#/hr)	6		47	47		6	6		1	1		6
Heavy Vehicles (%)	0%	5%	2%	0%	2%	31%	5%	3%	2%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		818	641	463	766			1292			814	
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.14	0.02	0.12				0.04			c0.06	
v/c Ratio		0.31	0.04	0.27	0.09			0.09			0.14	
Uniform Delay, d1		13.5	11.8	13.2	12.1			12.1			12.4	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.0	0.1	1.4	0.2			0.1			0.4	
Delay (s)		14.4	12.0	14.6	12.3			12.2			12.7	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		13.9			13.7			12.2			12.7	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 2: Sunset Ave & University Avenue

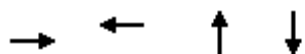
2023_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	3	220	22	21	265	4	16	16	19	2	17	12
Future Volume (Veh/h)	3	220	22	21	265	4	16	16	19	2	17	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)	3	239	24	23	288	4	17	17	21	2	18	13
Pedestrians		10			15			25			13	
Lane Width (m)		3.5			3.5			4.0			4.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		306			42							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	305			288			650	633	291	650	643	313
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	260			288			618	600	291	618	610	268
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.1	3.3
p0 queue free %	100			98			95	96	97	99	95	98
cM capacity (veh/h)	1251			1252			339	378	723	339	366	730
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	266	315	55	33								
Volume Left	3	23	17	2								
Volume Right	24	4	21	13								
cSH	1251	1252	443	453								
Volume to Capacity	0.00	0.02	0.12	0.07								
Queue Length 95th (m)	0.1	0.4	3.2	1.8								
Control Delay (s)	0.1	0.7	14.3	13.6								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	0.7	14.3	13.6								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			44.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	341	350	232	113
v/c Ratio	0.43	0.51	0.46	0.18
Control Delay	10.4	14.4	15.1	14.1
Queue Delay	0.7	0.0	0.0	0.0
Total Delay	11.1	14.4	15.1	14.1
Queue Length 50th (m)	24.5	27.9	15.2	8.6
Queue Length 95th (m)	16.2	49.0	33.4	18.4
Internal Link Dist (m)	61.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	791	692	506	638
Starvation Cap Reductn	195	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.57	0.51	0.46	0.18
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	261	41	79	241	2	70	47	97	2	89	13
Future Volume (vph)	11	261	41	79	241	2	70	47	97	2	89	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.97			1.00			0.96			0.98	
Flpb, ped/bikes		1.00			0.97			0.97			1.00	
Frt		0.98			1.00			0.94			0.98	
Flt Protected		1.00			0.99			0.98			1.00	
Satd. Flow (prot)		1543			1574			1406			1705	
Flt Permitted		0.99			0.84			0.87			1.00	
Satd. Flow (perm)		1524			1345			1247			1700	
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	284	45	86	262	2	76	51	105	2	97	14
RTOR Reduction (vph)	0	8	0	0	0	0	0	43	0	0	8	0
Lane Group Flow (vph)	0	333	0	0	350	0	0	189	0	0	105	0
Confl. Peds. (#/hr)	85		95	95		82	60		39	39		60
Heavy Vehicles (%)	0%	4%	3%	0%	4%	0%	3%	2%	5%	50%	1%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		35.0			35.0			25.0			25.0	
Effective Green, g (s)		36.0			36.0			26.0			26.0	
Actuated g/C Ratio		0.51			0.51			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		783			691			463			631	
v/s Ratio Prot												
v/s Ratio Perm		0.22			0.26			0.15			0.06	
v/c Ratio		0.43			0.51			0.41			0.17	
Uniform Delay, d1		10.6			11.2			16.3			14.7	
Progression Factor		0.83			1.00			1.00			1.00	
Incremental Delay, d2		1.7			2.6			2.7			0.6	
Delay (s)		10.5			13.8			19.0			15.3	
Level of Service		B			B			B			B	
Approach Delay (s)		10.5			13.8			19.0			15.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	20	395	61	257	283	80
v/c Ratio	0.05	0.31	0.18	0.20	0.31	0.10
Control Delay	13.6	14.5	15.5	14.1	8.8	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	14.5	15.5	14.1	8.8	10.0
Queue Length 50th (m)	1.6	17.8	5.3	11.6	14.6	5.0
Queue Length 95th (m)	5.5	27.4	12.9	18.8	28.8	11.8
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	385	1292	345	1297	924	819
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.31	0.18	0.20	0.31	0.10
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	322	41	56	229	7	38	86	137	15	47	12
Future Volume (vph)	18	322	41	56	229	7	38	86	137	15	47	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00			0.99			1.00	
Flpb, ped/bikes	0.97	1.00		0.97	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	1.00			0.93			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1466	3037		1586	3075			1914			1827	
Flt Permitted	0.59	1.00		0.49	1.00			0.96			0.93	
Satd. Flow (perm)	915	3037		819	3075			1841			1716	
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)	20	350	45	61	249	8	41	93	149	16	51	13
RTOR Reduction (vph)	0	13	0	0	3	0	0	53	0	0	7	0
Lane Group Flow (vph)	20	382	0	61	254	0	0	230	0	0	73	0
Confl. Peds. (#/hr)	21		28	28		21	16		12	12		16
Heavy Vehicles (%)	18%	3%	0%	4%	6%	0%	0%	4%	2%	7%	11%	11%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	385	1278		344	1294			872			812	
v/s Ratio Prot		c0.13			0.08							
v/s Ratio Perm	0.02			0.07				c0.13			0.04	
v/c Ratio	0.05	0.30		0.18	0.20			0.26			0.09	
Uniform Delay, d1	13.0	14.6		13.8	13.9			12.0			11.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	0.6		1.1	0.3			0.7			0.2	
Delay (s)	13.3	15.2		14.9	14.2			12.8			11.2	
Level of Service	B	B		B	B			B			B	
Approach Delay (s)		15.1			14.4			12.8			11.2	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.28	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	53.3%	8.0
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 5: McKay Ave & University Avenue

2023_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	4	406	2	1	309	5	1	1	1	7	0	9
Future Volume (Veh/h)	4	406	2	1	309	5	1	1	1	7	0	9
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	441	2	1	336	5	1	1	1	8	0	10
Pedestrians		1			1			5			20	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			59							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	361			448			636	818	228	592	816	192
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	344			448			621	804	228	576	803	174
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 %	100			100			100	100	100	98	100	99
cM capacity (veh/h)	1194			1118			359	308	777	384	308	823
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	224	222	169	173	3	18						
Volume Left	4	0	1	0	1	8						
Volume Right	0	2	0	5	1	10						
cSH	1194	1700	1118	1700	409	545						
Volume to Capacity	0.00	0.13	0.00	0.10	0.01	0.03						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.2	0.8						
Control Delay (s)	0.2	0.0	0.1	0.0	13.9	11.8						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.1		0.0		13.9	11.8						
Approach LOS					B	B						
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			24.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	33	508	48	25	325	338	87
v/c Ratio	0.07	0.49	0.07	0.07	0.19	0.51	0.13
Control Delay	8.9	13.1	3.1	6.2	5.9	19.0	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	13.1	3.1	6.2	5.9	19.0	14.7
Queue Length 50th (m)	2.1	42.5	0.0	0.9	6.4	30.6	6.8
Queue Length 95th (m)	6.0	65.8	4.2	3.0	9.8	53.4	15.8
Internal Link Dist (m)		448.7			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	500	1029	685	340	1700	663	681
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.49	0.07	0.07	0.19	0.51	0.13

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕			↕			↕	
Traffic Volume (vph)	30	467	44	23	284	15	79	95	137	7	59	14
Future Volume (vph)	30	467	44	23	284	15	79	95	137	7	59	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.99			0.99			1.00	
Flpb, ped/bikes	0.94	1.00	1.00	0.99	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.94			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1589	1908	1230	1653	3141			1934			1948	
Flt Permitted	0.56	1.00	1.00	0.36	1.00			0.90			0.97	
Satd. Flow (perm)	929	1908	1230	632	3141			1763			1890	
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	508	48	25	309	16	86	103	149	8	64	15
RTOR Reduction (vph)	0	0	22	0	5	0	0	37	0	0	10	0
Lane Group Flow (vph)	33	508	26	25	320	0	0	301	0	0	77	0
Confl. Peds. (#/hr)	40		19	19		40	13		9	9		13
Heavy Vehicles (%)	0%	4%	1%	4%	4%	7%	0%	1%	3%	0%	6%	15%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4		4			
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	501	1029	663	340	1694			626			671	
v/s Ratio Prot		c0.27			0.10							
v/s Ratio Perm	0.04		0.02	0.04				c0.17			0.04	
v/c Ratio	0.07	0.49	0.04	0.07	0.19			0.48			0.12	
Uniform Delay, d1	8.4	11.0	8.2	8.4	9.0			19.0			16.5	
Progression Factor	1.00	1.00	1.00	0.66	0.64			1.00			1.00	
Incremental Delay, d2	0.3	1.7	0.1	0.4	0.2			2.6			0.3	
Delay (s)	8.6	12.7	8.3	6.0	6.0			21.7			16.8	
Level of Service	A	B	A	A	A			C			B	
Approach Delay (s)		12.1			6.0			21.7			16.8	
Approach LOS		B			A			C			B	

Intersection Summary		
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.49	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	56.4%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	25	486	280	172
v/c Ratio	0.05	0.48	0.29	0.27
Control Delay	5.9	11.1	12.4	16.5
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	5.9	11.2	12.4	16.5
Queue Length 50th (m)	1.4	47.8	23.5	14.6
Queue Length 95th (m)	m2.8	79.1	35.2	28.4
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	553	1015	960	642
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	50	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.50	0.29	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



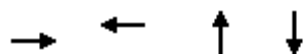
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑			↗			↕				
Traffic Volume (vph)	23	447	0	0	223	35	69	46	43	0	0	0
Future Volume (vph)	23	447	0	0	223	35	69	46	43	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frpb, ped/bikes	1.00	1.00			0.99			0.98				
Flpb, ped/bikes	0.98	1.00			1.00			0.99				
Frt	1.00	1.00			0.98			0.96				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1712	1838			1723			1825				
Flt Permitted	0.56	1.00			1.00			0.98				
Satd. Flow (perm)	1002	1838			1723			1825				
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	486	0	0	242	38	75	50	47	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	18	0	0	0	0
Lane Group Flow (vph)	25	486	0	0	272	0	0	154	0	0	0	0
Confl. Peds. (#/hr)	27		19	19		27	11		17	17		11
Heavy Vehicles (%)	4%	2%	0%	0%	9%	6%	3%	2%	24%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	553	1015			952			624				
v/s Ratio Prot		c0.26			0.16							
v/s Ratio Perm	0.02							0.08				
v/c Ratio	0.05	0.48			0.29			0.25				
Uniform Delay, d1	7.8	10.3			9.0			18.0				
Progression Factor	0.72	0.90			1.34			1.00				
Incremental Delay, d2	0.1	1.4			0.7			0.9				
Delay (s)	5.7	10.8			12.9			18.9				
Level of Service	A	B			B			B				
Approach Delay (s)		10.5			12.9			18.9			0.0	
Approach LOS		B			B			B			A	

Intersection Summary		
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.39	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	46.2%	8.0
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

Queues
8: Church St & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	572	254	89	108
v/c Ratio	0.56	0.23	0.20	0.24
Control Delay	11.8	5.4	19.3	15.9
Queue Delay	1.9	0.0	0.0	0.0
Total Delay	13.7	5.4	19.3	15.9
Queue Length 50th (m)	67.0	6.6	8.0	7.4
Queue Length 95th (m)	101.7	11.0	18.6	19.0
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	1021	1084	443	442
Starvation Cap Reductn	288	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.23	0.20	0.24
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



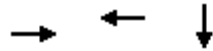
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	70	422	34	11	211	12	21	45	16	14	48	38
Future Volume (vph)	70	422	34	11	211	12	21	45	16	14	48	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.98			0.97	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.99			0.99			0.97			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1768			1792			1679			1544	
Flt Permitted		0.93			0.97			0.92			0.96	
Satd. Flow (perm)		1647			1749			1567			1497	
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)	76	459	37	12	229	13	23	49	17	15	52	41
RTOR Reduction (vph)	0	3	0	0	3	0	0	11	0	0	29	0
Lane Group Flow (vph)	0	569	0	0	251	0	0	78	0	0	79	0
Confl. Peds. (#/hr)	35		51	51		35	26		42	42		26
Heavy Vehicles (%)	8%	3%	0%	0%	7%	0%	0%	5%	20%	0%	4%	22%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1018			1081			432			413	
v/s Ratio Prot												
v/s Ratio Perm		c0.35			0.14			0.05			c0.05	
v/c Ratio		0.56			0.23			0.18			0.19	
Uniform Delay, d1		8.5			6.5			20.9			21.0	
Progression Factor		1.12			0.77			1.00			1.00	
Incremental Delay, d2		2.0			0.5			0.9			1.0	
Delay (s)		11.5			5.4			21.9			22.0	
Level of Service		B			A			C			C	
Approach Delay (s)		11.5			5.4			21.9			22.0	
Approach LOS		B			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.44	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	66.0%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
 9: Victoria Ave & University Avenue

2023_Future - Do Nothing
 Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	464	352	195
v/c Ratio	0.40	0.35	0.50
Control Delay	1.7	7.5	26.7
Queue Delay	0.0	0.7	0.0
Total Delay	1.7	8.2	26.7
Queue Length 50th (m)	3.0	20.2	21.3
Queue Length 95th (m)	7.0	37.4	38.1
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1151	995	565
Starvation Cap Reductn	0	350	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.55	0.35
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2023_Future - Do Nothing
 Timing Plan: AM Peak



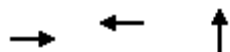
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Traffic Volume (vph)	18	301	108	70	245	9	0	0	0	27	116	37
Future Volume (vph)	18	301	108	70	245	9	0	0	0	27	116	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.99			1.00						0.96	
Flpb, ped/bikes		1.00			1.00						0.98	
Frt		0.97			1.00						0.97	
Flt Protected		1.00			0.99						0.99	
Satd. Flow (prot)		1750			1769						1616	
Flt Permitted		0.98			0.84						0.99	
Satd. Flow (perm)		1720			1501						1616	
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)	20	327	117	76	266	10	0	0	0	29	126	40
RTOR Reduction (vph)	0	12	0	0	1	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	452		0	0	351	0	0	0	0	180	0
Confl. Peds. (#/hr)	58		48	48		58	95		52	52		95
Heavy Vehicles (%)	41%	3%	4%	9%	6%	22%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		49.4			49.4						16.6	
Effective Green, g (s)		50.4			50.4						17.6	
Actuated g/C Ratio		0.66			0.66						0.23	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1140			995						374	
v/s Ratio Prot												
v/s Ratio Perm		c0.26			0.23						0.11	
v/c Ratio		0.40			0.35						0.48	
Uniform Delay, d1		5.8			5.6						25.3	
Progression Factor		0.14			1.00						1.00	
Incremental Delay, d2		0.9			1.0						1.3	
Delay (s)		1.7			6.6						26.6	
Level of Service		A			A						C	
Approach Delay (s)		1.7			6.6			0.0			26.6	
Approach LOS		A			A			A			C	

Intersection Summary		
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.42	A
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	67.9%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	348	286	233
v/c Ratio	0.38	0.33	0.19
Control Delay	13.0	12.2	9.6
Queue Delay	0.9	4.1	0.0
Total Delay	13.9	16.4	9.6
Queue Length 50th (m)	27.1	21.3	6.6
Queue Length 95th (m)	44.6	36.4	13.2
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	904	869	1197
Starvation Cap Reductn	306	494	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.58	0.76	0.19
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 10: Pelissier St & University Avenue

2023_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔↔				
Traffic Volume (vph)	9	311	0	0	255	8	76	68	70	0	0	0
Future Volume (vph)	9	311	0	0	255	8	76	68	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		1.00			1.00			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1787			2877				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1863			1787			2877				
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	338	0	0	277	9	83	74	76	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	46	0	0	0	0
Lane Group Flow (vph)	0	348	0	0	284	0	0	187	0	0	0	0
Confl. Peds. (#/hr)	47		50	50		47	25		14	14		25
Heavy Vehicles (%)	0%	3%	0%	0%	8%	0%	0%	4%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		33.0			33.0			27.0				
Effective Green, g (s)		34.0			34.0			28.0				
Actuated g/C Ratio		0.49			0.49			0.40				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		904			867			1150				
v/s Ratio Prot					0.16							
v/s Ratio Perm		c0.19						0.07				
v/c Ratio		0.38			0.33			0.16				
Uniform Delay, d1		11.4			11.0			13.5				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.2			1.0			0.3				
Delay (s)		12.6			12.0			13.8				
Level of Service		B			B			B				
Approach Delay (s)		12.6			12.0			13.8			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			47.9%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	420	275	30	154	21	208
v/c Ratio	0.35	0.37	0.09	0.25	0.06	0.33
Control Delay	14.0	16.0	13.1	10.7	12.6	13.9
Queue Delay	1.6	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	16.0	13.1	10.7	12.6	13.9
Queue Length 50th (m)	18.7	19.0	2.4	9.4	1.7	16.4
Queue Length 95th (m)	28.7	41.6	7.1	20.6	5.5	30.9
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1203	751	335	623	361	639
Starvation Cap Reductn	588	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.37	0.09	0.25	0.06	0.33

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

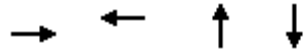
2023_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕		↕	↕	
Traffic Volume (vph)	51	294	41	17	210	27	28	96	46	19	154	38
Future Volume (vph)	51	294	41	17	210	27	28	96	46	19	154	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.94		1.00	0.93	
Flpb, ped/bikes		0.98			0.99		0.77	1.00		0.85	1.00	
Frt		0.98			0.99		1.00	0.95		1.00	0.97	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3008			1724		1185	1344		1165	1403	
Flt Permitted		0.88			0.96		0.60	1.00		0.66	1.00	
Satd. Flow (perm)		2664			1667		749	1344		808	1403	
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)	55	320	45	18	228	29	30	104	50	21	167	41
RTOR Reduction (vph)	0	12	0	0	6	0	0	23	0	0	12	0
Lane Group Flow (vph)	0	408	0	0	269	0	30	131	0	21	196	0
Confl. Peds. (#/hr)	118		87	87		118	142		136	136		142
Heavy Vehicles (%)	4%	3%	5%	0%	9%	0%	0%	12%	5%	11%	7%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1191			745		335	601		361	627	
v/s Ratio Prot								0.10				c0.14
v/s Ratio Perm		0.15			c0.16		0.04			0.03		
v/c Ratio		0.34			0.36		0.09	0.22		0.06	0.31	
Uniform Delay, d1		13.7			13.8		12.1	12.9		11.9	13.5	
Progression Factor		1.00			1.07		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			1.3		0.5	0.8		0.3	1.3	
Delay (s)		14.5			16.1		12.6	13.7		12.2	14.8	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		14.5			16.1			13.5			14.6	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.7				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			61.4%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
12: Goyeau St & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	372	304	125	246
v/c Ratio	0.47	0.40	0.17	0.23
Control Delay	8.5	14.6	12.4	13.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.5	14.6	12.4	13.4
Queue Length 50th (m)	7.9	26.0	9.1	10.3
Queue Length 95th (m)	61.9	44.1	19.0	17.6
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	790	760	719	1060
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.47	0.40	0.17	0.23
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
12: Goyeau St & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↕			↕			↕			↕			
Traffic Volume (vph)	40	200	103	41	212	27	22	71	22	55	144	27		
Future Volume (vph)	40	200	103	41	212	27	22	71	22	55	144	27		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7		
Total Lost time (s)		4.0			4.0			4.0			4.0			
Lane Util. Factor		1.00			1.00			1.00			0.95			
Frbp, ped/bikes		0.99			0.99			0.99			0.99			
Flpb, ped/bikes		1.00			1.00			0.99			0.99			
Frt		0.96			0.99			0.97			0.98			
Flt Protected		0.99			0.99			0.99			0.99			
Satd. Flow (prot)		1725			1743			1806			2843			
Flt Permitted		0.94			0.91			0.92			0.86			
Satd. Flow (perm)		1625			1597			1683			2485			
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)	43	217	112	45	230	29	24	77	24	60	157	29		
RTOR Reduction (vph)	0	21	0	0	5	0	0	11	0	0	14	0		
Lane Group Flow (vph)	0	351		0	0	299		0	0	114	0	0	232	0
Confl. Peds. (#/hr)	23		27	27		23	26		20	20		26		
Heavy Vehicles (%)	0%	7%	2%	0%	8%	11%	9%	0%	0%	23%	3%	4%		
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA			
Protected Phases		4			4			2			2			
Permitted Phases	4			4			2			2				
Actuated Green, G (s)		35.0			35.0			31.0			31.0			
Effective Green, g (s)		36.0			36.0			32.0			32.0			
Actuated g/C Ratio		0.47			0.47			0.42			0.42			
Clearance Time (s)		5.0			5.0			5.0			5.0			
Lane Grp Cap (vph)		769			756			708			1046			
v/s Ratio Prot														
v/s Ratio Perm		c0.22			0.19			0.07			c0.09			
v/c Ratio		0.46			0.40			0.16			0.22			
Uniform Delay, d1		13.4			13.0			13.7			14.0			
Progression Factor		0.53			1.00			1.00			1.00			
Incremental Delay, d2		1.9			1.6			0.5			0.5			
Delay (s)		9.0			14.5			14.2			14.5			
Level of Service		A			B			B			B			
Approach Delay (s)		9.0			14.5			14.2			14.5			
Approach LOS		A			B			B			B			

Intersection Summary

HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	46	229	52	143	195	198	1	19
v/c Ratio	0.13	0.38	0.18	0.26	0.33	0.19	0.00	0.02
Control Delay	17.7	10.6	19.0	18.4	9.9	12.1	7.0	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	10.6	19.0	18.4	9.9	12.1	7.0	13.7
Queue Length 50th (m)	4.2	9.7	4.8	13.1	12.0	6.8	0.1	0.7
Queue Length 95th (m)	10.9	25.3	12.4	25.8	22.3	13.4	0.6	2.6
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	358	601	282	544	587	1045	577	1008
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.38	0.18	0.26	0.33	0.19	0.00	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
13: McDougall St & University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	42	80	131	48	125	6	179	137	45	1	16	2
Future Volume (vph)	42	80	131	48	125	6	179	137	45	1	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.91		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1559	1575		1515	1647		1388	2840		1524	2822	
Flt Permitted	0.66	1.00		0.54	1.00		0.74	1.00		0.63	1.00	
Satd. Flow (perm)	1090	1575		860	1647		1087	2840		1006	2822	
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	87	142	52	136	7	195	149	49	1	17	2
RTOR Reduction (vph)	0	84	0	0	3	0	0	32	0	0	1	0
Lane Group Flow (vph)	46	145	0	52	140	0	195	167	0	1	18	0
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	10%	0%	13%	0%	2%	0%	8%	10%	2%	0%	13%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		34.0	24.0		34.0	24.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		34.0	25.0		34.0	25.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.49	0.36		0.49	0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	358	517		282	541		570	1014		562	1007	
v/s Ratio Prot		c0.09			0.09		c0.05	0.06		0.00	0.01	
v/s Ratio Perm	0.04			0.06			c0.12			0.00		
v/c Ratio	0.13	0.28		0.18	0.26		0.34	0.16		0.00	0.02	
Uniform Delay, d1	16.5	17.4		16.8	17.2		10.8	15.4		9.3	14.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.4		1.4	1.2		1.6	0.3		0.0	0.0	
Delay (s)	17.2	18.7		18.2	18.4		12.4	15.7		9.3	14.6	
Level of Service	B	B		B	B		B	B		A	B	
Approach Delay (s)		18.5			18.4			14.1			14.3	
Approach LOS		B			B			B			B	

Intersection Summary

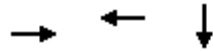
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

2023_Future - Do Nothing

14: Victoria Ave & Park St W

Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	53	300	283
v/c Ratio	0.07	0.49	0.11
Control Delay	6.8	18.4	10.4
Queue Delay	0.0	0.0	0.0
Total Delay	6.8	18.4	10.4
Queue Length 50th (m)	1.6	29.2	6.2
Queue Length 95th (m)	7.2	50.5	9.0
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	720	607	2665
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.07	0.49	0.11
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2023_Future - Do Nothing

14: Victoria Ave & Park St W

Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔↔	
Traffic Volume (vph)	0	18	30	189	87	0	0	0	0	30	207	23
Future Volume (vph)	0	18	30	189	87	0	0	0	0	30	207	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.86	
Frbp, ped/bikes		0.97			1.00						0.99	
Flpb, ped/bikes		1.00			0.98						0.99	
Frt		0.92			1.00						0.99	
Flt Protected		1.00			0.97						0.99	
Satd. Flow (prot)		1569			1722						5928	
Flt Permitted		1.00			0.76						0.99	
Satd. Flow (perm)		1569			1358						5928	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	20	33	205	95	0	0	0	0	33	225	25
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	35	0	0	300	0	0	0	0	0	269	0
Confl. Peds. (#/hr)			40	40						43		38
Heavy Vehicles (%)	0%	12%	3%	4%	1%	0%	0%	0%	0%	0%	3%	4%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		701			607						2652	
v/s Ratio Prot		0.02										
v/s Ratio Perm					0.22						0.05	
v/c Ratio		0.05			0.49						0.10	
Uniform Delay, d1		11.9			14.9						12.2	
Progression Factor		1.00			1.00						0.93	
Incremental Delay, d2		0.1			2.9						0.1	
Delay (s)		12.0			17.8						11.4	
Level of Service		B			B						B	
Approach Delay (s)		12.0			17.8			0.0			11.4	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.4		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			48.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2023_Future - Do Nothing

49:

Timing Plan: AM Peak















Lane Group	EBT	WBT
Lane Group Flow (vph)	262	315
v/c Ratio	0.18	0.21
Control Delay	2.8	1.6
Queue Delay	0.0	0.0
Total Delay	2.8	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	26.4	16.3
Internal Link Dist (m)	17.8	61.7
Turn Bay Length (m)		
Base Capacity (vph)	1496	1524
Starvation Cap Reductn	0	82
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.18	0.22
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

2023_Future - Do Nothing

49:

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	241	0	0	290	0	0	0	0	0	0	0
Future Volume (vph)	0	241	0	0	290	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1631			1662							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1631			1662							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	262	0	0	315	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	262	0	0	315	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							10		15	15		10
Heavy Vehicles (%)	0%	6%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		56.0			56.0							
Effective Green, g (s)		57.0			57.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1328			1353							
v/s Ratio Prot		0.16			0.19							
v/s Ratio Perm												
v/c Ratio		0.20			0.23							
Uniform Delay, d1		1.4			1.5							
Progression Factor		1.00			0.52							
Incremental Delay, d2		0.3			0.4							
Delay (s)		1.8			1.1							
Level of Service		A			A							
Approach Delay (s)		1.8			1.1			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.22									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			18.6%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	450	342
v/c Ratio	0.15	0.11
Control Delay	3.4	3.3
Queue Delay	0.0	0.0
Total Delay	3.4	3.3
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	27.7	21.0
Internal Link Dist (m)	35.4	448.7
Turn Bay Length (m)		
Base Capacity (vph)	3009	3068
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.15	0.11
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2023_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	414	0	0	315	0	0	0	0	0	0	0
Future Volume (vph)	0	414	0	0	315	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.95			0.95							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3334			3400							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3334			3400							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	450	0	0	342	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	450	0	0	342	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							1		1	1		1
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		64.0			64.0							
Effective Green, g (s)		65.0			65.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		2708			2762							
v/s Ratio Prot		c0.13			0.10							
v/s Ratio Perm												
v/c Ratio		0.17			0.12							
Uniform Delay, d1		1.6			1.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.1			0.1							
Delay (s)		1.8			1.7							
Level of Service		A			A							
Approach Delay (s)		1.8			1.7			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.7		HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio			0.15									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)			9.0				
Intersection Capacity Utilization			14.8%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	150	59	202	168	255	155
v/c Ratio	0.18	0.09	0.38	0.21	0.19	0.18
Control Delay	13.4	4.1	25.3	19.9	6.6	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	4.1	25.3	19.9	6.6	13.2
Queue Length 50th (m)	12.4	0.0	27.0	20.1	5.2	12.6
Queue Length 95th (m)	23.0	5.8	51.5	41.9	11.5	23.3
Internal Link Dist (m)	117.8			283.7	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	828	678	535	819	1369	840
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.09	0.38	0.21	0.19	0.18

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 1: Huron Church Rd & University Avenue

2023_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	5	133	54	186	133	21	48	67	120	8	130	5
Future Volume (vph)	5	133	54	186	133	21	48	67	120	8	130	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.88	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.98			0.92			1.00	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1863	1444	1718	1816			3281			1904	
Flt Permitted		0.99	1.00	0.66	1.00			0.87			0.98	
Satd. Flow (perm)		1853	1444	1197	1816			2899			1875	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	145	59	202	145	23	52	73	130	9	141	5
RTOR Reduction (vph)	0	0	33	0	8	0	0	72	0	0	2	0
Lane Group Flow (vph)	0	150	26	202	160	0	0	183	0	0	153	0
Confl. Peds. (#/hr)	11		54	54		11	9		6	6		9
Heavy Vehicles (%)	0%	3%	0%	1%	0%	30%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		828	646	535	812			1296			838	
v/s Ratio Prot					0.09							
v/s Ratio Perm		0.08	0.02	c0.17				0.06			c0.08	
v/c Ratio		0.18	0.04	0.38	0.20			0.14			0.18	
Uniform Delay, d1		12.6	11.8	14.0	12.7			12.4			12.6	
Progression Factor		1.00	1.00	1.60	1.62			1.00			1.00	
Incremental Delay, d2		0.5	0.1	2.0	0.5			0.2			0.5	
Delay (s)		13.1	11.9	24.4	21.2			12.6			13.1	
Level of Service		B	B	C	C			B			B	
Approach Delay (s)		12.8			22.9			12.6			13.1	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Sunset Ave & University Avenue

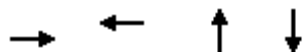
2023_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	11	255	2	29	361	4	19	12	30	7	7	8
Future Volume (Veh/h)	11	255	2	29	361	4	19	12	30	7	7	8
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	277	2	32	392	4	21	13	33	8	8	9
Pedestrians								71			6	
Lane Width (m)								4.0			4.0	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								8			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			42							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	402			350			844	839	349	806	838	400
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	338			350			806	800	349	765	799	336
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			97			91	95	95	97	97	99
cM capacity (veh/h)	1157			1128			232	267	646	252	268	667
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	291	428	67	25								
Volume Left	12	32	21	8								
Volume Right	2	4	33	9								
cSH	1157	1128	353	333								
Volume to Capacity	0.01	0.03	0.19	0.08								
Queue Length 95th (m)	0.2	0.7	5.2	1.8								
Control Delay (s)	0.4	0.9	17.6	16.7								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	0.9	17.6	16.7								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			41.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	352	500	306	47
v/c Ratio	0.46	0.62	0.61	0.08
Control Delay	9.7	10.0	23.6	16.1
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	10.5	10.0	23.6	16.1
Queue Length 50th (m)	23.5	59.6	30.1	4.0
Queue Length 95th (m)	12.2	94.6	55.6	10.8
Internal Link Dist (m)	59.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	757	804	499	562
Starvation Cap Reductn	176	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.61	0.62	0.61	0.08
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	57	258	9	60	396	5	63	107	112	3	36	5
Future Volume (vph)	57	258	9	60	396	5	63	107	112	3	36	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			1.00			0.94			0.99	
Flpb, ped/bikes		0.99			0.97			0.98			1.00	
Frt		1.00			1.00			0.95			0.99	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1574			1579			1462			1660	
Flt Permitted		0.86			0.91			0.93			0.98	
Satd. Flow (perm)		1368			1454			1368			1636	
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)	62	280	10	65	430	5	68	116	122	3	39	5
RTOR Reduction (vph)	0	1	0	0	0	0	0	32	0	0	3	0
Lane Group Flow (vph)	0	351	0	0	500	0	0	274	0	0	44	0
Confl. Peds. (#/hr)	81		201	201		81	44		70	70		44
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	3%	20%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		41.0			41.0			25.0			25.0	
Effective Green, g (s)		42.0			42.0			26.0			26.0	
Actuated g/C Ratio		0.55			0.55			0.34			0.34	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		756			803			468			559	
v/s Ratio Prot												
v/s Ratio Perm		0.26			0.34			0.20			0.03	
v/c Ratio		0.46			0.62			0.59			0.08	
Uniform Delay, d1		10.2			11.6			20.6			16.9	
Progression Factor		0.72			0.53			1.00			1.00	
Incremental Delay, d2		2.0			3.5			5.3			0.3	
Delay (s)		9.4			9.6			25.9			17.2	
Level of Service		A			A			C			B	
Approach Delay (s)		9.4			9.6			25.9			17.2	
Approach LOS		A			A			C			B	

Intersection Summary

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	28	451	162	471	276	114
v/c Ratio	0.08	0.36	0.53	0.35	0.32	0.13
Control Delay	15.8	15.3	16.4	8.7	10.7	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	15.3	16.4	8.7	10.7	9.1
Queue Length 50th (m)	2.2	19.6	13.3	11.4	17.5	6.6
Queue Length 95th (m)	m5.6	32.3	25.2	6.2	32.6	14.8
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	332	1247	308	1347	861	876
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.36	0.53	0.35	0.32	0.13

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	334	81	149	426	7	62	88	104	14	66	25
Future Volume (vph)	26	334	81	149	426	7	62	88	104	14	66	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	0.96		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	0.96	1.00		0.91	1.00			0.99			1.00	
Fr t	1.00	0.97		1.00	1.00			0.94			0.97	
Fl t Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1719	2896		1546	3199			1902			1897	
Fl t Permitted	0.44	1.00		0.45	1.00			0.91			0.95	
Satd. Flow (perm)	790	2896		733	3199			1748			1821	
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)	28	363	88	162	463	8	67	96	113	15	72	27
RTOR Reduction (vph)	0	28	0	0	2	0	0	33	0	0	14	0
Lane Group Flow (vph)	28	423	0	162	469	0	0	243	0	0	100	0
Confl. Peds. (#/hr)	37		89	89		37	37		36	36		37
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%	4%	5%	1%	0%	5%	6%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	332	1219		308	1346			828			862	
v/s Ratio Prot		0.15			0.15							
v/s Ratio Perm	0.04			c0.22				c0.14			0.05	
v/c Ratio	0.08	0.35		0.53	0.35			0.29			0.12	
Uniform Delay, d1	13.2	14.9		16.4	14.9			12.2			11.1	
Progression Factor	1.12	1.07		0.57	0.53			1.00			1.00	
Incremental Delay, d2	0.5	0.7		6.3	0.7			0.9			0.3	
Delay (s)	15.2	16.7		15.7	8.7			13.1			11.4	
Level of Service	B	B		B	A			B			B	
Approach Delay (s)		16.7			10.5			13.1			11.4	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			13.0								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			76.0								Sum of lost time (s)	8.0
Intersection Capacity Utilization			55.6%								ICU Level of Service	B
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

5: McKay Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	15	391	7	7	464	11	3	1	5	8	0	14
Future Volume (Veh/h)	15	391	7	7	464	11	3	1	5	8	0	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)	16	425	8	8	504	12	3	1	5	9	0	15
Pedestrians								14			11	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			60							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	527			447			758	1018	230	787	1016	269
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	459			447			696	964	230	726	962	194
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			99	100	99	97	100	98
cM capacity (veh/h)	1071			1109			302	239	767	291	240	790

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	228	220	260	264	9	24
Volume Left	16	0	8	0	3	9
Volume Right	0	8	0	12	5	15
cSH	1071	1700	1109	1700	436	481
Volume to Capacity	0.01	0.13	0.01	0.16	0.02	0.05
Queue Length 95th (m)	0.3	0.0	0.2	0.0	0.5	1.2
Control Delay (s)	0.7	0.0	0.3	0.0	13.4	12.9
Lane LOS	A		A		B	B
Approach Delay (s)	0.4		0.2		13.4	12.9
Approach LOS					B	B

Intersection Summary

Average Delay	0.7
Intersection Capacity Utilization	32.0%
ICU Level of Service	A
Analysis Period (min)	15

Queues
6: Crawford Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak






















Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	22	383	59	136	540	249	173
v/c Ratio	0.06	0.37	0.09	0.31	0.31	0.39	0.25
Control Delay	9.8	15.9	6.0	5.9	4.4	18.1	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	15.9	6.0	5.9	4.4	18.1	16.0
Queue Length 50th (m)	2.0	44.2	1.4	3.7	7.3	22.5	14.7
Queue Length 95th (m)	6.1	76.9	10.4	6.6	10.0	40.7	28.2
Internal Link Dist (m)		448.3			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	393	1049	683	445	1739	633	689
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.37	0.09	0.31	0.31	0.39	0.25

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	352	54	125	473	24	65	95	69	18	102	39
Future Volume (vph)	20	352	54	125	473	24	65	95	69	18	102	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.92	1.00	1.00			0.99			0.99	
Flpb, ped/bikes	0.97	1.00	1.00	0.97	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.96			0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1639	1946	1216	1691	3215			1956			1979	
Flt Permitted	0.42	1.00	1.00	0.46	1.00			0.87			0.95	
Satd. Flow (perm)	729	1946	1216	825	3215			1726			1897	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	383	59	136	514	26	71	103	75	20	111	42
RTOR Reduction (vph)	0	0	27	0	5	0	0	21	0	0	15	0
Lane Group Flow (vph)	22	383	32	136	535	0	0	228	0	0	158	0
Confl. Peds. (#/hr)	28		28	28		28	15		16	16		15
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	6%	0%	0%	6%	0%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	393	1049	656	445	1734			613			673	
v/s Ratio Prot		c0.20			0.17							
v/s Ratio Perm	0.03		0.03	0.16				c0.13			0.08	
v/c Ratio	0.06	0.37	0.05	0.31	0.31			0.37			0.23	
Uniform Delay, d1	8.3	10.0	8.3	9.7	9.7			18.2			17.2	
Progression Factor	1.12	1.44	2.15	0.42	0.41			1.00			1.00	
Incremental Delay, d2	0.3	1.0	0.1	1.6	0.4			1.7			0.8	
Delay (s)	9.5	15.5	17.9	5.6	4.4			19.9			18.0	
Level of Service	A	B	B	A	A			B			B	
Approach Delay (s)		15.5			4.6			19.9			18.0	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM 2000 Control Delay			11.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			76.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			61.5%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: Bruce Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	43	442	565	189
v/c Ratio	0.12	0.44	0.56	0.29
Control Delay	8.0	12.5	15.9	17.8
Queue Delay	0.0	0.0	0.5	0.0
Total Delay	8.0	12.5	16.4	17.8
Queue Length 50th (m)	3.7	54.4	72.3	17.4
Queue Length 95th (m)	9.7	85.7	107.9	32.2
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	345	1015	1011	653
Starvation Cap Reductn	0	0	139	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.12	0.44	0.65	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



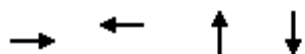
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑			↖			↕				
Traffic Volume (vph)	40	407	0	0	476	44	75	63	36	0	0	0
Future Volume (vph)	40	407	0	0	476	44	75	63	36	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frbp, ped/bikes	1.00	1.00			1.00			0.99				
Flpb, ped/bikes	0.99	1.00			1.00			0.99				
Frt	1.00	1.00			0.99			0.97				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1814	1838			1822			1874				
Flt Permitted	0.33	1.00			1.00			0.98				
Satd. Flow (perm)	626	1838			1822			1874				
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)	43	442	0	0	517	48	82	68	39	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	13	0	0	0	0
Lane Group Flow (vph)	43	442	0	0	561	0	0	177	0	0	0	0
Confl. Peds. (#/hr)	15		17	17		15	14		16	16		14
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	3%	2%	23%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	345	1015			1006			641				
v/s Ratio Prot		0.24			0.31							
v/s Ratio Perm	0.07							0.09				
v/c Ratio	0.12	0.44			0.56			0.28				
Uniform Delay, d1	8.2	10.0			11.0			18.2				
Progression Factor	0.85	1.08			1.23			1.00				
Incremental Delay, d2	0.7	1.3			2.1			1.1				
Delay (s)	7.6	12.1			15.6			19.2				
Level of Service	A	B			B			B				
Approach Delay (s)		11.7			15.6			19.2			0.0	
Approach LOS		B			B			B			A	

Intersection Summary		
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.45	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	56.6%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

Queues
8: Church St & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	435	444	129	208
v/c Ratio	0.46	0.40	0.29	0.46
Control Delay	6.0	7.0	21.8	20.2
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	6.0	7.0	21.8	20.3
Queue Length 50th (m)	9.5	16.5	13.2	17.5
Queue Length 95th (m)	22.6	55.4	26.6	36.1
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	949	1105	450	454
Starvation Cap Reductn	14	0	0	0
Spillback Cap Reductn	0	60	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.47	0.42	0.29	0.46
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



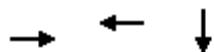
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	61	289	51	18	352	38	37	65	17	19	84	88
Future Volume (vph)	61	289	51	18	352	38	37	65	17	19	84	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.98			0.98			0.95	
Flpb, ped/bikes		0.99			1.00			0.98			0.99	
Frt		0.98			0.99			0.98			0.94	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1706			1819			1784			1542	
Flt Permitted		0.89			0.98			0.88			0.97	
Satd. Flow (perm)		1525			1778			1600			1497	
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)	66	314	55	20	383	41	40	71	18	21	91	96
RTOR Reduction (vph)	0	7	0	0	5	0	0	8	0	0	41	0
Lane Group Flow (vph)	0	428	0	0	439	0	0	121	0	0	167	0
Confl. Peds. (#/hr)	77		42	42		77	41		69	69		41
Heavy Vehicles (%)	7%	5%	2%	0%	3%	0%	0%	0%	0%	5%	0%	14%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		943			1099			442			413	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.25			0.08			c0.11	
v/c Ratio		0.45			0.40			0.27			0.41	
Uniform Delay, d1		7.7			7.3			21.5			22.4	
Progression Factor		0.59			0.81			1.00			1.00	
Incremental Delay, d2		1.5			1.0			1.5			2.9	
Delay (s)		6.0			7.0			23.1			25.4	
Level of Service		A			A			C			C	
Approach Delay (s)		6.0			7.0			23.1			25.4	
Approach LOS		A			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.44	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	65.4%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	421	454	220
v/c Ratio	0.36	0.42	0.58
Control Delay	6.4	4.5	27.5
Queue Delay	0.0	0.1	0.0
Total Delay	6.4	4.6	27.5
Queue Length 50th (m)	37.5	12.8	22.7
Queue Length 95th (m)	54.0	20.6	40.1
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1156	1090	574
Starvation Cap Reductn	0	101	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.36	0.46	0.38
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2023_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	18	273	96	73	328	17	0	0	0	14	123	65
Future Volume (vph)	18	273	96	73	328	17	0	0	0	14	123	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.99			1.00						0.95	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.97			0.99						0.96	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1739			1835						1613	
Flt Permitted		0.97			0.87						1.00	
Satd. Flow (perm)		1697			1615						1613	
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)	20	297	104	79	357	18	0	0	0	15	134	71
RTOR Reduction (vph)	0	11	0	0	1	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	410		0	0	453	0	0	0	0	194	0
Confl. Peds. (#/hr)	32		50	50		32	61		25	25		61
Heavy Vehicles (%)	41%	4%	4%	6%	3%	0%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		50.2			50.2						15.8	
Effective Green, g (s)		51.2			51.2						16.8	
Actuated g/C Ratio		0.67			0.67						0.22	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1143			1088						356	
v/s Ratio Prot												
v/s Ratio Perm		0.24			0.28						0.12	
v/c Ratio		0.36			0.42						0.54	
Uniform Delay, d1		5.3			5.6						26.2	
Progression Factor		0.95			0.51						1.00	
Incremental Delay, d2		0.8			1.1						2.1	
Delay (s)		5.9			4.0						28.3	
Level of Service		A			A						C	
Approach Delay (s)		5.9			4.0			0.0			28.3	
Approach LOS		A			A			A			C	

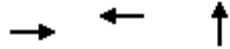
Intersection Summary

HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	320	375	285
v/c Ratio	0.33	0.38	0.26
Control Delay	9.6	9.0	11.7
Queue Delay	0.3	1.1	0.0
Total Delay	9.9	10.2	11.7
Queue Length 50th (m)	14.6	17.0	9.5
Queue Length 95th (m)	23.8	24.6	17.5
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	978	975	1110
Starvation Cap Reductn	244	375	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.44	0.63	0.26
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 10: Pelissier St & University Avenue

2023_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	9	285	0	0	329	16	105	70	87	0	0	0
Future Volume (vph)	9	285	0	0	329	16	105	70	87	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			0.97				
Frt		1.00			0.99			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1848			2853				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1858			1848			2853				
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	310	0	0	358	17	114	76	95	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	60	0	0	0	0
Lane Group Flow (vph)	0	320	0	0	373	0	0	225	0	0	0	0
Confl. Peds. (#/hr)	50					50	34		35			
Heavy Vehicles (%)	0%	3%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		39.0			39.0			27.0				
Effective Green, g (s)		40.0			40.0			28.0				
Actuated g/C Ratio		0.53			0.53			0.37				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		977			972			1051				
v/s Ratio Prot					c0.20							
v/s Ratio Perm		0.17						0.08				
v/c Ratio		0.33			0.38			0.21				
Uniform Delay, d1		10.3			10.7			16.5				
Progression Factor		0.83			0.74			1.00				
Incremental Delay, d2		0.9			1.0			0.5				
Delay (s)		9.4			8.9			16.9				
Level of Service		A			A			B				
Approach Delay (s)		9.4			8.9			16.9			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.4				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			46.4%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	421	336	71	203	33	251
v/c Ratio	0.39	0.56	0.26	0.30	0.10	0.38
Control Delay	6.3	24.0	16.4	12.9	13.2	15.1
Queue Delay	0.5	0.1	0.0	0.0	0.0	0.0
Total Delay	6.8	24.1	16.4	12.9	13.2	15.1
Queue Length 50th (m)	7.4	39.9	6.1	15.0	2.6	21.3
Queue Length 95th (m)	11.7	70.3	15.0	28.8	7.6	38.1
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1093	602	272	666	336	664
Starvation Cap Reductn	307	0	0	0	0	0
Spillback Cap Reductn	0	12	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.57	0.26	0.30	0.10	0.38

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

2023_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕		↕	↕	
Traffic Volume (vph)	90	261	36	32	247	30	65	139	48	30	195	36
Future Volume (vph)	90	261	36	32	247	30	65	139	48	30	195	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.92		1.00	0.93	
Flpb, ped/bikes		0.98			0.99		0.71	1.00		0.78	1.00	
Fr t		0.99			0.99		1.00	0.96		1.00	0.98	
Fl t Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3031			1428		1042	1451		1178	1464	
Fl t Permitted		0.79			0.93		0.55	1.00		0.61	1.00	
Satd. Flow (perm)		2422			1335		608	1451		751	1464	
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)	98	284	39	35	268	33	71	151	52	33	212	39
RTOR Reduction (vph)	0	10	0	0	5	0	0	17	0	0	9	0
Lane Group Flow (vph)	0	411	0	0	331	0	71	186	0	33	242	0
Confl. Peds. (#/hr)	91		126	126		91	198		252	252		198
Heavy Vehicles (%)	1%	2%	0%	0%	37%	0%	5%	1%	0%	0%	1%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1083			597		272	649		335	654	
v/s Ratio Prot								0.13			c0.17	
v/s Ratio Perm		0.17			c0.25		0.12			0.04		
v/c Ratio		0.38			0.55		0.26	0.29		0.10	0.37	
Uniform Delay, d1		14.0			15.4		13.1	13.3		12.1	13.9	
Progression Factor		0.39			1.30		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			3.6		2.3	1.1		0.6	1.6	
Delay (s)		6.4			23.6		15.5	14.4		12.7	15.5	
Level of Service		A			C		B	B		B	B	
Approach Delay (s)		6.4			23.6			14.7			15.2	
Approach LOS		A			C			B			B	

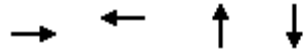
Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	443	271	228	218
v/c Ratio	0.54	0.33	0.30	0.21
Control Delay	18.1	11.7	14.9	11.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.1	11.7	14.9	11.5
Queue Length 50th (m)	53.6	24.6	19.3	7.7
Queue Length 95th (m)	77.1	40.5	34.3	14.5
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	815	809	757	1020
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.33	0.30	0.21

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 12: Goyeau St & University Avenue

2023_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	289	69	21	186	42	23	152	35	53	104	43
Future Volume (vph)	50	289	69	21	186	42	23	152	35	53	104	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.98			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1813			1770			1849			2787	
Flt Permitted		0.93			0.95			0.96			0.84	
Satd. Flow (perm)		1703			1689			1777			2358	
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	314	75	23	202	46	25	165	38	58	113	47
RTOR Reduction (vph)	0	9	0	0	9	0	0	9	0	0	27	0
Lane Group Flow (vph)	0	434	0	0	262	0	0	219	0	0	191	0
Confl. Peds. (#/hr)	16		34	34		16	32		10	10		32
Heavy Vehicles (%)	2%	2%	1%	0%	5%	5%	0%	1%	0%	18%	3%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		806			800			748			992	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.15			c0.12			0.08	
v/c Ratio		0.54			0.33			0.29			0.19	
Uniform Delay, d1		14.1			12.5			14.5			13.9	
Progression Factor		1.10			0.89			1.00			1.00	
Incremental Delay, d2		2.5			1.1			1.0			0.4	
Delay (s)		18.1			12.1			15.5			14.3	
Level of Service		B			B			B			B	
Approach Delay (s)		18.1			12.1			15.5			14.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	318	64	187	105	241	3	41
v/c Ratio	0.23	0.45	0.22	0.29	0.21	0.22	0.01	0.04
Control Delay	17.2	15.4	17.9	16.4	11.6	13.0	10.0	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	15.4	17.9	16.4	11.6	13.0	10.0	15.6
Queue Length 50th (m)	12.2	32.1	5.9	16.9	7.7	9.0	0.2	1.8
Queue Length 95th (m)	m23.3	52.1	14.7	30.9	15.7	16.5	1.5	4.9
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	432	700	286	655	493	1084	330	1079
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.45	0.22	0.29	0.21	0.22	0.01	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 13: McDougall St & University Avenue

2023_Future - Do Nothing
 Timing Plan: PM Peak



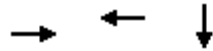
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	90	131	162	59	154	18	97	167	54	3	34	4
Future Volume (vph)	90	131	162	59	154	18	97	167	54	3	34	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00		0.98	1.00	
Fr _t	1.00	0.92		1.00	0.98		1.00	0.96		1.00	0.99	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1626		1510	1645		1349	2843		1125	3149	
Fl _t Permitted	0.61	1.00		0.46	1.00		0.67	1.00		0.60	1.00	
Satd. Flow (perm)	1096	1626		726	1645		958	2843		713	3149	
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)	98	142	176	64	167	20	105	182	59	3	37	4
RTOR Reduction (vph)	0	59	0	0	5	0	0	37	0	0	3	0
Lane Group Flow (vph)	98	259	0	64	182	0	105	204	0	3	38	0
Confl. Peds. (#/hr)	7		6	6		7	21		34	34		21
Heavy Vehicles (%)	0%	0%	10%	0%	1%	0%	10%	9%	0%	33%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		35.0	27.0		31.0	25.0	
Effective Green, g (s)	30.0	30.0		30.0	30.0		35.0	28.0		31.0	26.0	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.46	0.37		0.41	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	432	641		286	649		482	1047		323	1077	
v/s Ratio Prot		c0.16			0.11		c0.02	0.07		0.00	0.01	
v/s Ratio Perm	0.09			0.09			c0.08			0.00		
v/c Ratio	0.23	0.40		0.22	0.28		0.22	0.19		0.01	0.04	
Uniform Delay, d ₁	15.3	16.6		15.3	15.6		12.0	16.3		13.4	16.7	
Progression Factor	1.01	1.14		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	1.1	1.7		1.8	1.1		1.0	0.4		0.1	0.1	
Delay (s)	16.5	20.5		17.1	16.7		13.1	16.7		13.4	16.7	
Level of Service	B	C		B	B		B	B		B	B	
Approach Delay (s)		19.6			16.8			15.6			16.5	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W

2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	152	432	350
v/c Ratio	0.19	0.76	0.13
Control Delay	7.2	28.5	8.5
Queue Delay	0.0	0.0	0.0
Total Delay	7.2	28.5	8.5
Queue Length 50th (m)	5.7	49.8	4.7
Queue Length 95th (m)	15.7	#96.0	8.6
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	782	568	2623
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.19	0.76	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2023_Future - Do Nothing

14: Victoria Ave & Park St W

Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔↔	
Traffic Volume (vph)	0	66	74	285	112	0	0	0	0	28	270	25
Future Volume (vph)	0	66	74	285	112	0	0	0	0	28	270	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.86	
Frbp, ped/bikes		0.97			1.00						0.99	
Flpb, ped/bikes		1.00			0.98						0.99	
Frt		0.93			1.00						0.99	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1651			1767						5831	
Flt Permitted		1.00			0.69						1.00	
Satd. Flow (perm)		1651			1270						5831	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	72	80	310	122	0	0	0	0	30	293	27
RTOR Reduction (vph)	0	44	0	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	108	0	0	432	0	0	0	0	0	335	0
Confl. Peds. (#/hr)			43	43						58		44
Heavy Vehicles (%)	0%	5%	1%	0%	1%	0%	0%	0%	0%	0%	5%	8%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		738			568						2608	
v/s Ratio Prot		0.07										
v/s Ratio Perm					c0.34						0.06	
v/c Ratio		0.15			0.76						0.13	
Uniform Delay, d1		12.4			17.6						12.3	
Progression Factor		1.00			1.00						0.73	
Incremental Delay, d2		0.4			9.3						0.1	
Delay (s)		12.8			26.9						9.1	
Level of Service		B			C						A	
Approach Delay (s)		12.8			26.9			0.0			9.1	
Approach LOS		B			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			17.9		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			72.5%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
49: University Avenue















2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	317	428
v/c Ratio	0.21	0.27
Control Delay	2.9	1.0
Queue Delay	0.0	0.0
Total Delay	2.9	1.0
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	28.8	12.2
Internal Link Dist (m)	18.1	59.7
Turn Bay Length (m)		
Base Capacity (vph)	1535	1566
Starvation Cap Reductn	0	92
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.21	0.29
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
49: University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	292	0	0	394	0	0	0	0	0	0	0
Future Volume (vph)	0	292	0	0	394	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	317	0	0	428	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	317	0	0	428	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							7		26	26		7
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		62.0			62.0							
Effective Green, g (s)		63.0			63.0							
Actuated g/C Ratio		0.83			0.83							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1377			1405							
v/s Ratio Prot		0.19			0.25							
v/s Ratio Perm												
v/c Ratio		0.23			0.30							
Uniform Delay, d1		1.4			1.5							
Progression Factor		1.12			0.26							
Incremental Delay, d2		0.4			0.4							
Delay (s)		1.9			0.8							
Level of Service		A			A							
Approach Delay (s)		1.9			0.8			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.3		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.29									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			24.1%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue













2023_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	439	524
v/c Ratio	0.15	0.17
Control Delay	3.8	1.6
Queue Delay	0.0	0.0
Total Delay	3.8	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	35.3	12.4
Internal Link Dist (m)	35.9	448.3
Turn Bay Length (m)		
Base Capacity (vph)	2992	3051
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.15	0.17
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2023_Future - Do Nothing
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	404	0	0	482	0	0	0	0	0	0	0
Future Volume (vph)	0	404	0	0	482	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.95			0.95							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3334			3400							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3334			3400							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	439	0	0	524	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	439	0	0	524	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		60.0			60.0							
Effective Green, g (s)		61.0			61.0							
Actuated g/C Ratio		0.80			0.80							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		2675			2728							
v/s Ratio Prot		0.13			0.15							
v/s Ratio Perm												
v/c Ratio		0.16			0.19							
Uniform Delay, d1		1.7			1.8							
Progression Factor		1.05			0.42							
Incremental Delay, d2		0.1			0.2							
Delay (s)		1.9			0.9							
Level of Service		A			A							
Approach Delay (s)		1.9			0.9			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.17									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			16.7%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	265	66	128	82	198	123
v/c Ratio	0.32	0.10	0.28	0.11	0.15	0.15
Control Delay	15.0	3.9	15.5	10.2	4.8	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	3.9	15.5	10.2	4.8	12.6
Queue Length 50th (m)	23.6	0.0	11.2	4.9	2.5	9.6
Queue Length 95th (m)	39.4	6.1	22.7	12.2	7.8	18.9
Internal Link Dist (m)	117.8			282.0	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	818	678	452	772	1364	815
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.10	0.28	0.11	0.15	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Huron Church Rd & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	1	243	61	118	57	18	23	33	126	11	96	6
Future Volume (vph)	1	243	61	118	57	18	23	33	126	11	96	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.90	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.95	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.96			0.90			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1830	1435	1783	1703			3120			1862	
Flt Permitted		1.00	1.00	0.54	1.00			0.92			0.97	
Satd. Flow (perm)		1829	1435	1011	1703			2883			1818	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	264	66	128	62	20	25	36	137	12	104	7
RTOR Reduction (vph)	0	0	36	0	11	0	0	76	0	0	3	0
Lane Group Flow (vph)	0	265	30	128	71	0	0	122	0	0	120	0
Confl. Peds. (#/hr)	6		47	47		6	6		1	1		6
Heavy Vehicles (%)	0%	5%	2%	0%	2%	31%	5%	3%	2%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		818	641	452	761			1289			813	
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.14	0.02	0.13				0.04			c0.07	
v/c Ratio		0.32	0.05	0.28	0.09			0.09			0.15	
Uniform Delay, d1		13.6	11.8	13.3	12.1			12.1			12.4	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.1	0.1	1.6	0.2			0.1			0.4	
Delay (s)		14.6	12.0	14.9	12.4			12.3			12.8	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		14.1			13.9			12.3			12.8	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 2: Sunset Ave & University Avenue

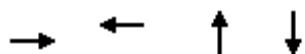
2028_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	3	231	23	22	277	4	17	17	20	2	18	12
Future Volume (Veh/h)	3	231	23	22	277	4	17	17	20	2	18	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)	3	251	25	24	301	4	18	18	22	2	20	13
Pedestrians		10			15			25			13	
Lane Width (m)		3.5			3.5			4.0			4.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		306			42							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	318			301			678	660	304	680	671	326
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	269			301			645	626	304	646	637	278
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.1	3.3
p0 queue free %	100			98			94	95	97	99	94	98
cM capacity (veh/h)	1237			1238			322	364	711	322	352	719
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	279	329	58	35								
Volume Left	3	24	18	2								
Volume Right	25	4	22	13								
cSH	1237	1238	426	431								
Volume to Capacity	0.00	0.02	0.14	0.08								
Queue Length 95th (m)	0.1	0.5	3.6	2.0								
Control Delay (s)	0.1	0.8	14.8	14.1								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	0.8	14.8	14.1								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization			46.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	357	366	245	118
v/c Ratio	0.45	0.53	0.49	0.18
Control Delay	10.7	14.9	15.9	14.4
Queue Delay	0.7	0.0	0.0	0.0
Total Delay	11.4	14.9	15.9	14.4
Queue Length 50th (m)	26.1	29.7	16.6	9.2
Queue Length 95th (m)	16.9	52.3	35.9	19.2
Internal Link Dist (m)	61.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	791	688	504	639
Starvation Cap Reductn	186	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	0.53	0.49	0.18
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	274	43	83	252	2	74	50	102	2	94	13
Future Volume (vph)	11	274	43	83	252	2	74	50	102	2	94	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.97			1.00			0.96			0.99	
Flpb, ped/bikes		1.00			0.97			0.97			1.00	
Frt		0.98			1.00			0.94			0.98	
Flt Protected		1.00			0.99			0.98			1.00	
Satd. Flow (prot)		1544			1576			1407			1708	
Flt Permitted		0.99			0.84			0.87			1.00	
Satd. Flow (perm)		1525			1337			1243			1703	
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	298	47	90	274	2	80	54	111	2	102	14
RTOR Reduction (vph)	0	8	0	0	0	0	0	43	0	0	7	0
Lane Group Flow (vph)	0	349	0	0	366	0	0	202	0	0	111	0
Confl. Peds. (#/hr)	85		95	95		82	60		39	39		60
Heavy Vehicles (%)	0%	4%	3%	0%	4%	0%	3%	2%	5%	50%	1%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		35.0			35.0			25.0			25.0	
Effective Green, g (s)		36.0			36.0			26.0			26.0	
Actuated g/C Ratio		0.51			0.51			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		784			687			461			632	
v/s Ratio Prot												
v/s Ratio Perm		0.23			0.27			0.16			0.07	
v/c Ratio		0.45			0.53			0.44			0.18	
Uniform Delay, d1		10.7			11.4			16.5			14.8	
Progression Factor		0.83			1.00			1.00			1.00	
Incremental Delay, d2		1.8			2.9			3.0			0.6	
Delay (s)		10.7			14.3			19.5			15.4	
Level of Service		B			B			B			B	
Approach Delay (s)		10.7			14.3			19.5			15.4	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	21	414	64	270	298	84
v/c Ratio	0.06	0.32	0.19	0.21	0.32	0.10
Control Delay	13.7	14.7	15.8	14.2	9.1	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	14.7	15.8	14.2	9.1	9.9
Queue Length 50th (m)	1.7	19.0	5.6	12.2	16.0	5.2
Queue Length 95th (m)	5.7	28.9	13.6	19.6	30.9	12.3
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	380	1291	335	1297	924	819
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.32	0.19	0.21	0.32	0.10

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	338	43	59	240	8	39	91	144	15	50	13
Future Volume (vph)	19	338	43	59	240	8	39	91	144	15	50	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00			0.99			1.00	
Flpb, ped/bikes	0.97	1.00		0.97	1.00			1.00			1.00	
Fr _t	1.00	0.98		1.00	0.99			0.93			0.98	
Fl _t Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1467	3037		1588	3074			1914			1826	
Fl _t Permitted	0.59	1.00		0.48	1.00			0.96			0.93	
Satd. Flow (perm)	904	3037		797	3074			1841			1716	
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)	21	367	47	64	261	9	42	99	157	16	54	14
RTOR Reduction (vph)	0	13	0	0	3	0	0	53	0	0	7	0
Lane Group Flow (vph)	21	401	0	64	267	0	0	245	0	0	77	0
Confl. Peds. (#/hr)	21		28	28		21	16		12	12		16
Heavy Vehicles (%)	18%	3%	0%	4%	6%	0%	0%	4%	2%	7%	11%	11%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	380	1278		335	1294			872			812	
v/s Ratio Prot		c0.13			0.09							
v/s Ratio Perm	0.02			0.08				c0.13			0.04	
v/c Ratio	0.06	0.31		0.19	0.21			0.28			0.09	
Uniform Delay, d ₁	13.0	14.7		13.9	13.9			12.1			11.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d ₂	0.3	0.6		1.3	0.4			0.8			0.2	
Delay (s)	13.3	15.3		15.1	14.3			13.0			11.2	
Level of Service	B	B		B	B			B			B	
Approach Delay (s)		15.2			14.5			13.0			11.2	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: McKay Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	4	426	2	1	324	6	1	1	1	8	0	10
Future Volume (Veh/h)	4	426	2	1	324	6	1	1	1	8	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)	4	463	2	1	352	7	1	1	1	9	0	11
Pedestrians		1			1			5			20	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			59							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	379			470			667	858	238	620	856	200
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	357			470			648	840	238	600	838	177
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 %	100			100			100	100	100	98	100	99
cM capacity (veh/h)	1179			1097			342	293	764	368	294	817
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	236	234	177	183	3	20						
Volume Left	4	0	1	0	1	9						
Volume Right	0	2	0	7	1	11						
cSH	1179	1700	1097	1700	392	528						
Volume to Capacity	0.00	0.14	0.00	0.11	0.01	0.04						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.2	0.9						
Control Delay (s)	0.2	0.0	0.1	0.0	14.2	12.1						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.1		0.0		14.2	12.1						
Approach LOS					B	B						
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			25.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	35	534	50	26	340	355	91
v/c Ratio	0.07	0.52	0.07	0.08	0.20	0.54	0.13
Control Delay	8.9	13.5	3.0	6.4	5.9	19.7	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	13.5	3.0	6.4	5.9	19.7	14.8
Queue Length 50th (m)	2.2	45.5	0.0	1.0	6.7	32.9	7.2
Queue Length 95th (m)	6.3	70.2	4.4	3.1	10.3	57.1	16.3
Internal Link Dist (m)		448.7			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	494	1029	686	322	1700	661	679
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.07	0.08	0.20	0.54	0.13

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	491	46	24	298	15	83	99	144	8	62	14
Future Volume (vph)	32	491	46	24	298	15	83	99	144	8	62	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.99			0.99			1.00	
Flpb, ped/bikes	0.94	1.00	1.00	0.99	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.94			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1591	1908	1230	1655	3143			1934			1951	
Flt Permitted	0.55	1.00	1.00	0.34	1.00			0.90			0.96	
Satd. Flow (perm)	916	1908	1230	598	3143			1759			1885	
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	534	50	26	324	16	90	108	157	9	67	15
RTOR Reduction (vph)	0	0	23	0	5	0	0	37	0	0	10	0
Lane Group Flow (vph)	35	534	27	26	335	0	0	318	0	0	81	0
Confl. Peds. (#/hr)	40		19	19		40	13		9	9		13
Heavy Vehicles (%)	0%	4%	1%	4%	4%	7%	0%	1%	3%	0%	6%	15%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	494	1029	663	322	1695			624			669	
v/s Ratio Prot		c0.28			0.11							
v/s Ratio Perm	0.04		0.02	0.04				c0.18			0.04	
v/c Ratio	0.07	0.52	0.04	0.08	0.20			0.51			0.12	
Uniform Delay, d1	8.4	11.2	8.2	8.4	9.0			19.3			16.5	
Progression Factor	1.00	1.00	1.00	0.67	0.64			1.00			1.00	
Incremental Delay, d2	0.3	1.9	0.1	0.5	0.3			3.0			0.4	
Delay (s)	8.7	13.1	8.4	6.1	6.0			22.2			16.9	
Level of Service	A	B	A	A	A			C			B	
Approach Delay (s)		12.4			6.0			22.2			16.9	
Approach LOS		B			A			C			B	

Intersection Summary		
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.51	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	59.0%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	26	511	293	181
v/c Ratio	0.05	0.50	0.31	0.28
Control Delay	5.9	11.5	12.4	16.8
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	5.9	11.7	12.4	16.8
Queue Length 50th (m)	1.4	51.2	24.7	15.6
Queue Length 95th (m)	m2.7	84.6	36.7	29.9
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	543	1015	959	642
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	99	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.56	0.31	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	470	0	0	234	36	73	49	45	0	0	0
Future Volume (vph)	24	470	0	0	234	36	73	49	45	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frpb, ped/bikes	1.00	1.00			0.99			0.99				
Flpb, ped/bikes	0.98	1.00			1.00			0.99				
Frt	1.00	1.00			0.98			0.96				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1714	1838			1724			1826				
Flt Permitted	0.54	1.00			1.00			0.98				
Satd. Flow (perm)	982	1838			1724			1826				
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	511	0	0	254	39	79	53	49	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	18	0	0	0	0
Lane Group Flow (vph)	26	511	0	0	286	0	0	163	0	0	0	0
Confl. Peds. (#/hr)	27		19	19		27	11		17	17		11
Heavy Vehicles (%)	4%	2%	0%	0%	9%	6%	3%	2%	24%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	542	1015			952			624				
v/s Ratio Prot		c0.28			0.17							
v/s Ratio Perm	0.03							0.09				
v/c Ratio	0.05	0.50			0.30			0.26				
Uniform Delay, d1	7.8	10.5			9.1			18.1				
Progression Factor	0.71	0.91			1.31			1.00				
Incremental Delay, d2	0.1	1.5			0.8			1.0				
Delay (s)	5.7	11.1			12.8			19.1				
Level of Service	A	B			B			B				
Approach Delay (s)		10.9			12.8			19.1			0.0	
Approach LOS		B			B			B			A	

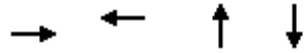
Intersection Summary

HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
8: Church St & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	600	266	93	113
v/c Ratio	0.59	0.25	0.21	0.26
Control Delay	12.3	5.5	19.3	16.2
Queue Delay	2.5	0.0	0.0	0.0
Total Delay	14.8	5.5	19.3	16.2
Queue Length 50th (m)	71.8	7.0	8.4	7.9
Queue Length 95th (m)	109.4	11.6	19.2	19.9
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	1017	1084	443	443
Starvation Cap Reductn	286	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.25	0.21	0.26

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	74	443	35	11	222	12	22	47	17	14	51	40
Future Volume (vph)	74	443	35	11	222	12	22	47	17	14	51	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.98			0.97	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.99			0.99			0.97			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1768			1793			1678			1545	
Flt Permitted		0.92			0.97			0.92			0.96	
Satd. Flow (perm)		1642			1750			1563			1499	
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)	80	482	38	12	241	13	24	51	18	15	55	43
RTOR Reduction (vph)	0	3	0	0	2	0	0	12	0	0	29	0
Lane Group Flow (vph)	0	597	0	0	264	0	0	81	0	0	84	0
Confl. Peds. (#/hr)	35		51	51		35	26		42	42		26
Heavy Vehicles (%)	8%	3%	0%	0%	7%	0%	0%	5%	20%	0%	4%	22%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1015			1082			431			414	
v/s Ratio Prot												
v/s Ratio Perm		c0.36			0.15			0.05			c0.06	
v/c Ratio		0.59			0.24			0.19			0.20	
Uniform Delay, d1		8.7			6.5			21.0			21.1	
Progression Factor		1.11			0.76			1.00			1.00	
Incremental Delay, d2		2.3			0.5			1.0			1.1	
Delay (s)		11.9			5.5			22.0			22.2	
Level of Service		B			A			C			C	
Approach Delay (s)		11.9			5.5			22.0			22.2	
Approach LOS		B			A			C			C	

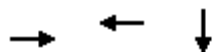
Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	487	370	207
v/c Ratio	0.43	0.38	0.53
Control Delay	1.8	7.9	27.4
Queue Delay	0.0	0.8	0.0
Total Delay	1.8	8.7	27.4
Queue Length 50th (m)	3.1	21.7	23.1
Queue Length 95th (m)	7.5	41.3	40.0
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1145	981	564
Starvation Cap Reductn	0	333	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.43	0.57	0.37
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2028_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	19	316	113	74	257	10	0	0	0	29	122	39
Future Volume (vph)	19	316	113	74	257	10	0	0	0	29	122	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.99			1.00						0.96	
Flpb, ped/bikes		1.00			1.00						0.98	
Frt		0.97			1.00						0.97	
Flt Protected		1.00			0.99						0.99	
Satd. Flow (prot)		1750			1768						1616	
Flt Permitted		0.98			0.83						0.99	
Satd. Flow (perm)		1718			1486						1616	
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)	21	343	123	80	279	11	0	0	0	32	133	42
RTOR Reduction (vph)	0	12	0	0	1	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	475		0	0	369	0	0	0	0	193	0
Confl. Peds. (#/hr)	58		48	48		58	95		52	52		95
Heavy Vehicles (%)	41%	3%	4%	9%	6%	22%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		49.1			49.1						16.9	
Effective Green, g (s)		50.1			50.1						17.9	
Actuated g/C Ratio		0.66			0.66						0.24	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1132			979						380	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.25						0.12	
v/c Ratio		0.42			0.38						0.51	
Uniform Delay, d1		6.1			5.9						25.2	
Progression Factor		0.14			1.00						1.00	
Incremental Delay, d2		1.0			1.1						1.5	
Delay (s)		1.8			7.0						26.7	
Level of Service		A			A						C	
Approach Delay (s)		1.8			7.0			0.0			26.7	
Approach LOS		A			A			A			C	

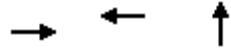
Intersection Summary

HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	366	301	244
v/c Ratio	0.41	0.35	0.20
Control Delay	13.2	12.4	9.6
Queue Delay	0.9	4.8	0.0
Total Delay	14.2	17.2	9.6
Queue Length 50th (m)	29.0	22.7	7.0
Queue Length 95th (m)	47.3	38.4	13.6
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	903	869	1198
Starvation Cap Reductn	298	489	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.60	0.79	0.20
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 10: Pelissier St & University Avenue

2028_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔↔				
Traffic Volume (vph)	10	327	0	0	268	9	80	71	74	0	0	0
Future Volume (vph)	10	327	0	0	268	9	80	71	74	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		1.00			1.00			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1786			2877				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1861			1786			2877				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	355	0	0	291	10	87	77	80	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	48	0	0	0	0
Lane Group Flow (vph)	0	366	0	0	299	0	0	196	0	0	0	0
Confl. Peds. (#/hr)	47		50	50		47	25		14	14		25
Heavy Vehicles (%)	0%	3%	0%	0%	8%	0%	0%	4%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		33.0			33.0			27.0				
Effective Green, g (s)		34.0			34.0			28.0				
Actuated g/C Ratio		0.49			0.49			0.40				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		903			867			1150				
v/s Ratio Prot					0.17							
v/s Ratio Perm		c0.20						0.07				
v/c Ratio		0.41			0.35			0.17				
Uniform Delay, d1		11.5			11.1			13.5				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.4			1.1			0.3				
Delay (s)		12.9			12.2			13.8				
Level of Service		B			B			B				
Approach Delay (s)		12.9			12.2			13.8			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			49.8%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	442	292	33	163	22	217
v/c Ratio	0.37	0.39	0.10	0.26	0.06	0.34
Control Delay	14.3	16.9	13.3	11.0	12.7	14.1
Queue Delay	1.8	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	16.9	13.3	11.0	12.7	14.1
Queue Length 50th (m)	20.0	21.7	2.6	10.2	1.7	17.3
Queue Length 95th (m)	30.4	45.0	7.6	22.0	5.7	32.4
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1196	747	331	623	357	638
Starvation Cap Reductn	575	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.39	0.10	0.26	0.06	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

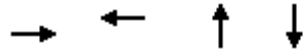
2028_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕		↕	↕	
Traffic Volume (vph)	54	309	43	18	221	29	30	101	49	20	160	40
Future Volume (vph)	54	309	43	18	221	29	30	101	49	20	160	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.94		1.00	0.93	
Flpb, ped/bikes		0.99			0.99		0.78	1.00		0.86	1.00	
Frt		0.98			0.99		1.00	0.95		1.00	0.97	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3009			1722		1193	1344		1168	1403	
Flt Permitted		0.87			0.96		0.59	1.00		0.65	1.00	
Satd. Flow (perm)		2646			1657		741	1344		800	1403	
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	336	47	20	240	32	33	110	53	22	174	43
RTOR Reduction (vph)	0	12	0	0	6	0	0	23	0	0	12	0
Lane Group Flow (vph)	0	430	0	0	286	0	33	140	0	22	205	0
Confl. Peds. (#/hr)	118		87	87		118	142		136	136		142
Heavy Vehicles (%)	4%	3%	5%	0%	9%	0%	0%	12%	5%	11%	7%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1183			741		331	601		357	627	
v/s Ratio Prot								0.10			c0.15	
v/s Ratio Perm		0.16			c0.17		0.04			0.03		
v/c Ratio		0.36			0.39		0.10	0.23		0.06	0.33	
Uniform Delay, d1		13.9			14.0		12.1	13.0		11.9	13.6	
Progression Factor		1.00			1.11		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			1.4		0.6	0.9		0.3	1.4	
Delay (s)		14.7			17.0		12.7	13.9		12.3	15.0	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		14.7			17.0			13.7			14.7	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			15.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			63.1%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
12: Goyeau St & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	391	321	132	258
v/c Ratio	0.50	0.42	0.18	0.24
Control Delay	8.9	14.9	12.6	13.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.9	14.9	12.6	13.5
Queue Length 50th (m)	8.4	27.9	9.7	10.8
Queue Length 95th (m)	13.4	47.1	20.0	18.4
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	786	758	718	1057
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.42	0.18	0.24
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
12: Goyeau St & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	42	210	108	43	223	29	23	75	23	57	151	29
Future Volume (vph)	42	210	108	43	223	29	23	75	23	57	151	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.96			0.99			0.97			0.98	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1725			1741			1808			2842	
Flt Permitted		0.93			0.91			0.92			0.86	
Satd. Flow (perm)		1618			1589			1681			2479	
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	228	117	47	242	32	25	82	25	62	164	32
RTOR Reduction (vph)	0	20	0	0	5	0	0	11	0	0	14	0
Lane Group Flow (vph)	0	371		0	316		0	121		0	244	
Confl. Peds. (#/hr)	23		27	27		23	26		20	20		26
Heavy Vehicles (%)	0%	7%	2%	0%	8%	11%	9%	0%	0%	23%	3%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		766			752			707			1043	
v/s Ratio Prot												
v/s Ratio Perm		c0.23			0.20			0.07			c0.10	
v/c Ratio		0.48			0.42			0.17			0.23	
Uniform Delay, d1		13.7			13.1			13.7			14.1	
Progression Factor		0.53			1.00			1.00			1.00	
Incremental Delay, d2		2.1			1.7			0.5			0.5	
Delay (s)		9.4			14.9			14.3			14.7	
Level of Service		A			B			B			B	
Approach Delay (s)		9.4			14.9			14.3			14.7	
Approach LOS		A			B			B			B	
Intersection Summary												
HCM 2000 Control Delay		12.8			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		76.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		64.2%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Queues
13: McDougall St & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	48	241	55	150	204	208	1	20
v/c Ratio	0.14	0.40	0.20	0.28	0.35	0.20	0.00	0.02
Control Delay	17.9	11.1	19.3	18.6	10.1	12.2	7.0	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	11.1	19.3	18.6	10.1	12.2	7.0	13.7
Queue Length 50th (m)	4.4	10.7	5.1	13.9	12.6	7.2	0.1	0.7
Queue Length 95th (m)	11.4	27.2	13.1	26.9	23.3	13.9	0.6	2.8
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	352	601	274	543	587	1047	573	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.40	0.20	0.28	0.35	0.20	0.00	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
13: McDougall St & University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



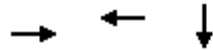
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↗	
Traffic Volume (vph)	44	84	138	51	131	7	188	144	47	1	17	2
Future Volume (vph)	44	84	138	51	131	7	188	144	47	1	17	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Fr _t	1.00	0.91		1.00	0.99		1.00	0.96		1.00	0.98	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1559	1574		1515	1646		1388	2841		1524	2823	
Fl _t Permitted	0.65	1.00		0.52	1.00		0.74	1.00		0.62	1.00	
Satd. Flow (perm)	1073	1574		833	1646		1086	2841		997	2823	
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	91	150	55	142	8	204	157	51	1	18	2
RTOR Reduction (vph)	0	85	0	0	3	0	0	33	0	0	1	0
Lane Group Flow (vph)	48	156	0	55	147	0	204	175	0	1	19	0
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	10%	0%	13%	0%	2%	0%	8%	10%	2%	0%	13%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		34.0	24.0		34.0	24.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		34.0	25.0		34.0	25.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.49	0.36		0.49	0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	352	517		273	540		570	1014		559	1008	
v/s Ratio Prot		c0.10			0.09		c0.05	0.06		0.00	0.01	
v/s Ratio Perm	0.04			0.07			c0.12			0.00		
v/c Ratio	0.14	0.30		0.20	0.27		0.36	0.17		0.00	0.02	
Uniform Delay, d ₁	16.5	17.5		16.9	17.3		10.9	15.4		9.3	14.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	0.8	1.5		1.7	1.2		1.7	0.4		0.0	0.0	
Delay (s)	17.3	19.0		18.6	18.6		12.6	15.8		9.3	14.6	
Level of Service	B	B		B	B		B	B		A	B	
Approach Delay (s)		18.7			18.6			14.2			14.3	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W


















2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	56	316	296
v/c Ratio	0.08	0.52	0.11
Control Delay	6.7	19.0	10.2
Queue Delay	0.0	0.0	0.0
Total Delay	6.7	19.0	10.2
Queue Length 50th (m)	1.6	31.3	6.4
Queue Length 95th (m)	7.4	53.9	9.2
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	721	606	2666
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.08	0.52	0.11
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 14: Victoria Ave & Park St W

2028_Future - Do Nothing
 Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	19	32	199	92	0	0	0	0	32	216	24
Future Volume (vph)	0	19	32	199	92	0	0	0	0	32	216	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.86	
Frbp, ped/bikes		0.97			1.00						0.99	
Flpb, ped/bikes		1.00			0.98						0.99	
Frt		0.92			1.00						0.99	
Flt Protected		1.00			0.97						0.99	
Satd. Flow (prot)		1569			1722						5928	
Flt Permitted		1.00			0.76						0.99	
Satd. Flow (perm)		1569			1355						5928	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	21	35	216	100	0	0	0	0	35	235	26
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	37	0	0	316	0	0	0	0	0	282	0
Confl. Peds. (#/hr)			40	40						43		38
Heavy Vehicles (%)	0%	12%	3%	4%	1%	0%	0%	0%	0%	0%	3%	4%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		701			606						2652	
v/s Ratio Prot		0.02										
v/s Ratio Perm					0.23						0.05	
v/c Ratio		0.05			0.52						0.11	
Uniform Delay, d1		11.9			15.1						12.2	
Progression Factor		1.00			1.00						0.91	
Incremental Delay, d2		0.1			3.2						0.1	
Delay (s)		12.0			18.3						11.1	
Level of Service		B			B						B	
Approach Delay (s)		12.0			18.3			0.0			11.1	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.6		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			49.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2028_Future - Do Nothing

49:

Timing Plan: AM Peak















Lane Group	EBT	WBT
Lane Group Flow (vph)	275	329
v/c Ratio	0.18	0.22
Control Delay	2.8	1.6
Queue Delay	0.0	0.0
Total Delay	2.8	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	27.8	17.0
Internal Link Dist (m)	17.8	61.7
Turn Bay Length (m)		
Base Capacity (vph)	1496	1524
Starvation Cap Reductn	0	82
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.18	0.23
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

2028_Future - Do Nothing

49:

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	253	0	0	303	0	0	0	0	0	0	0
Future Volume (vph)	0	253	0	0	303	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1631			1662							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1631			1662							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	275	0	0	329	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	275	0	0	329	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							10		15	15		10
Heavy Vehicles (%)	0%	6%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		56.0			56.0							
Effective Green, g (s)		57.0			57.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1328			1353							
v/s Ratio Prot		0.17			0.20							
v/s Ratio Perm												
v/c Ratio		0.21			0.24							
Uniform Delay, d1		1.5			1.5							
Progression Factor		1.00			0.51							
Incremental Delay, d2		0.4			0.4							
Delay (s)		1.8			1.1							
Level of Service		A			A							
Approach Delay (s)		1.8			1.1			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.23									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			19.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	473	360
v/c Ratio	0.16	0.12
Control Delay	3.4	3.3
Queue Delay	0.0	0.0
Total Delay	3.4	3.3
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	29.2	22.1
Internal Link Dist (m)	35.4	448.7
Turn Bay Length (m)		
Base Capacity (vph)	3009	3068
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.16	0.12
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2028_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	435	0	0	331	0	0	0	0	0	0	0
Future Volume (vph)	0	435	0	0	331	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.95			0.95							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3334			3400							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3334			3400							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	473	0	0	360	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	473	0	0	360	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							1		1	1		1
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		64.0			64.0							
Effective Green, g (s)		65.0			65.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		2708			2762							
v/s Ratio Prot		0.14			0.11							
v/s Ratio Perm												
v/c Ratio		0.17			0.13							
Uniform Delay, d1		1.6			1.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.1			0.1							
Delay (s)		1.8			1.7							
Level of Service		A			A							
Approach Delay (s)		1.8			1.7			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.7		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.16									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			15.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	159	61	212	176	268	166
v/c Ratio	0.19	0.09	0.40	0.21	0.20	0.20
Control Delay	13.5	4.0	25.3	19.6	6.6	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	4.0	25.3	19.6	6.6	13.2
Queue Length 50th (m)	13.2	0.0	28.2	20.9	5.5	13.5
Queue Length 95th (m)	24.3	5.9	53.7	43.5	12.0	24.8
Internal Link Dist (m)	117.8			283.7	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	826	679	530	821	1365	837
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.09	0.40	0.21	0.20	0.20

Intersection Summary

HCM Signalized Intersection Capacity Analysis

1: Huron Church Rd & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	6	140	56	195	140	22	51	71	125	9	137	6
Future Volume (vph)	6	140	56	195	140	22	51	71	125	9	137	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frpb, ped/bikes		1.00	0.88	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.98			0.92			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1863	1444	1721	1817			3282			1901	
Flt Permitted		0.99	1.00	0.65	1.00			0.87			0.98	
Satd. Flow (perm)		1847	1444	1186	1817			2886			1868	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	152	61	212	152	24	55	77	136	10	149	7
RTOR Reduction (vph)	0	0	34	0	8	0	0	75	0	0	2	0
Lane Group Flow (vph)	0	159	27	212	168	0	0	193	0	0	164	0
Confl. Peds. (#/hr)	11		54	54		11	9		6	6		9
Heavy Vehicles (%)	0%	3%	0%	1%	0%	30%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		826	646	530	812			1291			835	
v/s Ratio Prot					0.09							
v/s Ratio Perm		0.09	0.02	c0.18				0.07			c0.09	
v/c Ratio		0.19	0.04	0.40	0.21			0.15			0.20	
Uniform Delay, d1		12.7	11.8	14.1	12.8			12.4			12.7	
Progression Factor		1.00	1.00	1.56	1.58			1.00			1.00	
Incremental Delay, d2		0.5	0.1	2.2	0.6			0.2			0.5	
Delay (s)		13.2	12.0	24.3	20.7			12.7			13.2	
Level of Service		B	B	C	C			B			B	
Approach Delay (s)		12.9			22.7			12.7			13.2	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Sunset Ave & University Avenue

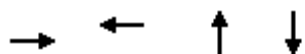
2028_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	11	266	2	31	378	4	20	12	32	8	8	9
Future Volume (Veh/h)	11	266	2	31	378	4	20	12	32	8	8	9
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	289	2	34	411	4	22	13	35	9	9	10
Pedestrians								71			6	
Lane Width (m)								4.0			4.0	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								8			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			42							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	421			362			880	874	361	842	873	419
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	352			362			841	834	361	801	833	350
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			97			90	95	95	96	96	98
cM capacity (veh/h)	1138			1117			217	254	636	236	254	652
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	303	449	70	28								
Volume Left	12	34	22	9								
Volume Right	2	4	35	10								
cSH	1138	1117	337	315								
Volume to Capacity	0.01	0.03	0.21	0.09								
Queue Length 95th (m)	0.2	0.7	5.8	2.2								
Control Delay (s)	0.4	0.9	18.4	17.6								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	0.9	18.4	17.6								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			43.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	369	526	323	51
v/c Ratio	0.49	0.66	0.65	0.09
Control Delay	10.1	11.0	25.1	15.8
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	10.9	11.0	25.1	15.8
Queue Length 50th (m)	25.0	63.8	32.9	4.2
Queue Length 95th (m)	12.6	101.0	59.7	11.2
Internal Link Dist (m)	59.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	750	800	498	557
Starvation Cap Reductn	159	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.62	0.66	0.65	0.09
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	60	270	10	63	415	6	66	113	118	3	38	6
Future Volume (vph)	60	270	10	63	415	6	66	113	118	3	38	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			1.00			0.94			0.99	
Flpb, ped/bikes		0.99			0.97			0.98			1.00	
Frt		1.00			1.00			0.95			0.98	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1574			1580			1463			1640	
Flt Permitted		0.85			0.91			0.92			0.98	
Satd. Flow (perm)		1357			1449			1365			1617	
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)	65	293	11	68	451	7	72	123	128	3	41	7
RTOR Reduction (vph)	0	1	0	0	0	0	0	31	0	0	5	0
Lane Group Flow (vph)	0	368		0	0	526	0	0	292	0	0	46
Confl. Peds. (#/hr)	81		201	201			81	44		70	70	44
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	3%	20%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		41.0			41.0			25.0			25.0	
Effective Green, g (s)		42.0			42.0			26.0			26.0	
Actuated g/C Ratio		0.55			0.55			0.34			0.34	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		749			800			466			553	
v/s Ratio Prot												
v/s Ratio Perm		0.27			c0.36			c0.21			0.03	
v/c Ratio		0.49			0.66			0.63			0.08	
Uniform Delay, d1		10.4			11.9			20.9			16.9	
Progression Factor		0.72			0.55			1.00			1.00	
Incremental Delay, d2		2.3			4.0			6.3			0.3	
Delay (s)		9.8			10.6			27.2			17.2	
Level of Service		A			B			C			B	
Approach Delay (s)		9.8			10.6			27.2			17.2	
Approach LOS		A			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak

























Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	30	471	171	495	289	119
v/c Ratio	0.09	0.38	0.57	0.37	0.34	0.14
Control Delay	15.7	15.4	18.3	8.9	11.0	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	15.4	18.3	8.9	11.0	9.1
Queue Length 50th (m)	2.4	20.2	14.6	12.1	18.8	6.9
Queue Length 95th (m)	m5.8	33.7	28.0	6.5	34.5	15.3
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	320	1247	299	1347	859	877
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.38	0.57	0.37	0.34	0.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 				 	
Traffic Volume (vph)	28	350	84	157	447	8	64	93	109	14	70	26	
Future Volume (vph)	28	350	84	157	447	8	64	93	109	14	70	26	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0		
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00		
Frbp, ped/bikes	1.00	0.96		1.00	1.00			0.98			0.99		
Flpb, ped/bikes	0.96	1.00		0.91	1.00			0.99			1.00		
Frt	1.00	0.97		1.00	1.00			0.94			0.97		
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99		
Satd. Flow (prot)	1722	2898		1552	3198			1903			1898		
Flt Permitted	0.42	1.00		0.44	1.00			0.91			0.95		
Satd. Flow (perm)	761	2898		713	3198			1744			1822		
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	91	171	486	9	70	101	118	15	76	28	
RTOR Reduction (vph)	0	27	0	0	2	0	0	33	0	0	15	0	
Lane Group Flow (vph)	30	444	0	171	493	0	0	256	0	0	104	0	
Confl. Peds. (#/hr)	37		89	89		37	37		36	36		37	
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%	4%	5%	1%	0%	5%	6%	
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0	
Parking (#/hr)		0			0								
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		2			2			4			4		
Permitted Phases	2			2			4			4			
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0		
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0		
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47		
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0		
Lane Grp Cap (vph)	320	1220		300	1346			826			863		
v/s Ratio Prot		0.15			0.15								
v/s Ratio Perm	0.04			c0.24				c0.15			0.06		
v/c Ratio	0.09	0.36		0.57	0.37			0.31			0.12		
Uniform Delay, d1	13.3	15.0		16.8	15.1			12.3			11.2		
Progression Factor	1.10	1.07		0.58	0.53			1.00			1.00		
Incremental Delay, d2	0.5	0.8		7.6	0.8			1.0			0.3		
Delay (s)	15.1	16.8		17.4	8.8			13.3			11.5		
Level of Service	B	B		B	A			B			B		
Approach Delay (s)		16.7			11.0			13.3			11.5		
Approach LOS		B			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			13.3									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			56.7%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis
 5: McKay Ave & University Avenue

2028_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	15	410	8	8	487	11	3	1	6	9	0	14
Future Volume (Veh/h)	15	410	8	8	487	11	3	1	6	9	0	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)	16	446	9	9	529	12	3	1	7	10	0	15
Pedestrians								14			11	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			60							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	552			469			794	1066	242	826	1065	282
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	478			469			727	1008	242	760	1006	199
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			99	100	99	96	100	98
cM capacity (veh/h)	1051			1088			286	224	755	273	225	783
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	239	232	274	276	11	25						
Volume Left	16	0	9	0	3	10						
Volume Right	0	9	0	12	7	15						
cSH	1051	1700	1088	1700	454	448						
Volume to Capacity	0.02	0.14	0.01	0.16	0.02	0.06						
Queue Length 95th (m)	0.4	0.0	0.2	0.0	0.6	1.3						
Control Delay (s)	0.7	0.0	0.4	0.0	13.1	13.5						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.4		0.2		13.1	13.5						
Approach LOS					B	B						
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			32.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak






















Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	23	402	61	142	567	262	182
v/c Ratio	0.06	0.38	0.09	0.33	0.33	0.41	0.26
Control Delay	9.9	16.2	6.0	6.1	4.4	18.5	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	16.2	6.0	6.1	4.4	18.5	16.3
Queue Length 50th (m)	2.1	46.7	1.4	3.8	7.6	24.2	15.7
Queue Length 95th (m)	6.0	80.8	10.1	m6.7	10.3	43.1	29.7
Internal Link Dist (m)		448.3			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	379	1049	684	431	1739	635	687
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.38	0.09	0.33	0.33	0.41	0.26

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	370	56	131	497	25	68	100	73	19	107	41
Future Volume (vph)	21	370	56	131	497	25	68	100	73	19	107	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.92	1.00	1.00			0.99			0.99	
Flpb, ped/bikes	0.97	1.00	1.00	0.97	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.96			0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1641	1946	1216	1693	3215			1956			1978	
Flt Permitted	0.41	1.00	1.00	0.45	1.00			0.87			0.95	
Satd. Flow (perm)	704	1946	1216	798	3215			1731			1892	
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)	23	402	61	142	540	27	74	109	79	21	116	45
RTOR Reduction (vph)	0	0	28	0	5	0	0	21	0	0	15	0
Lane Group Flow (vph)	23	402	33	142	562	0	0	241	0	0	167	0
Confl. Peds. (#/hr)	28		28	28		28	15		16	16		15
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	6%	0%	0%	6%	0%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	379	1049	656	430	1734			614			672	
v/s Ratio Prot		c0.21			0.17							
v/s Ratio Perm	0.03		0.03	0.18				c0.14			0.09	
v/c Ratio	0.06	0.38	0.05	0.33	0.32			0.39			0.25	
Uniform Delay, d1	8.3	10.2	8.3	9.8	9.8			18.4			17.3	
Progression Factor	1.11	1.45	2.19	0.41	0.40			1.00			1.00	
Incremental Delay, d2	0.3	1.1	0.1	1.8	0.4			1.9			0.9	
Delay (s)	9.5	15.8	18.2	5.8	4.4			20.2			18.2	
Level of Service	A	B	B	A	A			C			B	
Approach Delay (s)		15.8			4.7			20.2			18.2	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			12.0								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			76.0								Sum of lost time (s)	8.0
Intersection Capacity Utilization			63.9%								ICU Level of Service	B
Analysis Period (min)			15									

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	46	464	593	198
v/c Ratio	0.14	0.46	0.59	0.30
Control Delay	8.4	12.8	16.5	18.1
Queue Delay	0.0	0.0	0.5	0.0
Total Delay	8.4	12.8	16.9	18.1
Queue Length 50th (m)	3.9	57.4	76.9	18.4
Queue Length 95th (m)	10.9	89.5	113.8	33.6
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	323	1015	1011	653
Starvation Cap Reductn	0	0	129	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.14	0.46	0.67	0.30

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



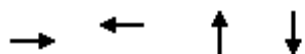
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	427	0	0	500	46	78	66	38	0	0	0
Future Volume (vph)	42	427	0	0	500	46	78	66	38	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frpb, ped/bikes	1.00	1.00			1.00			0.99				
Flpb, ped/bikes	0.99	1.00			1.00			0.99				
Frt	1.00	1.00			0.99			0.97				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1815	1838			1822			1874				
Flt Permitted	0.31	1.00			1.00			0.98				
Satd. Flow (perm)	587	1838			1822			1874				
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	464	0	0	543	50	85	72	41	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	13	0	0	0	0
Lane Group Flow (vph)	46	464	0	0	589	0	0	186	0	0	0	0
Confl. Peds. (#/hr)	15		17	17		15	14		16	16		14
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	3%	2%	23%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	324	1015			1006			641				
v/s Ratio Prot		0.25			0.32							
v/s Ratio Perm	0.08							0.10				
v/c Ratio	0.14	0.46			0.59			0.29				
Uniform Delay, d1	8.3	10.2			11.2			18.3				
Progression Factor	0.85	1.08			1.23			1.00				
Incremental Delay, d2	0.9	1.4			2.3			1.1				
Delay (s)	7.9	12.4			16.1			19.4				
Level of Service	A	B			B			B				
Approach Delay (s)		12.0			16.1			19.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary		
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.47	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	58.7%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

Queues
8: Church St & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	458	466	135	219
v/c Ratio	0.49	0.42	0.30	0.48
Control Delay	6.6	7.2	22.1	21.0
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	6.6	7.3	22.1	21.1
Queue Length 50th (m)	9.8	20.2	13.9	19.0
Queue Length 95th (m)	27.0	58.5	27.8	38.4
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	942	1103	447	454
Starvation Cap Reductn	1	0	0	0
Spillback Cap Reductn	0	98	0	3
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.46	0.30	0.49
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



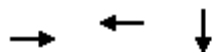
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	64	303	54	19	370	40	38	68	18	20	88	93
Future Volume (vph)	64	303	54	19	370	40	38	68	18	20	88	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.98			0.98			0.95	
Flpb, ped/bikes		0.99			1.00			0.98			0.99	
Frt		0.98			0.99			0.98			0.94	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1706			1819			1782			1543	
Flt Permitted		0.88			0.97			0.88			0.96	
Satd. Flow (perm)		1513			1776			1590			1496	
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)	70	329	59	21	402	43	41	74	20	22	96	101
RTOR Reduction (vph)	0	7	0	0	5	0	0	8	0	0	41	0
Lane Group Flow (vph)	0	451	0	0	461	0	0	127	0	0	178	0
Confl. Peds. (#/hr)	77		42	42		77	41		69	69		41
Heavy Vehicles (%)	7%	5%	2%	0%	3%	0%	0%	0%	0%	5%	0%	14%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		935			1098			439			413	
v/s Ratio Prot												
v/s Ratio Perm		c0.30			0.26			0.08			c0.12	
v/c Ratio		0.48			0.42			0.29			0.43	
Uniform Delay, d1		7.9			7.5			21.6			22.6	
Progression Factor		0.63			0.81			1.00			1.00	
Incremental Delay, d2		1.6			1.1			1.7			3.3	
Delay (s)		6.6			7.1			23.3			25.9	
Level of Service		A			A			C			C	
Approach Delay (s)		6.6			7.1			23.3			25.9	
Approach LOS		A			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.47	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	68.0%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	441	478	229
v/c Ratio	0.38	0.44	0.59
Control Delay	6.4	4.7	28.0
Queue Delay	0.0	0.1	0.0
Total Delay	6.4	4.8	28.0
Queue Length 50th (m)	39.7	13.5	24.0
Queue Length 95th (m)	53.7	21.7	41.4
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1149	1078	574
Starvation Cap Reductn	0	73	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.38	0.48	0.40
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2028_Future - Do Nothing
 Timing Plan: PM Peak



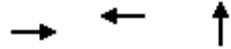
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	19	287	99	76	345	18	0	0	0	14	129	68
Future Volume (vph)	19	287	99	76	345	18	0	0	0	14	129	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.99			1.00						0.95	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.97			0.99						0.96	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1739			1834						1614	
Flt Permitted		0.97			0.87						1.00	
Satd. Flow (perm)		1695			1604						1614	
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)	21	312	108	83	375	20	0	0	0	15	140	74
RTOR Reduction (vph)	0	11	0	0	2	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	430		0	0	476	0	0	0	0	203	0
Confl. Peds. (#/hr)	32		50	50		32	61		25	25		61
Heavy Vehicles (%)	41%	4%	4%	6%	3%	0%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		50.0			50.0						16.0	
Effective Green, g (s)		51.0			51.0						17.0	
Actuated g/C Ratio		0.67			0.67						0.22	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1137			1076						361	
v/s Ratio Prot												
v/s Ratio Perm		0.25			c0.30						0.13	
v/c Ratio		0.38			0.44						0.56	
Uniform Delay, d1		5.5			5.8						26.2	
Progression Factor		0.91			0.49						1.00	
Incremental Delay, d2		0.9			1.3						2.4	
Delay (s)		5.9			4.1						28.6	
Level of Service		A			A						C	
Approach Delay (s)		5.9			4.1			0.0			28.6	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	336	394	300
v/c Ratio	0.34	0.40	0.27
Control Delay	9.8	9.1	11.7
Queue Delay	0.3	1.3	0.0
Total Delay	10.1	10.4	11.7
Queue Length 50th (m)	15.3	17.8	10.0
Queue Length 95th (m)	26.5	25.5	18.4
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	976	975	1113
Starvation Cap Reductn	228	375	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.45	0.66	0.27

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 10: Pelissier St & University Avenue

2028_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	10	299	0	0	346	17	110	74	92	0	0	0
Future Volume (vph)	10	299	0	0	346	17	110	74	92	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			0.97				
Frt		1.00			0.99			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1848			2853				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1855			1848			2853				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	325	0	0	376	18	120	80	100	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	63	0	0	0	0
Lane Group Flow (vph)	0	336	0	0	392	0	0	237	0	0	0	0
Confl. Peds. (#/hr)	50					50	34		35			
Heavy Vehicles (%)	0%	3%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		39.0			39.0			27.0				
Effective Green, g (s)		40.0			40.0			28.0				
Actuated g/C Ratio		0.53			0.53			0.37				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		976			972			1051				
v/s Ratio Prot					c0.21							
v/s Ratio Perm		0.18						0.08				
v/c Ratio		0.34			0.40			0.23				
Uniform Delay, d1		10.4			10.8			16.5				
Progression Factor		0.83			0.73			1.00				
Incremental Delay, d2		0.9			1.1			0.5				
Delay (s)		9.6			8.9			17.0				
Level of Service		A			A			B				
Approach Delay (s)		9.6			8.9			17.0			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.5				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			48.1%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	442	354	74	214	35	258
v/c Ratio	0.41	0.59	0.28	0.32	0.11	0.39
Control Delay	6.5	24.9	16.8	13.2	13.3	15.3
Queue Delay	0.5	0.1	0.0	0.0	0.0	0.0
Total Delay	7.0	25.0	16.8	13.2	13.3	15.3
Queue Length 50th (m)	8.0	42.5	6.4	16.0	2.8	22.1
Queue Length 95th (m)	12.4	74.4	15.8	30.6	8.0	39.4
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1074	601	269	665	331	662
Starvation Cap Reductn	279	0	0	0	0	0
Spillback Cap Reductn	0	15	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.60	0.28	0.32	0.11	0.39

Intersection Summary

HCM Signalized Intersection Capacity Analysis
11: Ouellette Ave & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕		↕	↕	
Traffic Volume (vph)	95	274	38	33	260	32	68	146	51	32	200	38
Future Volume (vph)	95	274	38	33	260	32	68	146	51	32	200	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.92		1.00	0.93	
Flpb, ped/bikes		0.98			0.99		0.72	1.00		0.78	1.00	
Frt		0.99			0.99		1.00	0.96		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3032			1428		1049	1450		1187	1461	
Flt Permitted		0.78			0.93		0.55	1.00		0.59	1.00	
Satd. Flow (perm)		2380			1333		603	1450		741	1461	
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)	103	298	41	36	283	35	74	159	55	35	217	41
RTOR Reduction (vph)	0	10	0	0	5	0	0	17	0	0	9	0
Lane Group Flow (vph)	0	432	0	0	349	0	74	197	0	35	249	0
Confl. Peds. (#/hr)	91		126	126		91	198		252	252		198
Heavy Vehicles (%)	1%	2%	0%	0%	37%	0%	5%	1%	0%	0%	1%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1064			596		269	648		331	653	
v/s Ratio Prot								0.14			c0.17	
v/s Ratio Perm		0.18			c0.26		0.12			0.05		
v/c Ratio		0.41			0.59		0.28	0.30		0.11	0.38	
Uniform Delay, d1		14.2			15.7		13.2	13.4		12.2	14.0	
Progression Factor		0.39			1.29		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.1			4.1		2.5	1.2		0.6	1.7	
Delay (s)		6.6			24.4		15.8	14.6		12.8	15.7	
Level of Service		A			C		B	B		B	B	
Approach Delay (s)		6.6			24.4			14.9			15.3	
Approach LOS		A			C			B			B	

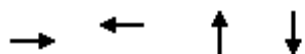
Intersection Summary

HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	467	285	239	227
v/c Ratio	0.58	0.35	0.32	0.22
Control Delay	18.6	11.9	15.1	11.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.6	11.9	15.1	11.6
Queue Length 50th (m)	56.8	26.1	20.5	8.1
Queue Length 95th (m)	84.5	42.5	36.0	15.0
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	812	807	757	1018
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.58	0.35	0.32	0.22
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
12: Goyeau St & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	53	304	73	22	196	44	24	160	36	55	109	45
Future Volume (vph)	53	304	73	22	196	44	24	160	36	55	109	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.98			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1813			1770			1851			2788	
Flt Permitted		0.93			0.95			0.95			0.83	
Satd. Flow (perm)		1694			1685			1776			2349	
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)	58	330	79	24	213	48	26	174	39	60	118	49
RTOR Reduction (vph)	0	9	0	0	9	0	0	9	0	0	28	0
Lane Group Flow (vph)	0	458	0	0	276	0	0	230	0	0	199	0
Confl. Peds. (#/hr)	16		34	34		16	32		10	10		32
Heavy Vehicles (%)	2%	2%	1%	0%	5%	5%	0%	1%	0%	18%	3%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		802			798			747			989	
v/s Ratio Prot												
v/s Ratio Perm		c0.27			0.16			c0.13			0.08	
v/c Ratio		0.57			0.35			0.31			0.20	
Uniform Delay, d1		14.4			12.6			14.6			13.9	
Progression Factor		1.09			0.88			1.00			1.00	
Incremental Delay, d2		2.8			1.2			1.1			0.5	
Delay (s)		18.6			12.3			15.7			14.4	
Level of Service		B			B			B			B	
Approach Delay (s)		18.6			12.3			15.7			14.4	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	335	67	197	111	252	3	42
v/c Ratio	0.24	0.48	0.24	0.30	0.23	0.23	0.01	0.04
Control Delay	17.1	15.6	18.5	16.6	11.7	13.1	10.0	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	15.6	18.5	16.6	11.7	13.1	10.0	15.7
Queue Length 50th (m)	12.9	34.4	6.3	17.9	8.2	9.5	0.2	1.8
Queue Length 95th (m)	m23.5	55.1	15.4	32.5	16.5	17.3	1.5	5.0
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	423	700	274	655	493	1086	328	1080
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.48	0.24	0.30	0.23	0.23	0.01	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 13: McDougall St & University Avenue

2028_Future - Do Nothing
 Timing Plan: PM Peak



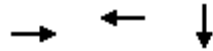
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	95	138	170	62	162	19	102	176	56	3	35	4
Future Volume (vph)	95	138	170	62	162	19	102	176	56	3	35	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.92		1.00	0.98		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1704	1626		1510	1646		1349	2844		1126	3150	
Flt Permitted	0.60	1.00		0.44	1.00		0.67	1.00		0.60	1.00	
Satd. Flow (perm)	1074	1626		695	1646		957	2844		706	3150	
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)	103	150	185	67	176	21	111	191	61	3	38	4
RTOR Reduction (vph)	0	59	0	0	5	0	0	39	0	0	3	0
Lane Group Flow (vph)	103	276	0	67	192	0	111	213	0	3	39	0
Confl. Peds. (#/hr)	7		6	6		7	21		34	34		21
Heavy Vehicles (%)	0%	0%	10%	0%	1%	0%	10%	9%	0%	33%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		35.0	27.0		31.0	25.0	
Effective Green, g (s)	30.0	30.0		30.0	30.0		35.0	28.0		31.0	26.0	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.46	0.37		0.41	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	423	641		274	649		481	1047		321	1077	
v/s Ratio Prot		c0.17			0.12		c0.02	0.08		0.00	0.01	
v/s Ratio Perm	0.10			0.10			c0.08			0.00		
v/c Ratio	0.24	0.43		0.24	0.30		0.23	0.20		0.01	0.04	
Uniform Delay, d1	15.4	16.8		15.4	15.8		12.1	16.4		13.4	16.7	
Progression Factor	0.99	1.10		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	1.9		2.1	1.2		1.1	0.4		0.1	0.1	
Delay (s)	16.5	20.3		17.5	16.9		13.2	16.8		13.4	16.7	
Level of Service	B	C		B	B		B	B		B	B	
Approach Delay (s)		19.4			17.1			15.7			16.5	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	160	453	369
v/c Ratio	0.20	0.81	0.14
Control Delay	7.2	31.8	8.6
Queue Delay	0.0	0.0	0.0
Total Delay	7.2	31.8	8.6
Queue Length 50th (m)	6.1	53.9	5.1
Queue Length 95th (m)	16.2	#104.5	9.3
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	785	562	2623
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.20	0.81	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2028_Future - Do Nothing

14: Victoria Ave & Park St W

Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔↔	
Traffic Volume (vph)	0	70	77	299	118	0	0	0	0	30	282	27
Future Volume (vph)	0	70	77	299	118	0	0	0	0	30	282	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.86	
Frbp, ped/bikes		0.97			1.00						0.99	
Flpb, ped/bikes		1.00			0.98						0.99	
Frt		0.93			1.00						0.99	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1652			1768						5827	
Flt Permitted		1.00			0.69						1.00	
Satd. Flow (perm)		1652			1258						5827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	76	84	325	128	0	0	0	0	33	307	29
RTOR Reduction (vph)	0	46	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	114	0	0	453	0	0	0	0	0	353	0
Confl. Peds. (#/hr)			43	43						58		44
Heavy Vehicles (%)	0%	5%	1%	0%	1%	0%	0%	0%	0%	0%	5%	8%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		739			562						2606	
v/s Ratio Prot		0.07										
v/s Ratio Perm					c0.36						0.06	
v/c Ratio		0.15			0.81						0.14	
Uniform Delay, d1		12.5			18.2						12.4	
Progression Factor		1.00			1.00						0.74	
Incremental Delay, d2		0.4			11.7						0.1	
Delay (s)		12.9			29.9						9.3	
Level of Service		B			C						A	
Approach Delay (s)		12.9			29.9			0.0			9.3	
Approach LOS		B			C			A			A	

Intersection Summary

HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
49: University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	333	449
v/c Ratio	0.22	0.29
Control Delay	2.9	1.0
Queue Delay	0.0	0.0
Total Delay	2.9	1.1
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	30.1	13.8
Internal Link Dist (m)	18.1	59.7
Turn Bay Length (m)		
Base Capacity (vph)	1535	1566
Starvation Cap Reductn	0	95
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.22	0.31
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
49: University Avenue

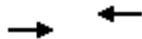
2028_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	306	0	0	413	0	0	0	0	0	0	0
Future Volume (vph)	0	306	0	0	413	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	333	0	0	449	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	333	0	0	449	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							7		26	26		7
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		62.0			62.0							
Effective Green, g (s)		63.0			63.0							
Actuated g/C Ratio		0.83			0.83							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1377			1405							
v/s Ratio Prot		0.20			0.26							
v/s Ratio Perm												
v/c Ratio		0.24			0.32							
Uniform Delay, d1		1.4			1.5							
Progression Factor		1.11			0.28							
Incremental Delay, d2		0.4			0.5							
Delay (s)		2.0			0.9							
Level of Service		A			A							
Approach Delay (s)		2.0			0.9			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.3			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			76.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			25.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue













2028_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	462	550
v/c Ratio	0.15	0.18
Control Delay	3.8	1.6
Queue Delay	0.0	0.0
Total Delay	3.8	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	37.3	12.8
Internal Link Dist (m)	35.9	448.3
Turn Bay Length (m)		
Base Capacity (vph)	2992	3051
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.15	0.18
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2028_Future - Do Nothing
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	425	0	0	506	0	0	0	0	0	0	0
Future Volume (vph)	0	425	0	0	506	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.95			0.95							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3334			3400							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3334			3400							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	462	0	0	550	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	462	0	0	550	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		60.0			60.0							
Effective Green, g (s)		61.0			61.0							
Actuated g/C Ratio		0.80			0.80							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		2675			2728							
v/s Ratio Prot		0.14			0.16							
v/s Ratio Perm												
v/c Ratio		0.17			0.20							
Uniform Delay, d1		1.7			1.8							
Progression Factor		1.05			0.42							
Incremental Delay, d2		0.1			0.2							
Delay (s)		1.9			0.9							
Level of Service		A			A							
Approach Delay (s)		1.9			0.9			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.18									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			17.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	292	73	141	90	218	135
v/c Ratio	0.36	0.11	0.33	0.12	0.16	0.17
Control Delay	15.4	3.8	16.3	10.1	4.8	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	3.8	16.3	10.1	4.8	12.8
Queue Length 50th (m)	26.4	0.0	12.6	5.4	2.7	10.6
Queue Length 95th (m)	43.7	6.5	25.4	13.0	8.4	20.5
Internal Link Dist (m)	117.8			282.0	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	818	682	430	773	1369	814
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.11	0.33	0.12	0.16	0.17

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Huron Church Rd & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘			↕			↕	
Traffic Volume (vph)	1	268	67	130	63	20	26	37	138	12	106	6
Future Volume (vph)	1	268	67	130	63	20	26	37	138	12	106	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frpb, ped/bikes		1.00	0.90	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.95	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.96			0.90			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1830	1435	1789	1703			3121			1864	
Flt Permitted		1.00	1.00	0.51	1.00			0.91			0.97	
Satd. Flow (perm)		1829	1435	962	1703			2874			1815	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	291	73	141	68	22	28	40	150	13	115	7
RTOR Reduction (vph)	0	0	40	0	12	0	0	83	0	0	3	0
Lane Group Flow (vph)	0	292	33	141	78	0	0	135	0	0	132	0
Confl. Peds. (#/hr)	6		47	47		6	6		1	1		6
Heavy Vehicles (%)	0%	5%	2%	0%	2%	31%	5%	3%	2%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		818	641	430	761			1285			811	
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.16	0.02	0.15				0.05			c0.07	
v/c Ratio		0.36	0.05	0.33	0.10			0.11			0.16	
Uniform Delay, d1		13.8	11.9	13.6	12.2			12.2			12.5	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.2	0.2	2.0	0.3			0.2			0.4	
Delay (s)		15.0	12.0	15.6	12.4			12.3			13.0	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		14.4			14.4			12.3			13.0	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Sunset Ave & University Avenue

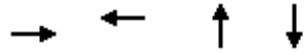
2038_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	253	26	24	304	5	18	18	22	2	20	13
Future Volume (Veh/h)	4	253	26	24	304	5	18	18	22	2	20	13
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	275	28	26	330	5	20	20	24	2	22	14
Pedestrians		10			15			25			13	
Lane Width (m)		3.5			3.5			4.0			4.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		306			42							
pX, platoon unblocked	0.95						0.95	0.95		0.95	0.95	0.95
vC, conflicting volume	348			328			742	722	329	744	734	356
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	292			328			705	684	329	707	696	300
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.1	3.3
p0 queue free %	100			98			93	94	97	99	93	98
cM capacity (veh/h)	1205			1210			288	334	688	287	322	694
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	307	361	64	38								
Volume Left	4	26	20	2								
Volume Right	28	5	24	14								
cSH	1205	1210	390	398								
Volume to Capacity	0.00	0.02	0.16	0.10								
Queue Length 95th (m)	0.1	0.5	4.4	2.4								
Control Delay (s)	0.1	0.8	16.1	15.0								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.1	0.8	16.1	15.0								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			48.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	392	402	271	131
v/c Ratio	0.50	0.59	0.54	0.21
Control Delay	11.4	16.2	17.6	14.7
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	12.2	16.2	17.6	14.7
Queue Length 50th (m)	29.7	34.0	19.9	10.3
Queue Length 95th (m)	18.4	59.9	41.6	21.1
Internal Link Dist (m)	61.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	791	685	500	639
Starvation Cap Reductn	167	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	0.59	0.54	0.21
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	12	301	48	92	276	2	82	55	112	2	104	15
Future Volume (vph)	12	301	48	92	276	2	82	55	112	2	104	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.97			1.00			0.96			0.98	
Flpb, ped/bikes		1.00			0.98			0.97			1.00	
Frt		0.98			1.00			0.94			0.98	
Flt Protected		1.00			0.99			0.98			1.00	
Satd. Flow (prot)		1544			1579			1409			1708	
Flt Permitted		0.98			0.83			0.86			1.00	
Satd. Flow (perm)		1523			1332			1233			1703	
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	327	52	100	300	2	89	60	122	2	113	16
RTOR Reduction (vph)	0	8	0	0	0	0	0	42	0	0	7	0
Lane Group Flow (vph)	0	384	0	0	402	0	0	229	0	0	124	0
Confl. Peds. (#/hr)	85		95	95		82	60		39	39		60
Heavy Vehicles (%)	0%	4%	3%	0%	4%	0%	3%	2%	5%	50%	1%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		35.0			35.0			25.0			25.0	
Effective Green, g (s)		36.0			36.0			26.0			26.0	
Actuated g/C Ratio		0.51			0.51			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		783			685			457			632	
v/s Ratio Prot												
v/s Ratio Perm		0.25			0.30			0.19			0.07	
v/c Ratio		0.49			0.59			0.50			0.20	
Uniform Delay, d1		11.0			11.8			17.0			14.9	
Progression Factor		0.83			1.00			1.00			1.00	
Incremental Delay, d2		2.2			3.7			3.9			0.7	
Delay (s)		11.4			15.5			20.9			15.6	
Level of Service		B			B			C			B	
Approach Delay (s)		11.4			15.5			20.9			15.6	
Approach LOS		B			B			C			B	

Intersection Summary

HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	23	455	71	297	329	93
v/c Ratio	0.06	0.35	0.23	0.23	0.36	0.11
Control Delay	13.8	15.1	16.5	14.4	9.9	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	15.1	16.5	14.4	9.9	9.9
Queue Length 50th (m)	1.9	21.3	6.3	13.5	18.8	5.9
Queue Length 95th (m)	6.0	32.0	14.9	21.5	35.4	13.3
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	368	1291	315	1297	921	814
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.35	0.23	0.23	0.36	0.11

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	372	47	65	264	9	43	100	159	17	55	14
Future Volume (vph)	21	372	47	65	264	9	43	100	159	17	55	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00			0.99			1.00	
Flpb, ped/bikes	0.97	1.00		0.97	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.93			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1468	3038		1592	3074			1914			1827	
Flt Permitted	0.57	1.00		0.45	1.00			0.95			0.92	
Satd. Flow (perm)	877	3038		750	3074			1835			1703	
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)	23	404	51	71	287	10	47	109	173	18	60	15
RTOR Reduction (vph)	0	13	0	0	3	0	0	53	0	0	8	0
Lane Group Flow (vph)	23	442	0	71	294	0	0	276	0	0	85	0
Confl. Peds. (#/hr)	21		28	28		21	16		12	12		16
Heavy Vehicles (%)	18%	3%	0%	4%	6%	0%	0%	4%	2%	7%	11%	11%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	369	1279		315	1294			869			806	
v/s Ratio Prot		c0.15			0.10							
v/s Ratio Perm	0.03			0.09				c0.15			0.05	
v/c Ratio	0.06	0.35		0.23	0.23			0.32			0.11	
Uniform Delay, d1	13.1	14.9		14.1	14.1			12.4			11.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	0.7		1.7	0.4			1.0			0.3	
Delay (s)	13.4	15.6		15.7	14.5			13.4			11.3	
Level of Service	B	B		B	B			B			B	
Approach Delay (s)		15.5			14.7			13.4			11.3	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.33	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	53.6%	8.0
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 5: McKay Ave & University Avenue

2038_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	5	470	2	1	357	6	1	1	1	9	0	11
Future Volume (Veh/h)	5	470	2	1	357	6	1	1	1	9	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)	5	511	2	1	388	7	1	1	1	10	0	12
Pedestrians		1			1			5			20	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			59							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	415			518			736	944	262	682	942	218
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	383			518			708	919	262	653	916	184
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 %	100			100			100	100	100	97	100	99
cM capacity (veh/h)	1149			1053			308	262	738	336	263	806
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	260	258	195	201	3	22						
Volume Left	5	0	1	0	1	10						
Volume Right	0	2	0	7	1	12						
cSH	1149	1700	1053	1700	356	492						
Volume to Capacity	0.00	0.15	0.00	0.12	0.01	0.04						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.2	1.1						
Control Delay (s)	0.2	0.0	0.1	0.0	15.2	12.7						
Lane LOS	A		A		C	B						
Approach Delay (s)	0.1		0.0		15.2	12.7						
Approach LOS					C	B						
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			26.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak






















Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	38	588	55	29	376	390	101
v/c Ratio	0.08	0.57	0.08	0.10	0.22	0.59	0.15
Control Delay	9.0	14.4	3.0	6.6	6.3	21.2	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	14.4	3.0	6.6	6.3	21.2	15.0
Queue Length 50th (m)	2.4	52.1	0.0	1.2	7.6	37.7	8.2
Queue Length 95th (m)	6.7	80.3	4.5	3.3	11.3	64.6	18.0
Internal Link Dist (m)		448.7			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	474	1029	688	285	1700	659	675
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.57	0.08	0.10	0.22	0.59	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	541	51	27	329	17	91	109	159	9	68	16
Future Volume (vph)	35	541	51	27	329	17	91	109	159	9	68	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.99			0.99			1.00	
Flpb, ped/bikes	0.95	1.00	1.00	0.99	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.94			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1596	1908	1230	1658	3142			1933			1950	
Flt Permitted	0.52	1.00	1.00	0.30	1.00			0.89			0.96	
Satd. Flow (perm)	881	1908	1230	528	3142			1748			1875	
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)	38	588	55	29	358	18	99	118	173	10	74	17
RTOR Reduction (vph)	0	0	25	0	5	0	0	38	0	0	10	0
Lane Group Flow (vph)	38	588	30	29	371	0	0	352	0	0	91	0
Confl. Peds. (#/hr)	40		19	19		40	13		9	9		13
Heavy Vehicles (%)	0%	4%	1%	4%	4%	7%	0%	1%	3%	0%	6%	15%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	475	1029	663	284	1695			621			666	
v/s Ratio Prot		c0.31			0.12							
v/s Ratio Perm	0.04		0.02	0.05				c0.20			0.05	
v/c Ratio	0.08	0.57	0.04	0.10	0.22			0.57			0.14	
Uniform Delay, d1	8.4	11.7	8.3	8.5	9.1			19.8			16.6	
Progression Factor	1.00	1.00	1.00	0.66	0.66			1.00			1.00	
Incremental Delay, d2	0.3	2.3	0.1	0.7	0.3			3.7			0.4	
Delay (s)	8.8	14.0	8.4	6.3	6.4			23.5			17.0	
Level of Service	A	B	A	A	A			C			B	
Approach Delay (s)		13.2			6.4			23.5			17.0	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			14.2									B
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			76.0								8.0	
Intersection Capacity Utilization			63.3%									B
Analysis Period (min)			15									

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	29	563	323	201
v/c Ratio	0.06	0.55	0.34	0.31
Control Delay	6.0	12.4	12.3	17.6
Queue Delay	0.0	0.4	0.0	0.0
Total Delay	6.0	12.8	12.3	17.6
Queue Length 50th (m)	1.6	59.7	27.2	18.0
Queue Length 95th (m)	m2.7	96.8	40.8	33.5
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	518	1015	959	642
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	124	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.06	0.63	0.34	0.31

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak

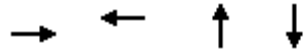


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	518	0	0	258	40	81	54	50	0	0	0
Future Volume (vph)	27	518	0	0	258	40	81	54	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frbp, ped/bikes	1.00	1.00			0.99			0.99				
Flpb, ped/bikes	0.98	1.00			1.00			0.99				
Frt	1.00	1.00			0.98			0.96				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1716	1838			1724			1828				
Flt Permitted	0.52	1.00			1.00			0.98				
Satd. Flow (perm)	937	1838			1724			1828				
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)	29	563	0	0	280	43	88	59	54	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	17	0	0	0	0
Lane Group Flow (vph)	29	563	0	0	316	0	0	184	0	0	0	0
Confl. Peds. (#/hr)	27		19	19		27	11		17	17		11
Heavy Vehicles (%)	4%	2%	0%	0%	9%	6%	3%	2%	24%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	517	1015			952			625				
v/s Ratio Prot		c0.31			0.18							
v/s Ratio Perm	0.03							0.10				
v/c Ratio	0.06	0.55			0.33			0.29				
Uniform Delay, d1	7.8	11.0			9.3			18.3				
Progression Factor	0.72	0.93			1.25			1.00				
Incremental Delay, d2	0.2	1.8			0.9			1.2				
Delay (s)	5.8	12.0			12.6			19.5				
Level of Service	A	B			B			B				
Approach Delay (s)		11.7			12.6			19.5			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			51.4%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

Queues
8: Church St & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	662	293	103	126
v/c Ratio	0.65	0.27	0.23	0.29
Control Delay	13.6	5.6	19.7	17.1
Queue Delay	5.0	0.0	0.0	0.0
Total Delay	18.7	5.6	19.7	17.1
Queue Length 50th (m)	83.5	7.8	9.5	9.4
Queue Length 95th (m)	125.4	12.8	21.1	22.3
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	1011	1082	441	442
Starvation Cap Reductn	278	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.90	0.27	0.23	0.29
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



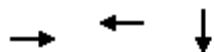
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	81	489	39	12	245	13	24	52	18	16	56	44
Future Volume (vph)	81	489	39	12	245	13	24	52	18	16	56	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.98			0.97	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.99			0.99			0.97			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1769			1794			1678			1545	
Flt Permitted		0.92			0.97			0.92			0.96	
Satd. Flow (perm)		1632			1745			1557			1494	
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)	88	532	42	13	266	14	26	57	20	17	61	48
RTOR Reduction (vph)	0	3	0	0	2	0	0	12	0	0	29	0
Lane Group Flow (vph)	0	659	0	0	291	0	0	91	0	0	97	0
Confl. Peds. (#/hr)	35		51	51		35	26		42	42		26
Heavy Vehicles (%)	8%	3%	0%	0%	7%	0%	0%	5%	20%	0%	4%	22%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1009			1079			430			412	
v/s Ratio Prot												
v/s Ratio Perm		c0.40			0.17			0.06			c0.06	
v/c Ratio		0.65			0.27			0.21			0.24	
Uniform Delay, d1		9.3			6.6			21.1			21.3	
Progression Factor		1.10			0.75			1.00			1.00	
Incremental Delay, d2		2.9			0.6			1.1			1.3	
Delay (s)		13.1			5.5			22.3			22.6	
Level of Service		B			A			C			C	
Approach Delay (s)		13.1			5.5			22.3			22.6	
Approach LOS		B			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.52	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	72.3%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	536	410	228
v/c Ratio	0.47	0.43	0.57
Control Delay	2.1	8.8	28.2
Queue Delay	0.0	0.9	0.0
Total Delay	2.1	9.8	28.2
Queue Length 50th (m)	4.0	25.2	26.0
Queue Length 95th (m)	8.8	50.0	43.0
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1133	953	564
Starvation Cap Reductn	0	299	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.47	0.63	0.40
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2038_Future - Do Nothing
 Timing Plan: AM Peak



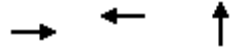
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Traffic Volume (vph)	21	349	123	82	284	11	0	0	0	32	134	43
Future Volume (vph)	21	349	123	82	284	11	0	0	0	32	134	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.99			1.00						0.96	
Flpb, ped/bikes		1.00			1.00						0.98	
Frt		0.97			1.00						0.97	
Flt Protected		1.00			0.99						0.99	
Satd. Flow (prot)		1752			1769						1614	
Flt Permitted		0.98			0.81						0.99	
Satd. Flow (perm)		1715			1455						1614	
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)	23	379	134	89	309	12	0	0	0	35	146	47
RTOR Reduction (vph)	0	12	0	0	1	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	524		0	0	409	0	0	0	0	214	0
Confl. Peds. (#/hr)	58		48	48		58	95		52	52		95
Heavy Vehicles (%)	41%	3%	4%	9%	6%	22%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		48.7			48.7						17.3	
Effective Green, g (s)		49.7			49.7						18.3	
Actuated g/C Ratio		0.65			0.65						0.24	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1121			951						388	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.28						0.13	
v/c Ratio		0.47			0.43						0.55	
Uniform Delay, d1		6.6			6.3						25.2	
Progression Factor		0.14			1.00						1.00	
Incremental Delay, d2		1.1			1.4						2.1	
Delay (s)		2.0			7.8						27.3	
Level of Service		A			A						C	
Approach Delay (s)		2.0			7.8			0.0			27.3	
Approach LOS		A			A			A			C	

Intersection Summary		
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.49	A
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	76.6%	8.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	404	334	270
v/c Ratio	0.45	0.38	0.22
Control Delay	13.8	12.9	9.7
Queue Delay	1.2	6.8	0.0
Total Delay	15.0	19.7	9.7
Queue Length 50th (m)	32.7	25.8	7.7
Queue Length 95th (m)	53.1	43.1	14.8
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	902	869	1205
Starvation Cap Reductn	290	477	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.66	0.85	0.22
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 10: Pelissier St & University Avenue

2038_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	11	361	0	0	297	10	88	78	82	0	0	0
Future Volume (vph)	11	361	0	0	297	10	88	78	82	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		1.00			1.00			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1786			2876				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1859			1786			2876				
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	392	0	0	323	11	96	85	89	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	53	0	0	0	0
Lane Group Flow (vph)	0	404	0	0	332	0	0	217	0	0	0	0
Confl. Peds. (#/hr)	47		50	50		47	25		14	14		25
Heavy Vehicles (%)	0%	3%	0%	0%	8%	0%	0%	4%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		33.0			33.0			27.0				
Effective Green, g (s)		34.0			34.0			28.0				
Actuated g/C Ratio		0.49			0.49			0.40				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		902			867			1150				
v/s Ratio Prot					0.19							
v/s Ratio Perm		c0.22						0.08				
v/c Ratio		0.45			0.38			0.19				
Uniform Delay, d1		11.8			11.4			13.6				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.6			1.3			0.4				
Delay (s)		13.4			12.7			14.0				
Level of Service		B			B			B				
Approach Delay (s)		13.4			12.7			14.0			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			52.6%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	489	322	36	180	24	236
v/c Ratio	0.41	0.43	0.11	0.29	0.07	0.37
Control Delay	14.8	18.6	13.5	11.6	12.8	14.6
Queue Delay	2.5	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	18.6	13.5	11.6	12.8	14.6
Queue Length 50th (m)	22.7	26.6	2.9	11.7	1.9	19.3
Queue Length 95th (m)	34.2	51.1	8.2	24.5	6.0	35.5
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1190	743	323	624	349	638
Starvation Cap Reductn	555	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.43	0.11	0.29	0.07	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

2038_Future - Do Nothing
 Timing Plan: AM Peak



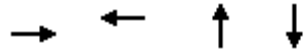
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕		↕	↕	
Traffic Volume (vph)	60	342	48	20	244	32	33	111	54	22	173	44
Future Volume (vph)	60	342	48	20	244	32	33	111	54	22	173	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.94		1.00	0.93	
Flpb, ped/bikes		0.99			1.00		0.79	1.00		0.86	1.00	
Frt		0.98			0.99		1.00	0.95		1.00	0.97	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3012			1723		1207	1343		1176	1399	
Flt Permitted		0.87			0.95		0.57	1.00		0.63	1.00	
Satd. Flow (perm)		2635			1650		724	1343		781	1399	
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)	65	372	52	22	265	35	36	121	59	24	188	48
RTOR Reduction (vph)	0	12	0	0	6	0	0	23	0	0	12	0
Lane Group Flow (vph)	0	477	0	0	316	0	36	157	0	24	224	0
Confl. Peds. (#/hr)	118		87	87		118	142		136	136		142
Heavy Vehicles (%)	4%	3%	5%	0%	9%	0%	0%	12%	5%	11%	7%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1178			738		323	600		349	625	
v/s Ratio Prot								0.12				c0.16
v/s Ratio Perm		0.18			c0.19		0.05			0.03		
v/c Ratio		0.40			0.43		0.11	0.26		0.07	0.36	
Uniform Delay, d1		14.2			14.4		12.2	13.1		12.0	13.8	
Progression Factor		1.00			1.17		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			1.7		0.7	1.1		0.4	1.6	
Delay (s)		15.2			18.5		12.9	14.2		12.4	15.4	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		15.2			18.5			14.0			15.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	432	354	146	285
v/c Ratio	0.55	0.47	0.21	0.27
Control Delay	9.9	15.8	13.0	13.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.9	15.8	13.0	13.9
Queue Length 50th (m)	9.6	31.7	11.0	12.3
Queue Length 95th (m)	14.7	52.9	22.1	20.3
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	782	750	712	1052
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.47	0.21	0.27

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 12: Goyeau St & University Avenue

2038_Future - Do Nothing
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	46	232	120	48	246	32	26	83	26	63	167	32
Future Volume (vph)	46	232	120	48	246	32	26	83	26	63	167	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.96			0.99			0.97			0.98	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1725			1742			1806			2844	
Flt Permitted		0.93			0.90			0.91			0.86	
Satd. Flow (perm)		1609			1572			1665			2464	
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)	50	252	130	52	267	35	28	90	28	68	182	35
RTOR Reduction (vph)	0	21	0	0	5	0	0	11	0	0	14	0
Lane Group Flow (vph)	0	411	0	0	349	0	0	135	0	0	271	0
Confl. Peds. (#/hr)	23		27	27		23	26		20	20		26
Heavy Vehicles (%)	0%	7%	2%	0%	8%	11%	9%	0%	0%	23%	3%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		762			744			701			1037	
v/s Ratio Prot												
v/s Ratio Perm		c0.26			0.22			0.08			c0.11	
v/c Ratio		0.54			0.47			0.19			0.26	
Uniform Delay, d1		14.1			13.5			13.9			14.3	
Progression Factor		0.55			1.00			1.00			1.00	
Incremental Delay, d2		2.6			2.1			0.6			0.6	
Delay (s)		10.3			15.6			14.5			14.9	
Level of Service		B			B			B			B	
Approach Delay (s)		10.3			15.6			14.5			14.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	267	61	166	225	230	1	22
v/c Ratio	0.16	0.44	0.24	0.31	0.38	0.22	0.00	0.02
Control Delay	18.2	12.3	20.3	19.0	10.6	12.3	7.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	12.3	20.3	19.0	10.6	12.3	7.0	13.8
Queue Length 50th (m)	4.8	13.4	5.7	15.6	14.2	8.0	0.1	0.8
Queue Length 95th (m)	12.3	31.7	14.5	29.5	25.8	15.1	0.6	3.0
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	339	601	254	544	586	1050	566	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.44	0.24	0.31	0.38	0.22	0.00	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
13: McDougall St & University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



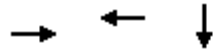
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	49	93	153	56	145	7	207	159	52	1	18	2
Future Volume (vph)	49	93	153	56	145	7	207	159	52	1	18	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Fr _t	1.00	0.91		1.00	0.99		1.00	0.96		1.00	0.99	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1559	1574		1515	1647		1388	2840		1525	2825	
Fl _t Permitted	0.63	1.00		0.49	1.00		0.74	1.00		0.61	1.00	
Satd. Flow (perm)	1034	1574		776	1647		1084	2840		977	2825	
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	101	166	61	158	8	225	173	57	1	20	2
RTOR Reduction (vph)	0	85	0	0	3	0	0	37	0	0	1	0
Lane Group Flow (vph)	53	182	0	61	163	0	225	193	0	1	21	0
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	10%	0%	13%	0%	2%	0%	8%	10%	2%	0%	13%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		34.0	24.0		34.0	24.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		34.0	25.0		34.0	25.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.49	0.36		0.49	0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	339	517		254	541		569	1014		552	1008	
v/s Ratio Prot		c0.12			0.10		c0.06	0.07		0.00	0.01	
v/s Ratio Perm	0.05			0.08			c0.14			0.00		
v/c Ratio	0.16	0.35		0.24	0.30		0.40	0.19		0.00	0.02	
Uniform Delay, d ₁	16.6	17.8		17.1	17.5		11.0	15.5		9.3	14.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	1.0	1.9		2.2	1.4		2.1	0.4		0.0	0.0	
Delay (s)	17.6	19.7		19.4	18.9		13.1	15.9		9.3	14.6	
Level of Service	B	B		B	B		B	B		A	B	
Approach Delay (s)		19.4			19.1			14.5			14.4	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	61	349	321
v/c Ratio	0.08	0.58	0.12
Control Delay	6.7	20.5	9.8
Queue Delay	0.0	0.0	0.0
Total Delay	6.7	20.5	9.8
Queue Length 50th (m)	1.8	35.8	6.8
Queue Length 95th (m)	7.8	61.4	9.5
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	723	603	2664
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.08	0.58	0.12
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2038_Future - Do Nothing

14: Victoria Ave & Park St W

Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔↔	
Traffic Volume (vph)	0	21	35	220	101	0	0	0	0	35	234	27
Future Volume (vph)	0	21	35	220	101	0	0	0	0	35	234	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.86	
Frbp, ped/bikes		0.97			1.00						0.99	
Flpb, ped/bikes		1.00			0.98						0.99	
Frt		0.92			1.00						0.99	
Flt Protected		1.00			0.97						0.99	
Satd. Flow (prot)		1569			1722						5924	
Flt Permitted		1.00			0.76						0.99	
Satd. Flow (perm)		1569			1349						5924	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	23	38	239	110	0	0	0	0	38	254	29
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	40	0	0	349	0	0	0	0	0	305	0
Confl. Peds. (#/hr)			40	40						43		38
Heavy Vehicles (%)	0%	12%	3%	4%	1%	0%	0%	0%	0%	0%	3%	4%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		701			603						2650	
v/s Ratio Prot		0.03										
v/s Ratio Perm					0.26						0.05	
v/c Ratio		0.06			0.58						0.12	
Uniform Delay, d1		11.9			15.7						12.2	
Progression Factor		1.00			1.00						0.87	
Incremental Delay, d2		0.2			4.0						0.1	
Delay (s)		12.1			19.7						10.7	
Level of Service		B			B						B	
Approach Delay (s)		12.1			19.7			0.0			10.7	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			15.1		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			50.8%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2038_Future - Do Nothing

49:

Timing Plan: AM Peak

















Lane Group	EBT	WBT
Lane Group Flow (vph)	301	362
v/c Ratio	0.20	0.24
Control Delay	2.9	1.6
Queue Delay	0.0	0.0
Total Delay	2.9	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	30.7	18.8
Internal Link Dist (m)	17.8	61.7
Turn Bay Length (m)		
Base Capacity (vph)	1496	1524
Starvation Cap Reductn	0	83
Spillback Cap Reductn	11	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.20	0.25
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

2038_Future - Do Nothing

49:

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	277	0	0	333	0	0	0	0	0	0	0
Future Volume (vph)	0	277	0	0	333	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1631			1662							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1631			1662							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	301	0	0	362	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	301	0	0	362	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							10		15	15		10
Heavy Vehicles (%)	0%	6%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		56.0			56.0							
Effective Green, g (s)		57.0			57.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1328			1353							
v/s Ratio Prot		0.18			0.22							
v/s Ratio Perm												
v/c Ratio		0.23			0.27							
Uniform Delay, d1		1.5			1.5							
Progression Factor		1.00			0.49							
Incremental Delay, d2		0.4			0.4							
Delay (s)		1.9			1.2							
Level of Service		A			A							
Approach Delay (s)		1.9			1.2			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.5		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			20.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	522	396
v/c Ratio	0.17	0.13
Control Delay	3.5	3.4
Queue Delay	0.0	0.0
Total Delay	3.5	3.4
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	32.3	24.3
Internal Link Dist (m)	35.4	448.7
Turn Bay Length (m)		
Base Capacity (vph)	3009	3068
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.17	0.13
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2038_Future - Do Nothing
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	480	0	0	364	0	0	0	0	0	0	0
Future Volume (vph)	0	480	0	0	364	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.95			0.95							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3334			3400							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3334			3400							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	522	0	0	396	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	522	0	0	396	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							1		1	1		1
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		64.0			64.0							
Effective Green, g (s)		65.0			65.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		2708			2762							
v/s Ratio Prot		0.16			0.12							
v/s Ratio Perm												
v/c Ratio		0.19			0.14							
Uniform Delay, d1		1.7			1.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.2			0.1							
Delay (s)		1.8			1.7							
Level of Service		A			A							
Approach Delay (s)		1.8			1.7			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.8		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.18									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			16.6%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	175	67	232	194	294	182
v/c Ratio	0.21	0.10	0.45	0.24	0.22	0.22
Control Delay	13.7	3.9	25.6	19.1	6.7	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	3.9	25.6	19.1	6.7	13.5
Queue Length 50th (m)	14.7	0.0	31.5	23.4	6.1	15.1
Queue Length 95th (m)	26.5	6.2	57.5	46.8	12.9	27.1
Internal Link Dist (m)	117.8			283.7	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	826	683	517	820	1362	836
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.10	0.45	0.24	0.22	0.22

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Huron Church Rd & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	6	155	62	213	155	24	56	78	136	10	151	6
Future Volume (vph)	6	155	62	213	155	24	56	78	136	10	151	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.88	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.98			0.92			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1863	1444	1725	1819			3284			1902	
Flt Permitted		0.99	1.00	0.64	1.00			0.86			0.98	
Satd. Flow (perm)		1848	1444	1156	1819			2864			1866	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	168	67	232	168	26	61	85	148	11	164	7
RTOR Reduction (vph)	0	0	37	0	7	0	0	82	0	0	2	0
Lane Group Flow (vph)	0	175	30	232	187	0	0	212	0	0	180	0
Confl. Peds. (#/hr)	11		54	54		11	9		6	6		9
Heavy Vehicles (%)	0%	3%	0%	1%	0%	30%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		826	646	517	813			1281			834	
v/s Ratio Prot					0.10							
v/s Ratio Perm		0.09	0.02	c0.20				0.07			c0.10	
v/c Ratio		0.21	0.05	0.45	0.23			0.17			0.22	
Uniform Delay, d1		12.8	11.9	14.5	12.9			12.5			12.8	
Progression Factor		1.00	1.00	1.50	1.49			1.00			1.00	
Incremental Delay, d2		0.6	0.1	2.7	0.6			0.3			0.6	
Delay (s)		13.4	12.0	24.5	20.0			12.8			13.4	
Level of Service		B	B	C	B			B			B	
Approach Delay (s)		13.0			22.4			12.8			13.4	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Sunset Ave & University Avenue

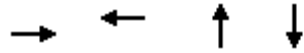
2038_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	12	291	2	34	415	5	22	13	35	9	9	10
Future Volume (Veh/h)	12	291	2	34	415	5	22	13	35	9	9	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)	13	316	2	37	451	5	24	14	38	10	10	11
Pedestrians								71			6	
Lane Width (m)								4.0			4.0	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								8			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			42							
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	462			389			958	950	388	922	948	460
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	385			389			917	909	388	878	907	382
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			97			87	94	94	95	96	98
cM capacity (veh/h)	1096			1092			189	226	615	203	227	619
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	331	493	76	31								
Volume Left	13	37	24	10								
Volume Right	2	5	38	11								
cSH	1096	1092	303	279								
Volume to Capacity	0.01	0.03	0.25	0.11								
Queue Length 95th (m)	0.3	0.8	7.4	2.8								
Control Delay (s)	0.4	1.0	20.8	19.5								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	1.0	20.8	19.5								
Approach LOS			C	C								
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			47.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	405	578	356	56
v/c Ratio	0.55	0.73	0.72	0.10
Control Delay	11.0	13.4	28.6	16.0
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	11.9	13.4	28.6	16.0
Queue Length 50th (m)	28.0	73.8	38.0	4.7
Queue Length 95th (m)	13.8	115.5	#75.6	12.1
Internal Link Dist (m)	59.7	352.8	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	742	794	496	557
Starvation Cap Reductn	129	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.66	0.73	0.72	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	66	295	11	70	455	6	73	124	131	4	41	6
Future Volume (vph)	66	295	11	70	455	6	73	124	131	4	41	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			1.00			0.94			0.99	
Flpb, ped/bikes		0.99			0.97			0.98			1.00	
Frt		1.00			1.00			0.95			0.98	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1576			1583			1462			1647	
Flt Permitted		0.84			0.90			0.92			0.98	
Satd. Flow (perm)		1342			1436			1360			1615	
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)	72	321	12	76	495	7	79	135	142	4	45	7
RTOR Reduction (vph)	0	1	0	0	0	0	0	32	0	0	5	0
Lane Group Flow (vph)	0	404	0	0	578	0	0	324	0	0	51	0
Confl. Peds. (#/hr)	81		201	201		81	44		70	70		44
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	3%	20%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		41.0			41.0			25.0			25.0	
Effective Green, g (s)		42.0			42.0			26.0			26.0	
Actuated g/C Ratio		0.55			0.55			0.34			0.34	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		741			793			465			552	
v/s Ratio Prot												
v/s Ratio Perm		0.30			c0.40			c0.24			0.03	
v/c Ratio		0.54			0.73			0.70			0.09	
Uniform Delay, d1		10.9			12.7			21.6			17.0	
Progression Factor		0.72			0.58			1.00			1.00	
Incremental Delay, d2		2.8			5.5			8.4			0.3	
Delay (s)		10.7			12.9			30.0			17.3	
Level of Service		B			B			C			B	
Approach Delay (s)		10.7			12.9			30.0			17.3	
Approach LOS		B			B			C			B	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	34	517	188	546	319	131
v/c Ratio	0.11	0.41	0.67	0.41	0.37	0.15
Control Delay	15.9	15.7	24.5	9.2	11.5	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	15.7	24.5	9.2	11.5	9.5
Queue Length 50th (m)	2.6	22.1	13.3	13.3	21.5	7.9
Queue Length 95th (m)	m5.9	37.5	#42.9	7.5	38.7	16.9
Internal Link Dist (m)		251.9		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	296	1248	281	1347	856	873
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.41	0.67	0.41	0.37	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	384	92	173	493	9	70	102	121	16	77	28
Future Volume (vph)	31	384	92	173	493	9	70	102	121	16	77	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	0.97	1.00		0.92	1.00			0.99			1.00	
Frt	1.00	0.97		1.00	1.00			0.94			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1728	2898		1565	3198			1902			1901	
Flt Permitted	0.39	1.00		0.41	1.00			0.90			0.95	
Satd. Flow (perm)	704	2898		668	3198			1736			1813	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	417	100	188	536	10	76	111	132	17	84	30
RTOR Reduction (vph)	0	28	0	0	2	0	0	34	0	0	14	0
Lane Group Flow (vph)	34	489	0	188	544	0	0	285	0	0	117	0
Confl. Peds. (#/hr)	37		89	89		37	37		36	36		37
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%	4%	5%	1%	0%	5%	6%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	296	1220		281	1346			822			858	
v/s Ratio Prot		0.17			0.17							
v/s Ratio Perm	0.05			0.28				0.16			0.06	
v/c Ratio	0.11	0.40		0.67	0.40			0.35			0.14	
Uniform Delay, d1	13.4	15.3		17.7	15.4			12.6			11.3	
Progression Factor	1.09	1.05		0.59	0.53			1.00			1.00	
Incremental Delay, d2	0.7	0.9		11.9	0.9			1.2			0.3	
Delay (s)	15.3	16.9		22.4	9.1			13.8			11.6	
Level of Service	B	B		C	A			B			B	
Approach Delay (s)		16.8			12.5			13.8			11.6	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.50	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	59.2%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 5: McKay Ave & University Avenue

2038_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	17	450	9	9	537	12	4	1	6	10	0	16
Future Volume (Veh/h)	17	450	9	9	537	12	4	1	6	10	0	16
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)	18	489	10	10	584	13	4	1	7	11	0	17
Pedestrians								14			11	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			60							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	608			513			873	1172	264	910	1170	310
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	520			513			795	1105	264	832	1103	210
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			98	99	99	95	100	98
cM capacity (veh/h)	1008			1048			252	195	731	240	195	765
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	262	254	302	305	12	28						
Volume Left	18	0	10	0	4	11						
Volume Right	0	10	0	13	7	17						
cSH	1008	1700	1048	1700	392	411						
Volume to Capacity	0.02	0.15	0.01	0.18	0.03	0.07						
Queue Length 95th (m)	0.4	0.0	0.2	0.0	0.7	1.7						
Control Delay (s)	0.8	0.0	0.4	0.0	14.5	14.4						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.4		0.2		14.5	14.4						
Approach LOS					B	B						
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			35.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	25	442	66	158	626	288	199
v/c Ratio	0.07	0.42	0.10	0.40	0.36	0.45	0.29
Control Delay	10.2	16.9	5.9	6.9	4.5	19.4	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	16.9	5.9	6.9	4.5	19.4	16.8
Queue Length 50th (m)	2.3	51.4	1.4	4.3	8.5	27.4	17.5
Queue Length 95th (m)	6.5	89.0	9.5	m6.9	11.4	47.8	32.4
Internal Link Dist (m)		448.3			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	351	1049	686	400	1739	636	685
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.42	0.10	0.40	0.36	0.45	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	407	61	145	548	28	74	110	81	21	117	45
Future Volume (vph)	23	407	61	145	548	28	74	110	81	21	117	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.92	1.00	1.00			0.99			0.99	
Flpb, ped/bikes	0.98	1.00	1.00	0.97	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.96			0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1645	1946	1216	1699	3215			1956			1978	
Flt Permitted	0.38	1.00	1.00	0.42	1.00			0.87			0.95	
Satd. Flow (perm)	651	1946	1216	742	3215			1733			1884	
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	442	66	158	596	30	80	120	88	23	127	49
RTOR Reduction (vph)	0	0	30	0	5	0	0	21	0	0	15	0
Lane Group Flow (vph)	25	442	36	158	621	0	0	267	0	0	184	0
Confl. Peds. (#/hr)	28		28	28		28	15		16	16		15
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	6%	0%	0%	6%	0%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	351	1049	656	400	1734			615			669	
v/s Ratio Prot		c0.23			0.19							
v/s Ratio Perm	0.04		0.03	0.21				c0.15			0.10	
v/c Ratio	0.07	0.42	0.05	0.40	0.36			0.43			0.27	
Uniform Delay, d1	8.4	10.4	8.3	10.2	10.0			18.7			17.5	
Progression Factor	1.12	1.46	2.21	0.40	0.40			1.00			1.00	
Incremental Delay, d2	0.4	1.2	0.2	2.5	0.5			2.2			1.0	
Delay (s)	9.8	16.5	18.5	6.6	4.5			20.9			18.5	
Level of Service	A	B	B	A	A			C			B	
Approach Delay (s)		16.4			4.9			20.9			18.5	
Approach LOS		B			A			C			B	

Intersection Summary

HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	50	512	655	219
v/c Ratio	0.18	0.50	0.65	0.34
Control Delay	9.3	13.5	17.8	18.7
Queue Delay	0.0	0.0	0.6	0.0
Total Delay	9.3	13.5	18.4	18.7
Queue Length 50th (m)	4.3	63.9	88.1	20.8
Queue Length 95th (m)	m12.5	97.8	126.8	37.2
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	277	1015	1011	653
Starvation Cap Reductn	0	0	106	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.18	0.50	0.72	0.34

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



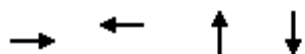
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↖			↖			↕				
Traffic Volume (vph)	46	471	0	0	552	51	87	73	41	0	0	0
Future Volume (vph)	46	471	0	0	552	51	87	73	41	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frbp, ped/bikes	1.00	1.00			1.00			0.99				
Flpb, ped/bikes	1.00	1.00			1.00			0.99				
Frt	1.00	1.00			0.99			0.97				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1817	1838			1822			1874				
Flt Permitted	0.26	1.00			1.00			0.98				
Satd. Flow (perm)	503	1838			1822			1874				
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)	50	512	0	0	600	55	95	79	45	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	13	0	0	0	0
Lane Group Flow (vph)	50	512	0	0	651	0	0	207	0	0	0	0
Confl. Peds. (#/hr)	15		17	17		15	14		16	16		14
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	3%	2%	23%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	277	1015			1006			641				
v/s Ratio Prot		0.28			0.36							
v/s Ratio Perm	0.10							0.11				
v/c Ratio	0.18	0.50			0.65			0.32				
Uniform Delay, d1	8.4	10.5			11.8			18.5				
Progression Factor	0.87	1.08			1.22			1.00				
Incremental Delay, d2	1.3	1.7			2.9			1.3				
Delay (s)	8.7	13.0			17.4			19.8				
Level of Service	A	B			B			B				
Approach Delay (s)		12.7			17.4			19.8			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
8: Church St & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	504	516	151	242
v/c Ratio	0.54	0.47	0.35	0.53
Control Delay	8.3	7.5	23.1	22.9
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	8.3	7.7	23.1	22.9
Queue Length 50th (m)	10.7	30.2	16.0	22.3
Queue Length 95th (m)	36.2	51.2	31.0	43.4
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	933	1098	434	453
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	107	0	3
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.52	0.35	0.54
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



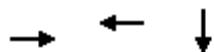
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	70	334	60	21	409	44	42	76	20	22	98	102
Future Volume (vph)	70	334	60	21	409	44	42	76	20	22	98	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.98			0.98			0.95	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.98			0.99			0.98			0.94	
Flt Protected		0.99			1.00			0.98			1.00	
Satd. Flow (prot)		1708			1819			1785			1545	
Flt Permitted		0.87			0.97			0.85			0.96	
Satd. Flow (perm)		1497			1771			1546			1495	
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)	76	363	65	23	445	48	46	83	22	24	107	111
RTOR Reduction (vph)	0	7	0	0	5	0	0	8	0	0	40	0
Lane Group Flow (vph)	0	497		0	511		0	143		0	202	
Confl. Peds. (#/hr)	77		42	42		77	41		69	69		41
Heavy Vehicles (%)	7%	5%	2%	0%	3%	0%	0%	0%	0%	5%	0%	14%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		925			1095			427			413	
v/s Ratio Prot												
v/s Ratio Perm		c0.33			0.29			0.09			c0.14	
v/c Ratio		0.54			0.47			0.33			0.49	
Uniform Delay, d1		8.3			7.8			21.9			23.0	
Progression Factor		0.75			0.79			1.00			1.00	
Incremental Delay, d2		2.0			1.3			2.1			4.1	
Delay (s)		8.2			7.4			24.0			27.1	
Level of Service		A			A			C			C	
Approach Delay (s)		8.2			7.4			24.0			27.1	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	482	527	255
v/c Ratio	0.43	0.50	0.63
Control Delay	7.8	5.7	28.6
Queue Delay	0.0	0.0	0.0
Total Delay	7.8	5.7	28.6
Queue Length 50th (m)	44.7	15.1	27.6
Queue Length 95th (m)	63.9	24.4	45.1
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1126	1044	574
Starvation Cap Reductn	0	18	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.43	0.51	0.44
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2038_Future - Do Nothing
 Timing Plan: PM Peak



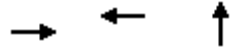
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Traffic Volume (vph)	21	317	105	84	381	20	0	0	0	16	143	76
Future Volume (vph)	21	317	105	84	381	20	0	0	0	16	143	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.99			1.00						0.95	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.97			0.99						0.96	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1742			1835						1612	
Flt Permitted		0.97			0.86						1.00	
Satd. Flow (perm)		1692			1583						1612	
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)	23	345	114	91	414	22	0	0	0	17	155	83
RTOR Reduction (vph)	0	11	0	0	2	0	0	0	0	0	27	0
Lane Group Flow (vph)	0	471	0	0	525	0	0	0	0	0	228	0
Confl. Peds. (#/hr)	32		50	50		32	61		25	25		61
Heavy Vehicles (%)	41%	4%	4%	6%	3%	0%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		49.1			49.1						16.9	
Effective Green, g (s)		50.1			50.1						17.9	
Actuated g/C Ratio		0.66			0.66						0.24	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1115			1043						379	
v/s Ratio Prot												
v/s Ratio Perm		0.28			0.33						0.14	
v/c Ratio		0.42			0.50						0.60	
Uniform Delay, d1		6.1			6.6						25.9	
Progression Factor		0.98			0.51						1.00	
Incremental Delay, d2		1.1			1.6						3.1	
Delay (s)		7.0			5.0						29.0	
Level of Service		A			A						C	
Approach Delay (s)		7.0			5.0			0.0			29.0	
Approach LOS		A			A			A			C	

Intersection Summary		
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.53	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	82.0%	8.0
Analysis Period (min)	15	ICU Level of Service
		E

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	372	435	331
v/c Ratio	0.38	0.45	0.30
Control Delay	9.9	9.9	11.9
Queue Delay	0.3	1.9	0.0
Total Delay	10.1	11.9	11.9
Queue Length 50th (m)	16.9	19.8	11.2
Queue Length 95th (m)	27.3	27.9	20.1
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	975	975	1119
Starvation Cap Reductn	196	378	0
Spillback Cap Reductn	0	25	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.48	0.73	0.30
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
10: Pelissier St & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	11	331	0	0	382	18	122	81	101	0	0	0
Future Volume (vph)	11	331	0	0	382	18	122	81	101	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			0.97				
Frt		1.00			0.99			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1848			2853				
Flt Permitted		0.98			1.00			0.98				
Satd. Flow (perm)		1853			1848			2853				
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	360	0	0	415	20	133	88	110	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	69	0	0	0	0
Lane Group Flow (vph)	0	372	0	0	433	0	0	262	0	0	0	0
Confl. Peds. (#/hr)	50					50	34		35			
Heavy Vehicles (%)	0%	3%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		39.0			39.0			27.0				
Effective Green, g (s)		40.0			40.0			28.0				
Actuated g/C Ratio		0.53			0.53			0.37				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		975			972			1051				
v/s Ratio Prot					c0.23							
v/s Ratio Perm		0.20						0.09				
v/c Ratio		0.38			0.45			0.25				
Uniform Delay, d1		10.7			11.1			16.7				
Progression Factor		0.80			0.77			1.00				
Incremental Delay, d2		1.0			1.2			0.6				
Delay (s)		9.6			9.8			17.3				
Level of Service		A			A			B				
Approach Delay (s)		9.6			9.8			17.3			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
11: Ouellette Ave & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	488	390	83	236	38	275
v/c Ratio	0.47	0.65	0.31	0.36	0.12	0.42
Control Delay	7.8	27.0	17.7	13.8	13.5	15.7
Queue Delay	0.5	0.3	0.0	0.0	0.0	0.0
Total Delay	8.3	27.2	17.7	13.8	13.5	15.7
Queue Length 50th (m)	8.8	47.3	7.3	18.3	3.1	23.9
Queue Length 95th (m)	17.7	83.0	17.7	34.1	8.5	42.3
Internal Link Dist (m)	41.6	14.5		100.1		59.3
Turn Bay Length (m)			16.0		15.0	
Base Capacity (vph)	1036	596	265	664	323	660
Starvation Cap Reductn	217	0	0	0	0	0
Spillback Cap Reductn	0	21	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.68	0.31	0.36	0.12	0.42

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

2038_Future - Do Nothing
 Timing Plan: PM Peak



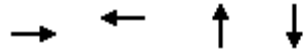
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔		↔	↔	
Traffic Volume (vph)	105	303	41	37	287	35	76	161	56	35	212	41
Future Volume (vph)	105	303	41	37	287	35	76	161	56	35	212	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.98		1.00	0.92		1.00	0.93	
Flpb, ped/bikes		0.98			0.99		0.73	1.00		0.79	1.00	
Frt		0.99			0.99		1.00	0.96		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3037			1430		1066	1449		1203	1456	
Flt Permitted		0.75			0.92		0.53	1.00		0.57	1.00	
Satd. Flow (perm)		2295			1321		593	1449		722	1456	
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)	114	329	45	40	312	38	83	175	61	38	230	45
RTOR Reduction (vph)	0	10	0	0	5	0	0	17	0	0	9	0
Lane Group Flow (vph)	0	478	0	0	385	0	83	219	0	38	266	0
Confl. Peds. (#/hr)	91		126	126		91	198		252	252		198
Heavy Vehicles (%)	1%	2%	0%	0%	37%	0%	5%	1%	0%	0%	1%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)		34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)		1026			590		265	648		323	651	
v/s Ratio Prot								0.15			c0.18	
v/s Ratio Perm		0.21			c0.29		0.14			0.05		
v/c Ratio		0.47			0.65		0.31	0.34		0.12	0.41	
Uniform Delay, d1		14.7			16.4		13.5	13.7		12.2	14.2	
Progression Factor		0.44			1.28		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5			5.4		3.1	1.4		0.7	1.9	
Delay (s)		7.9			26.4		16.6	15.1		13.0	16.1	
Level of Service		A			C		B	B		B	B	
Approach Delay (s)		7.9			26.4			15.5			15.7	
Approach LOS		A			C			B			B	

Intersection Summary		
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.53	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	77.6%	8.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	517	314	264	252
v/c Ratio	0.64	0.39	0.35	0.25
Control Delay	20.4	12.4	15.6	11.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.4	12.4	15.6	11.8
Queue Length 50th (m)	64.0	29.4	23.2	9.1
Queue Length 95th (m)	99.1	47.1	40.0	16.5
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	806	803	753	1013
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.64	0.39	0.35	0.25

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 12: Goyeau St & University Avenue

2038_Future - Do Nothing
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	59	336	81	24	216	49	27	177	40	61	121	50
Future Volume (vph)	59	336	81	24	216	49	27	177	40	61	121	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.98			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1813			1770			1851			2791	
Flt Permitted		0.92			0.94			0.95			0.83	
Satd. Flow (perm)		1683			1676			1768			2333	
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)	64	365	88	26	235	53	29	192	43	66	132	54
RTOR Reduction (vph)	0	9	0	0	9	0	0	9	0	0	31	0
Lane Group Flow (vph)	0	508		0	305		0	255		0	221	
Confl. Peds. (#/hr)	16		34	34		16	32		10	10		32
Heavy Vehicles (%)	2%	2%	1%	0%	5%	5%	0%	1%	0%	18%	3%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		797			793			744			982	
v/s Ratio Prot												
v/s Ratio Perm		c0.30			0.18			c0.14			0.09	
v/c Ratio		0.64			0.38			0.34			0.22	
Uniform Delay, d1		15.1			12.9			14.9			14.1	
Progression Factor		1.10			0.88			1.00			1.00	
Incremental Delay, d2		3.7			1.4			1.3			0.5	
Delay (s)		20.2			12.7			16.1			14.6	
Level of Service		C			B			B			B	
Approach Delay (s)		20.2			12.7			16.1			14.6	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	114	370	74	218	122	278	4	47
v/c Ratio	0.28	0.53	0.30	0.33	0.25	0.26	0.01	0.04
Control Delay	17.0	16.0	19.9	17.1	12.0	13.4	10.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	16.0	19.9	17.1	12.0	13.4	10.0	15.5
Queue Length 50th (m)	14.4	39.0	7.1	20.2	9.0	10.7	0.3	2.1
Queue Length 95th (m)	m24.1	60.8	17.2	36.0	17.9	19.0	1.7	5.4
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	405	699	250	655	492	1088	322	1078
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.53	0.30	0.33	0.25	0.26	0.01	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
13: McDougall St & University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



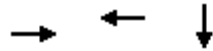
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	105	153	188	68	179	21	112	194	62	4	39	5
Future Volume (vph)	105	153	188	68	179	21	112	194	62	4	39	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.92		1.00	0.98		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1704	1627		1511	1646		1349	2845		1128	3143	
Flt Permitted	0.57	1.00		0.40	1.00		0.67	1.00		0.58	1.00	
Satd. Flow (perm)	1029	1627		634	1646		953	2845		690	3143	
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)	114	166	204	74	195	23	122	211	67	4	42	5
RTOR Reduction (vph)	0	58	0	0	5	0	0	40	0	0	3	0
Lane Group Flow (vph)	114	312	0	74	213	0	122	238	0	4	44	0
Confl. Peds. (#/hr)	7		6	6		7	21		34	34		21
Heavy Vehicles (%)	0%	0%	10%	0%	1%	0%	10%	9%	0%	33%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		35.0	27.0		31.0	25.0	
Effective Green, g (s)	30.0	30.0		30.0	30.0		35.0	28.0		31.0	26.0	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.46	0.37		0.41	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	406	642		250	649		480	1048		316	1075	
v/s Ratio Prot		c0.19			0.13		c0.03	0.08		0.00	0.01	
v/s Ratio Perm	0.11			0.12			c0.09			0.00		
v/c Ratio	0.28	0.49		0.30	0.33		0.25	0.23		0.01	0.04	
Uniform Delay, d1	15.7	17.2		15.8	16.0		12.2	16.5		13.4	16.7	
Progression Factor	0.95	1.03		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	2.2		3.0	1.3		1.3	0.5		0.1	0.1	
Delay (s)	16.4	20.0		18.8	17.3		13.5	17.0		13.4	16.8	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		19.1			17.7			16.0			16.5	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	176	502	403
v/c Ratio	0.22	0.92	0.15
Control Delay	7.2	44.9	9.1
Queue Delay	0.0	0.0	0.0
Total Delay	7.2	44.9	9.1
Queue Length 50th (m)	6.7	64.7	5.7
Queue Length 95th (m)	17.4	#123.4	11.1
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	789	548	2624
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.22	0.92	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2038_Future - Do Nothing

14: Victoria Ave & Park St W

Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔↔	
Traffic Volume (vph)	0	77	85	331	131	0	0	0	0	33	308	29
Future Volume (vph)	0	77	85	331	131	0	0	0	0	33	308	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.86	
Frbp, ped/bikes		0.97			1.00						0.99	
Flpb, ped/bikes		1.00			0.98						0.99	
Frt		0.93			1.00						0.99	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1652			1769						5826	
Flt Permitted		1.00			0.67						1.00	
Satd. Flow (perm)		1652			1226						5826	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	84	92	360	142	0	0	0	0	36	335	32
RTOR Reduction (vph)	0	51	0	0	0	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	125	0	0	502	0	0	0	0	0	385	0
Confl. Peds. (#/hr)			43	43						58		44
Heavy Vehicles (%)	0%	5%	1%	0%	1%	0%	0%	0%	0%	0%	5%	8%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		739			548						2606	
v/s Ratio Prot		0.08										
v/s Ratio Perm					0.41						0.07	
v/c Ratio		0.17			0.92						0.15	
Uniform Delay, d1		12.6			19.7						12.4	
Progression Factor		1.00			1.00						0.79	
Incremental Delay, d2		0.5			22.5						0.1	
Delay (s)		13.1			42.1						9.9	
Level of Service		B			D						A	
Approach Delay (s)		13.1			42.1			0.0			9.9	
Approach LOS		B			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			25.4		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			76.1%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
49: University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	364	493
v/c Ratio	0.24	0.31
Control Delay	2.9	1.0
Queue Delay	0.0	0.0
Total Delay	2.9	1.1
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	32.5	14.6
Internal Link Dist (m)	18.1	59.7
Turn Bay Length (m)		
Base Capacity (vph)	1535	1566
Starvation Cap Reductn	0	96
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.24	0.34
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
49: University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	335	0	0	454	0	0	0	0	0	0	0
Future Volume (vph)	0	335	0	0	454	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	364	0	0	493	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	364	0	0	493	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							7		26	26		7
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		62.0			62.0							
Effective Green, g (s)		63.0			63.0							
Actuated g/C Ratio		0.83			0.83							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1377			1405							
v/s Ratio Prot		0.22			0.29							
v/s Ratio Perm												
v/c Ratio		0.26			0.35							
Uniform Delay, d1		1.4			1.6							
Progression Factor		1.08			0.26							
Incremental Delay, d2		0.5			0.5							
Delay (s)		2.0			0.9							
Level of Service		A			A							
Approach Delay (s)		2.0			0.9			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			27.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	507	607
v/c Ratio	0.17	0.20
Control Delay	3.8	1.6
Queue Delay	0.0	0.0
Total Delay	3.8	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	40.6	13.7
Internal Link Dist (m)	35.9	448.3
Turn Bay Length (m)		
Base Capacity (vph)	2992	3051
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.17	0.20
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2038_Future - Do Nothing
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	466	0	0	558	0	0	0	0	0	0	0
Future Volume (vph)	0	466	0	0	558	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		0.95			0.95							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3334			3400							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3334			3400							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	507	0	0	607	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	507	0	0	607	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		60.0			60.0							
Effective Green, g (s)		61.0			61.0							
Actuated g/C Ratio		0.80			0.80							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		2675			2728							
v/s Ratio Prot		0.15			0.18							
v/s Ratio Perm												
v/c Ratio		0.19			0.22							
Uniform Delay, d1		1.7			1.8							
Progression Factor		1.04			0.40							
Incremental Delay, d2		0.1			0.2							
Delay (s)		2.0			0.9							
Level of Service		A			A							
Approach Delay (s)		2.0			0.9			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.20									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			18.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	252	63	123	78	189	116
v/c Ratio	0.31	0.09	0.27	0.10	0.14	0.14
Control Delay	14.8	4.0	15.2	10.3	4.8	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	4.0	15.2	10.3	4.8	12.6
Queue Length 50th (m)	22.2	0.0	10.6	4.7	2.4	9.1
Queue Length 95th (m)	37.6	6.0	21.7	11.8	7.7	18.0
Internal Link Dist (m)	117.8			282.0	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	818	676	463	775	1365	815
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.09	0.27	0.10	0.14	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Huron Church Rd & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	1	231	58	113	55	17	22	32	120	11	91	5
Future Volume (vph)	1	231	58	113	55	17	22	32	120	11	91	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.90	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.94	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.97			0.90			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)		1830	1435	1780	1713			3122			1866	
Flt Permitted		1.00	1.00	0.55	1.00			0.92			0.97	
Satd. Flow (perm)		1829	1435	1035	1713			2889			1820	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	251	63	123	60	18	24	35	130	12	99	5
RTOR Reduction (vph)	0	0	35	0	10	0	0	72	0	0	2	0
Lane Group Flow (vph)	0	252	28	123	68	0	0	117	0	0	114	0
Confl. Peds. (#/hr)	6		47	47		6	6		1	1		6
Heavy Vehicles (%)	0%	5%	2%	0%	2%	31%	5%	3%	2%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		818	641	463	766			1292			814	
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.14	0.02	0.12				0.04			c0.06	
v/c Ratio		0.31	0.04	0.27	0.09			0.09			0.14	
Uniform Delay, d1		13.5	11.8	13.2	12.1			12.1			12.4	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.0	0.1	1.4	0.2			0.1			0.4	
Delay (s)		14.4	12.0	14.6	12.3			12.2			12.7	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		13.9			13.7			12.2			12.7	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

2: Sunset Ave & University Avenue

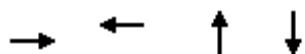
2023_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	3	220	22	21	265	4	16	16	19	2	17	12
Future Volume (Veh/h)	3	220	22	21	265	4	16	16	19	2	17	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)	3	239	24	23	288	4	17	17	21	2	18	13
Pedestrians		10			15			25			13	
Lane Width (m)		3.5			3.5			4.0			4.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		306			42							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	305			288			650	633	291	650	643	313
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	260			288			618	600	291	618	610	268
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.1	3.3
p0 queue free %	100			98			95	96	97	99	95	98
cM capacity (veh/h)	1251			1252			339	378	723	339	366	730
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	266	315	55	33								
Volume Left	3	23	17	2								
Volume Right	24	4	21	13								
cSH	1251	1252	443	453								
Volume to Capacity	0.00	0.02	0.12	0.07								
Queue Length 95th (m)	0.1	0.4	3.2	1.8								
Control Delay (s)	0.1	0.7	14.3	13.6								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	0.7	14.3	13.6								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			44.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	341	350	232	113
v/c Ratio	0.43	0.51	0.46	0.18
Control Delay	10.4	14.4	15.1	14.1
Queue Delay	0.7	0.0	0.0	0.0
Total Delay	11.1	14.4	15.1	14.1
Queue Length 50th (m)	24.5	27.9	15.2	8.6
Queue Length 95th (m)	16.2	49.0	33.4	18.4
Internal Link Dist (m)	61.7	628.6	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	791	692	506	638
Starvation Cap Reductn	195	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.57	0.51	0.46	0.18
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2023_Future - Single Lane

Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	261	41	79	241	2	70	47	97	2	89	13
Future Volume (vph)	11	261	41	79	241	2	70	47	97	2	89	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.97			1.00			0.96			0.98	
Flpb, ped/bikes		1.00			0.97			0.97			1.00	
Frt		0.98			1.00			0.94			0.98	
Flt Protected		1.00			0.99			0.98			1.00	
Satd. Flow (prot)		1543			1574			1406			1705	
Flt Permitted		0.99			0.84			0.87			1.00	
Satd. Flow (perm)		1524			1345			1247			1700	
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	284	45	86	262	2	76	51	105	2	97	14
RTOR Reduction (vph)	0	8	0	0	0	0	0	43	0	0	8	0
Lane Group Flow (vph)	0	333	0	0	350	0	0	189	0	0	105	0
Confl. Peds. (#/hr)	85		95	95		82	60		39	39		60
Heavy Vehicles (%)	0%	4%	3%	0%	4%	0%	3%	2%	5%	50%	1%	0%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		35.0			35.0			25.0			25.0	
Effective Green, g (s)		36.0			36.0			26.0			26.0	
Actuated g/C Ratio		0.51			0.51			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		783			691			463			631	
v/s Ratio Prot												
v/s Ratio Perm		0.22			c0.26			c0.15			0.06	
v/c Ratio		0.43			0.51			0.41			0.17	
Uniform Delay, d1		10.6			11.2			16.3			14.7	
Progression Factor		0.83			1.00			1.00			1.00	
Incremental Delay, d2		1.7			2.6			2.7			0.6	
Delay (s)		10.5			13.8			19.0			15.3	
Level of Service		B			B			B			B	
Approach Delay (s)		10.5			13.8			19.0			15.3	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.46	B
Actuated Cycle Length (s)	70.0	Sum of lost time (s)
Intersection Capacity Utilization	65.3%	8.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Queues
4: Campbell Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	20	395	61	257	283	80
v/c Ratio	0.06	0.62	0.22	0.40	0.31	0.10
Control Delay	13.7	22.0	16.8	17.5	8.8	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	22.0	16.8	17.5	8.8	10.0
Queue Length 50th (m)	1.6	41.7	5.4	24.5	14.6	5.0
Queue Length 95th (m)	5.6	69.8	13.5	42.6	28.9	11.8
Internal Link Dist (m)		628.6		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	350	636	276	639	916	816
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.62	0.22	0.40	0.31	0.10

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	322	41	56	229	7	38	86	137	15	47	12
Future Volume (vph)	18	322	41	56	229	7	38	86	137	15	47	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	0.97	1.00		0.97	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	1.00			0.93			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1470	1496		1596	1515			1896			1820	
Flt Permitted	0.54	1.00		0.39	1.00			0.96			0.93	
Satd. Flow (perm)	832	1496		656	1515			1824			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)	20	350	45	61	249	8	41	93	149	16	51	13
RTOR Reduction (vph)	0	6	0	0	2	0	0	53	0	0	7	0
Lane Group Flow (vph)	20	389	0	61	255	0	0	230	0	0	73	0
Confl. Peds. (#/hr)	21		28	28		21	16		12	12		16
Heavy Vehicles (%)	18%	3%	0%	4%	6%	0%	0%	4%	2%	7%	11%	11%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	350	629		276	637			864			810	
v/s Ratio Prot		c0.26			0.17							
v/s Ratio Perm	0.02			0.09				c0.13			0.04	
v/c Ratio	0.06	0.62		0.22	0.40			0.27			0.09	
Uniform Delay, d1	13.1	17.2		14.0	15.3			12.0			11.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	4.5		1.8	1.9			0.8			0.2	
Delay (s)	13.4	21.7		15.9	17.2			12.8			11.2	
Level of Service	B	C		B	B			B			B	
Approach Delay (s)		21.3			16.9			12.8			11.2	
Approach LOS		C			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.43	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	58.1%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: McKay Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	406	2	1	309	5	1	1	1	7	0	9
Future Volume (Veh/h)	4	406	2	1	309	5	1	1	1	7	0	9
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	441	2	1	336	5	1	1	1	8	0	10
Pedestrians		1			1			5			20	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			59							
pX, platoon unblocked	0.96			0.97			0.97	0.97	0.97	0.97	0.97	0.96
vC, conflicting volume	361			448			806	818	448	813	816	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	312			416			720	732	416	726	730	311
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	100			100			100	100	100	97	100	99
cM capacity (veh/h)	1184			1114			323	332	618	318	333	689
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	447	342	3	18								
Volume Left	4	1	1	8								
Volume Right	2	5	1	10								
cSH	1184	1114	388	454								
Volume to Capacity	0.00	0.00	0.01	0.04								
Queue Length 95th (m)	0.1	0.0	0.2	0.9								
Control Delay (s)	0.1	0.0	14.3	13.3								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	0.0	14.3	13.3								
Approach LOS			B	B								
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			34.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	33	508	48	25	325	338	87
v/c Ratio	0.07	0.49	0.07	0.07	0.39	0.51	0.13
Control Delay	9.0	13.1	3.1	6.2	9.0	19.0	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	13.1	3.1	6.2	9.0	19.0	14.7
Queue Length 50th (m)	2.1	42.5	0.0	0.9	13.1	30.6	6.8
Queue Length 95th (m)	6.0	65.8	4.2	3.0	19.6	53.6	15.8
Internal Link Dist (m)		448.7			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	466	1029	685	340	837	662	679
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.49	0.07	0.07	0.39	0.51	0.13

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	467	44	23	284	15	79	95	137	7	59	14
Future Volume (vph)	30	467	44	23	284	15	79	95	137	7	59	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.94	1.00	0.99			0.99			0.99	
Flpb, ped/bikes	0.95	1.00	1.00	0.99	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.94			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1599	1908	1230	1653	1547			1931			1942	
Flt Permitted	0.51	1.00	1.00	0.36	1.00			0.90			0.97	
Satd. Flow (perm)	863	1908	1230	632	1547			1760			1885	
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	508	48	25	309	16	86	103	149	8	64	15
RTOR Reduction (vph)	0	0	22	0	2	0	0	37	0	0	10	0
Lane Group Flow (vph)	33	508	26	25	323	0	0	301	0	0	77	0
Confl. Peds. (#/hr)	40		19	19		40	13		9	9		13
Heavy Vehicles (%)	0%	4%	1%	4%	4%	7%	0%	1%	3%	0%	6%	15%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	465	1029	663	340	834			625			669	
v/s Ratio Prot		c0.27			0.21							
v/s Ratio Perm	0.04		0.02	0.04				c0.17			0.04	
v/c Ratio	0.07	0.49	0.04	0.07	0.39			0.48			0.12	
Uniform Delay, d1	8.4	11.0	8.2	8.4	10.2			19.1			16.5	
Progression Factor	1.00	1.00	1.00	0.66	0.73			1.00			1.00	
Incremental Delay, d2	0.3	1.7	0.1	0.4	1.3			2.6			0.4	
Delay (s)	8.7	12.7	8.3	6.0	8.8			21.7			16.8	
Level of Service	A	B	A	A	A			C			B	
Approach Delay (s)		12.1			8.6			21.7			16.8	
Approach LOS		B			A			C			B	

Intersection Summary		
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.49	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	56.4%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	25	486	280	172
v/c Ratio	0.05	0.48	0.29	0.27
Control Delay	5.9	11.1	12.4	16.5
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	5.9	11.2	12.4	16.5
Queue Length 50th (m)	1.4	47.8	23.5	14.6
Queue Length 95th (m)	m2.8	79.3	35.3	28.4
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	553	1015	960	642
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	49	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.50	0.29	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	447	0	0	223	35	69	46	43	0	0	0
Future Volume (vph)	23	447	0	0	223	35	69	46	43	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frpb, ped/bikes	1.00	1.00			0.99			0.98				
Flpb, ped/bikes	0.98	1.00			1.00			0.99				
Frt	1.00	1.00			0.98			0.96				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1712	1838			1723			1825				
Flt Permitted	0.56	1.00			1.00			0.98				
Satd. Flow (perm)	1002	1838			1723			1825				
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	486	0	0	242	38	75	50	47	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	18	0	0	0	0
Lane Group Flow (vph)	25	486	0	0	272	0	0	154	0	0	0	0
Confl. Peds. (#/hr)	27		19	19		27	11		17	17		11
Heavy Vehicles (%)	4%	2%	0%	0%	9%	6%	3%	2%	24%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	553	1015			952			624				
v/s Ratio Prot		c0.26			0.16							
v/s Ratio Perm	0.02							0.08				
v/c Ratio	0.05	0.48			0.29			0.25				
Uniform Delay, d1	7.8	10.3			9.0			18.0				
Progression Factor	0.72	0.90			1.34			1.00				
Incremental Delay, d2	0.1	1.4			0.7			0.9				
Delay (s)	5.7	10.8			12.8			18.9				
Level of Service	A	B			B			B				
Approach Delay (s)		10.5			12.8			18.9			0.0	
Approach LOS		B			B			B			A	

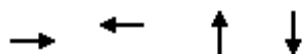
Intersection Summary

HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
8: Church St & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	572	254	89	108
v/c Ratio	0.56	0.23	0.20	0.24
Control Delay	11.8	5.4	19.3	15.9
Queue Delay	1.9	0.0	0.0	0.0
Total Delay	13.7	5.4	19.3	15.9
Queue Length 50th (m)	67.0	6.6	8.0	7.4
Queue Length 95th (m)	101.7	11.0	18.6	19.0
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	1021	1084	443	442
Starvation Cap Reductn	288	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.23	0.20	0.24
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



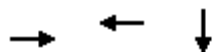
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	70	422	34	11	211	12	21	45	16	14	48	38
Future Volume (vph)	70	422	34	11	211	12	21	45	16	14	48	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.98			0.97	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.99			0.99			0.97			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1768			1792			1679			1544	
Flt Permitted		0.93			0.97			0.92			0.96	
Satd. Flow (perm)		1647			1749			1567			1497	
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)	76	459	37	12	229	13	23	49	17	15	52	41
RTOR Reduction (vph)	0	3	0	0	3	0	0	11	0	0	29	0
Lane Group Flow (vph)	0	569	0	0	251	0	0	78	0	0	79	0
Confl. Peds. (#/hr)	35		51	51		35	26		42	42		26
Heavy Vehicles (%)	8%	3%	0%	0%	7%	0%	0%	5%	20%	0%	4%	22%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1018			1081			432			413	
v/s Ratio Prot												
v/s Ratio Perm		c0.35			0.14			0.05			c0.05	
v/c Ratio		0.56			0.23			0.18			0.19	
Uniform Delay, d1		8.5			6.5			20.9			21.0	
Progression Factor		1.11			0.77			1.00			1.00	
Incremental Delay, d2		2.0			0.5			0.9			1.0	
Delay (s)		11.5			5.4			21.9			22.0	
Level of Service		B			A			C			C	
Approach Delay (s)		11.5			5.4			21.9			22.0	
Approach LOS		B			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.44	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	66.0%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	464	352	195
v/c Ratio	0.41	0.35	0.50
Control Delay	1.8	7.5	26.7
Queue Delay	0.0	0.7	0.0
Total Delay	1.8	8.2	26.7
Queue Length 50th (m)	3.0	20.2	21.3
Queue Length 95th (m)	7.0	37.5	38.1
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1140	992	565
Starvation Cap Reductn	0	347	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.41	0.55	0.35
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2023_Future - Single Lane
 Timing Plan: AM Peak



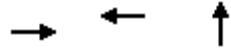
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Traffic Volume (vph)	18	301	108	70	245	9	0	0	0	27	116	37
Future Volume (vph)	18	301	108	70	245	9	0	0	0	27	116	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.98			1.00						0.96	
Flpb, ped/bikes		1.00			0.99						0.98	
Frt		0.97			1.00						0.97	
Flt Protected		1.00			0.99						0.99	
Satd. Flow (prot)		1733			1763						1616	
Flt Permitted		0.98			0.84						0.99	
Satd. Flow (perm)		1702			1496						1616	
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)	20	327	117	76	266	10	0	0	0	29	126	40
RTOR Reduction (vph)	0	12	0	0	1	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	452		0	0	351	0	0	0	0	180	0
Confl. Peds. (#/hr)	58		48	48		58	95		52	52		95
Heavy Vehicles (%)	41%	3%	4%	9%	6%	22%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		49.4			49.4						16.6	
Effective Green, g (s)		50.4			50.4						17.6	
Actuated g/C Ratio		0.66			0.66						0.23	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1128			992						374	
v/s Ratio Prot												
v/s Ratio Perm		c0.27			0.23						0.11	
v/c Ratio		0.40			0.35						0.48	
Uniform Delay, d1		5.9			5.6						25.3	
Progression Factor		0.14			1.00						1.00	
Incremental Delay, d2		0.9			1.0						1.3	
Delay (s)		1.7			6.6						26.6	
Level of Service		A			A						C	
Approach Delay (s)		1.7			6.6			0.0			26.6	
Approach LOS		A			A			A			C	

Intersection Summary		
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.42	A
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	67.9%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	348	286	233
v/c Ratio	0.38	0.33	0.19
Control Delay	13.0	12.2	9.6
Queue Delay	0.9	4.1	0.0
Total Delay	13.9	16.4	9.6
Queue Length 50th (m)	27.1	21.3	6.6
Queue Length 95th (m)	44.6	36.4	13.2
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	904	869	1197
Starvation Cap Reductn	306	494	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.58	0.76	0.19
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 10: Pelissier St & University Avenue

2023_Future - Single Lane
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	9	311	0	0	255	8	76	68	70	0	0	0
Future Volume (vph)	9	311	0	0	255	8	76	68	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		1.00			1.00			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1787			2877				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1863			1787			2877				
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	338	0	0	277	9	83	74	76	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	46	0	0	0	0
Lane Group Flow (vph)	0	348	0	0	284	0	0	187	0	0	0	0
Confl. Peds. (#/hr)	47		50	50		47	25		14	14		25
Heavy Vehicles (%)	0%	3%	0%	0%	8%	0%	0%	4%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		33.0			33.0			27.0				
Effective Green, g (s)		34.0			34.0			28.0				
Actuated g/C Ratio		0.49			0.49			0.40				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		904			867			1150				
v/s Ratio Prot					0.16							
v/s Ratio Perm		c0.19						0.07				
v/c Ratio		0.38			0.33			0.16				
Uniform Delay, d1		11.4			11.0			13.5				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.2			1.0			0.3				
Delay (s)		12.6			12.0			13.8				
Level of Service		B			B			B				
Approach Delay (s)		12.6			12.0			13.8			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.7				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			47.9%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	365	275	30	154	21	208
v/c Ratio	0.15	0.50	0.36	0.09	0.26	0.07	0.33
Control Delay	13.9	17.4	16.0	13.1	10.9	12.8	13.9
Queue Delay	0.0	21.8	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	39.3	16.0	13.1	10.9	12.8	13.9
Queue Length 50th (m)	4.5	34.5	19.0	2.4	9.4	1.7	16.4
Queue Length 95th (m)	11.3	57.3	41.6	7.1	20.8	5.5	30.9
Internal Link Dist (m)		41.6	14.5		100.1		59.3
Turn Bay Length (m)				16.0		15.0	
Base Capacity (vph)	360	727	754	335	597	319	639
Starvation Cap Reductn	0	357	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.99	0.36	0.09	0.26	0.07	0.33

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

2023_Future - Single Lane
 Timing Plan: AM Peak



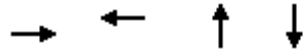
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	294	41	17	210	27	28	96	46	19	154	38
Future Volume (vph)	51	294	41	17	210	27	28	96	46	19	154	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.98			0.98		1.00	0.90		1.00	0.93	
Flpb, ped/bikes	0.88	1.00			1.00		0.77	1.00		0.75	1.00	
Frt	1.00	0.98			0.99		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1397	1611			1724		1185	1285		1031	1403	
Flt Permitted	0.55	1.00			0.97		0.60	1.00		0.66	1.00	
Satd. Flow (perm)	806	1611			1675		749	1285		715	1403	
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)	55	320	45	18	228	29	30	104	50	21	167	41
RTOR Reduction (vph)	0	7	0	0	6	0	0	23	0	0	12	0
Lane Group Flow (vph)	55	358	0	0	269	0	30	131	0	21	196	0
Confl. Peds. (#/hr)	118		87	87		118	142		136	136		142
Heavy Vehicles (%)	4%	3%	5%	0%	9%	0%	0%	12%	5%	11%	7%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	33.0	33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	34.0	34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.45	0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	360	720			749		335	574		319	627	
v/s Ratio Prot		c0.22						0.10			c0.14	
v/s Ratio Perm	0.07				0.16		0.04			0.03		
v/c Ratio	0.15	0.50			0.36		0.09	0.23		0.07	0.31	
Uniform Delay, d1	12.5	14.9			13.8		12.1	12.9		12.0	13.5	
Progression Factor	1.00	1.00			1.07		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	2.5			1.3		0.5	0.9		0.4	1.3	
Delay (s)	13.4	17.4			16.1		12.6	13.9		12.4	14.8	
Level of Service	B	B			B		B	B		B	B	
Approach Delay (s)		16.9			16.1			13.7			14.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	372	304	125	246
v/c Ratio	0.47	0.40	0.17	0.23
Control Delay	7.0	14.6	12.4	13.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.0	14.6	12.4	13.4
Queue Length 50th (m)	7.4	26.0	9.1	10.3
Queue Length 95th (m)	12.2	44.1	19.0	17.6
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	790	760	719	1060
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.47	0.40	0.17	0.23
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

12: Goyeau St & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	40	200	103	41	212	27	22	71	22	55	144	27
Future Volume (vph)	40	200	103	41	212	27	22	71	22	55	144	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.96			0.99			0.97			0.98	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1725			1743			1806			2843	
Flt Permitted		0.94			0.91			0.92			0.86	
Satd. Flow (perm)		1625			1597			1683			2485	
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)	43	217	112	45	230	29	24	77	24	60	157	29
RTOR Reduction (vph)	0	21	0	0	5	0	0	11	0	0	14	0
Lane Group Flow (vph)	0	351	0	0	299	0	0	114	0	0	232	0
Confl. Peds. (#/hr)	23		27	27		23	26		20	20		26
Heavy Vehicles (%)	0%	7%	2%	0%	8%	11%	9%	0%	0%	23%	3%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		769			756			708			1046	
v/s Ratio Prot												
v/s Ratio Perm		c0.22			0.19			0.07			c0.09	
v/c Ratio		0.46			0.40			0.16			0.22	
Uniform Delay, d1		13.4			13.0			13.7			14.0	
Progression Factor		0.42			1.00			1.00			1.00	
Incremental Delay, d2		1.8			1.6			0.5			0.5	
Delay (s)		7.4			14.5			14.2			14.5	
Level of Service		A			B			B			B	
Approach Delay (s)		7.4			14.5			14.2			14.5	
Approach LOS		A			B			B			B	

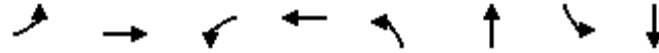
Intersection Summary

HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	46	229	52	143	195	198	1	19
v/c Ratio	0.13	0.38	0.18	0.26	0.33	0.19	0.00	0.02
Control Delay	17.7	10.6	19.0	18.4	9.9	12.1	7.0	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	10.6	19.0	18.4	9.9	12.1	7.0	13.7
Queue Length 50th (m)	4.2	9.7	4.8	13.1	12.0	6.8	0.1	0.7
Queue Length 95th (m)	10.9	25.3	12.4	25.8	22.3	13.4	0.6	2.6
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	358	601	282	544	587	1045	577	1008
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.38	0.18	0.26	0.33	0.19	0.00	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
13: McDougall St & University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



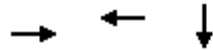
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	42	80	131	48	125	6	179	137	45	1	16	2
Future Volume (vph)	42	80	131	48	125	6	179	137	45	1	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Fr _t	1.00	0.91		1.00	0.99		1.00	0.96		1.00	0.98	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1559	1575		1515	1647		1388	2840		1524	2822	
Fl _t Permitted	0.66	1.00		0.54	1.00		0.74	1.00		0.63	1.00	
Satd. Flow (perm)	1090	1575		860	1647		1087	2840		1006	2822	
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	87	142	52	136	7	195	149	49	1	17	2
RTOR Reduction (vph)	0	84	0	0	3	0	0	32	0	0	1	0
Lane Group Flow (vph)	46	145	0	52	140	0	195	167	0	1	18	0
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	10%	0%	13%	0%	2%	0%	8%	10%	2%	0%	13%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		34.0	24.0		34.0	24.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		34.0	25.0		34.0	25.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.49	0.36		0.49	0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	358	517		282	541		570	1014		562	1007	
v/s Ratio Prot		c0.09			0.09		c0.05	0.06		0.00	0.01	
v/s Ratio Perm	0.04			0.06			c0.12			0.00		
v/c Ratio	0.13	0.28		0.18	0.26		0.34	0.16		0.00	0.02	
Uniform Delay, d ₁	16.5	17.4		16.8	17.2		10.8	15.4		9.3	14.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	0.7	1.4		1.4	1.2		1.6	0.3		0.0	0.0	
Delay (s)	17.2	18.7		18.2	18.4		12.4	15.7		9.3	14.6	
Level of Service	B	B		B	B		B	B		A	B	
Approach Delay (s)		18.5			18.4			14.1			14.3	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	53	300	283
v/c Ratio	0.08	0.50	0.40
Control Delay	6.8	18.6	14.5
Queue Delay	0.0	0.0	0.0
Total Delay	6.8	18.6	14.5
Queue Length 50th (m)	1.6	29.4	24.8
Queue Length 95th (m)	7.2	50.9	39.9
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	705	598	716
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.08	0.50	0.40
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2023_Future - Single Lane

14: Victoria Ave & Park St W

Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↕	
Traffic Volume (vph)	0	18	30	189	87	0	0	0	0	30	207	23
Future Volume (vph)	0	18	30	189	87	0	0	0	0	30	207	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.95			1.00						0.99	
Flpb, ped/bikes		1.00			0.96						0.99	
Frt		0.92			1.00						0.99	
Flt Protected		1.00			0.97						0.99	
Satd. Flow (prot)		1537			1695						1593	
Flt Permitted		1.00			0.76						0.99	
Satd. Flow (perm)		1537			1337						1593	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	20	33	205	95	0	0	0	0	33	225	25
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	35	0	0	300	0	0	0	0	0	279	0
Confl. Peds. (#/hr)			40	40						43		38
Heavy Vehicles (%)	0%	12%	3%	4%	1%	0%	0%	0%	0%	0%	3%	4%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		687			598						712	
v/s Ratio Prot		0.02										
v/s Ratio Perm					0.22						0.17	
v/c Ratio		0.05			0.50						0.39	
Uniform Delay, d1		11.9			15.0						14.1	
Progression Factor		1.00			1.00						0.92	
Incremental Delay, d2		0.1			3.0						1.5	
Delay (s)		12.0			18.0						14.5	
Level of Service		B			B						B	
Approach Delay (s)		12.0			18.0			0.0			14.5	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			15.9		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			48.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2023_Future - Single Lane

49:

Timing Plan: AM Peak















Lane Group	EBT	WBT
Lane Group Flow (vph)	262	315
v/c Ratio	0.18	0.21
Control Delay	2.8	1.6
Queue Delay	0.0	0.0
Total Delay	2.8	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	26.4	16.3
Internal Link Dist (m)	17.8	61.7
Turn Bay Length (m)		
Base Capacity (vph)	1496	1524
Starvation Cap Reductn	0	82
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.18	0.22
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

2023_Future - Single Lane

49:

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	241	0	0	290	0	0	0	0	0	0	0
Future Volume (vph)	0	241	0	0	290	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1631			1662							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1631			1662							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	262	0	0	315	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	262	0	0	315	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							10		15	15		10
Heavy Vehicles (%)	0%	6%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		56.0			56.0							
Effective Green, g (s)		57.0			57.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1328			1353							
v/s Ratio Prot		0.16			0.19							
v/s Ratio Perm												
v/c Ratio		0.20			0.23							
Uniform Delay, d1		1.4			1.5							
Progression Factor		1.00			0.52							
Incremental Delay, d2		0.3			0.4							
Delay (s)		1.8			1.1							
Level of Service		A			A							
Approach Delay (s)		1.8			1.1			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.22									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			18.6%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	450	342
v/c Ratio	0.30	0.22
Control Delay	4.8	4.3
Queue Delay	0.0	0.0
Total Delay	4.8	4.3
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	68.2	48.3
Internal Link Dist (m)	35.4	448.7
Turn Bay Length (m)		
Base Capacity (vph)	1500	1530
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.30	0.22
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2023_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	414	0	0	315	0	0	0	0	0	0	0
Future Volume (vph)	0	414	0	0	315	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	450	0	0	342	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	450	0	0	342	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							1		1	1		1
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		64.0			64.0							
Effective Green, g (s)		65.0			65.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1350			1377							
v/s Ratio Prot		c0.27			0.20							
v/s Ratio Perm												
v/c Ratio		0.33			0.25							
Uniform Delay, d1		1.9			1.8							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.7			0.4							
Delay (s)		2.6			2.2							
Level of Service		A			A							
Approach Delay (s)		2.6			2.2			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			2.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			25.1%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	150	59	202	168	255	155
v/c Ratio	0.18	0.09	0.38	0.21	0.19	0.18
Control Delay	13.4	4.1	25.3	19.9	6.6	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	4.1	25.3	19.9	6.6	13.2
Queue Length 50th (m)	12.4	0.0	27.0	20.1	5.2	12.6
Queue Length 95th (m)	23.0	5.8	51.5	41.9	11.5	23.3
Internal Link Dist (m)	117.8			283.7	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	828	678	535	819	1369	840
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.09	0.38	0.21	0.19	0.18

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Huron Church Rd & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	5	133	54	186	133	21	48	67	120	8	130	5
Future Volume (vph)	5	133	54	186	133	21	48	67	120	8	130	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.88	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.98			0.92			1.00	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1863	1444	1718	1816			3281			1904	
Flt Permitted		0.99	1.00	0.66	1.00			0.87			0.98	
Satd. Flow (perm)		1853	1444	1197	1816			2899			1875	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	145	59	202	145	23	52	73	130	9	141	5
RTOR Reduction (vph)	0	0	33	0	8	0	0	72	0	0	2	0
Lane Group Flow (vph)	0	150	26	202	160	0	0	183	0	0	153	0
Confl. Peds. (#/hr)	11		54	54		11	9		6	6		9
Heavy Vehicles (%)	0%	3%	0%	1%	0%	30%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		828	646	535	812			1296			838	
v/s Ratio Prot					0.09							
v/s Ratio Perm		0.08	0.02	c0.17				0.06			c0.08	
v/c Ratio		0.18	0.04	0.38	0.20			0.14			0.18	
Uniform Delay, d1		12.6	11.8	14.0	12.7			12.4			12.6	
Progression Factor		1.00	1.00	1.60	1.62			1.00			1.00	
Incremental Delay, d2		0.5	0.1	2.0	0.5			0.2			0.5	
Delay (s)		13.1	11.9	24.4	21.2			12.6			13.1	
Level of Service		B	B	C	C			B			B	
Approach Delay (s)		12.8			22.9			12.6			13.1	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Sunset Ave & University Avenue

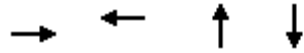
2023_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	11	255	2	29	361	4	19	12	30	7	7	8
Future Volume (Veh/h)	11	255	2	29	361	4	19	12	30	7	7	8
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	277	2	32	392	4	21	13	33	8	8	9
Pedestrians								71			6	
Lane Width (m)								4.0			4.0	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								8			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			42							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	402			350			844	839	349	806	838	400
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	338			350			806	800	349	765	799	336
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			97			91	95	95	97	97	99
cM capacity (veh/h)	1157			1128			232	267	646	252	268	667
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	291	428	67	25								
Volume Left	12	32	21	8								
Volume Right	2	4	33	9								
cSH	1157	1128	353	333								
Volume to Capacity	0.01	0.03	0.19	0.08								
Queue Length 95th (m)	0.2	0.7	5.2	1.8								
Control Delay (s)	0.4	0.9	17.6	16.7								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	0.9	17.6	16.7								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			41.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	352	500	306	47
v/c Ratio	0.46	0.62	0.61	0.08
Control Delay	9.7	6.0	23.6	16.1
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	10.5	6.0	23.6	16.1
Queue Length 50th (m)	23.5	5.3	30.1	4.0
Queue Length 95th (m)	12.2	10.0	55.6	10.8
Internal Link Dist (m)	59.7	628.6	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	757	804	499	562
Starvation Cap Reductn	176	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.61	0.62	0.61	0.08
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	57	258	9	60	396	5	63	107	112	3	36	5
Future Volume (vph)	57	258	9	60	396	5	63	107	112	3	36	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			1.00			0.94			0.99	
Flpb, ped/bikes		0.99			0.97			0.98			1.00	
Frt		1.00			1.00			0.95			0.99	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1574			1579			1462			1660	
Flt Permitted		0.86			0.91			0.93			0.98	
Satd. Flow (perm)		1368			1454			1368			1636	
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)	62	280	10	65	430	5	68	116	122	3	39	5
RTOR Reduction (vph)	0	1	0	0	0	0	0	32	0	0	3	0
Lane Group Flow (vph)	0	351	0	0	500	0	0	274	0	0	44	0
Confl. Peds. (#/hr)	81		201	201		81	44		70	70		44
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	3%	20%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		41.0			41.0			25.0			25.0	
Effective Green, g (s)		42.0			42.0			26.0			26.0	
Actuated g/C Ratio		0.55			0.55			0.34			0.34	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		756			803			468			559	
v/s Ratio Prot												
v/s Ratio Perm		0.26			0.34			0.20			0.03	
v/c Ratio		0.46			0.62			0.59			0.08	
Uniform Delay, d1		10.2			11.6			20.6			16.9	
Progression Factor		0.72			0.26			1.00			1.00	
Incremental Delay, d2		2.0			2.8			5.3			0.3	
Delay (s)		9.4			5.8			25.9			17.2	
Level of Service		A			A			C			B	
Approach Delay (s)		9.4			5.8			25.9			17.2	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	28	451	162	471	276	114
v/c Ratio	0.12	0.74	0.69	0.71	0.33	0.13
Control Delay	16.6	26.1	27.7	16.2	10.7	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	26.1	27.7	16.2	10.7	9.1
Queue Length 50th (m)	2.3	43.3	11.6	34.7	17.6	6.6
Queue Length 95th (m)	m5.8	#87.1	#25.1	33.3	32.8	14.8
Internal Link Dist (m)		628.6		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	242	612	234	663	847	868
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.74	0.69	0.71	0.33	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	334	81	149	426	7	62	88	104	14	66	25
Future Volume (vph)	26	334	81	149	426	7	62	88	104	14	66	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	1.00			0.97			0.98	
Flpb, ped/bikes	0.97	1.00		0.93	1.00			0.99			1.00	
Frt	1.00	0.97		1.00	1.00			0.94			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1736	1426		1584	1576			1871			1881	
Flt Permitted	0.31	1.00		0.33	1.00			0.91			0.95	
Satd. Flow (perm)	575	1426		557	1576			1720			1805	
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)	28	363	88	162	463	8	67	96	113	15	72	27
RTOR Reduction (vph)	0	12	0	0	1	0	0	33	0	0	14	0
Lane Group Flow (vph)	28	439	0	162	470	0	0	243	0	0	100	0
Confl. Peds. (#/hr)	37		89	89		37	37		36	36		37
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%	4%	5%	1%	0%	5%	6%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	242	600		234	663			814			855	
v/s Ratio Prot		c0.31			0.30							
v/s Ratio Perm	0.05			0.29				c0.14			0.06	
v/c Ratio	0.12	0.73		0.69	0.71			0.30			0.12	
Uniform Delay, d1	13.4	18.4		18.0	18.2			12.3			11.1	
Progression Factor	1.12	1.01		0.52	0.53			1.00			1.00	
Incremental Delay, d2	0.9	7.1		15.2	6.2			0.9			0.3	
Delay (s)	15.9	25.7		24.6	15.8			13.2			11.4	
Level of Service	B	C		C	B			B			B	
Approach Delay (s)		25.1			18.0			13.2			11.4	
Approach LOS		C			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.50	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	64.2%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: McKay Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	391	7	7	464	11	3	1	5	8	0	14
Future Volume (Veh/h)	15	391	7	7	464	11	3	1	5	8	0	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)	16	425	8	8	504	12	3	1	5	9	0	15
Pedestrians								14			11	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			60							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	527			447			1016	1018	443	1004	1016	521
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	433			447			969	972	443	956	969	427
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			98	100	99	96	100	97
cM capacity (veh/h)	1026			1109			198	221	610	206	222	570
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	449	524	9	24								
Volume Left	16	8	3	9								
Volume Right	8	12	5	15								
cSH	1026	1109	323	343								
Volume to Capacity	0.02	0.01	0.03	0.07								
Queue Length 95th (m)	0.4	0.2	0.7	1.7								
Control Delay (s)	0.5	0.2	16.5	16.3								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.5	0.2	16.5	16.3								
Approach LOS			C	C								
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			39.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	22	383	59	136	540	249	173
v/c Ratio	0.07	0.37	0.09	0.31	0.63	0.39	0.25
Control Delay	8.2	14.2	4.2	5.9	9.8	18.1	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	14.2	4.2	5.9	9.8	18.1	16.1
Queue Length 50th (m)	2.2	45.6	1.5	3.7	14.5	22.6	14.7
Queue Length 95th (m)	2.4	48.5	3.1	6.6	24.8	40.8	28.2
Internal Link Dist (m)		448.3			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	317	1049	683	445	856	632	686
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.37	0.09	0.31	0.63	0.39	0.25

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	352	54	125	473	24	65	95	69	18	102	39
Future Volume (vph)	20	352	54	125	473	24	65	95	69	18	102	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.92	1.00	1.00			0.99			0.99	
Flpb, ped/bikes	0.98	1.00	1.00	0.97	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.96			0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1651	1946	1216	1691	1584			1953			1971	
Flt Permitted	0.34	1.00	1.00	0.46	1.00			0.87			0.95	
Satd. Flow (perm)	588	1946	1216	825	1584			1723			1889	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	383	59	136	514	26	71	103	75	20	111	42
RTOR Reduction (vph)	0	0	27	0	2	0	0	21	0	0	15	0
Lane Group Flow (vph)	22	383	32	136	538	0	0	228	0	0	158	0
Confl. Peds. (#/hr)	28		28	28		28	15		16	16		15
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	6%	0%	0%	6%	0%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	317	1049	656	445	854			612			671	
v/s Ratio Prot		0.20			c0.34							
v/s Ratio Perm	0.04		0.03	0.16				c0.13			0.08	
v/c Ratio	0.07	0.37	0.05	0.31	0.63			0.37			0.23	
Uniform Delay, d1	8.4	10.0	8.3	9.7	12.2			18.2			17.2	
Progression Factor	0.88	1.29	1.48	0.42	0.52			1.00			1.00	
Incremental Delay, d2	0.4	1.0	0.1	1.6	3.2			1.7			0.8	
Delay (s)	7.8	13.9	12.4	5.6	9.6			20.0			18.1	
Level of Service	A	B	B	A	A			B			B	
Approach Delay (s)		13.4			8.8			20.0			18.1	
Approach LOS		B			A			B			B	

Intersection Summary		
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.53	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	69.2%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	43	442	565	189
v/c Ratio	0.12	0.44	0.56	0.29
Control Delay	8.0	12.6	15.9	17.8
Queue Delay	0.0	0.0	0.5	0.0
Total Delay	8.0	12.6	16.4	17.8
Queue Length 50th (m)	3.8	55.2	72.2	17.4
Queue Length 95th (m)	9.7	85.7	107.8	32.2
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	345	1015	1011	653
Starvation Cap Reductn	0	0	139	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.12	0.44	0.65	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



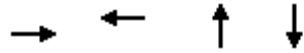
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	407	0	0	476	44	75	63	36	0	0	0
Future Volume (vph)	40	407	0	0	476	44	75	63	36	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frbp, ped/bikes	1.00	1.00			1.00			0.99				
Flpb, ped/bikes	0.99	1.00			1.00			0.99				
Frt	1.00	1.00			0.99			0.97				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1814	1838			1822			1874				
Flt Permitted	0.33	1.00			1.00			0.98				
Satd. Flow (perm)	626	1838			1822			1874				
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)	43	442	0	0	517	48	82	68	39	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	13	0	0	0	0
Lane Group Flow (vph)	43	442	0	0	561	0	0	177	0	0	0	0
Confl. Peds. (#/hr)	15		17	17		15	14		16	16		14
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	3%	2%	23%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	345	1015			1006			641				
v/s Ratio Prot		0.24			0.31							
v/s Ratio Perm	0.07							0.09				
v/c Ratio	0.12	0.44			0.56			0.28				
Uniform Delay, d1	8.2	10.0			11.0			18.2				
Progression Factor	0.85	1.09			1.23			1.00				
Incremental Delay, d2	0.7	1.3			2.1			1.1				
Delay (s)	7.6	12.3			15.6			19.2				
Level of Service	A	B			B			B				
Approach Delay (s)		11.8			15.6			19.2			0.0	
Approach LOS		B			B			B			A	

Intersection Summary		
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.45	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	56.6%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

Queues
8: Church St & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	435	444	129	208
v/c Ratio	0.46	0.40	0.29	0.46
Control Delay	5.9	7.0	21.8	20.2
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	5.9	7.1	21.8	20.3
Queue Length 50th (m)	9.1	16.5	13.2	17.5
Queue Length 95th (m)	22.6	55.7	26.6	36.1
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	949	1105	450	454
Starvation Cap Reductn	14	0	0	0
Spillback Cap Reductn	0	60	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.47	0.42	0.29	0.46
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



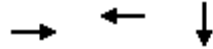
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	61	289	51	18	352	38	37	65	17	19	84	88
Future Volume (vph)	61	289	51	18	352	38	37	65	17	19	84	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.98			0.98			0.95	
Flpb, ped/bikes		0.99			1.00			0.98			0.99	
Frt		0.98			0.99			0.98			0.94	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1706			1819			1784			1542	
Flt Permitted		0.89			0.98			0.88			0.97	
Satd. Flow (perm)		1525			1778			1600			1497	
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)	66	314	55	20	383	41	40	71	18	21	91	96
RTOR Reduction (vph)	0	7	0	0	5	0	0	8	0	0	41	0
Lane Group Flow (vph)	0	428	0	0	439	0	0	121	0	0	167	0
Confl. Peds. (#/hr)	77		42	42		77	41		69	69		41
Heavy Vehicles (%)	7%	5%	2%	0%	3%	0%	0%	0%	0%	5%	0%	14%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		943			1099			442			413	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.25			0.08			c0.11	
v/c Ratio		0.45			0.40			0.27			0.41	
Uniform Delay, d1		7.7			7.3			21.5			22.4	
Progression Factor		0.58			0.81			1.00			1.00	
Incremental Delay, d2		1.5			1.0			1.5			2.9	
Delay (s)		5.9			7.0			23.1			25.4	
Level of Service		A			A			C			C	
Approach Delay (s)		5.9			7.0			23.1			25.4	
Approach LOS		A			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.44	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	65.4%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
 9: Victoria Ave & University Avenue

2023_Future - Single Lane
 Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	421	454	220
v/c Ratio	0.37	0.42	0.58
Control Delay	6.4	4.5	27.5
Queue Delay	0.0	0.1	0.0
Total Delay	6.4	4.6	27.5
Queue Length 50th (m)	37.5	12.8	22.7
Queue Length 95th (m)	53.9	20.6	40.1
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1144	1087	574
Starvation Cap Reductn	0	100	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.37	0.46	0.38
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2023_Future - Single Lane
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	18	273	96	73	328	17	0	0	0	14	123	65
Future Volume (vph)	18	273	96	73	328	17	0	0	0	14	123	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.98			1.00						0.95	
Flpb, ped/bikes		1.00			0.99						1.00	
Frt		0.97			0.99						0.96	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1721			1829						1613	
Flt Permitted		0.97			0.87						1.00	
Satd. Flow (perm)		1680			1610						1613	
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)	20	297	104	79	357	18	0	0	0	15	134	71
RTOR Reduction (vph)	0	11	0	0	1	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	410		0	0	453	0	0	0	0	194	0
Confl. Peds. (#/hr)	32		50	50		32	61		25	25		61
Heavy Vehicles (%)	41%	4%	4%	6%	3%	0%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		50.2			50.2						15.8	
Effective Green, g (s)		51.2			51.2						16.8	
Actuated g/C Ratio		0.67			0.67						0.22	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1131			1084						356	
v/s Ratio Prot												
v/s Ratio Perm		0.24			c0.28						0.12	
v/c Ratio		0.36			0.42						0.54	
Uniform Delay, d1		5.4			5.6						26.2	
Progression Factor		0.95			0.51						1.00	
Incremental Delay, d2		0.8			1.1						2.1	
Delay (s)		5.9			4.0						28.3	
Level of Service		A			A						C	
Approach Delay (s)		5.9			4.0			0.0			28.3	
Approach LOS		A			A			A			C	

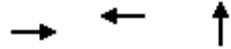
Intersection Summary

HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	320	375	285
v/c Ratio	0.33	0.38	0.26
Control Delay	9.6	9.0	11.7
Queue Delay	0.3	1.1	0.0
Total Delay	9.9	10.1	11.7
Queue Length 50th (m)	14.7	17.0	9.5
Queue Length 95th (m)	23.8	24.6	17.5
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	978	975	1110
Starvation Cap Reductn	244	370	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.44	0.62	0.26
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 10: Pelissier St & University Avenue

2023_Future - Single Lane
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕				
Traffic Volume (vph)	9	285	0	0	329	16	105	70	87	0	0	0
Future Volume (vph)	9	285	0	0	329	16	105	70	87	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			0.97				
Frt		1.00			0.99			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1848			2853				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1858			1848			2853				
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	310	0	0	358	17	114	76	95	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	60	0	0	0	0
Lane Group Flow (vph)	0	320	0	0	373	0	0	225	0	0	0	0
Confl. Peds. (#/hr)	50					50	34		35			
Heavy Vehicles (%)	0%	3%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		39.0			39.0			27.0				
Effective Green, g (s)		40.0			40.0			28.0				
Actuated g/C Ratio		0.53			0.53			0.37				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		977			972			1051				
v/s Ratio Prot					c0.20							
v/s Ratio Perm		0.17						0.08				
v/c Ratio		0.33			0.38			0.21				
Uniform Delay, d1		10.3			10.7			16.5				
Progression Factor		0.83			0.74			1.00				
Incremental Delay, d2		0.9			1.0			0.5				
Delay (s)		9.4			8.9			16.9				
Level of Service		A			A			B				
Approach Delay (s)		9.4			8.9			16.9			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.4				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			46.4%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	323	336	71	203	33	251
v/c Ratio	0.28	0.44	0.55	0.26	0.30	0.10	0.38
Control Delay	7.8	7.3	23.8	16.4	12.9	13.2	15.1
Queue Delay	0.0	1.1	0.1	0.0	0.0	0.0	0.0
Total Delay	7.8	8.4	23.8	16.4	12.9	13.2	15.1
Queue Length 50th (m)	3.6	11.1	39.9	6.1	15.0	2.6	21.3
Queue Length 95th (m)	7.7	18.4	70.0	15.0	28.8	7.6	38.1
Internal Link Dist (m)		41.6	14.5		100.1		59.3
Turn Bay Length (m)				16.0		15.0	
Base Capacity (vph)	352	732	610	272	666	336	664
Starvation Cap Reductn	0	208	0	0	0	0	0
Spillback Cap Reductn	0	0	13	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.62	0.56	0.26	0.30	0.10	0.38

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

2023_Future - Single Lane
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	261	36	32	247	30	65	139	48	30	195	36
Future Volume (vph)	90	261	36	32	247	30	65	139	48	30	195	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97			0.98		1.00	0.87		1.00	0.93	
Flpb, ped/bikes	0.92	1.00			0.99		0.71	1.00		0.63	1.00	
Frt	1.00	0.98			0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1499	1623			1427		1042	1367		953	1464	
Flt Permitted	0.50	1.00			0.94		0.55	1.00		0.61	1.00	
Satd. Flow (perm)	789	1623			1354		608	1367		608	1464	
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)	98	284	39	35	268	33	71	151	52	33	212	39
RTOR Reduction (vph)	0	7	0	0	5	0	0	17	0	0	9	0
Lane Group Flow (vph)	98	316	0	0	331	0	71	186	0	33	242	0
Confl. Peds. (#/hr)	91		126	126		91	198		252	252		198
Heavy Vehicles (%)	1%	2%	0%	0%	37%	0%	5%	1%	0%	0%	1%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	33.0	33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	34.0	34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.45	0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	352	726			605		272	611		272	654	
v/s Ratio Prot		0.19						0.14			c0.17	
v/s Ratio Perm	0.12				c0.24		0.12			0.05		
v/c Ratio	0.28	0.44			0.55		0.26	0.31		0.12	0.37	
Uniform Delay, d1	13.3	14.4			15.4		13.1	13.4		12.3	13.9	
Progression Factor	0.42	0.38			1.30		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	1.8			3.5		2.3	1.3		0.9	1.6	
Delay (s)	7.5	7.3			23.4		15.5	14.7		13.2	15.5	
Level of Service	A	A			C		B	B		B	B	
Approach Delay (s)		7.4			23.4			14.9			15.2	
Approach LOS		A			C			B			B	

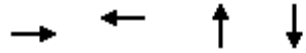
Intersection Summary

HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	443	271	228	218
v/c Ratio	0.54	0.33	0.30	0.21
Control Delay	18.0	11.7	14.9	11.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.0	11.7	14.9	11.5
Queue Length 50th (m)	53.8	24.6	19.3	7.7
Queue Length 95th (m)	77.2	40.5	34.3	14.5
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	815	809	757	1020
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.33	0.30	0.21
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
12: Goyeau St & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	289	69	21	186	42	23	152	35	53	104	43
Future Volume (vph)	50	289	69	21	186	42	23	152	35	53	104	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.98			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1813			1770			1849			2787	
Flt Permitted		0.93			0.95			0.96			0.84	
Satd. Flow (perm)		1703			1689			1777			2358	
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	314	75	23	202	46	25	165	38	58	113	47
RTOR Reduction (vph)	0	9	0	0	9	0	0	9	0	0	27	0
Lane Group Flow (vph)	0	434	0	0	262	0	0	219	0	0	191	0
Confl. Peds. (#/hr)	16		34	34		16	32		10	10		32
Heavy Vehicles (%)	2%	2%	1%	0%	5%	5%	0%	1%	0%	18%	3%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		806			800			748			992	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.15			c0.12			0.08	
v/c Ratio		0.54			0.33			0.29			0.19	
Uniform Delay, d1		14.1			12.5			14.5			13.9	
Progression Factor		1.10			0.89			1.00			1.00	
Incremental Delay, d2		2.5			1.1			1.0			0.4	
Delay (s)		18.0			12.1			15.5			14.3	
Level of Service		B			B			B			B	
Approach Delay (s)		18.0			12.1			15.5			14.3	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	318	64	187	105	241	3	41
v/c Ratio	0.23	0.45	0.22	0.29	0.21	0.22	0.01	0.04
Control Delay	17.1	15.3	17.9	16.4	11.6	13.0	10.0	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	15.3	17.9	16.4	11.6	13.0	10.0	15.6
Queue Length 50th (m)	12.2	32.2	5.9	16.9	7.7	9.0	0.2	1.8
Queue Length 95th (m)	m23.3	52.0	14.7	30.9	15.7	16.5	1.5	4.9
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	432	700	286	655	493	1084	330	1079
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.45	0.22	0.29	0.21	0.22	0.01	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 13: McDougall St & University Avenue

2023_Future - Single Lane
 Timing Plan: PM Peak

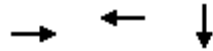


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	
Traffic Volume (vph)	90	131	162	59	154	18	97	167	54	3	34	4
Future Volume (vph)	90	131	162	59	154	18	97	167	54	3	34	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.92		1.00	0.98		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1626		1510	1645		1349	2843		1125	3149	
Flt Permitted	0.61	1.00		0.46	1.00		0.67	1.00		0.60	1.00	
Satd. Flow (perm)	1096	1626		726	1645		958	2843		713	3149	
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)	98	142	176	64	167	20	105	182	59	3	37	4
RTOR Reduction (vph)	0	59	0	0	5	0	0	37	0	0	3	0
Lane Group Flow (vph)	98	259	0	64	182	0	105	204	0	3	38	0
Confl. Peds. (#/hr)	7		6	6		7	21		34	34		21
Heavy Vehicles (%)	0%	0%	10%	0%	1%	0%	10%	9%	0%	33%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		35.0	27.0		31.0	25.0	
Effective Green, g (s)	30.0	30.0		30.0	30.0		35.0	28.0		31.0	26.0	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.46	0.37		0.41	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	432	641		286	649		482	1047		323	1077	
v/s Ratio Prot		c0.16			0.11		c0.02	0.07		0.00	0.01	
v/s Ratio Perm	0.09			0.09			c0.08			0.00		
v/c Ratio	0.23	0.40		0.22	0.28		0.22	0.19		0.01	0.04	
Uniform Delay, d1	15.3	16.6		15.3	15.6		12.0	16.3		13.4	16.7	
Progression Factor	1.01	1.14		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	1.7		1.8	1.1		1.0	0.4		0.1	0.1	
Delay (s)	16.5	20.5		17.1	16.7		13.1	16.7		13.4	16.7	
Level of Service	B	C		B	B		B	B		B	B	
Approach Delay (s)		19.6			16.8			15.6			16.5	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.31	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	54.0%	12.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		A

Queues
14: Victoria Ave & Park St W

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	152	432	350
v/c Ratio	0.20	0.77	0.50
Control Delay	7.2	29.4	14.2
Queue Delay	0.0	0.0	0.0
Total Delay	7.2	29.4	14.2
Queue Length 50th (m)	5.7	50.1	32.1
Queue Length 95th (m)	15.7	#97.4	54.9
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	769	559	705
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.20	0.77	0.50

Intersection Summary
















95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2023_Future - Single Lane

14: Victoria Ave & Park St W

Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	66	74	285	112	0	0	0	0	28	270	25
Future Volume (vph)	0	66	74	285	112	0	0	0	0	28	270	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.96			1.00						0.99	
Flpb, ped/bikes		1.00			0.96						0.99	
Frt		0.93			1.00						0.99	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1621			1740						1567	
Flt Permitted		1.00			0.69						1.00	
Satd. Flow (perm)		1621			1250						1567	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	72	80	310	122	0	0	0	0	30	293	27
RTOR Reduction (vph)	0	44	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	108	0	0	432	0	0	0	0	0	346	0
Confl. Peds. (#/hr)			43	43						58		44
Heavy Vehicles (%)	0%	5%	1%	0%	1%	0%	0%	0%	0%	0%	5%	8%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		725			559						701	
v/s Ratio Prot		0.07										
v/s Ratio Perm					0.35						0.22	
v/c Ratio		0.15			0.77						0.49	
Uniform Delay, d1		12.4			17.7						14.9	
Progression Factor		1.00			1.00						0.78	
Incremental Delay, d2		0.4			10.0						2.4	
Delay (s)		12.9			27.7						14.0	
Level of Service		B			C						B	
Approach Delay (s)		12.9			27.7			0.0			14.0	
Approach LOS		B			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			20.1		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			72.5%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
49: University Avenue













2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	317	428
v/c Ratio	0.21	0.27
Control Delay	2.9	1.0
Queue Delay	0.0	0.0
Total Delay	2.9	1.0
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	28.8	12.2
Internal Link Dist (m)	18.1	59.7
Turn Bay Length (m)		
Base Capacity (vph)	1535	1566
Starvation Cap Reductn	0	92
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.21	0.29
Intersection Summary		

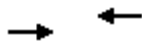
HCM Signalized Intersection Capacity Analysis
49: University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	292	0	0	394	0	0	0	0	0	0	0
Future Volume (vph)	0	292	0	0	394	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	317	0	0	428	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	317	0	0	428	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							7		26	26		7
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		62.0			62.0							
Effective Green, g (s)		63.0			63.0							
Actuated g/C Ratio		0.83			0.83							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1377			1405							
v/s Ratio Prot		0.19			0.25							
v/s Ratio Perm												
v/c Ratio		0.23			0.30							
Uniform Delay, d1		1.4			1.5							
Progression Factor		1.12			0.26							
Incremental Delay, d2		0.4			0.4							
Delay (s)		1.9			0.8							
Level of Service		A			A							
Approach Delay (s)		1.9			0.8			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.3		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.29									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			24.1%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	439	524
v/c Ratio	0.29	0.34
Control Delay	4.5	2.3
Queue Delay	0.0	0.0
Total Delay	4.5	2.3
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	m77.2	23.6
Internal Link Dist (m)	35.9	448.3
Turn Bay Length (m)		
Base Capacity (vph)	1491	1521
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.29	0.34

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2023_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	404	0	0	482	0	0	0	0	0	0	0
Future Volume (vph)	0	404	0	0	482	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	439	0	0	524	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	439	0	0	524	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		60.0			60.0							
Effective Green, g (s)		61.0			61.0							
Actuated g/C Ratio		0.80			0.80							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1333			1360							
v/s Ratio Prot		0.26			0.31							
v/s Ratio Perm												
v/c Ratio		0.33			0.39							
Uniform Delay, d1		2.0			2.1							
Progression Factor		0.90			0.38							
Incremental Delay, d2		0.5			0.7							
Delay (s)		2.3			1.5							
Level of Service		A			A							
Approach Delay (s)		2.3			1.5		0.0				0.0	
Approach LOS		A			A		A				A	
Intersection Summary												
HCM 2000 Control Delay			1.9		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			28.7%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	265	66	128	82	198	123
v/c Ratio	0.32	0.10	0.28	0.11	0.15	0.15
Control Delay	15.0	3.9	15.5	10.2	4.8	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	3.9	15.5	10.2	4.8	12.6
Queue Length 50th (m)	23.6	0.0	11.2	4.9	2.5	9.6
Queue Length 95th (m)	39.4	6.1	22.7	12.2	7.8	18.9
Internal Link Dist (m)	117.8			282.0	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	818	678	452	772	1364	815
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.10	0.28	0.11	0.15	0.15
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
1: Huron Church Rd & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↖	↗		↕			↕	
Traffic Volume (vph)	1	243	61	118	57	18	23	33	126	11	96	6
Future Volume (vph)	1	243	61	118	57	18	23	33	126	11	96	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.90	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.95	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.96			0.90			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1830	1435	1783	1703			3120			1862	
Flt Permitted		1.00	1.00	0.54	1.00			0.92			0.97	
Satd. Flow (perm)		1829	1435	1011	1703			2883			1818	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	264	66	128	62	20	25	36	137	12	104	7
RTOR Reduction (vph)	0	0	36	0	11	0	0	76	0	0	3	0
Lane Group Flow (vph)	0	265	30	128	71	0	0	122	0	0	120	0
Confl. Peds. (#/hr)	6		47	47		6	6		1	1		6
Heavy Vehicles (%)	0%	5%	2%	0%	2%	31%	5%	3%	2%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		818	641	452	761			1289			813	
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.14	0.02	0.13				0.04			c0.07	
v/c Ratio		0.32	0.05	0.28	0.09			0.09			0.15	
Uniform Delay, d1		13.6	11.8	13.3	12.1			12.1			12.4	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.1	0.1	1.6	0.2			0.1			0.4	
Delay (s)		14.6	12.0	14.9	12.4			12.3			12.8	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		14.1			13.9			12.3			12.8	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.24	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	65.8%	8.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

HCM Unsignalized Intersection Capacity Analysis
 2: Sunset Ave & University Avenue

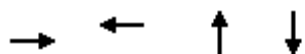
2028_Future - Single Lane
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	3	231	23	22	277	4	17	17	20	2	18	12
Future Volume (Veh/h)	3	231	23	22	277	4	17	17	20	2	18	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)	3	251	25	24	301	4	18	18	22	2	20	13
Pedestrians		10			15			25			13	
Lane Width (m)		3.5			3.5			4.0			4.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		306			42							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	318			301			678	660	304	680	671	326
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	269			301			645	626	304	646	637	278
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.1	3.3
p0 queue free %	100			98			94	95	97	99	94	98
cM capacity (veh/h)	1237			1238			322	364	711	322	352	719
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	279	329	58	35								
Volume Left	3	24	18	2								
Volume Right	25	4	22	13								
cSH	1237	1238	426	431								
Volume to Capacity	0.00	0.02	0.14	0.08								
Queue Length 95th (m)	0.1	0.5	3.6	2.0								
Control Delay (s)	0.1	0.8	14.8	14.1								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	0.8	14.8	14.1								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization			46.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	357	366	245	118
v/c Ratio	0.45	0.53	0.49	0.18
Control Delay	10.7	14.9	15.9	14.4
Queue Delay	0.7	0.0	0.0	0.0
Total Delay	11.4	14.9	15.9	14.4
Queue Length 50th (m)	26.1	29.7	16.6	9.2
Queue Length 95th (m)	16.9	52.3	35.9	19.2
Internal Link Dist (m)	61.7	628.6	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	791	688	504	639
Starvation Cap Reductn	186	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	0.53	0.49	0.18
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	274	43	83	252	2	74	50	102	2	94	13
Future Volume (vph)	11	274	43	83	252	2	74	50	102	2	94	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.97			1.00			0.96			0.99	
Flpb, ped/bikes		1.00			0.97			0.97			1.00	
Frt		0.98			1.00			0.94			0.98	
Flt Protected		1.00			0.99			0.98			1.00	
Satd. Flow (prot)		1544			1576			1407			1708	
Flt Permitted		0.99			0.84			0.87			1.00	
Satd. Flow (perm)		1525			1337			1243			1703	
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	298	47	90	274	2	80	54	111	2	102	14
RTOR Reduction (vph)	0	8	0	0	0	0	0	43	0	0	7	0
Lane Group Flow (vph)	0	349		0	0	366	0	0	202	0	0	111
Confl. Peds. (#/hr)	85		95	95		82	60		39	39		60
Heavy Vehicles (%)	0%	4%	3%	0%	4%	0%	3%	2%	5%	50%	1%	0%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		35.0			35.0			25.0			25.0	
Effective Green, g (s)		36.0			36.0			26.0			26.0	
Actuated g/C Ratio		0.51			0.51			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		784			687			461			632	
v/s Ratio Prot												
v/s Ratio Perm		0.23			c0.27			c0.16			0.07	
v/c Ratio		0.45			0.53			0.44			0.18	
Uniform Delay, d1		10.7			11.4			16.5			14.8	
Progression Factor		0.83			1.00			1.00			1.00	
Incremental Delay, d2		1.8			2.9			3.0			0.6	
Delay (s)		10.7			14.3			19.5			15.4	
Level of Service		B			B			B			B	
Approach Delay (s)		10.7			14.3			19.5			15.4	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	21	414	64	270	298	84
v/c Ratio	0.06	0.65	0.24	0.42	0.33	0.10
Control Delay	13.8	23.0	17.4	17.9	9.2	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	23.0	17.4	17.9	9.2	9.9
Queue Length 50th (m)	1.7	44.7	5.7	26.0	16.0	5.2
Queue Length 95th (m)	5.8	74.6	14.5	44.8	31.0	12.3
Internal Link Dist (m)		628.6		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	341	635	262	639	916	816
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.65	0.24	0.42	0.33	0.10
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	338	43	59	240	8	39	91	144	15	50	13
Future Volume (vph)	19	338	43	59	240	8	39	91	144	15	50	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	0.97	1.00		0.98	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.93			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1471	1496		1598	1514			1896			1819	
Flt Permitted	0.52	1.00		0.37	1.00			0.96			0.93	
Satd. Flow (perm)	811	1496		625	1514			1824			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)	21	367	47	64	261	9	42	99	157	16	54	14
RTOR Reduction (vph)	0	6	0	0	2	0	0	53	0	0	7	0
Lane Group Flow (vph)	21	408	0	64	268	0	0	245	0	0	77	0
Confl. Peds. (#/hr)	21		28	28		21	16		12	12		16
Heavy Vehicles (%)	18%	3%	0%	4%	6%	0%	0%	4%	2%	7%	11%	11%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	341	629		263	637			864			810	
v/s Ratio Prot		c0.27			0.18							
v/s Ratio Perm	0.03			0.10				c0.13			0.04	
v/c Ratio	0.06	0.65		0.24	0.42			0.28			0.09	
Uniform Delay, d1	13.1	17.5		14.2	15.5			12.2			11.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	5.1		2.2	2.0			0.8			0.2	
Delay (s)	13.4	22.7		16.4	17.5			13.0			11.3	
Level of Service	B	C		B	B			B			B	
Approach Delay (s)		22.2			17.3			13.0			11.3	
Approach LOS		C			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.46	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	59.0%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: McKay Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	426	2	1	324	6	1	1	1	8	0	10
Future Volume (Veh/h)	4	426	2	1	324	6	1	1	1	8	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)	4	463	2	1	352	7	1	1	1	9	0	11
Pedestrians		1			1			5			20	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			59							
pX, platoon unblocked	0.96			0.95			0.98	0.98	0.95	0.98	0.98	0.96
vC, conflicting volume	379			470			846	858	470	852	856	376
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	327			420			727	739	420	733	737	324
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	100			100			100	100	100	97	100	98
cM capacity (veh/h)	1166			1091			319	329	605	316	331	675
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	469	360	3	20								
Volume Left	4	1	1	9								
Volume Right	2	7	1	11								
cSH	1166	1091	383	446								
Volume to Capacity	0.00	0.00	0.01	0.04								
Queue Length 95th (m)	0.1	0.0	0.2	1.1								
Control Delay (s)	0.1	0.0	14.5	13.4								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	0.0	14.5	13.4								
Approach LOS			B	B								
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			35.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	35	534	50	26	340	355	91
v/c Ratio	0.08	0.52	0.07	0.08	0.41	0.54	0.13
Control Delay	9.0	13.5	3.0	6.4	9.1	19.7	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	13.5	3.0	6.4	9.1	19.7	14.8
Queue Length 50th (m)	2.3	45.5	0.0	1.0	13.6	32.9	7.2
Queue Length 95th (m)	6.3	70.2	4.4	3.1	20.3	57.1	16.3
Internal Link Dist (m)		448.7			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	454	1029	686	322	837	660	677
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.52	0.07	0.08	0.41	0.54	0.13

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	491	46	24	298	15	83	99	144	8	62	14
Future Volume (vph)	32	491	46	24	298	15	83	99	144	8	62	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.99			0.99			0.99	
Flpb, ped/bikes	0.95	1.00	1.00	0.99	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.94			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1602	1908	1230	1655	1548			1931			1946	
Flt Permitted	0.50	1.00	1.00	0.34	1.00			0.90			0.96	
Satd. Flow (perm)	843	1908	1230	598	1548			1756			1880	
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	534	50	26	324	16	90	108	157	9	67	15
RTOR Reduction (vph)	0	0	23	0	2	0	0	37	0	0	10	0
Lane Group Flow (vph)	35	534	27	26	338	0	0	318	0	0	81	0
Confl. Peds. (#/hr)	40		19	19		40	13		9	9		13
Heavy Vehicles (%)	0%	4%	1%	4%	4%	7%	0%	1%	3%	0%	6%	15%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	454	1029	663	322	835			623			667	
v/s Ratio Prot		c0.28			0.22							
v/s Ratio Perm	0.04		0.02	0.04				c0.18			0.04	
v/c Ratio	0.08	0.52	0.04	0.08	0.40			0.51			0.12	
Uniform Delay, d1	8.4	11.2	8.2	8.4	10.3			19.3			16.5	
Progression Factor	1.00	1.00	1.00	0.67	0.73			1.00			1.00	
Incremental Delay, d2	0.3	1.9	0.1	0.5	1.4			3.0			0.4	
Delay (s)	8.7	13.1	8.4	6.1	9.0			22.3			16.9	
Level of Service	A	B	A	A	A			C			B	
Approach Delay (s)		12.4			8.8			22.3			16.9	
Approach LOS		B			A			C			B	

Intersection Summary		
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.51	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	59.0%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	26	511	293	181
v/c Ratio	0.05	0.50	0.31	0.28
Control Delay	5.9	11.5	12.4	16.8
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	5.9	11.7	12.4	16.8
Queue Length 50th (m)	1.4	51.2	24.7	15.6
Queue Length 95th (m)	m2.7	84.6	36.7	29.9
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	543	1015	959	642
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	99	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.56	0.31	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



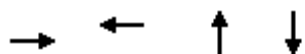
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	470	0	0	234	36	73	49	45	0	0	0
Future Volume (vph)	24	470	0	0	234	36	73	49	45	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frpb, ped/bikes	1.00	1.00			0.99			0.99				
Flpb, ped/bikes	0.98	1.00			1.00			0.99				
Frt	1.00	1.00			0.98			0.96				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1714	1838			1724			1826				
Flt Permitted	0.54	1.00			1.00			0.98				
Satd. Flow (perm)	982	1838			1724			1826				
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	511	0	0	254	39	79	53	49	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	18	0	0	0	0
Lane Group Flow (vph)	26	511	0	0	286	0	0	163	0	0	0	0
Confl. Peds. (#/hr)	27		19	19		27	11		17	17		11
Heavy Vehicles (%)	4%	2%	0%	0%	9%	6%	3%	2%	24%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	542	1015			952			624				
v/s Ratio Prot		c0.28			0.17							
v/s Ratio Perm	0.03							0.09				
v/c Ratio	0.05	0.50			0.30			0.26				
Uniform Delay, d1	7.8	10.5			9.1			18.1				
Progression Factor	0.72	0.91			1.31			1.00				
Incremental Delay, d2	0.1	1.5			0.8			1.0				
Delay (s)	5.7	11.1			12.8			19.1				
Level of Service	A	B			B			B				
Approach Delay (s)		10.9			12.8			19.1			0.0	
Approach LOS		B			B			B			A	

Intersection Summary		
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.41	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	47.9%	8.0
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

Queues
8: Church St & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	600	266	93	113
v/c Ratio	0.59	0.25	0.21	0.26
Control Delay	12.3	5.5	19.3	16.2
Queue Delay	2.5	0.0	0.0	0.0
Total Delay	14.8	5.5	19.3	16.2
Queue Length 50th (m)	71.8	7.0	8.4	7.9
Queue Length 95th (m)	109.4	11.6	19.2	19.9
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	1017	1084	443	443
Starvation Cap Reductn	286	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.25	0.21	0.26
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



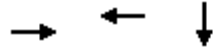
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	74	443	35	11	222	12	22	47	17	14	51	40
Future Volume (vph)	74	443	35	11	222	12	22	47	17	14	51	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.98			0.97	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.99			0.99			0.97			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1768			1793			1678			1545	
Flt Permitted		0.92			0.97			0.92			0.96	
Satd. Flow (perm)		1642			1750			1563			1499	
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)	80	482	38	12	241	13	24	51	18	15	55	43
RTOR Reduction (vph)	0	3	0	0	2	0	0	12	0	0	29	0
Lane Group Flow (vph)	0	597	0	0	264	0	0	81	0	0	84	0
Confl. Peds. (#/hr)	35		51	51		35	26		42	42		26
Heavy Vehicles (%)	8%	3%	0%	0%	7%	0%	0%	5%	20%	0%	4%	22%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1015			1082			431			414	
v/s Ratio Prot												
v/s Ratio Perm		c0.36			0.15			0.05			c0.06	
v/c Ratio		0.59			0.24			0.19			0.20	
Uniform Delay, d1		8.7			6.5			21.0			21.1	
Progression Factor		1.11			0.76			1.00			1.00	
Incremental Delay, d2		2.3			0.5			1.0			1.1	
Delay (s)		11.9			5.5			22.0			22.2	
Level of Service		B			A			C			C	
Approach Delay (s)		11.9			5.5			22.0			22.2	
Approach LOS		B			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.47	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	68.0%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
 9: Victoria Ave & University Avenue

2028_Future - Single Lane
 Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	487	370	207
v/c Ratio	0.43	0.38	0.53
Control Delay	1.9	7.9	27.4
Queue Delay	0.0	0.8	0.0
Total Delay	1.9	8.7	27.4
Queue Length 50th (m)	3.1	21.7	23.1
Queue Length 95th (m)	7.5	41.4	40.0
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1134	978	564
Starvation Cap Reductn	0	330	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.43	0.57	0.37
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2028_Future - Single Lane
 Timing Plan: AM Peak



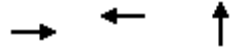
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	19	316	113	74	257	10	0	0	0	29	122	39
Future Volume (vph)	19	316	113	74	257	10	0	0	0	29	122	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.98			1.00						0.96	
Flpb, ped/bikes		1.00			0.99						0.98	
Frt		0.97			1.00						0.97	
Flt Protected		1.00			0.99						0.99	
Satd. Flow (prot)		1733			1763						1616	
Flt Permitted		0.98			0.83						0.99	
Satd. Flow (perm)		1700			1481						1616	
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)	21	343	123	80	279	11	0	0	0	32	133	42
RTOR Reduction (vph)	0	12	0	0	1	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	475		0	0	369	0	0	0	0	193	0
Confl. Peds. (#/hr)	58		48	48		58	95		52	52		95
Heavy Vehicles (%)	41%	3%	4%	9%	6%	22%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		49.1			49.1						16.9	
Effective Green, g (s)		50.1			50.1						17.9	
Actuated g/C Ratio		0.66			0.66						0.24	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1120			976						380	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.25						0.12	
v/c Ratio		0.42			0.38						0.51	
Uniform Delay, d1		6.1			5.9						25.2	
Progression Factor		0.14			1.00						1.00	
Incremental Delay, d2		1.0			1.1						1.5	
Delay (s)		1.8			7.0						26.7	
Level of Service		A			A						C	
Approach Delay (s)		1.8			7.0			0.0			26.7	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	366	301	244
v/c Ratio	0.41	0.35	0.20
Control Delay	13.2	12.4	9.6
Queue Delay	0.9	4.8	0.0
Total Delay	14.2	17.2	9.6
Queue Length 50th (m)	29.0	22.7	7.0
Queue Length 95th (m)	47.3	38.4	13.6
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	903	869	1198
Starvation Cap Reductn	298	489	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.60	0.79	0.20
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
10: Pelissier St & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	10	327	0	0	268	9	80	71	74	0	0	0
Future Volume (vph)	10	327	0	0	268	9	80	71	74	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		1.00			1.00			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1786			2877				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1861			1786			2877				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	355	0	0	291	10	87	77	80	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	48	0	0	0	0
Lane Group Flow (vph)	0	366	0	0	299	0	0	196	0	0	0	0
Confl. Peds. (#/hr)	47		50	50		47	25		14	14		25
Heavy Vehicles (%)	0%	3%	0%	0%	8%	0%	0%	4%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		33.0			33.0			27.0				
Effective Green, g (s)		34.0			34.0			28.0				
Actuated g/C Ratio		0.49			0.49			0.40				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		903			867			1150				
v/s Ratio Prot					0.17							
v/s Ratio Perm		c0.20						0.07				
v/c Ratio		0.41			0.35			0.17				
Uniform Delay, d1		11.5			11.1			13.5				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.4			1.1			0.3				
Delay (s)		12.9			12.2			13.8				
Level of Service		B			B			B				
Approach Delay (s)		12.9			12.2			13.8			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			49.8%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	59	383	292	33	163	22	217
v/c Ratio	0.17	0.53	0.39	0.10	0.26	0.06	0.34
Control Delay	14.2	17.9	16.8	13.3	11.0	12.7	14.1
Queue Delay	0.0	29.4	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	47.3	16.8	13.3	11.0	12.7	14.1
Queue Length 50th (m)	4.9	36.7	21.6	2.6	10.2	1.7	17.3
Queue Length 95th (m)	11.9	61.0	45.0	7.6	22.0	5.7	32.4
Internal Link Dist (m)		41.6	14.5		100.1		59.3
Turn Bay Length (m)				16.0		15.0	
Base Capacity (vph)	352	727	751	331	623	357	638
Starvation Cap Reductn	0	351	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	1.02	0.39	0.10	0.26	0.06	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

2028_Future - Single Lane
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	309	43	18	221	29	30	101	49	20	160	40
Future Volume (vph)	54	309	43	18	221	29	30	101	49	20	160	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.98			0.98		1.00	0.90		1.00	0.93	
Flpb, ped/bikes	0.89	1.00			1.00		0.78	1.00		0.76	1.00	
Frt	1.00	0.98			0.99		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1403	1611			1722		1193	1285		1037	1403	
Flt Permitted	0.53	1.00			0.96		0.59	1.00		0.65	1.00	
Satd. Flow (perm)	788	1611			1667		741	1285		710	1403	
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	336	47	20	240	32	33	110	53	22	174	43
RTOR Reduction (vph)	0	7	0	0	6	0	0	23	0	0	12	0
Lane Group Flow (vph)	59	376	0	0	286	0	33	140	0	22	205	0
Confl. Peds. (#/hr)	118		87	87		118	142		136	136		142
Heavy Vehicles (%)	4%	3%	5%	0%	9%	0%	0%	12%	5%	11%	7%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	33.0	33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	34.0	34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.45	0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	352	720			745		331	574		317	627	
v/s Ratio Prot		c0.23						0.11			c0.15	
v/s Ratio Perm	0.07				0.17		0.04			0.03		
v/c Ratio	0.17	0.52			0.38		0.10	0.24		0.07	0.33	
Uniform Delay, d1	12.5	15.1			14.0		12.1	13.0		12.0	13.6	
Progression Factor	1.00	1.00			1.11		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	2.7			1.4		0.6	1.0		0.4	1.4	
Delay (s)	13.6	17.9			16.9		12.7	14.0		12.4	15.0	
Level of Service	B	B			B		B	B		B	B	
Approach Delay (s)		17.3			16.9			13.8			14.8	
Approach LOS		B			B			B			B	

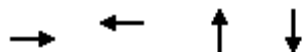
Intersection Summary

HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	391	321	132	258
v/c Ratio	0.50	0.42	0.18	0.24
Control Delay	7.4	14.9	12.6	13.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.4	14.9	12.6	13.5
Queue Length 50th (m)	8.0	27.9	9.7	10.8
Queue Length 95th (m)	13.0	47.1	20.0	18.4
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	786	758	718	1057
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.42	0.18	0.24
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 12: Goyeau St & University Avenue

2028_Future - Single Lane
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	42	210	108	43	223	29	23	75	23	57	151	29
Future Volume (vph)	42	210	108	43	223	29	23	75	23	57	151	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.96			0.99			0.97			0.98	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1725			1741			1808			2842	
Flt Permitted		0.93			0.91			0.92			0.86	
Satd. Flow (perm)		1618			1589			1681			2479	
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	228	117	47	242	32	25	82	25	62	164	32
RTOR Reduction (vph)	0	20	0	0	5	0	0	11	0	0	14	0
Lane Group Flow (vph)	0	371	0	0	316	0	0	121	0	0	244	0
Confl. Peds. (#/hr)	23		27	27		23	26		20	20		26
Heavy Vehicles (%)	0%	7%	2%	0%	8%	11%	9%	0%	0%	23%	3%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		766			752			707			1043	
v/s Ratio Prot												
v/s Ratio Perm		c0.23			0.20			0.07			c0.10	
v/c Ratio		0.48			0.42			0.17			0.23	
Uniform Delay, d1		13.7			13.1			13.7			14.1	
Progression Factor		0.42			1.00			1.00			1.00	
Incremental Delay, d2		2.0			1.7			0.5			0.5	
Delay (s)		7.7			14.9			14.3			14.7	
Level of Service		A			B			B			B	
Approach Delay (s)		7.7			14.9			14.3			14.7	
Approach LOS		A			B			B			B	

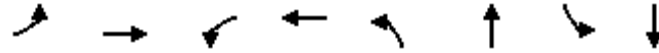
Intersection Summary

HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	48	241	55	150	204	208	1	20
v/c Ratio	0.14	0.40	0.20	0.28	0.35	0.20	0.00	0.02
Control Delay	17.9	11.1	19.3	18.6	10.1	12.2	7.0	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	11.1	19.3	18.6	10.1	12.2	7.0	13.7
Queue Length 50th (m)	4.4	10.7	5.1	13.9	12.6	7.2	0.1	0.7
Queue Length 95th (m)	11.4	27.2	13.1	26.9	23.3	13.9	0.6	2.8
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	352	601	274	543	587	1047	573	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.40	0.20	0.28	0.35	0.20	0.00	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 13: McDougall St & University Avenue

2028_Future - Single Lane
 Timing Plan: AM Peak



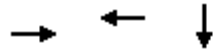
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↗	
Traffic Volume (vph)	44	84	138	51	131	7	188	144	47	1	17	2
Future Volume (vph)	44	84	138	51	131	7	188	144	47	1	17	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Fr _t	1.00	0.91		1.00	0.99		1.00	0.96		1.00	0.98	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1559	1574		1515	1646		1388	2841		1524	2823	
Fl _t Permitted	0.65	1.00		0.52	1.00		0.74	1.00		0.62	1.00	
Satd. Flow (perm)	1073	1574		833	1646		1086	2841		997	2823	
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	91	150	55	142	8	204	157	51	1	18	2
RTOR Reduction (vph)	0	85	0	0	3	0	0	33	0	0	1	0
Lane Group Flow (vph)	48	156	0	55	147	0	204	175	0	1	19	0
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	10%	0%	13%	0%	2%	0%	8%	10%	2%	0%	13%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		34.0	24.0		34.0	24.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		34.0	25.0		34.0	25.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.49	0.36		0.49	0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	352	517		273	540		570	1014		559	1008	
v/s Ratio Prot		c0.10			0.09		c0.05	0.06		0.00	0.01	
v/s Ratio Perm	0.04			0.07			c0.12			0.00		
v/c Ratio	0.14	0.30		0.20	0.27		0.36	0.17		0.00	0.02	
Uniform Delay, d ₁	16.5	17.5		16.9	17.3		10.9	15.4		9.3	14.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	0.8	1.5		1.7	1.2		1.7	0.4		0.0	0.0	
Delay (s)	17.3	19.0		18.6	18.6		12.6	15.8		9.3	14.6	
Level of Service	B	B		B	B		B	B		A	B	
Approach Delay (s)		18.7			18.6			14.2			14.3	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W
















2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	56	316	296
v/c Ratio	0.08	0.53	0.41
Control Delay	6.7	19.3	14.5
Queue Delay	0.0	0.0	0.0
Total Delay	6.7	19.3	14.5
Queue Length 50th (m)	1.6	31.5	26.0
Queue Length 95th (m)	7.5	54.2	41.9
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	706	596	716
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.08	0.53	0.41
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 14: Victoria Ave & Park St W

2028_Future - Single Lane
 Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	19	32	199	92	0	0	0	0	32	216	24
Future Volume (vph)	0	19	32	199	92	0	0	0	0	32	216	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.95			1.00						0.99	
Flpb, ped/bikes		1.00			0.96						0.99	
Frt		0.92			1.00						0.99	
Flt Protected		1.00			0.97						0.99	
Satd. Flow (prot)		1537			1695						1593	
Flt Permitted		1.00			0.76						0.99	
Satd. Flow (perm)		1537			1334						1593	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	21	35	216	100	0	0	0	0	35	235	26
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	37	0	0	316	0	0	0	0	0	292	0
Confl. Peds. (#/hr)			40	40						43		38
Heavy Vehicles (%)	0%	12%	3%	4%	1%	0%	0%	0%	0%	0%	3%	4%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		687			596						712	
v/s Ratio Prot		0.02										
v/s Ratio Perm					0.24						0.18	
v/c Ratio		0.05			0.53						0.41	
Uniform Delay, d1		11.9			15.2						14.2	
Progression Factor		1.00			1.00						0.90	
Incremental Delay, d2		0.1			3.4						1.6	
Delay (s)		12.0			18.6						14.4	
Level of Service		B			B						B	
Approach Delay (s)		12.0			18.6			0.0			14.4	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.2		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			49.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2028_Future - Single Lane

49:

Timing Plan: AM Peak















Lane Group	EBT	WBT
Lane Group Flow (vph)	275	329
v/c Ratio	0.18	0.22
Control Delay	2.8	1.6
Queue Delay	0.0	0.0
Total Delay	2.8	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	27.8	17.0
Internal Link Dist (m)	17.8	61.7
Turn Bay Length (m)		
Base Capacity (vph)	1496	1524
Starvation Cap Reductn	0	82
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.18	0.23
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

2028_Future - Single Lane

49:

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	253	0	0	303	0	0	0	0	0	0	0
Future Volume (vph)	0	253	0	0	303	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1631			1662							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1631			1662							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	275	0	0	329	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	275	0	0	329	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							10		15	15		10
Heavy Vehicles (%)	0%	6%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		56.0			56.0							
Effective Green, g (s)		57.0			57.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1328			1353							
v/s Ratio Prot		0.17			0.20							
v/s Ratio Perm												
v/c Ratio		0.21			0.24							
Uniform Delay, d1		1.5			1.5							
Progression Factor		1.00			0.51							
Incremental Delay, d2		0.4			0.4							
Delay (s)		1.8			1.1							
Level of Service		A			A							
Approach Delay (s)		1.8			1.1			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.23									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			19.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	473	360
v/c Ratio	0.32	0.24
Control Delay	4.9	4.4
Queue Delay	0.0	0.0
Total Delay	4.9	4.4
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	73.0	51.1
Internal Link Dist (m)	35.4	448.7
Turn Bay Length (m)		
Base Capacity (vph)	1500	1530
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.24
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2028_Future - Single Lane
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	435	0	0	331	0	0	0	0	0	0	0
Future Volume (vph)	0	435	0	0	331	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	473	0	0	360	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	473	0	0	360	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							1		1	1		1
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		64.0			64.0							
Effective Green, g (s)		65.0			65.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1350			1377							
v/s Ratio Prot		c0.28			0.21							
v/s Ratio Perm												
v/c Ratio		0.35			0.26							
Uniform Delay, d1		2.0			1.8							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.7			0.5							
Delay (s)		2.7			2.2							
Level of Service		A			A							
Approach Delay (s)		2.7			2.2			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			2.5		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			26.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak























Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	159	61	212	176	268	166
v/c Ratio	0.19	0.09	0.40	0.21	0.20	0.20
Control Delay	13.5	4.0	25.3	19.6	6.6	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	4.0	25.3	19.6	6.6	13.2
Queue Length 50th (m)	13.2	0.0	28.2	20.9	5.5	13.5
Queue Length 95th (m)	24.3	5.9	53.7	43.5	12.0	24.8
Internal Link Dist (m)	117.8			283.7	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	826	679	530	821	1365	837
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.09	0.40	0.21	0.20	0.20

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 1: Huron Church Rd & University Avenue

2028_Future - Single Lane
 Timing Plan: PM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	6	140	56	195	140	22	51	71	125	9	137	6	
Future Volume (vph)	6	140	56	195	140	22	51	71	125	9	137	6	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7	
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0		
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00		
Frbp, ped/bikes		1.00	0.88	1.00	1.00			0.99			1.00		
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00		
Frt		1.00	0.85	1.00	0.98			0.92			0.99		
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00		
Satd. Flow (prot)		1863	1444	1721	1817			3282			1901		
Flt Permitted		0.99	1.00	0.65	1.00			0.87			0.98		
Satd. Flow (perm)		1847	1444	1186	1817			2886			1868		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	7	152	61	212	152	24	55	77	136	10	149	7	
RTOR Reduction (vph)	0	0	34	0	8	0	0	75	0	0	2	0	
Lane Group Flow (vph)	0	159	27	212	168	0	0	193	0	0	164	0	
Confl. Peds. (#/hr)	11		54	54		11	9		6	6		9	
Heavy Vehicles (%)	0%	3%	0%	1%	0%	30%	0%	0%	0%	0%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA		
Protected Phases		2			2			4			4		
Permitted Phases	2		2	2			4			4			
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0		
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0		
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45		
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0		
Lane Grp Cap (vph)		826	646	530	812			1291			835		
v/s Ratio Prot					0.09								
v/s Ratio Perm		0.09	0.02	c0.18				0.07			c0.09		
v/c Ratio		0.19	0.04	0.40	0.21			0.15			0.20		
Uniform Delay, d1		12.7	11.8	14.1	12.8			12.4			12.7		
Progression Factor		1.00	1.00	1.57	1.58			1.00			1.00		
Incremental Delay, d2		0.5	0.1	2.2	0.6			0.2			0.5		
Delay (s)		13.2	12.0	24.4	20.8			12.7			13.2		
Level of Service		B	B	C	C			B			B		
Approach Delay (s)		12.9			22.7			12.7			13.2		
Approach LOS		B			C			B			B		
Intersection Summary													
HCM 2000 Control Delay			16.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.30										
Actuated Cycle Length (s)			76.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			69.8%									ICU Level of Service	C
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
2: Sunset Ave & University Avenue

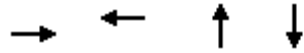
2028_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	11	266	2	31	378	4	20	12	32	8	8	9
Future Volume (Veh/h)	11	266	2	31	378	4	20	12	32	8	8	9
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	289	2	34	411	4	22	13	35	9	9	10
Pedestrians								71			6	
Lane Width (m)								4.0			4.0	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								8			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			42							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	421			362			880	874	361	842	873	419
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	352			362			841	834	361	801	833	350
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			97			90	95	95	96	96	98
cM capacity (veh/h)	1138			1117			217	254	636	236	254	652
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	303	449	70	28								
Volume Left	12	34	22	9								
Volume Right	2	4	35	10								
cSH	1138	1117	337	315								
Volume to Capacity	0.01	0.03	0.21	0.09								
Queue Length 95th (m)	0.2	0.7	5.8	2.2								
Control Delay (s)	0.4	0.9	18.4	17.6								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	0.9	18.4	17.6								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			43.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	369	526	323	51
v/c Ratio	0.49	0.66	0.65	0.09
Control Delay	10.1	6.7	25.1	15.8
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	10.9	6.7	25.1	15.8
Queue Length 50th (m)	25.0	6.0	32.9	4.2
Queue Length 95th (m)	12.6	m10.6	59.7	11.2
Internal Link Dist (m)	59.7	628.6	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	750	800	498	557
Starvation Cap Reductn	159	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.62	0.66	0.65	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	60	270	10	63	415	6	66	113	118	3	38	6
Future Volume (vph)	60	270	10	63	415	6	66	113	118	3	38	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			1.00			0.94			0.99	
Flpb, ped/bikes		0.99			0.97			0.98			1.00	
Frt		1.00			1.00			0.95			0.98	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1574			1580			1463			1640	
Flt Permitted		0.85			0.91			0.92			0.98	
Satd. Flow (perm)		1357			1449			1365			1617	
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)	65	293	11	68	451	7	72	123	128	3	41	7
RTOR Reduction (vph)	0	1	0	0	0	0	0	31	0	0	5	0
Lane Group Flow (vph)	0	368		0	0	526	0	0	292	0	0	46
Confl. Peds. (#/hr)	81		201	201			81	44		70	70	44
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	3%	20%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		41.0			41.0			25.0			25.0	
Effective Green, g (s)		42.0			42.0			26.0			26.0	
Actuated g/C Ratio		0.55			0.55			0.34			0.34	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		749			800			466			553	
v/s Ratio Prot												
v/s Ratio Perm		0.27			c0.36			c0.21			0.03	
v/c Ratio		0.49			0.66			0.63			0.08	
Uniform Delay, d1		10.4			11.9			20.9			16.9	
Progression Factor		0.72			0.28			1.00			1.00	
Incremental Delay, d2		2.3			3.1			6.3			0.3	
Delay (s)		9.8			6.5			27.2			17.2	
Level of Service		A			A			C			B	
Approach Delay (s)		9.8			6.5			27.2			17.2	
Approach LOS		A			A			C			B	

Intersection Summary

HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	30	471	171	495	289	119
v/c Ratio	0.13	0.77	0.77	0.75	0.34	0.14
Control Delay	16.8	27.7	36.5	18.2	11.0	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	27.7	36.5	18.2	11.0	9.1
Queue Length 50th (m)	2.4	45.5	14.2	38.3	18.8	6.9
Queue Length 95th (m)	m6.0	#98.1	#29.1	#57.5	34.6	15.3
Internal Link Dist (m)		628.6		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	224	612	222	664	845	870
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.77	0.77	0.75	0.34	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Volume (vph)	28	350	84	157	447	8	64	93	109	14	70	26
Future Volume (vph)	28	350	84	157	447	8	64	93	109	14	70	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	1.00			0.97			0.98	
Flpb, ped/bikes	0.97	1.00		0.93	1.00			0.99			1.00	
Frt	1.00	0.97		1.00	1.00			0.94			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1740	1427		1592	1575			1872			1882	
Flt Permitted	0.29	1.00		0.31	1.00			0.91			0.95	
Satd. Flow (perm)	533	1427		527	1575			1716			1807	
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	91	171	486	9	70	101	118	15	76	28
RTOR Reduction (vph)	0	12	0	0	1	0	0	33	0	0	15	0
Lane Group Flow (vph)	30	459	0	171	494	0	0	256	0	0	104	0
Confl. Peds. (#/hr)	37		89	89		37	37		36	36		37
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%	4%	5%	1%	0%	5%	6%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0			35.0			35.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			36.0			36.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.47			0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	224	600		221	663			812			855	
v/s Ratio Prot		0.32			0.31							
v/s Ratio Perm	0.06			c0.32				c0.15			0.06	
v/c Ratio	0.13	0.77		0.77	0.74			0.32			0.12	
Uniform Delay, d1	13.5	18.8		18.9	18.6			12.4			11.2	
Progression Factor	1.10	1.00		0.55	0.54			1.00			1.00	
Incremental Delay, d2	1.1	8.2		22.2	7.3			1.0			0.3	
Delay (s)	16.0	27.0		32.7	17.3			13.4			11.5	
Level of Service	B	C		C	B			B			B	
Approach Delay (s)		26.4			21.3			13.4			11.5	
Approach LOS		C			C			B			B	

Intersection Summary		
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.53	
Actuated Cycle Length (s)	76.0	Sum of lost time (s) 8.0
Intersection Capacity Utilization	66.4%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: McKay Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	410	8	8	487	11	3	1	6	9	0	14
Future Volume (Veh/h)	15	410	8	8	487	11	3	1	6	9	0	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)	16	446	9	9	529	12	3	1	7	10	0	15
Pedestrians								14			11	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			60							
pX, platoon unblocked	0.90			0.98			0.92	0.92	0.98	0.92	0.92	0.90
vC, conflicting volume	552			469			1064	1066	464	1054	1065	546
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	452			443			965	967	439	954	966	446
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			99	100	99	95	100	97
cM capacity (veh/h)	1002			1085			200	224	599	207	224	552
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	471	550	11	25								
Volume Left	16	9	3	10								
Volume Right	9	12	7	15								
cSH	1002	1085	353	331								
Volume to Capacity	0.02	0.01	0.03	0.08								
Queue Length 95th (m)	0.4	0.2	0.7	1.8								
Control Delay (s)	0.5	0.2	15.5	16.7								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.5	0.2	15.5	16.7								
Approach LOS			C	C								
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			40.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	23	402	61	142	567	262	182
v/c Ratio	0.08	0.38	0.09	0.33	0.66	0.41	0.27
Control Delay	8.2	14.4	4.1	6.1	10.4	18.5	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	14.4	4.1	6.1	10.4	18.5	16.3
Queue Length 50th (m)	2.2	47.9	1.6	3.8	15.2	24.2	15.7
Queue Length 95th (m)	2.3	48.1	2.9	m6.7	31.1	43.1	29.8
Internal Link Dist (m)		448.3			40.1	186.4	139.7
Turn Bay Length (m)	40.0		40.0	25.0			
Base Capacity (vph)	298	1049	684	431	856	634	685
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.38	0.09	0.33	0.66	0.41	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	370	56	131	497	25	68	100	73	19	107	41
Future Volume (vph)	21	370	56	131	497	25	68	100	73	19	107	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.92	1.00	1.00			0.99			0.99	
Flpb, ped/bikes	0.98	1.00	1.00	0.97	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.96			0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1654	1946	1216	1693	1584			1953			1970	
Flt Permitted	0.32	1.00	1.00	0.45	1.00			0.87			0.95	
Satd. Flow (perm)	554	1946	1216	798	1584			1728			1884	
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)	23	402	61	142	540	27	74	109	79	21	116	45
RTOR Reduction (vph)	0	0	28	0	2	0	0	21	0	0	15	0
Lane Group Flow (vph)	23	402	33	142	565	0	0	241	0	0	167	0
Confl. Peds. (#/hr)	28		28	28		28	15		16	16		15
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	6%	0%	0%	6%	0%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)	40.0	40.0	40.0	40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	298	1049	656	430	854			613			669	
v/s Ratio Prot		0.21			c0.36							
v/s Ratio Perm	0.04		0.03	0.18				c0.14			0.09	
v/c Ratio	0.08	0.38	0.05	0.33	0.66			0.39			0.25	
Uniform Delay, d1	8.4	10.2	8.3	9.8	12.5			18.4			17.3	
Progression Factor	0.88	1.28	1.48	0.41	0.52			1.00			1.00	
Incremental Delay, d2	0.5	1.0	0.1	1.8	3.6			1.9			0.9	
Delay (s)	7.9	14.0	12.4	5.8	10.1			20.3			18.2	
Level of Service	A	B	B	A	B			C			B	
Approach Delay (s)		13.5			9.2			20.3			18.2	
Approach LOS		B			A			C			B	

Intersection Summary		
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.55	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	71.7%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	46	464	593	198
v/c Ratio	0.14	0.46	0.59	0.30
Control Delay	8.4	12.9	16.5	18.1
Queue Delay	0.0	0.0	0.5	0.0
Total Delay	8.4	12.9	16.9	18.1
Queue Length 50th (m)	3.9	58.1	76.8	18.4
Queue Length 95th (m)	10.9	89.6	113.8	33.6
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	7.0			
Base Capacity (vph)	323	1015	1011	653
Starvation Cap Reductn	0	0	129	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.14	0.46	0.67	0.30
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



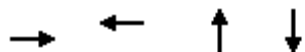
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	427	0	0	500	46	78	66	38	0	0	0
Future Volume (vph)	42	427	0	0	500	46	78	66	38	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frbp, ped/bikes	1.00	1.00			1.00			0.99				
Flpb, ped/bikes	0.99	1.00			1.00			0.99				
Frt	1.00	1.00			0.99			0.97				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1815	1838			1822			1874				
Flt Permitted	0.31	1.00			1.00			0.98				
Satd. Flow (perm)	587	1838			1822			1874				
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	464	0	0	543	50	85	72	41	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	13	0	0	0	0
Lane Group Flow (vph)	46	464	0	0	589	0	0	186	0	0	0	0
Confl. Peds. (#/hr)	15		17	17		15	14		16	16		14
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	3%	2%	23%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	41.0	41.0			41.0			25.0				
Effective Green, g (s)	42.0	42.0			42.0			26.0				
Actuated g/C Ratio	0.55	0.55			0.55			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	324	1015			1006			641				
v/s Ratio Prot		0.25			0.32							
v/s Ratio Perm	0.08							0.10				
v/c Ratio	0.14	0.46			0.59			0.29				
Uniform Delay, d1	8.3	10.2			11.2			18.3				
Progression Factor	0.86	1.09			1.23			1.00				
Incremental Delay, d2	0.9	1.4			2.3			1.1				
Delay (s)	7.9	12.5			16.1			19.4				
Level of Service	A	B			B			B				
Approach Delay (s)		12.1			16.1			19.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary		
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.47	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	58.7%	8.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

Queues
8: Church St & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	458	466	135	219
v/c Ratio	0.49	0.42	0.30	0.48
Control Delay	6.6	7.2	22.1	21.0
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	6.6	7.3	22.1	21.1
Queue Length 50th (m)	9.5	19.6	13.9	19.0
Queue Length 95th (m)	27.0	58.5	27.8	38.4
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	942	1103	447	454
Starvation Cap Reductn	1	0	0	0
Spillback Cap Reductn	0	98	0	3
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.46	0.30	0.49
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2028_Future - Single Lane

Timing Plan: PM Peak



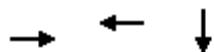
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	64	303	54	19	370	40	38	68	18	20	88	93
Future Volume (vph)	64	303	54	19	370	40	38	68	18	20	88	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.98			0.98			0.95	
Flpb, ped/bikes		0.99			1.00			0.98			0.99	
Frt		0.98			0.99			0.98			0.94	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1706			1819			1782			1543	
Flt Permitted		0.88			0.97			0.88			0.96	
Satd. Flow (perm)		1513			1776			1590			1496	
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)	70	329	59	21	402	43	41	74	20	22	96	101
RTOR Reduction (vph)	0	7	0	0	5	0	0	8	0	0	41	0
Lane Group Flow (vph)	0	451	0	0	461	0	0	127	0	0	178	0
Confl. Peds. (#/hr)	77		42	42		77	41		69	69		41
Heavy Vehicles (%)	7%	5%	2%	0%	3%	0%	0%	0%	0%	5%	0%	14%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		935			1098			439			413	
v/s Ratio Prot												
v/s Ratio Perm		c0.30			0.26			0.08			c0.12	
v/c Ratio		0.48			0.42			0.29			0.43	
Uniform Delay, d1		7.9			7.5			21.6			22.6	
Progression Factor		0.62			0.81			1.00			1.00	
Incremental Delay, d2		1.6			1.1			1.7			3.3	
Delay (s)		6.5			7.2			23.3			25.9	
Level of Service		A			A			C			C	
Approach Delay (s)		6.5			7.2			23.3			25.9	
Approach LOS		A			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.47	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	68.0%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	441	478	229
v/c Ratio	0.39	0.44	0.59
Control Delay	6.5	4.7	28.0
Queue Delay	0.0	0.1	0.0
Total Delay	6.5	4.8	28.0
Queue Length 50th (m)	39.8	13.5	24.0
Queue Length 95th (m)	54.1	21.7	41.4
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1137	1075	574
Starvation Cap Reductn	0	72	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.39	0.48	0.40
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2028_Future - Single Lane
 Timing Plan: PM Peak



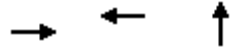
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	19	287	99	76	345	18	0	0	0	14	129	68
Future Volume (vph)	19	287	99	76	345	18	0	0	0	14	129	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.98			1.00						0.95	
Flpb, ped/bikes		1.00			0.99						1.00	
Frt		0.97			0.99						0.96	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1722			1829						1614	
Flt Permitted		0.97			0.87						1.00	
Satd. Flow (perm)		1678			1599						1614	
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)	21	312	108	83	375	20	0	0	0	15	140	74
RTOR Reduction (vph)	0	11	0	0	2	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	430	0	0	476	0	0	0	0	0	203	0
Confl. Peds. (#/hr)	32		50	50		32	61		25	25		61
Heavy Vehicles (%)	41%	4%	4%	6%	3%	0%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		50.0			50.0						16.0	
Effective Green, g (s)		51.0			51.0						17.0	
Actuated g/C Ratio		0.67			0.67						0.22	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1126			1073						361	
v/s Ratio Prot												
v/s Ratio Perm		0.26			c0.30						0.13	
v/c Ratio		0.38			0.44						0.56	
Uniform Delay, d1		5.5			5.9						26.2	
Progression Factor		0.91			0.50						1.00	
Incremental Delay, d2		0.9			1.3						2.4	
Delay (s)		6.0			4.2						28.6	
Level of Service		A			A						C	
Approach Delay (s)		6.0			4.2			0.0			28.6	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	336	394	300
v/c Ratio	0.34	0.40	0.27
Control Delay	9.8	9.1	11.7
Queue Delay	0.3	1.3	0.0
Total Delay	10.1	10.4	11.7
Queue Length 50th (m)	15.3	17.8	10.0
Queue Length 95th (m)	26.6	25.5	18.4
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	976	975	1113
Starvation Cap Reductn	228	370	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.45	0.65	0.27
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
10: Pelissier St & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	10	299	0	0	346	17	110	74	92	0	0	0
Future Volume (vph)	10	299	0	0	346	17	110	74	92	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			0.97				
Frt		1.00			0.99			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1848			2853				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1855			1848			2853				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	325	0	0	376	18	120	80	100	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	63	0	0	0	0
Lane Group Flow (vph)	0	336	0	0	392	0	0	237	0	0	0	0
Confl. Peds. (#/hr)	50					50	34		35			
Heavy Vehicles (%)	0%	3%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		39.0			39.0			27.0				
Effective Green, g (s)		40.0			40.0			28.0				
Actuated g/C Ratio		0.53			0.53			0.37				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		976			972			1051				
v/s Ratio Prot					c0.21							
v/s Ratio Perm		0.18						0.08				
v/c Ratio		0.34			0.40			0.23				
Uniform Delay, d1		10.4			10.8			16.5				
Progression Factor		0.83			0.73			1.00				
Incremental Delay, d2		0.9			1.1			0.5				
Delay (s)		9.5			8.9			17.0				
Level of Service		A			A			B				
Approach Delay (s)		9.5			8.9			17.0			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.5				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			48.1%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	339	354	74	214	35	258
v/c Ratio	0.30	0.46	0.58	0.28	0.34	0.13	0.39
Control Delay	8.1	7.6	24.6	16.8	13.5	14.0	15.3
Queue Delay	0.4	1.1	0.1	0.0	0.0	0.0	0.0
Total Delay	8.5	8.6	24.7	16.8	13.5	14.0	15.3
Queue Length 50th (m)	3.9	11.8	42.5	6.4	16.2	2.8	22.1
Queue Length 95th (m)	8.1	19.4	73.9	15.8	31.2	8.3	39.4
Internal Link Dist (m)		41.6	14.5		100.1		59.3
Turn Bay Length (m)				16.0		15.0	
Base Capacity (vph)	344	732	610	269	627	270	662
Starvation Cap Reductn	62	194	0	0	0	0	0
Spillback Cap Reductn	0	0	16	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.63	0.60	0.28	0.34	0.13	0.39

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

2028_Future - Single Lane
 Timing Plan: PM Peak



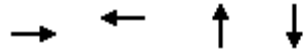
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	274	38	33	260	32	68	146	51	32	200	38
Future Volume (vph)	95	274	38	33	260	32	68	146	51	32	200	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.97			0.98		1.00	0.87		1.00	0.93	
Flpb, ped/bikes	0.92	1.00			0.99		0.72	1.00		0.64	1.00	
Frt	1.00	0.98			0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1503	1623			1427		1049	1366		967	1461	
Flt Permitted	0.49	1.00			0.94		0.55	1.00		0.59	1.00	
Satd. Flow (perm)	769	1623			1352		603	1366		604	1461	
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)	103	298	41	36	283	35	74	159	55	35	217	41
RTOR Reduction (vph)	0	7	0	0	5	0	0	17	0	0	9	0
Lane Group Flow (vph)	103	332	0	0	349	0	74	197	0	35	249	0
Confl. Peds. (#/hr)	91		126	126		91	198		252	252		198
Heavy Vehicles (%)	1%	2%	0%	0%	37%	0%	5%	1%	0%	0%	1%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	33.0	33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	34.0	34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.45	0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	344	726			604		269	611		270	653	
v/s Ratio Prot		0.20						0.14			c0.17	
v/s Ratio Perm	0.13				c0.26		0.12			0.06		
v/c Ratio	0.30	0.46			0.58		0.28	0.32		0.13	0.38	
Uniform Delay, d1	13.4	14.6			15.7		13.2	13.6		12.3	14.0	
Progression Factor	0.42	0.38			1.29		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	2.0			3.9		2.5	1.4		1.0	1.7	
Delay (s)	7.7	7.5			24.1		15.8	15.0		13.3	15.7	
Level of Service	A	A			C		B	B		B	B	
Approach Delay (s)		7.6			24.1			15.2			15.4	
Approach LOS		A			C			B			B	

Intersection Summary		
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.48	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	74.8%	8.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	467	285	239	227
v/c Ratio	0.58	0.35	0.32	0.22
Control Delay	18.5	11.9	15.1	11.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.5	11.9	15.1	11.6
Queue Length 50th (m)	57.1	26.1	20.5	8.1
Queue Length 95th (m)	83.9	42.5	36.0	15.0
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	812	807	757	1018
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.58	0.35	0.32	0.22
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
12: Goyeau St & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	53	304	73	22	196	44	24	160	36	55	109	45
Future Volume (vph)	53	304	73	22	196	44	24	160	36	55	109	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.98			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1813			1770			1851			2788	
Flt Permitted		0.93			0.95			0.95			0.83	
Satd. Flow (perm)		1694			1685			1776			2349	
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)	58	330	79	24	213	48	26	174	39	60	118	49
RTOR Reduction (vph)	0	9	0	0	9	0	0	9	0	0	28	0
Lane Group Flow (vph)	0	458		0	0	276	0	0	230	0	0	199
Confl. Peds. (#/hr)	16		34	34		16	32		10	10		32
Heavy Vehicles (%)	2%	2%	1%	0%	5%	5%	0%	1%	0%	18%	3%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		802			798			747			989	
v/s Ratio Prot												
v/s Ratio Perm		c0.27			0.16			c0.13			0.08	
v/c Ratio		0.57			0.35			0.31			0.20	
Uniform Delay, d1		14.4			12.6			14.6			13.9	
Progression Factor		1.09			0.88			1.00			1.00	
Incremental Delay, d2		2.8			1.2			1.1			0.5	
Delay (s)		18.6			12.3			15.7			14.4	
Level of Service		B			B			B			B	
Approach Delay (s)		18.6			12.3			15.7			14.4	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



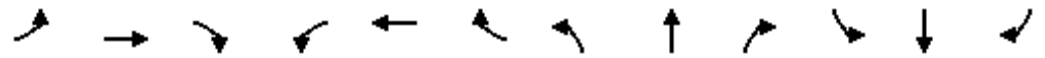
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	335	67	197	111	252	3	42
v/c Ratio	0.24	0.48	0.24	0.30	0.23	0.23	0.01	0.04
Control Delay	17.1	15.5	18.5	16.6	11.7	13.1	10.0	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	15.5	18.5	16.6	11.7	13.1	10.0	15.7
Queue Length 50th (m)	12.9	34.4	6.3	17.9	8.2	9.5	0.2	1.8
Queue Length 95th (m)	m23.5	55.1	15.4	32.5	16.5	17.3	1.5	5.0
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	423	700	274	655	493	1086	328	1080
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.48	0.24	0.30	0.23	0.23	0.01	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 13: McDougall St & University Avenue

2028_Future - Single Lane
 Timing Plan: PM Peak



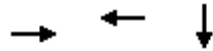
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↘		↗	↘		↗	↕		↗	↘	
Traffic Volume (vph)	95	138	170	62	162	19	102	176	56	3	35	4
Future Volume (vph)	95	138	170	62	162	19	102	176	56	3	35	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00		0.98	1.00	
Frnt	1.00	0.92		1.00	0.98		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1704	1626		1510	1646		1349	2844		1126	3150	
Flt Permitted	0.60	1.00		0.44	1.00		0.67	1.00		0.60	1.00	
Satd. Flow (perm)	1074	1626		695	1646		957	2844		706	3150	
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)	103	150	185	67	176	21	111	191	61	3	38	4
RTOR Reduction (vph)	0	59	0	0	5	0	0	39	0	0	3	0
Lane Group Flow (vph)	103	276	0	67	192	0	111	213	0	3	39	0
Confl. Peds. (#/hr)	7		6	6		7	21		34	34		21
Heavy Vehicles (%)	0%	0%	10%	0%	1%	0%	10%	9%	0%	33%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		35.0	27.0		31.0	25.0	
Effective Green, g (s)	30.0	30.0		30.0	30.0		35.0	28.0		31.0	26.0	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.46	0.37		0.41	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	423	641		274	649		481	1047		321	1077	
v/s Ratio Prot		c0.17			0.12		c0.02	0.08		0.00	0.01	
v/s Ratio Perm	0.10			0.10			c0.08			0.00		
v/c Ratio	0.24	0.43		0.24	0.30		0.23	0.20		0.01	0.04	
Uniform Delay, d1	15.4	16.8		15.4	15.8		12.1	16.4		13.4	16.7	
Progression Factor	0.99	1.10		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	1.9		2.1	1.2		1.1	0.4		0.1	0.1	
Delay (s)	16.5	20.3		17.5	16.9		13.2	16.8		13.4	16.7	
Level of Service	B	C		B	B		B	B		B	B	
Approach Delay (s)		19.4			17.1			15.7			16.5	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	160	453	369
v/c Ratio	0.21	0.82	0.52
Control Delay	7.2	32.9	14.9
Queue Delay	0.0	0.0	0.4
Total Delay	7.2	32.9	15.2
Queue Length 50th (m)	6.1	54.4	34.4
Queue Length 95th (m)	16.3	#105.8	58.9
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	771	554	704
Starvation Cap Reductn	0	0	74
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.82	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
14: Victoria Ave & Park St W

2028_Future - Single Lane
Timing Plan: PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	70	77	299	118	0	0	0	0	30	282	27
Future Volume (vph)	0	70	77	299	118	0	0	0	0	30	282	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frpb, ped/bikes		0.96			1.00						0.99	
Flpb, ped/bikes		1.00			0.96						0.99	
Frt		0.93			1.00						0.99	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1622			1741						1566	
Flt Permitted		1.00			0.69						1.00	
Satd. Flow (perm)		1622			1239						1566	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	76	84	325	128	0	0	0	0	33	307	29
RTOR Reduction (vph)	0	46	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	114	0	0	453	0	0	0	0	0	365	0
Confl. Peds. (#/hr)			43	43						58		44
Heavy Vehicles (%)	0%	5%	1%	0%	1%	0%	0%	0%	0%	0%	5%	8%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		33.0			33.0						33.0	
Effective Green, g (s)		34.0			34.0						34.0	
Actuated g/C Ratio		0.45			0.45						0.45	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		725			554						700	
v/s Ratio Prot		0.07										
v/s Ratio Perm					0.37						0.23	
v/c Ratio		0.16			0.82						0.52	
Uniform Delay, d1		12.5			18.3						15.1	
Progression Factor		1.00			1.00						0.79	
Incremental Delay, d2		0.5			12.6						2.6	
Delay (s)		12.9			30.9						14.6	
Level of Service		B			C						B	
Approach Delay (s)		12.9			30.9			0.0			14.6	
Approach LOS		B			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			21.9		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			73.6%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
49: University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	333	449
v/c Ratio	0.22	0.29
Control Delay	2.9	1.0
Queue Delay	0.0	0.0
Total Delay	2.9	1.1
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	30.1	13.8
Internal Link Dist (m)	18.1	59.7
Turn Bay Length (m)		
Base Capacity (vph)	1535	1566
Starvation Cap Reductn	0	95
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.22	0.31
Intersection Summary		

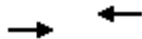
HCM Signalized Intersection Capacity Analysis
49: University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	306	0	0	413	0	0	0	0	0	0	0
Future Volume (vph)	0	306	0	0	413	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	333	0	0	449	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	333	0	0	449	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							7		26	26		7
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		62.0			62.0							
Effective Green, g (s)		63.0			63.0							
Actuated g/C Ratio		0.83			0.83							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1377			1405							
v/s Ratio Prot		0.20			0.26							
v/s Ratio Perm												
v/c Ratio		0.24			0.32							
Uniform Delay, d1		1.4			1.5							
Progression Factor		1.11			0.28							
Incremental Delay, d2		0.4			0.5							
Delay (s)		2.0			0.9							
Level of Service		A			A							
Approach Delay (s)		2.0			0.9			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.3		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			25.1%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	462	550
v/c Ratio	0.31	0.36
Control Delay	4.6	2.6
Queue Delay	0.0	0.0
Total Delay	4.6	2.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	m78.8	26.5
Internal Link Dist (m)	35.9	448.3
Turn Bay Length (m)		
Base Capacity (vph)	1491	1521
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.31	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2028_Future - Single Lane
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	425	0	0	506	0	0	0	0	0	0	0
Future Volume (vph)	0	425	0	0	506	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	462	0	0	550	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	462	0	0	550	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		60.0			60.0							
Effective Green, g (s)		61.0			61.0							
Actuated g/C Ratio		0.80			0.80							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1333			1360							
v/s Ratio Prot		0.28			0.32							
v/s Ratio Perm												
v/c Ratio		0.35			0.40							
Uniform Delay, d1		2.1			2.2							
Progression Factor		0.90			0.42							
Incremental Delay, d2		0.6			0.7							
Delay (s)		2.4			1.6							
Level of Service		A			A							
Approach Delay (s)		2.4			1.6		0.0				0.0	
Approach LOS		A			A		A				A	
Intersection Summary												
HCM 2000 Control Delay			2.0		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			30.0%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	292	73	141	90	218	135
v/c Ratio	0.36	0.11	0.33	0.12	0.16	0.17
Control Delay	15.4	3.8	16.3	10.1	4.8	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	3.8	16.3	10.1	4.8	12.8
Queue Length 50th (m)	26.4	0.0	12.6	5.4	2.7	10.6
Queue Length 95th (m)	43.7	6.5	25.4	13.0	8.4	20.5
Internal Link Dist (m)	117.8			282.0	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	818	682	430	773	1369	814
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.11	0.33	0.12	0.16	0.17

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 1: Huron Church Rd & University Avenue

2038_Future - Single Lane Optimized
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘			↕			↕	
Traffic Volume (vph)	1	268	67	130	63	20	26	37	138	12	106	6
Future Volume (vph)	1	268	67	130	63	20	26	37	138	12	106	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.90	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.95	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.96			0.90			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1830	1435	1789	1703			3121			1864	
Flt Permitted		1.00	1.00	0.51	1.00			0.91			0.97	
Satd. Flow (perm)		1829	1435	962	1703			2874			1815	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	291	73	141	68	22	28	40	150	13	115	7
RTOR Reduction (vph)	0	0	40	0	12	0	0	83	0	0	3	0
Lane Group Flow (vph)	0	292	33	141	78	0	0	135	0	0	132	0
Confl. Peds. (#/hr)	6		47	47		6	6		1	1		6
Heavy Vehicles (%)	0%	5%	2%	0%	2%	31%	5%	3%	2%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		818	641	430	761			1285			811	
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.16	0.02	0.15				0.05			c0.07	
v/c Ratio		0.36	0.05	0.33	0.10			0.11			0.16	
Uniform Delay, d1		13.8	11.9	13.6	12.2			12.2			12.5	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.2	0.2	2.0	0.3			0.2			0.4	
Delay (s)		15.0	12.0	15.6	12.4			12.3			13.0	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		14.4			14.4			12.3			13.0	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Sunset Ave & University Avenue

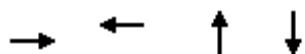
2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	253	26	24	304	5	18	18	22	2	20	13
Future Volume (Veh/h)	4	253	26	24	304	5	18	18	22	2	20	13
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	275	28	26	330	5	20	20	24	2	22	14
Pedestrians		10			15			25			13	
Lane Width (m)		3.5			3.5			4.0			4.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			3			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		306			42							
pX, platoon unblocked	0.95						0.95	0.95		0.95	0.95	0.95
vC, conflicting volume	348			328			742	722	329	744	734	356
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	292			328			705	684	329	707	696	300
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.1	3.3
p0 queue free %	100			98			93	94	97	99	93	98
cM capacity (veh/h)	1205			1210			288	334	688	287	322	694
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	307	361	64	38								
Volume Left	4	26	20	2								
Volume Right	28	5	24	14								
cSH	1205	1210	390	398								
Volume to Capacity	0.00	0.02	0.16	0.10								
Queue Length 95th (m)	0.1	0.5	4.4	2.4								
Control Delay (s)	0.1	0.8	16.1	15.0								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.1	0.8	16.1	15.0								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			48.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	392	402	271	131
v/c Ratio	0.50	0.59	0.54	0.21
Control Delay	11.4	16.2	17.6	14.7
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	12.2	16.2	17.6	14.7
Queue Length 50th (m)	29.7	34.0	19.9	10.3
Queue Length 95th (m)	18.4	59.9	41.6	21.1
Internal Link Dist (m)	61.7	628.6	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	791	685	500	639
Starvation Cap Reductn	167	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	0.59	0.54	0.21
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	12	301	48	92	276	2	82	55	112	2	104	15
Future Volume (vph)	12	301	48	92	276	2	82	55	112	2	104	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.97			1.00			0.96			0.98	
Flpb, ped/bikes		1.00			0.98			0.97			1.00	
Frt		0.98			1.00			0.94			0.98	
Flt Protected		1.00			0.99			0.98			1.00	
Satd. Flow (prot)		1544			1579			1409			1708	
Flt Permitted		0.98			0.83			0.86			1.00	
Satd. Flow (perm)		1523			1332			1233			1703	
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	327	52	100	300	2	89	60	122	2	113	16
RTOR Reduction (vph)	0	8	0	0	0	0	0	42	0	0	7	0
Lane Group Flow (vph)	0	384	0	0	402	0	0	229	0	0	124	0
Confl. Peds. (#/hr)	85		95	95		82	60		39	39		60
Heavy Vehicles (%)	0%	4%	3%	0%	4%	0%	3%	2%	5%	50%	1%	0%
Parking (#/hr)		0			0			0				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		35.0			35.0			25.0			25.0	
Effective Green, g (s)		36.0			36.0			26.0			26.0	
Actuated g/C Ratio		0.51			0.51			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		783			685			457			632	
v/s Ratio Prot												
v/s Ratio Perm		0.25			0.30			0.19			0.07	
v/c Ratio		0.49			0.59			0.50			0.20	
Uniform Delay, d1		11.0			11.8			17.0			14.9	
Progression Factor		0.83			1.00			1.00			1.00	
Incremental Delay, d2		2.2			3.7			3.9			0.7	
Delay (s)		11.4			15.5			20.9			15.6	
Level of Service		B			B			C			B	
Approach Delay (s)		11.4			15.5			20.9			15.6	
Approach LOS		B			B			C			B	

Intersection Summary

HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	23	455	71	297	329	93
v/c Ratio	0.05	0.56	0.19	0.36	0.47	0.15
Control Delay	8.8	14.5	10.7	11.5	16.7	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	14.5	10.7	11.5	16.7	15.2
Queue Length 50th (m)	1.4	38.7	4.9	22.3	26.3	7.5
Queue Length 95th (m)	4.6	64.3	11.7	38.0	48.1	16.9
Internal Link Dist (m)		628.6		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	448	813	367	818	696	607
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.56	0.19	0.36	0.47	0.15

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	372	47	65	264	9	43	100	159	17	55	14
Future Volume (vph)	21	372	47	65	264	9	43	100	159	17	55	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00			0.98			0.99	
Flpb, ped/bikes	0.97	1.00		0.98	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.93			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1472	1496		1599	1514			1897			1821	
Flt Permitted	0.54	1.00		0.40	1.00			0.95			0.92	
Satd. Flow (perm)	833	1496		681	1514			1813			1685	
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)	23	404	51	71	287	10	47	109	173	18	60	15
RTOR Reduction (vph)	0	6	0	0	2	0	0	52	0	0	9	0
Lane Group Flow (vph)	23	449	0	71	295	0	0	277	0	0	84	0
Confl. Peds. (#/hr)	21		28	28		21	16		12	12		16
Heavy Vehicles (%)	18%	3%	0%	4%	6%	0%	0%	4%	2%	7%	11%	11%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	40.0	40.0		40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0		41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54		0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	449	807		367	816			644			598	
v/s Ratio Prot		c0.30			0.19							
v/s Ratio Perm	0.03			0.10				c0.15			0.05	
v/c Ratio	0.05	0.56		0.19	0.36			0.43			0.14	
Uniform Delay, d1	8.3	11.5		9.0	10.0			18.6			16.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	2.8		1.2	1.2			2.1			0.5	
Delay (s)	8.5	14.3		10.2	11.3			20.7			17.1	
Level of Service	A	B		B	B			C			B	
Approach Delay (s)		14.0			11.0			20.7			17.1	
Approach LOS		B			B			C			B	

Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: McKay Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	470	2	1	357	6	1	1	1	9	0	11
Future Volume (Veh/h)	5	470	2	1	357	6	1	1	1	9	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)	5	511	2	1	388	7	1	1	1	10	0	12
Pedestrians		1			1			5			20	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			2	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			59							
pX, platoon unblocked	0.95			0.97			0.96	0.96	0.97	0.96	0.96	0.95
vC, conflicting volume	415			518			934	944	518	938	942	412
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	355			492			849	860	492	854	858	352
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	100			100			100	100	100	96	100	98
cM capacity (veh/h)	1129			1049			259	276	563	257	277	646
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	518	396	3	22								
Volume Left	5	1	1	10								
Volume Right	2	7	1	12								
cSH	1129	1049	324	383								
Volume to Capacity	0.00	0.00	0.01	0.06								
Queue Length 95th (m)	0.1	0.0	0.2	1.4								
Control Delay (s)	0.1	0.0	16.2	15.0								
Lane LOS	A	A	C	B								
Approach Delay (s)	0.1	0.0	16.2	15.0								
Approach LOS			C	B								
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			38.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	38	643	29	376	390	101
v/c Ratio	0.09	0.63	0.12	0.45	0.59	0.15
Control Delay	9.2	15.5	6.5	10.0	21.2	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	15.5	6.5	10.0	21.2	15.0
Queue Length 50th (m)	2.5	58.8	1.3	16.9	37.7	8.2
Queue Length 95th (m)	6.8	91.2	m3.3	29.8	64.6	18.0
Internal Link Dist (m)		448.7		40.1	186.4	139.7
Turn Bay Length (m)	40.0		25.0			
Base Capacity (vph)	428	1017	247	837	657	674
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.63	0.12	0.45	0.59	0.15

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	541	51	27	329	17	91	109	159	9	68	16
Future Volume (vph)	35	541	51	27	329	17	91	109	159	9	68	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	0.96	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.94			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1609	1878		1662	1548			1930			1945	
Flt Permitted	0.47	1.00		0.26	1.00			0.89			0.96	
Satd. Flow (perm)	795	1878		459	1548			1745			1870	
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)	38	588	55	29	358	18	99	118	173	10	74	17
RTOR Reduction (vph)	0	5	0	0	2	0	0	38	0	0	10	0
Lane Group Flow (vph)	38	638	0	29	374	0	0	352	0	0	91	0
Confl. Peds. (#/hr)	40		19	19		40	13		9	9		13
Heavy Vehicles (%)	0%	4%	1%	4%	4%	7%	0%	1%	3%	0%	6%	15%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	40.0	40.0		40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0		41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54		0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	428	1013		247	835			619			664	
v/s Ratio Prot		c0.34			0.24							
v/s Ratio Perm	0.05			0.06				c0.20			0.05	
v/c Ratio	0.09	0.63		0.12	0.45			0.57			0.14	
Uniform Delay, d1	8.5	12.2		8.6	10.6			19.8			16.6	
Progression Factor	1.00	1.00		0.61	0.76			1.00			1.00	
Incremental Delay, d2	0.4	3.0		0.9	1.7			3.8			0.4	
Delay (s)	8.9	15.2		6.2	9.8			23.6			17.0	
Level of Service	A	B		A	A			C			B	
Approach Delay (s)		14.8			9.5			23.6			17.0	
Approach LOS		B			A			C			B	

Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	29	563	323	201
v/c Ratio	0.05	0.50	0.30	0.39
Control Delay	4.1	9.3	11.1	22.1
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	4.1	9.6	11.1	22.1
Queue Length 50th (m)	1.3	55.4	25.2	20.3
Queue Length 95th (m)	m1.9	88.1	39.8	37.7
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	15.0			
Base Capacity (vph)	599	1136	1073	522
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	131	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.56	0.30	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	518	0	0	258	40	81	54	50	0	0	0
Future Volume (vph)	27	518	0	0	258	40	81	54	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frpb, ped/bikes	1.00	1.00			0.99			0.99				
Flpb, ped/bikes	0.98	1.00			1.00			0.99				
Frt	1.00	1.00			0.98			0.96				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1715	1838			1724			1828				
Flt Permitted	0.54	1.00			1.00			0.98				
Satd. Flow (perm)	969	1838			1724			1828				
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)	29	563	0	0	280	43	88	59	54	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	17	0	0	0	0
Lane Group Flow (vph)	29	563	0	0	316	0	0	184	0	0	0	0
Confl. Peds. (#/hr)	27		19	19		27	11		17	17		11
Heavy Vehicles (%)	4%	2%	0%	0%	9%	6%	3%	2%	24%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	46.0	46.0			46.0			20.0				
Effective Green, g (s)	47.0	47.0			47.0			21.0				
Actuated g/C Ratio	0.62	0.62			0.62			0.28				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	599	1136			1066			505				
v/s Ratio Prot		c0.31			0.18							
v/s Ratio Perm	0.03							0.10				
v/c Ratio	0.05	0.50			0.30			0.36				
Uniform Delay, d1	5.7	8.0			6.8			22.1				
Progression Factor	0.68	0.98			1.59			1.00				
Incremental Delay, d2	0.1	1.2			0.7			2.0				
Delay (s)	4.0	9.0			11.4			24.1				
Level of Service	A	A			B			C				
Approach Delay (s)		8.8			11.4			24.1			0.0	
Approach LOS		A			B			C			A	

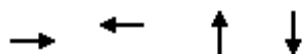
Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
8: Church St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	662	293	103	126
v/c Ratio	0.65	0.27	0.23	0.29
Control Delay	13.6	5.6	19.7	17.1
Queue Delay	1.6	0.0	0.0	0.0
Total Delay	15.2	5.6	19.7	17.1
Queue Length 50th (m)	79.9	7.8	9.5	9.4
Queue Length 95th (m)	121.5	12.8	21.1	22.3
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	1011	1082	441	442
Starvation Cap Reductn	187	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.80	0.27	0.23	0.29
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



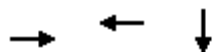
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	81	489	39	12	245	13	24	52	18	16	56	44
Future Volume (vph)	81	489	39	12	245	13	24	52	18	16	56	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.98			0.97	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.99			0.99			0.97			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1769			1794			1678			1545	
Flt Permitted		0.92			0.97			0.92			0.96	
Satd. Flow (perm)		1632			1745			1557			1494	
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)	88	532	42	13	266	14	26	57	20	17	61	48
RTOR Reduction (vph)	0	3	0	0	2	0	0	12	0	0	29	0
Lane Group Flow (vph)	0	659		0	0	291	0	0	91	0	0	97
Confl. Peds. (#/hr)	35		51	51		35	26		42	42		26
Heavy Vehicles (%)	8%	3%	0%	0%	7%	0%	0%	5%	20%	0%	4%	22%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1009			1079			430			412	
v/s Ratio Prot												
v/s Ratio Perm		c0.40			0.17			0.06			c0.06	
v/c Ratio		0.65			0.27			0.21			0.24	
Uniform Delay, d1		9.3			6.6			21.1			21.3	
Progression Factor		1.09			0.75			1.00			1.00	
Incremental Delay, d2		3.0			0.6			1.1			1.3	
Delay (s)		13.1			5.5			22.3			22.6	
Level of Service		B			A			C			C	
Approach Delay (s)		13.1			5.5			22.3			22.6	
Approach LOS		B			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.52	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	72.3%	8.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	536	410	228
v/c Ratio	0.48	0.43	0.57
Control Delay	2.9	8.9	28.2
Queue Delay	0.0	1.0	0.0
Total Delay	2.9	9.8	28.2
Queue Length 50th (m)	7.9	25.2	26.0
Queue Length 95th (m)	9.7	50.1	43.0
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	1122	950	564
Starvation Cap Reductn	0	297	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.48	0.63	0.40
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2038_Future - Single Lane Optimized
 Timing Plan: AM Peak

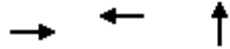


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	21	349	123	82	284	11	0	0	0	32	134	43
Future Volume (vph)	21	349	123	82	284	11	0	0	0	32	134	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.98			1.00						0.96	
Flpb, ped/bikes		1.00			0.99						0.98	
Frt		0.97			1.00						0.97	
Flt Protected		1.00			0.99						0.99	
Satd. Flow (prot)		1734			1764						1614	
Flt Permitted		0.98			0.81						0.99	
Satd. Flow (perm)		1698			1451						1614	
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)	23	379	134	89	309	12	0	0	0	35	146	47
RTOR Reduction (vph)	0	12	0	0	1	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	524		0	0	409	0	0	0	0	214	0
Confl. Peds. (#/hr)	58		48	48		58	95		52	52		95
Heavy Vehicles (%)	41%	3%	4%	9%	6%	22%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		48.7			48.7						17.3	
Effective Green, g (s)		49.7			49.7						18.3	
Actuated g/C Ratio		0.65			0.65						0.24	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		1110			948						388	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.28						0.13	
v/c Ratio		0.47			0.43						0.55	
Uniform Delay, d1		6.6			6.3						25.2	
Progression Factor		0.25			1.00						1.00	
Incremental Delay, d2		1.1			1.4						2.1	
Delay (s)		2.8			7.8						27.3	
Level of Service		A			A						C	
Approach Delay (s)		2.8			7.8			0.0			27.3	
Approach LOS		A			A			A			C	
Intersection Summary												
HCM 2000 Control Delay		9.3			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.49										
Actuated Cycle Length (s)		76.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		76.6%			ICU Level of Service			D				
Analysis Period (min)		15										

c Critical Lane Group

Queues
10: Pelissier St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	404	334	270
v/c Ratio	0.45	0.38	0.22
Control Delay	13.8	12.9	9.7
Queue Delay	1.2	6.8	0.0
Total Delay	15.0	19.7	9.7
Queue Length 50th (m)	32.7	25.8	7.7
Queue Length 95th (m)	53.1	43.1	14.8
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	902	869	1205
Starvation Cap Reductn	290	477	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.66	0.85	0.22
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
10: Pelissier St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	11	361	0	0	297	10	88	78	82	0	0	0
Future Volume (vph)	11	361	0	0	297	10	88	78	82	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		1.00			1.00			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1786			2876				
Flt Permitted		0.99			1.00			0.98				
Satd. Flow (perm)		1859			1786			2876				
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	392	0	0	323	11	96	85	89	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	53	0	0	0	0
Lane Group Flow (vph)	0	404	0	0	332	0	0	217	0	0	0	0
Confl. Peds. (#/hr)	47		50	50		47	25		14	14		25
Heavy Vehicles (%)	0%	3%	0%	0%	8%	0%	0%	4%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		33.0			33.0			27.0				
Effective Green, g (s)		34.0			34.0			28.0				
Actuated g/C Ratio		0.49			0.49			0.40				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		902			867			1150				
v/s Ratio Prot					0.19							
v/s Ratio Perm		c0.22						0.08				
v/c Ratio		0.45			0.38			0.19				
Uniform Delay, d1		11.8			11.4			13.6				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.6			1.3			0.4				
Delay (s)		13.4			12.7			14.0				
Level of Service		B			B			B				
Approach Delay (s)		13.4			12.7			14.0			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.3				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			52.6%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	65	424	322	36	180	24	236
v/c Ratio	0.19	0.58	0.43	0.11	0.30	0.08	0.37
Control Delay	14.7	19.2	18.4	13.5	11.8	13.0	14.6
Queue Delay	0.0	52.2	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	71.5	18.4	13.5	11.8	13.0	14.6
Queue Length 50th (m)	5.4	42.3	26.3	2.9	11.8	1.9	19.3
Queue Length 95th (m)	13.1	69.4	50.9	8.2	24.8	6.0	35.5
Internal Link Dist (m)		41.6	47.5		100.1		59.3
Turn Bay Length (m)				16.0		15.0	
Base Capacity (vph)	338	727	748	323	597	311	638
Starvation Cap Reductn	0	338	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	1.09	0.43	0.11	0.30	0.08	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

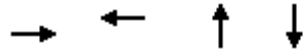
2038_Future - Single Lane Optimized
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	342	48	20	244	32	33	111	54	22	173	44
Future Volume (vph)	60	342	48	20	244	32	33	111	54	22	173	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98			0.98		1.00	0.90		1.00	0.93	
Flpb, ped/bikes	0.90	1.00			1.00		0.79	1.00		0.77	1.00	
Frt	1.00	0.98			0.99		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1414	1611			1724		1207	1283		1049	1399	
Flt Permitted	0.51	1.00			0.96		0.57	1.00		0.63	1.00	
Satd. Flow (perm)	756	1611			1662		724	1283		697	1399	
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)	65	372	52	22	265	35	36	121	59	24	188	48
RTOR Reduction (vph)	0	7	0	0	6	0	0	23	0	0	12	0
Lane Group Flow (vph)	65	417	0	0	316	0	36	157	0	24	224	0
Confl. Peds. (#/hr)	118		87	87		118	142		136	136		142
Heavy Vehicles (%)	4%	3%	5%	0%	9%	0%	0%	12%	5%	11%	7%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	33.0	33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	34.0	34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.45	0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	338	720			743		323	573		311	625	
v/s Ratio Prot		c0.26						0.12			c0.16	
v/s Ratio Perm	0.09				0.19		0.05			0.03		
v/c Ratio	0.19	0.58			0.43		0.11	0.27		0.08	0.36	
Uniform Delay, d1	12.7	15.7			14.3		12.2	13.2		12.0	13.8	
Progression Factor	1.00	1.00			1.17		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	3.4			1.6		0.7	1.2		0.5	1.6	
Delay (s)	14.0	19.1			18.4		12.9	14.4		12.5	15.4	
Level of Service	B	B			B		B	B		B	B	
Approach Delay (s)		18.4			18.4			14.2			15.1	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			17.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			66.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
12: Goyeau St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	432	354	146	285
v/c Ratio	0.55	0.47	0.21	0.27
Control Delay	8.1	15.8	13.0	13.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.1	15.8	13.0	13.9
Queue Length 50th (m)	9.1	31.7	11.0	12.3
Queue Length 95th (m)	14.3	52.9	22.1	20.3
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	782	750	712	1052
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.47	0.21	0.27
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 12: Goyeau St & University Avenue

2038_Future - Single Lane Optimized
 Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	46	232	120	48	246	32	26	83	26	63	167	32
Future Volume (vph)	46	232	120	48	246	32	26	83	26	63	167	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.96			0.99			0.97			0.98	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1725			1742			1806			2844	
Flt Permitted		0.93			0.90			0.91			0.86	
Satd. Flow (perm)		1609			1572			1665			2464	
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)	50	252	130	52	267	35	28	90	28	68	182	35
RTOR Reduction (vph)	0	21	0	0	5	0	0	11	0	0	14	0
Lane Group Flow (vph)	0	411	0	0	349	0	0	135	0	0	271	0
Confl. Peds. (#/hr)	23		27	27		23	26		20	20		26
Heavy Vehicles (%)	0%	7%	2%	0%	8%	11%	9%	0%	0%	23%	3%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		35.0			35.0			31.0			31.0	
Effective Green, g (s)		36.0			36.0			32.0			32.0	
Actuated g/C Ratio		0.47			0.47			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		762			744			701			1037	
v/s Ratio Prot												
v/s Ratio Perm		c0.26			0.22			0.08			c0.11	
v/c Ratio		0.54			0.47			0.19			0.26	
Uniform Delay, d1		14.1			13.5			13.9			14.3	
Progression Factor		0.43			1.00			1.00			1.00	
Incremental Delay, d2		2.4			2.1			0.6			0.6	
Delay (s)		8.4			15.6			14.5			14.9	
Level of Service		A			B			B			B	
Approach Delay (s)		8.4			15.6			14.5			14.9	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	267	61	166	225	230	1	22
v/c Ratio	0.16	0.44	0.24	0.31	0.38	0.22	0.00	0.02
Control Delay	18.2	12.3	20.3	19.0	10.6	12.3	7.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	12.3	20.3	19.0	10.6	12.3	7.0	13.8
Queue Length 50th (m)	4.8	13.4	5.7	15.6	14.2	8.0	0.1	0.8
Queue Length 95th (m)	12.3	31.7	14.5	29.5	25.8	15.1	0.6	3.0
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	339	601	254	544	586	1050	566	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.44	0.24	0.31	0.38	0.22	0.00	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 13: McDougall St & University Avenue

2038_Future - Single Lane Optimized
 Timing Plan: AM Peak

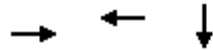


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	49	93	153	56	145	7	207	159	52	1	18	2
Future Volume (vph)	49	93	153	56	145	7	207	159	52	1	18	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.91		1.00	0.99		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1559	1574		1515	1647		1388	2840		1525	2825	
Flt Permitted	0.63	1.00		0.49	1.00		0.74	1.00		0.61	1.00	
Satd. Flow (perm)	1034	1574		776	1647		1084	2840		977	2825	
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	101	166	61	158	8	225	173	57	1	20	2
RTOR Reduction (vph)	0	85	0	0	3	0	0	37	0	0	1	0
Lane Group Flow (vph)	53	182	0	61	163	0	225	193	0	1	21	0
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	10%	0%	13%	0%	2%	0%	8%	10%	2%	0%	13%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		34.0	24.0		34.0	24.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		34.0	25.0		34.0	25.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.49	0.36		0.49	0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	339	517		254	541		569	1014		552	1008	
v/s Ratio Prot		c0.12			0.10		c0.06	0.07		0.00	0.01	
v/s Ratio Perm	0.05			0.08			c0.14			0.00		
v/c Ratio	0.16	0.35		0.24	0.30		0.40	0.19		0.00	0.02	
Uniform Delay, d1	16.6	17.8		17.1	17.5		11.0	15.5		9.3	14.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	1.9		2.2	1.4		2.1	0.4		0.0	0.0	
Delay (s)	17.6	19.7		19.4	18.9		13.1	15.9		9.3	14.6	
Level of Service	B	B		B	B		B	B		A	B	
Approach Delay (s)		19.4			19.1			14.5			14.4	
Approach LOS		B			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.37	B
Actuated Cycle Length (s)	70.0	Sum of lost time (s)
Intersection Capacity Utilization	52.0%	12.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		A

Queues
14: Victoria Ave & Park St W

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	61	349	321
v/c Ratio	0.08	0.57	0.46
Control Delay	6.4	19.6	15.4
Queue Delay	0.0	0.0	0.0
Total Delay	6.4	19.6	15.4
Queue Length 50th (m)	1.7	35.1	29.4
Queue Length 95th (m)	7.6	60.3	44.8
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	728	611	695
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.08	0.57	0.46
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2038_Future - Single Lane Optimized

14: Victoria Ave & Park St W

Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↕	
Traffic Volume (vph)	0	21	35	220	101	0	0	0	0	35	234	27
Future Volume (vph)	0	21	35	220	101	0	0	0	0	35	234	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.95			1.00						0.99	
Flpb, ped/bikes		1.00			0.96						0.99	
Frt		0.92			1.00						0.99	
Flt Protected		1.00			0.97						0.99	
Satd. Flow (prot)		1537			1695						1592	
Flt Permitted		1.00			0.76						0.99	
Satd. Flow (perm)		1537			1328						1592	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	23	38	239	110	0	0	0	0	38	254	29
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	41	0	0	349	0	0	0	0	0	316	0
Confl. Peds. (#/hr)			40	40						43		38
Heavy Vehicles (%)	0%	12%	3%	4%	1%	0%	0%	0%	0%	0%	3%	4%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		34.0			34.0						32.0	
Effective Green, g (s)		35.0			35.0						33.0	
Actuated g/C Ratio		0.46			0.46						0.43	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		707			611						691	
v/s Ratio Prot		0.03										
v/s Ratio Perm					c0.26						0.20	
v/c Ratio		0.06			0.57						0.46	
Uniform Delay, d1		11.4			15.0						15.2	
Progression Factor		1.00			1.00						0.87	
Incremental Delay, d2		0.2			3.8						2.0	
Delay (s)		11.5			18.9						15.3	
Level of Service		B			B						B	
Approach Delay (s)		11.5			18.9			0.0			15.3	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.7		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			50.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2038_Future - Single Lane Optimized

49:

Timing Plan: AM Peak















Lane Group	EBT	WBT
Lane Group Flow (vph)	301	362
v/c Ratio	0.20	0.24
Control Delay	2.9	1.6
Queue Delay	0.0	0.0
Total Delay	2.9	1.6
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	30.7	18.8
Internal Link Dist (m)	17.8	61.7
Turn Bay Length (m)		
Base Capacity (vph)	1496	1524
Starvation Cap Reductn	0	83
Spillback Cap Reductn	11	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.20	0.25
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

2038_Future - Single Lane Optimized

49:

Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	277	0	0	333	0	0	0	0	0	0	0
Future Volume (vph)	0	277	0	0	333	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1631			1662							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1631			1662							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	301	0	0	362	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	301	0	0	362	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							10		15	15		10
Heavy Vehicles (%)	0%	6%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		56.0			56.0							
Effective Green, g (s)		57.0			57.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1328			1353							
v/s Ratio Prot		0.18			0.22							
v/s Ratio Perm												
v/c Ratio		0.23			0.27							
Uniform Delay, d1		1.5			1.5							
Progression Factor		1.00			0.49							
Incremental Delay, d2		0.4			0.4							
Delay (s)		1.9			1.2							
Level of Service		A			A							
Approach Delay (s)		1.9			1.2			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.5		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			20.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	522	396
v/c Ratio	0.35	0.26
Control Delay	5.2	4.5
Queue Delay	0.0	0.0
Total Delay	5.2	4.5
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	83.7	57.4
Internal Link Dist (m)	35.4	448.7
Turn Bay Length (m)		
Base Capacity (vph)	1500	1530
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.35	0.26
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2038_Future - Single Lane Optimized
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	480	0	0	364	0	0	0	0	0	0	0
Future Volume (vph)	0	480	0	0	364	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	522	0	0	396	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	522	0	0	396	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							1		1	1		1
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		64.0			64.0							
Effective Green, g (s)		65.0			65.0							
Actuated g/C Ratio		0.81			0.81							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1350			1377							
v/s Ratio Prot		c0.31			0.23							
v/s Ratio Perm												
v/c Ratio		0.39			0.29							
Uniform Delay, d1		2.1			1.8							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.8			0.5							
Delay (s)		2.9			2.4							
Level of Service		A			A							
Approach Delay (s)		2.9			2.4			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			2.7		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			28.6%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
1: Huron Church Rd & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	175	67	232	194	294	182
v/c Ratio	0.21	0.10	0.45	0.24	0.22	0.22
Control Delay	13.7	3.9	25.4	19.0	6.7	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	3.9	25.4	19.0	6.7	13.5
Queue Length 50th (m)	14.7	0.0	31.8	23.2	6.1	15.1
Queue Length 95th (m)	26.5	6.2	57.5	46.5	12.9	27.1
Internal Link Dist (m)	117.8			283.7	184.6	94.0
Turn Bay Length (m)		35.0	45.0			
Base Capacity (vph)	826	683	517	820	1362	836
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.10	0.45	0.24	0.22	0.22

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 1: Huron Church Rd & University Avenue

2038_Future - Single Lane Optimized
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗			↖↗			↖↗	
Traffic Volume (vph)	6	155	62	213	155	24	56	78	136	10	151	6
Future Volume (vph)	6	155	62	213	155	24	56	78	136	10	151	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	4.5	3.7	3.7	3.7
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			1.00	
Frbp, ped/bikes		1.00	0.88	1.00	1.00			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.98			0.92			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1863	1444	1725	1819			3284			1902	
Flt Permitted		0.99	1.00	0.64	1.00			0.86			0.98	
Satd. Flow (perm)		1848	1444	1156	1819			2864			1866	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	168	67	232	168	26	61	85	148	11	164	7
RTOR Reduction (vph)	0	0	37	0	7	0	0	82	0	0	2	0
Lane Group Flow (vph)	0	175	30	232	187	0	0	212	0	0	180	0
Confl. Peds. (#/hr)	11		54	54		11	9		6	6		9
Heavy Vehicles (%)	0%	3%	0%	1%	0%	30%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	6	0	0	0	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2		2	2			4			4		
Actuated Green, G (s)		33.0	33.0	33.0	33.0			33.0			33.0	
Effective Green, g (s)		34.0	34.0	34.0	34.0			34.0			34.0	
Actuated g/C Ratio		0.45	0.45	0.45	0.45			0.45			0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)		826	646	517	813			1281			834	
v/s Ratio Prot					0.10							
v/s Ratio Perm		0.09	0.02	c0.20				0.07			c0.10	
v/c Ratio		0.21	0.05	0.45	0.23			0.17			0.22	
Uniform Delay, d1		12.8	11.9	14.5	12.9			12.5			12.8	
Progression Factor		1.00	1.00	1.49	1.49			1.00			1.00	
Incremental Delay, d2		0.6	0.1	2.7	0.6			0.3			0.6	
Delay (s)		13.4	12.0	24.4	19.9			12.8			13.4	
Level of Service		B	B	C	B			B			B	
Approach Delay (s)		13.0			22.3			12.8			13.4	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 2: Sunset Ave & University Avenue

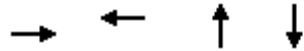
2038_Future - Single Lane Optimized
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	12	291	2	34	415	5	22	13	35	9	9	10
Future Volume (Veh/h)	12	291	2	34	415	5	22	13	35	9	9	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)	13	316	2	37	451	5	24	14	38	10	10	11
Pedestrians								71			6	
Lane Width (m)								4.0			4.0	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								8			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			42							
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	462			389			958	950	388	922	948	460
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	385			389			917	909	388	878	907	382
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			97			87	94	94	95	96	98
cM capacity (veh/h)	1096			1092			189	226	615	203	227	619
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	331	493	76	31								
Volume Left	13	37	24	10								
Volume Right	2	5	38	11								
cSH	1096	1092	303	279								
Volume to Capacity	0.01	0.03	0.25	0.11								
Queue Length 95th (m)	0.3	0.8	7.4	2.8								
Control Delay (s)	0.4	1.0	20.8	19.5								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	1.0	20.8	19.5								
Approach LOS			C	C								
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			47.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: California Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	405	578	356	56
v/c Ratio	0.55	0.73	0.72	0.10
Control Delay	11.0	11.9	28.6	16.0
Queue Delay	0.8	0.0	0.0	0.0
Total Delay	11.9	11.9	28.6	16.0
Queue Length 50th (m)	28.0	14.0	38.0	4.7
Queue Length 95th (m)	13.8	40.0	#75.6	12.1
Internal Link Dist (m)	59.7	628.6	114.0	125.2
Turn Bay Length (m)				
Base Capacity (vph)	742	794	496	557
Starvation Cap Reductn	129	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.66	0.73	0.72	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: California Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	66	295	11	70	455	6	73	124	131	4	41	6
Future Volume (vph)	66	295	11	70	455	6	73	124	131	4	41	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.1	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			1.00			0.94			0.99	
Flpb, ped/bikes		0.99			0.97			0.98			1.00	
Frt		1.00			1.00			0.95			0.98	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1576			1583			1462			1647	
Flt Permitted		0.84			0.90			0.92			0.98	
Satd. Flow (perm)		1342			1436			1360			1615	
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)	72	321	12	76	495	7	79	135	142	4	45	7
RTOR Reduction (vph)	0	1	0	0	0	0	0	32	0	0	5	0
Lane Group Flow (vph)	0	404		0	578		0	324		0	51	
Confl. Peds. (#/hr)	81		201	201		81	44		70	70		44
Heavy Vehicles (%)	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	3%	20%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		41.0			41.0			25.0			25.0	
Effective Green, g (s)		42.0			42.0			26.0			26.0	
Actuated g/C Ratio		0.55			0.55			0.34			0.34	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		741			793			465			552	
v/s Ratio Prot												
v/s Ratio Perm		0.30			c0.40			c0.24			0.03	
v/c Ratio		0.54			0.73			0.70			0.09	
Uniform Delay, d1		10.9			12.7			21.6			17.0	
Progression Factor		0.72			0.53			1.00			1.00	
Incremental Delay, d2		2.8			4.7			8.4			0.3	
Delay (s)		10.7			11.4			30.0			17.3	
Level of Service		B			B			C			B	
Approach Delay (s)		10.7			11.4			30.0			17.3	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
4: Campbell Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	34	517	188	546	319	131
v/c Ratio	0.10	0.66	0.58	0.64	0.50	0.20
Control Delay	9.7	15.2	14.4	10.5	19.2	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	15.2	14.4	10.5	19.2	15.1
Queue Length 50th (m)	2.0	39.8	8.5	28.5	29.0	10.6
Queue Length 95th (m)	m4.0	64.7	25.8	18.7	51.4	22.0
Internal Link Dist (m)		628.6		283.9	119.2	168.0
Turn Bay Length (m)	38.0		45.0			
Base Capacity (vph)	330	781	322	850	637	649
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.66	0.58	0.64	0.50	0.20

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Campbell Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Volume (vph)	31	384	92	173	493	9	70	102	121	16	77	28
Future Volume (vph)	31	384	92	173	493	9	70	102	121	16	77	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.1	3.1	3.1	3.3	3.7	3.7	4.8	3.7	3.7	4.5	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	1.00			0.97			0.98	
Flpb, ped/bikes	0.97	1.00		0.93	1.00			0.99			1.00	
Frt	1.00	0.97		1.00	1.00			0.94			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1740	1427		1592	1575			1872			1885	
Flt Permitted	0.33	1.00		0.36	1.00			0.90			0.94	
Satd. Flow (perm)	612	1427		597	1575			1699			1789	
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	417	100	188	536	10	76	111	132	17	84	30
RTOR Reduction (vph)	0	12	0	0	1	0	0	34	0	0	14	0
Lane Group Flow (vph)	34	505	0	188	545	0	0	285	0	0	117	0
Confl. Peds. (#/hr)	37		89	89		37	37		36	36		37
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%	4%	5%	1%	0%	5%	6%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	40.0	40.0		40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0		41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54		0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	330	769		322	849			603			635	
v/s Ratio Prot		c0.35			0.35							
v/s Ratio Perm	0.06			0.31				c0.17			0.07	
v/c Ratio	0.10	0.66		0.58	0.64			0.47			0.18	
Uniform Delay, d1	8.5	12.5		11.8	12.3			19.0			16.9	
Progression Factor	1.02	0.90		0.53	0.53			1.00			1.00	
Incremental Delay, d2	0.5	3.8		7.3	3.6			2.7			0.6	
Delay (s)	9.2	15.0		13.5	10.1			21.6			17.5	
Level of Service	A	B		B	B			C			B	
Approach Delay (s)		14.7			11.0			21.6			17.5	
Approach LOS		B			B			C			B	

Intersection Summary

HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 5: McKay Ave & University Avenue

2038_Future - Single Lane Optimized
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	17	450	9	9	537	12	4	1	6	10	0	16
Future Volume (Veh/h)	17	450	9	9	537	12	4	1	6	10	0	16
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)	18	489	10	10	584	13	4	1	7	11	0	17
Pedestrians								14			11	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		308			60							
pX, platoon unblocked	0.89						0.89	0.89		0.89	0.89	0.89
vC, conflicting volume	608			513			1172	1172	508	1159	1170	602
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	495			513			1130	1130	508	1116	1129	487
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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			97	99	99	93	100	97
cM capacity (veh/h)	947			1048			148	173	561	155	173	513
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	517	607	12	28								
Volume Left	18	10	4	11								
Volume Right	10	13	7	17								
cSH	947	1048	265	269								
Volume to Capacity	0.02	0.01	0.05	0.10								
Queue Length 95th (m)	0.4	0.2	1.1	2.6								
Control Delay (s)	0.5	0.3	19.2	20.0								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.5	0.3	19.2	20.0								
Approach LOS			C	C								
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			43.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
6: Crawford Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	25	508	158	626	288	199
v/c Ratio	0.10	0.49	0.45	0.73	0.45	0.29
Control Delay	7.7	14.1	10.6	15.2	19.4	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	14.1	10.6	15.2	19.4	16.8
Queue Length 50th (m)	2.1	57.2	6.1	62.9	27.4	17.5
Queue Length 95th (m)	m2.6	82.8	13.5	95.3	47.8	32.5
Internal Link Dist (m)		448.3		40.1	186.4	139.7
Turn Bay Length (m)	40.0		25.0			
Base Capacity (vph)	258	1028	351	856	635	682
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.49	0.45	0.73	0.45	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: Crawford Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	407	61	145	548	28	74	110	81	21	117	45
Future Volume (vph)	23	407	61	145	548	28	74	110	81	21	117	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	4.0	3.0	3.3	3.4	3.7	3.7	4.8	3.7	3.7	4.8	3.7
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00			0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.98	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.96			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1660	1892		1706	1584			1952			1970	
Flt Permitted	0.27	1.00		0.36	1.00			0.87			0.95	
Satd. Flow (perm)	480	1892		652	1584			1730			1876	
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	442	66	158	596	30	80	120	88	23	127	49
RTOR Reduction (vph)	0	7	0	0	2	0	0	21	0	0	15	0
Lane Group Flow (vph)	25	501	0	158	624	0	0	267	0	0	184	0
Confl. Peds. (#/hr)	28		28	28		28	15		16	16		15
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	6%	0%	0%	6%	0%
Bus Blockages (#/hr)	0	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)			0		0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	40.0	40.0		40.0	40.0			26.0			26.0	
Effective Green, g (s)	41.0	41.0		41.0	41.0			27.0			27.0	
Actuated g/C Ratio	0.54	0.54		0.54	0.54			0.36			0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	258	1020		351	854			614			666	
v/s Ratio Prot		0.26			c0.39							
v/s Ratio Perm	0.05			0.24				c0.15			0.10	
v/c Ratio	0.10	0.49		0.45	0.73			0.44			0.28	
Uniform Delay, d1	8.5	11.0		10.6	13.3			18.7			17.5	
Progression Factor	0.77	1.14		0.59	0.74			1.00			1.00	
Incremental Delay, d2	0.7	1.6		3.7	4.8			2.2			1.0	
Delay (s)	7.3	14.1		9.9	14.7			20.9			18.5	
Level of Service	A	B		A	B			C			B	
Approach Delay (s)		13.8			13.7			20.9			18.5	
Approach LOS		B			B			C			B	

Intersection Summary		
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.61	B
Actuated Cycle Length (s)	76.0	Sum of lost time (s)
Intersection Capacity Utilization	76.9%	8.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

Queues
7: Bruce Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	50	512	655	219
v/c Ratio	0.14	0.45	0.58	0.41
Control Delay	5.8	10.4	12.2	23.5
Queue Delay	0.0	0.0	0.6	0.0
Total Delay	5.8	10.4	12.8	23.5
Queue Length 50th (m)	3.1	59.8	74.0	23.4
Queue Length 95th (m)	m6.0	92.4	115.7	41.8
Internal Link Dist (m)		354.3	108.6	76.5
Turn Bay Length (m)	15.0			
Base Capacity (vph)	360	1136	1131	530
Starvation Cap Reductn	0	0	177	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.14	0.45	0.69	0.41

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
7: Bruce Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



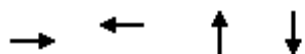
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	471	0	0	552	51	87	73	41	0	0	0
Future Volume (vph)	46	471	0	0	552	51	87	73	41	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.7	3.7
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frbp, ped/bikes	1.00	1.00			1.00			0.99				
Flpb, ped/bikes	0.99	1.00			1.00			0.99				
Frt	1.00	1.00			0.99			0.97				
Flt Protected	0.95	1.00			1.00			0.98				
Satd. Flow (prot)	1816	1838			1822			1874				
Flt Permitted	0.30	1.00			1.00			0.98				
Satd. Flow (perm)	582	1838			1822			1874				
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)	50	512	0	0	600	55	95	79	45	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	12	0	0	0	0
Lane Group Flow (vph)	50	512	0	0	651	0	0	207	0	0	0	0
Confl. Peds. (#/hr)	15		17	17		15	14		16	16		14
Heavy Vehicles (%)	0%	2%	0%	0%	4%	2%	3%	2%	23%	0%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					0							
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)	46.0	46.0			46.0			20.0				
Effective Green, g (s)	47.0	47.0			47.0			21.0				
Actuated g/C Ratio	0.62	0.62			0.62			0.28				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Lane Grp Cap (vph)	359	1136			1126			517				
v/s Ratio Prot		0.28			0.36							
v/s Ratio Perm	0.09							0.11				
v/c Ratio	0.14	0.45			0.58			0.40				
Uniform Delay, d1	6.1	7.7			8.6			22.4				
Progression Factor	0.79	1.16			1.16			1.00				
Incremental Delay, d2	0.7	1.2			2.0			2.3				
Delay (s)	5.5	10.0			11.9			24.7				
Level of Service	A	B			B			C				
Approach Delay (s)		9.6			11.9			24.7			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
8: Church St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	504	516	151	242
v/c Ratio	0.54	0.47	0.35	0.53
Control Delay	7.7	5.8	23.1	22.9
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	7.7	5.9	23.1	22.9
Queue Length 50th (m)	13.3	15.0	16.0	22.3
Queue Length 95th (m)	36.0	35.0	31.0	43.4
Internal Link Dist (m)	108.6	149.5	127.3	123.1
Turn Bay Length (m)				
Base Capacity (vph)	933	1098	434	453
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	87	0	2
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.51	0.35	0.54
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
8: Church St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



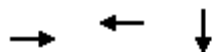
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	70	334	60	21	409	44	42	76	20	22	98	102
Future Volume (vph)	70	334	60	21	409	44	42	76	20	22	98	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.98			0.98			0.95	
Flpb, ped/bikes		0.99			1.00			0.99			0.99	
Frt		0.98			0.99			0.98			0.94	
Flt Protected		0.99			1.00			0.98			1.00	
Satd. Flow (prot)		1708			1819			1785			1545	
Flt Permitted		0.87			0.97			0.85			0.96	
Satd. Flow (perm)		1497			1771			1546			1495	
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)	76	363	65	23	445	48	46	83	22	24	107	111
RTOR Reduction (vph)	0	7	0	0	5	0	0	8	0	0	40	0
Lane Group Flow (vph)	0	497		0	511		0	143		0	202	
Confl. Peds. (#/hr)	77		42	42		77	41		69	69		41
Heavy Vehicles (%)	7%	5%	2%	0%	3%	0%	0%	0%	0%	5%	0%	14%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)		0			0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		46.0			46.0			20.0			20.0	
Effective Green, g (s)		47.0			47.0			21.0			21.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		925			1095			427			413	
v/s Ratio Prot												
v/s Ratio Perm		c0.33			0.29			0.09			c0.14	
v/c Ratio		0.54			0.47			0.33			0.49	
Uniform Delay, d1		8.3			7.8			21.9			23.0	
Progression Factor		0.68			0.58			1.00			1.00	
Incremental Delay, d2		2.0			1.2			2.1			4.1	
Delay (s)		7.6			5.7			24.0			27.1	
Level of Service		A			A			C			C	
Approach Delay (s)		7.6			5.7			24.0			27.1	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
9: Victoria Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	482	527	255
v/c Ratio	0.51	0.60	0.44
Control Delay	12.7	11.1	19.6
Queue Delay	0.0	2.4	0.0
Total Delay	12.7	13.5	19.6
Queue Length 50th (m)	47.2	32.5	23.8
Queue Length 95th (m)	66.2	74.0	43.3
Internal Link Dist (m)	149.5	81.3	102.3
Turn Bay Length (m)			
Base Capacity (vph)	939	878	574
Starvation Cap Reductn	0	225	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.51	0.81	0.44
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
 9: Victoria Ave & University Avenue

2038_Future - Single Lane Optimized
 Timing Plan: PM Peak



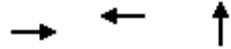
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	21	317	105	84	381	20	0	0	0	16	143	76
Future Volume (vph)	21	317	105	84	381	20	0	0	0	16	143	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.7	3.7	3.7	3.2	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.98			1.00						0.95	
Flpb, ped/bikes		1.00			0.99						1.00	
Frt		0.97			0.99						0.96	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1726			1831						1612	
Flt Permitted		0.97			0.86						1.00	
Satd. Flow (perm)		1674			1587						1612	
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)	23	345	114	91	414	22	0	0	0	17	155	83
RTOR Reduction (vph)	0	15	0	0	2	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	467		0	0	525	0	0	0	0	232	0
Confl. Peds. (#/hr)	32		50	50		32	61		25	25		61
Heavy Vehicles (%)	41%	4%	4%	6%	3%	0%	0%	0%	0%	0%	3%	0%
Parking (#/hr)		0			0						0	
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases	2			2						4		
Actuated Green, G (s)		41.0			41.0						25.0	
Effective Green, g (s)		42.0			42.0						26.0	
Actuated g/C Ratio		0.55			0.55						0.34	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		925			877						551	
v/s Ratio Prot												
v/s Ratio Perm		0.28			0.33						0.14	
v/c Ratio		0.51			0.60						0.42	
Uniform Delay, d1		10.6			11.4						19.2	
Progression Factor		1.07			0.70						1.00	
Incremental Delay, d2		1.8			2.8						2.4	
Delay (s)		13.1			10.7						21.6	
Level of Service		B			B						C	
Approach Delay (s)		13.1			10.7			0.0			21.6	
Approach LOS		B			B			A			C	

Intersection Summary

HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues
10: Pelissier St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	372	435	331
v/c Ratio	0.37	0.44	0.31
Control Delay	12.5	10.0	12.5
Queue Delay	0.7	2.4	0.0
Total Delay	13.2	12.3	12.5
Queue Length 50th (m)	26.2	24.4	11.4
Queue Length 95th (m)	51.4	46.8	20.6
Internal Link Dist (m)	81.3	41.6	91.0
Turn Bay Length (m)			
Base Capacity (vph)	999	999	1083
Starvation Cap Reductn	329	421	0
Spillback Cap Reductn	59	54	3
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.56	0.75	0.31
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
10: Pelissier St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	11	331	0	0	382	18	122	81	101	0	0	0
Future Volume (vph)	11	331	0	0	382	18	122	81	101	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.8	3.7	3.7	4.8	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			0.97				
Frt		1.00			0.99			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1878			1848			2853				
Flt Permitted		0.98			1.00			0.98				
Satd. Flow (perm)		1853			1848			2853				
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	360	0	0	415	20	133	88	110	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	71	0	0	0	0
Lane Group Flow (vph)	0	372	0	0	433	0	0	260	0	0	0	0
Confl. Peds. (#/hr)	50					50	34		35			
Heavy Vehicles (%)	0%	3%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			4				
Permitted Phases	2						4					
Actuated Green, G (s)		40.0			40.0			26.0				
Effective Green, g (s)		41.0			41.0			27.0				
Actuated g/C Ratio		0.54			0.54			0.36				
Clearance Time (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		999			996			1013				
v/s Ratio Prot					c0.23							
v/s Ratio Perm		0.20						0.09				
v/c Ratio		0.37			0.43			0.26				
Uniform Delay, d1		10.1			10.5			17.4				
Progression Factor		1.12			0.82			1.00				
Incremental Delay, d2		0.9			1.2			0.6				
Delay (s)		12.2			9.8			18.0				
Level of Service		B			A			B				
Approach Delay (s)		12.2			9.8			18.0			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.0				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			50.9%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Ouellette Ave & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	114	374	390	83	236	38	275
v/c Ratio	0.35	0.51	0.64	0.31	0.38	0.14	0.42
Control Delay	14.8	14.3	21.9	17.7	14.2	14.2	15.7
Queue Delay	0.6	1.9	0.0	0.5	0.0	0.0	0.4
Total Delay	15.5	16.2	21.9	18.2	14.2	14.2	16.1
Queue Length 50th (m)	10.3	33.4	40.7	7.3	18.5	3.1	23.9
Queue Length 95th (m)	24.0	59.7	70.0	17.7	34.9	8.8	42.3
Internal Link Dist (m)		41.6	14.5		100.1		59.3
Turn Bay Length (m)				16.0		15.0	
Base Capacity (vph)	327	733	606	265	626	267	660
Starvation Cap Reductn	61	215	0	0	0	0	0
Spillback Cap Reductn	0	0	0	43	0	0	106
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.72	0.64	0.37	0.38	0.14	0.50

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 11: Ouellette Ave & University Avenue

2038_Future - Single Lane Optimized
 Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	303	41	37	287	35	76	161	56	35	212	41
Future Volume (vph)	105	303	41	37	287	35	76	161	56	35	212	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	4.8	3.7	3.1	3.3	3.7	3.0	3.2	3.7
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.97			0.98		1.00	0.86		1.00	0.93	
Flpb, ped/bikes	0.93	1.00			0.99		0.73	1.00		0.66	1.00	
Frt	1.00	0.98			0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1512	1623			1429		1066	1364		995	1456	
Flt Permitted	0.46	1.00			0.94		0.53	1.00		0.57	1.00	
Satd. Flow (perm)	731	1623			1344		593	1364		596	1456	
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)	114	329	45	40	312	38	83	175	61	38	230	45
RTOR Reduction (vph)	0	7	0	0	5	0	0	17	0	0	9	0
Lane Group Flow (vph)	114	367	0	0	385	0	83	219	0	38	266	0
Confl. Peds. (#/hr)	91		126	126		91	198		252	252		198
Heavy Vehicles (%)	1%	2%	0%	0%	37%	0%	5%	1%	0%	0%	1%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	33.0	33.0			33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	34.0	34.0			34.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.45	0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	327	726			601		265	610		266	651	
v/s Ratio Prot		0.23						0.16			c0.18	
v/s Ratio Perm	0.16				c0.29		0.14			0.06		
v/c Ratio	0.35	0.51			0.64		0.31	0.36		0.14	0.41	
Uniform Delay, d1	13.7	15.0			16.3		13.5	13.8		12.4	14.2	
Progression Factor	0.82	0.79			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	2.4			5.2		3.1	1.6		1.1	1.9	
Delay (s)	14.0	14.3			21.4		16.6	15.5		13.5	16.1	
Level of Service	B	B			C		B	B		B	B	
Approach Delay (s)		14.2			21.4			15.8			15.8	
Approach LOS		B			C			B			B	

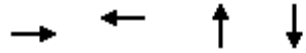
Intersection Summary

HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
12: Goyeau St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	517	314	264	252
v/c Ratio	0.53	0.32	0.44	0.33
Control Delay	13.5	10.3	25.3	20.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.5	10.3	25.3	20.0
Queue Length 50th (m)	48.3	24.2	33.6	14.0
Queue Length 95th (m)	74.5	39.2	55.2	23.7
Internal Link Dist (m)	75.4	211.9	109.5	46.8
Turn Bay Length (m)				
Base Capacity (vph)	978	975	594	773
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.53	0.32	0.44	0.33

Intersection Summary

HCM Signalized Intersection Capacity Analysis
12: Goyeau St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	59	336	81	24	216	49	27	177	40	61	121	50
Future Volume (vph)	59	336	81	24	216	49	27	177	40	61	121	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	4.7	3.7	3.7	4.7	3.7	3.7	4.8	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			0.95	
Frbp, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.98			0.98			0.98			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1811			1769			1848			2784	
Flt Permitted		0.92			0.94			0.95			0.79	
Satd. Flow (perm)		1680			1675			1759			2235	
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)	64	365	88	26	235	53	29	192	43	66	132	54
RTOR Reduction (vph)	0	8	0	0	8	0	0	8	0	0	27	0
Lane Group Flow (vph)	0	509		0	306		0	256		0	225	
Confl. Peds. (#/hr)	16		34	34		16	32		10	10		32
Heavy Vehicles (%)	2%	2%	1%	0%	5%	5%	0%	1%	0%	18%	3%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		51.0			51.0			29.0			29.0	
Effective Green, g (s)		52.0			52.0			30.0			30.0	
Actuated g/C Ratio		0.58			0.58			0.33			0.33	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		970			967			586			745	
v/s Ratio Prot												
v/s Ratio Perm		c0.30			0.18			c0.15			0.10	
v/c Ratio		0.52			0.32			0.44			0.30	
Uniform Delay, d1		11.5			9.8			23.4			22.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.0			0.9			2.4			1.0	
Delay (s)		13.5			10.7			25.8			23.3	
Level of Service		B			B			C			C	
Approach Delay (s)		13.5			10.7			25.8			23.3	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: McDougall St & University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	114	370	74	218	122	278	4	47
v/c Ratio	0.28	0.53	0.30	0.33	0.25	0.26	0.01	0.04
Control Delay	18.1	16.0	19.9	17.1	12.0	13.4	10.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	16.0	19.9	17.1	12.0	13.4	10.0	15.5
Queue Length 50th (m)	10.9	28.4	7.1	20.2	9.0	10.7	0.3	2.1
Queue Length 95th (m)	22.5	52.4	17.2	36.0	17.9	19.0	1.7	5.4
Internal Link Dist (m)		211.9		195.4		122.2		72.4
Turn Bay Length (m)	31.0		38.0		40.0		22.0	
Base Capacity (vph)	405	699	250	655	492	1088	322	1078
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.53	0.30	0.33	0.25	0.26	0.01	0.04

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 13: McDougall St & University Avenue

2038_Future - Single Lane Optimized
 Timing Plan: PM Peak



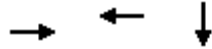
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	153	188	68	179	21	112	194	62	4	39	5
Future Volume (vph)	105	153	188	68	179	21	112	194	62	4	39	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.1	4.8	3.7	3.0	3.5	3.7	3.0	3.5	3.5	3.1	3.5	3.9
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00		0.98	1.00	
Fr _t	1.00	0.92		1.00	0.98		1.00	0.96		1.00	0.98	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1704	1627		1511	1646		1349	2845		1128	3143	
Fl _t Permitted	0.57	1.00		0.40	1.00		0.67	1.00		0.58	1.00	
Satd. Flow (perm)	1029	1627		634	1646		953	2845		690	3143	
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)	114	166	204	74	195	23	122	211	67	4	42	5
RTOR Reduction (vph)	0	58	0	0	5	0	0	40	0	0	3	0
Lane Group Flow (vph)	114	312	0	74	213	0	122	238	0	4	44	0
Confl. Peds. (#/hr)	7		6	6		7	21		34	34		21
Heavy Vehicles (%)	0%	0%	10%	0%	1%	0%	10%	9%	0%	33%	0%	0%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		35.0	27.0		31.0	25.0	
Effective Green, g (s)	30.0	30.0		30.0	30.0		35.0	28.0		31.0	26.0	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.46	0.37		0.41	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	406	642		250	649		480	1048		316	1075	
v/s Ratio Prot		c0.19			0.13		c0.03	0.08		0.00	0.01	
v/s Ratio Perm	0.11			0.12			c0.09			0.00		
v/c Ratio	0.28	0.49		0.30	0.33		0.25	0.23		0.01	0.04	
Uniform Delay, d1	15.7	17.2		15.8	16.0		12.2	16.5		13.4	16.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	2.6		3.0	1.3		1.3	0.5		0.1	0.1	
Delay (s)	17.4	19.8		18.8	17.3		13.5	17.0		13.4	16.8	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		19.3			17.7			16.0			16.5	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
14: Victoria Ave & Park St W

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	176	502	403
v/c Ratio	0.21	0.82	0.65
Control Delay	6.0	29.8	25.4
Queue Delay	0.0	0.0	0.3
Total Delay	6.0	29.8	25.7
Queue Length 50th (m)	6.0	57.6	49.2
Queue Length 95th (m)	15.5	#113.8	78.4
Internal Link Dist (m)	89.3	64.2	94.9
Turn Bay Length (m)			
Base Capacity (vph)	857	612	622
Starvation Cap Reductn	0	0	25
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.82	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2038_Future - Single Lane Optimized

14: Victoria Ave & Park St W

Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↕	
Traffic Volume (vph)	0	77	85	331	131	0	0	0	0	33	308	29
Future Volume (vph)	0	77	85	331	131	0	0	0	0	33	308	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frbp, ped/bikes		0.96			1.00						0.99	
Flpb, ped/bikes		1.00			0.96						0.99	
Frt		0.93			1.00						0.99	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1622			1742						1565	
Flt Permitted		1.00			0.68						1.00	
Satd. Flow (perm)		1622			1223						1565	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	84	92	360	142	0	0	0	0	36	335	32
RTOR Reduction (vph)	0	46	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	130	0	0	502	0	0	0	0	0	399	0
Confl. Peds. (#/hr)			43	43						58		44
Heavy Vehicles (%)	0%	5%	1%	0%	1%	0%	0%	0%	0%	0%	5%	8%
Parking (#/hr)											0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		37.0			37.0						29.0	
Effective Green, g (s)		38.0			38.0						30.0	
Actuated g/C Ratio		0.50			0.50						0.39	
Clearance Time (s)		5.0			5.0						5.0	
Lane Grp Cap (vph)		811			611						617	
v/s Ratio Prot		0.08										
v/s Ratio Perm					0.41						0.25	
v/c Ratio		0.16			0.82						0.65	
Uniform Delay, d1		10.3			16.1						18.7	
Progression Factor		1.00			1.00						1.08	
Incremental Delay, d2		0.4			11.8						4.7	
Delay (s)		10.8			27.9						24.9	
Level of Service		B			C						C	
Approach Delay (s)		10.8			27.9			0.0			24.9	
Approach LOS		B			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			24.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			76.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			76.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
49: University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	364	493
v/c Ratio	0.24	0.31
Control Delay	2.9	1.0
Queue Delay	0.0	0.0
Total Delay	2.9	1.1
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	32.5	14.6
Internal Link Dist (m)	18.1	59.7
Turn Bay Length (m)		
Base Capacity (vph)	1535	1566
Starvation Cap Reductn	0	96
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.24	0.34
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
49: University Avenue

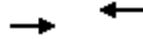
2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	335	0	0	454	0	0	0	0	0	0	0
Future Volume (vph)	0	335	0	0	454	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	364	0	0	493	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	364	0	0	493	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							7		26	26		7
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		62.0			62.0							
Effective Green, g (s)		63.0			63.0							
Actuated g/C Ratio		0.83			0.83							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1377			1405							
v/s Ratio Prot		0.22			0.29							
v/s Ratio Perm												
v/c Ratio		0.26			0.35							
Uniform Delay, d1		1.4			1.6							
Progression Factor		1.08			0.26							
Incremental Delay, d2		0.5			0.5							
Delay (s)		2.0			0.9							
Level of Service		A			A							
Approach Delay (s)		2.0			0.9			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			1.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			27.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
52: University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Lane Group	EBT	WBT
Lane Group Flow (vph)	507	607
v/c Ratio	0.34	0.40
Control Delay	4.8	3.8
Queue Delay	0.0	0.0
Total Delay	4.8	3.8
Queue Length 50th (m)	0.0	0.0
Queue Length 95th (m)	89.5	58.3
Internal Link Dist (m)	35.9	448.3
Turn Bay Length (m)		
Base Capacity (vph)	1491	1521
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.40
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
52: University Avenue

2038_Future - Single Lane Optimized
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑							
Traffic Volume (vph)	0	466	0	0	558	0	0	0	0	0	0	0
Future Volume (vph)	0	466	0	0	558	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frbp, ped/bikes		1.00			1.00							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1662			1695							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1662			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)	0	507	0	0	607	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	507	0	0	607	0	0	0	0	0	0	0
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		0			0							
Turn Type		NA			NA							
Protected Phases		2			2							
Permitted Phases												
Actuated Green, G (s)		60.0			60.0							
Effective Green, g (s)		61.0			61.0							
Actuated g/C Ratio		0.80			0.80							
Clearance Time (s)		5.0			5.0							
Vehicle Extension (s)		4.0			4.0							
Lane Grp Cap (vph)		1333			1360							
v/s Ratio Prot		0.30			0.36							
v/s Ratio Perm												
v/c Ratio		0.38			0.45							
Uniform Delay, d1		2.1			2.3							
Progression Factor		0.88			0.62							
Incremental Delay, d2		0.7			0.8							
Delay (s)		2.5			2.2							
Level of Service		A			A							
Approach Delay (s)		2.5			2.2			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			2.4		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			76.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			32.7%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

City of Windsor

University Avenue & Victoria Avenue EA

Traffic Safety Report

17-18



CIMA+ file number: B000917
01-03-2022 – Review 02

City of Windsor

University Avenue & Victoria Avenue EA


Traffic Safety Report

17-18

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1. Introduction

CIMA+ was retained by the City of Windsor (the City) to conduct an Environmental Assessment (EA) to review the existing and future transportation needs of University Avenue from Huron Church Road to McDougall Street and Victoria Avenue from University Avenue to Park Street West.

A safety review of the existing conditions is one of the components of this study. The purpose of this report is to present a review of existing traffic safety conditions throughout the study area. The findings of this report will assist the project team in addressing any potential safety issues in the design of the preferred alternative.

For this study, CIMA+ conducted the following tasks:

- + Collision analysis;
- + Field investigation; and
- + Study findings and recommendations.

This report documents the above noted tasks and identified issues within the study area.

2. Study Area

University Avenue is a major east-west arterial road connecting the downtown area of the City of Windsor in the east to Huron Church Road and Riverside Drive West in the west. Victoria Avenue is a north-south local road that connects residential neighbourhoods in the south to the downtown area in the north. The study area is approximately a 3.5 kilometre section along University Avenue between Huron Church Road and McDougall Street, and along Victoria Avenue from Chatham Street West to Park Street West. There are twelve (12) signalized intersections within the study area, in addition to two (2) intersection pedestrian signals (IPS), as illustrated in **Figure 1**.

Within the EA study area, the 3.5 kilometre section of University Avenue between Huron Church Road and McDougall Street has variable types of cross sections, including:

- + 2-lane urban from Huron Church Road to Partington Avenue;
- + 4-lane urban from Partington Avenue to Crawford Avenue; and
- + 2-lane urban from Crawford Avenue to McDougall Street.

Victoria Avenue is a north-south local road that connects residential neighbourhoods in the south to the downtown area in the north. Within the EA study area, Victoria Avenue is a one-way street (southbound) south of University Avenue. North of University Avenue, Victoria Avenue presents 2 traffic lanes (one per direction).

The land use surrounding the study area varies from residential (between California Avenue and Bruce Avenue) to commercial (between Pelissier Street and McDougall Street). The land use along Victoria Avenue is mixed commercial/high-rise residential, as well as several parking lots.



Figure 1: University Avenue EA Study Area

The current statutory speed limit on University Avenue and Victoria Avenue within the study area is 50 km/h. No speed limit signs were observed along this corridor.

For purposes of this report the study area will be divided into two areas: west section and east section. These areas can be defined as follows:

- + West Section: Along University Avenue from Huron Church Road to Church Street; and
- + East Section: Along University Avenue from Church Street to McDougall Street and along Victoria Avenue from Chatham Street West to Park Street West.

3. Collision History

Historical collision data was provided by the City for the approximately 5-year period between January 2013 and December 2017 for both corridors: University Avenue and Victoria Avenue. A total of 306 collisions – including intersection and midblock collisions – were identified in the study area during the study period.

A review of the collision records provided was undertaken, in further detail, to identify predominant collision impact types and severity for intersection and midblock locations. **Table 1** and **Table 2** present this summary

Table 1: Summary of Intersection Collisions

Location	Intersection Collisions	Severity	Impact Type
University Ave W & Huron Church Rd	25	22 PDO 3 Non-fatal Injury	12 Turning Movement 6 Rear End 3 Approaching 2 Angle 2 SMV - Other
University Ave W & Patricia Rd	3	1 PDO 2 Non-fatal Injury	1 Rear End 1 SMV - Other 1 Turning Movement
University Ave W & Sunset Ave	11	8 PDO 3 Non-fatal Injury	4 Angle 2 Rear End 2 Turning Movement 1 Sideswipe 1 SMV - Other 1 SMV - Unattended
University Ave W & California Ave	8	7 PDO 1 Non-fatal Injury	5 Angle 1 Rear End 1 SMV - Other 1 Turning Movement
University Ave W & Askin Ave	1	1 PDO	1 "Other"
University Ave W & Randolph Pl	3	2 PDO 1 Non-fatal Injury	1 Approaching 1 Rear End 1 Turning Movement
University Ave W & Rankin Ave	4	3 PDO 1 Non-fatal Injury	2 SMV - Other 1 Angle 1 Rear End
University Ave W & Partington Ave	1	1 PDO	1 Turning Movement
University Ave W & Bridge Ave	7	2 PDO 5 Non-fatal Injury	2 Angle 2 SMV - Other 2 Turning Movement 1 Rear End
University Ave W & Josephine Ave	3	3 PDO	1 Angle 1 Rear End 1 Turning Movement
University Ave W & Campbell Ave	18	10 PDO 8 Non-fatal Injury	10 Angle 4 Turning Movement 1 Approaching 1 Rear End 1 Sideswipe 1 SMV - Other
University Ave W & McEwan Ave	2	2 PDO	1 Angle 1 Turning Movement
University Ave W & Curry Ave	2	2 PDO	1 Angle 1 Turning Movement

Location	Intersection Collisions	Severity	Impact Type
University Ave W & McKay Ave	1	1 PDO	1 Rear End
University Ave W & Cameron Ave	8	3 PDO 5 Non-fatal Injury	3 Angle 2 Rear End 2 Turning Movement 1 Approaching
University Ave W & Wellington Ave	3	1 PDO 2 Non-fatal Injury	3 Rear End
University Ave W & Elm Ave	2	2 PDO	1 Angle 1 Turning Movement
University Ave W & Oak St	2	1 PDO 1 Non-fatal Injury	1 Angle 1 Turning Movement
University Ave W & Crawford Ave	21	19 PDO 2 Non-fatal Injury	11 Angle 4 Rear End 4 Turning Movement 1 Sideswipe 1 "Other"
University Ave W & Caron Ave	3	1 PDO 2 Non-fatal Injury	2 Turning Movement 1 Angle
University Ave W & Janette Ave	5	2 PDO 3 Non-fatal Injury	2 Angle 2 SMV - Other 1 Rear End
University Ave W & Bruce Ave	9	9 PDO	4 Turning Movement 3 Angle 1 Rear End 1 Sideswipe
University Ave W & Church St	9	3 PDO 6 Non-fatal Injury	3 Angle 3 SMV - Other 1 Approaching 1 Rear End 1 Turning Movement
University Ave W & Dougall Ave	9	6 PDO 3 Non-fatal Injury	5 Angle 2 Rear End 1 SMV - Other 1 Turning Movement
University Ave W & Victoria Ave	7	5 PDO 2 Non-fatal Injury	3 Rear End 3 Turning Movement 1 Angle
University Ave W & Pelissier St	9	7 PDO 2 Non-fatal Injury	5 Angle 3 Rear End 1 SMV - Other
University Ave W & Ouellette Ave	23	18 PDO 5 Non-fatal Injury	7 Turning Movement 5 Rear End 4 Angle 4 SMV - Other 2 Sideswipe 1 Approaching

Location	Intersection Collisions	Severity	Impact Type
University Ave W & Freedom Way	5	3 PDO 2 Non-fatal Injury	2 SMV - Other 1 Sideswipe 1 SMV - Unattended 1 Turning Movement
University Ave W & Goyeau St	11	10 PDO 1 Non-fatal Injury	3 Angle 3 Rear End 3 Turning Movement 1 "Other" 1 SMV - Other
University Ave W & City Hall Square E	1	1 PDO	1 Turning Movement
University Ave W & McDougall St	19	16 PDO 3 Non-fatal Injury	8 Angle 5 Turning Movement 3 Rear End 2 Approaching 1 Sideswipe
Victoria Ave & Park St W	8	5 PDO 3 Non-fatal Injury	3 Angle 2 SMV - Other 2 SMV - Unattended 1 Turning Movement

Table 2: Summary of Midblock Collisions

Location	Collisions	Severity	Impact Type
Mid-blocks – University Avenue			
Huron Church Rd to Vista Ct	3	2 PDO 1 Non-fatal Injury	2 Turning Movement 1 SMV - Unattended
Patricia Rd to Sunset Ave	5	4 PDO 1 Non-fatal Injury	2 SMV - Unattended 2 Turning Movement 1 Sideswipe
Sunset Ave to California Ave	2	1 PDO 1 Non-fatal Injury	1 SMV - Unattended 1 Turning Movement
California Ave to Askin Ave	2	2 PDO	1 "Other" 1 SMV - Other
Randolph Ave to Rankin Ave	3	2 PDO 1 Non-fatal Injury	2 Sideswipe 1 Approaching
Bridge Ave to Josephine Ave	2	1 PDO 1 Non-fatal Injury	1 Angle 1 Approaching
Josephine Ave to Campbell Ave	1	1 PDO	1 Turning Movement
Campbell Ave to McEwan Ave	1	1 PDO	1 Sideswipe
McEwan Ave to Curry Ave	4	2 PDO 2 Non-fatal Injury	1 Approaching 1 Rear End

Location	Collisions	Severity	Impact Type
			1 Sideswipe 1 Turning Movement
Curry Ave to McKay Ave	2	2 PDO	1 Sideswipe 1 SMV - Unattended
McKay Ave to Cameron Ave	2	1 PDO 1 Non-fatal Injury	1 Sideswipe 1 Turning Movement
Cameron Ave to Wellington Ave	7	7 PDO	2 Rear End 2 Sideswipe 2 Turning Movement 1 SMV - Other
Wellington Ave to Elm Ave	1	1 Non-fatal Injury	1 Turning Movement
Elm Ave to Oak St	1	1 PDO	1 Rear End
Oak St to Crawford Ave	1	1 PDO	1 Sideswipe
Crawford Ave to Salter Ave	2	2 PDO	2 Sideswipe
Caron Ave to Janette Ave	1	1 PDO	1 Rear End
Janette Ave to Bruce Ave	3	2 PDO 1 Non-fatal Injury	1 Angle 1 SMV - Unattended 1 Turning Movement
Bruce Ave to Church St	3	3 PDO	2 SMV - Unattended 1 Turning Movement
Church St to Dougall Ave	1	1 PDO	1 SMV - Unattended
Pellissier St to Ouellette Ave	5	5 PDO	3 Sideswipe 1 SMV - Unattended 1 Turning Movement
Ouellette Ave to Freedom Way	3	3 PDO	2 Turning Movement 1 SMV - Other
Mid-blocks – Victoria Avenue			
Chatham St W to University Ave W	4	4 PDO	2 "Other" 1 SMV - Unattended 1 Turning Movement
University Ave W to Park St W	4	4 PDO	2 "Other" 1 Sideswipe 1 SMV - Unattended

The main findings based on the information presented in the tables above are:

- + The 5 locations with the highest collision frequencies are:
 - University Ave W & Huron Church Rd (25 collisions);
 - University Ave W & Ouellette Ave (23 collisions);

- University Ave W & Crawford Ave (21 collisions);
- University Ave W & McDougall St (19 collisions); and
- University Ave W & Campbell Ave (18 collisions).
- + At the top 5 locations listed above, Angle and Turning Movement are the collision impact types that stand out.
- + The locations with 5 or more collisions presenting the highest proportions of injury collisions are:
 - University Ave W & Bridge Ave (71% - 5 out of 7 collisions);
 - University Ave W & Church St (67% - 6 out of 9 collisions);
 - University Ave W & Cameron Ave (63% - 5 out of 8 collisions);
 - University Ave W & Janette Ave (60% - 3 out of 5 collisions); and
 - University Ave W & Campbell Ave (44% - 8 out of 18 collisions).

Locations presenting collision impact types with 5 or more occurrences were further reviewed to identify potential directional patterns, and any contributing factors, such as light, environment and road surface conditions, as well as time of day. This information is summarized in **Table 3**, where relevant patterns are highlighted in red.

Table 3: Collision History for 5 Locations in the Study Area

Location	Impact Type	Description
University Avenue and Huron Church Road	12 Turning Movement	10 EB v. WB 9 Daylight 3 Dark 9 Clear/Dry 2 Snow 1 Wet 5 between 3 and 5 pm
	6 Rear End	No directional pattern 5 Daylight 1 Dark 6 Clear / 5 Dry 1 Snow No time of day pattern
University Avenue and California Avenue	5 Angle	3 WB v. NB 2 WB v. SB 4 Daylight 1 Dark 5 Clear/Dry 4 between 3 and 5 pm
University Avenue and Campbell Avenue	10 Angle	No clear directional pattern 8 Daylight 2 Dark 9 Clear/Dry 1 Rain/Wet No time of day pattern
University Avenue and Crawford Avenue	11 Angle	No clear directional pattern 8 Daylight 2 Dark 1 Dawn 8 Clear/Dry 2 Snow 1 Wet No time of day pattern
University Avenue and Dougall Avenue	5 Angle	No clear directional pattern 3 Dark 2 Daylight 4 Clear/Dry 1 Snow No time of day pattern

University Avenue and Pelissier Street	5 Angle	3 NB v. EB 1 NB v. WB 4 Daylight 1 Dusk 5 Clear/Dry No time of day pattern
University Avenue and Ouellette Avenue	7 Turning Movement	No clear directional pattern 4 Daylight 3 Dark 5 Clear/Dry 2 Wet 3 after 22:00
	5 Rear End	4 EB 1 SB 4 Dark 1 Daylight 3 Clear/Dry 2 Rain/Wet 3 before 3:00
University Avenue and McDougall Street	8 Angle	7 NB v. EB 6 Daylight 1 Dark 1 Dusk 7 Clear/Dry 1 Rain/Wet 4 between 10:00 and 12:00
	6 Turning Movement	3 EB v. WB 4 Daylight 1 Dark 5 Clear/Dry No time of day pattern

The following relevant patterns were observed based on the information presented in the table above:

- + At the intersection of University Avenue and California Avenue, 80% of collisions (4 out of 5) occurred between 3:00 and 5:00 p.m.;
- + At the intersection of University Avenue and Ouellette Avenue, 80% of collisions (4 out of 5) occurred during dark periods (3 out of these 4 between Midnight and 3:00 a.m.); and
- + At the intersection of University Avenue and McDougall Street, 88% of collisions (7 out of 8) occurred between a northbound and a westbound vehicles.

4. Field Investigation

CIMA+ conducted a field investigation on Wednesday June 20th and Thursday June 21st, 2018 to identify any potential safety and operational issues in the study area. During the field investigation, the study team observed the conformance, consistency and conditions of site geometrics, traffic control devices, physical characteristics and roadside safety and road user interface with the study area. The following sections summarize our field investigation findings.

4.1 Geometry

The roadway geometry of University Avenue and Victoria Avenue was observed during the field visit. Two horizontal curves are present along University Avenue, at McDougall Avenue and at Huron Church Road. Since these intersections are signalized, the location and visibility of signal heads were evaluated (refer to Section 4.4).

During the site visit, it was observed that the primary signal head at the eastbound approach to McDougall Street is directly in front of drivers approximately 65 metres in advance of the intersection. The secondary signal head becomes temporarily obstructed by the primary northbound signal head as shown in **Figure 2**.



Figure 2: Eastbound Secondary Signal Head Temporarily Obstructed by Northbound Signal Head

On the westbound approach of University Avenue and Huron Church Road it was also observed the possibility of signal visibility restrictions due to the horizontal curve. The signal head is directly in front of the driver at approximately 68 metres from the intersection (**Figure 3**).

According to OTM Book 12, the minimum distance from which a signal must be visible for 85th percentile speeds of 50 km/h (McDougall Avenue) and 70 km/h (Huron Church Road) is 85 and 135 metres, respectively¹. Therefore, neither of the locations provide sufficient signal visibility distance.

The lane widths for University Avenue within the study area vary between 3.1 and 5.6 metres. The measured lane widths are generally wider than the standard outlined in the 2017 Transportation Association of Canada (TAC) Design Guide, which has a recommended lower limit of 3.0 metres and a recommended upper limit of 3.7 metres for urban roadways (assuming a design speed of 60 km/h)².

Excessively wide lanes may encourage higher operating speeds, which in an urban area can affect the safety of all road users – particularly pedestrians and cyclists – and also increase the severity of collisions if any were to occur.

¹ OTM Book 12 Traffic Signals, Table 25

² TAC Geometric Design Guide for Canadian Roads 2017, Chapter 4 Cross Section Elements, Table 4.2.3



Figure 3: Westbound Signal Head in Front of Driver

4.2 Signs and Pavement Markings

At the intersection of University Avenue and Crawford, the 4-lane cross section is reduced to a 2-lane cross section (from west to east). The transition in the eastbound direction is accomplished by designating the curb lane as an exclusive right-turn lane (**Figure 4**). Even though signage is provided (Rb-42) eastbound through vehicles were observed switching lanes within, and even after, the intersection. This is further encouraged by the wide receiving lane (5.30 metres), and may contribute to sideswipe collisions. This is of particular concerns for cyclists, who also experience a shift along their path due to the introduction of on-street parking east of the intersection.

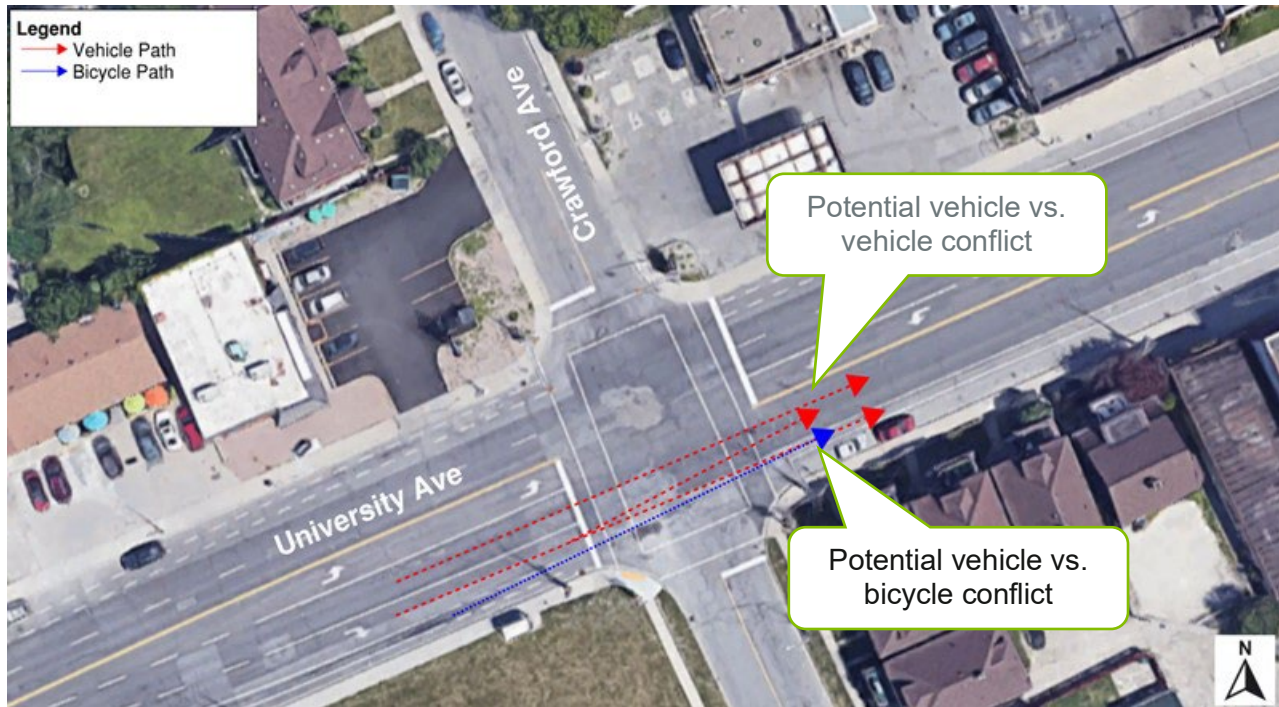


Figure 4: Potential Conflicts at University Avenue and Crawford Avenue

There are Slippery When Wet (Wc-5) signs on the eastbound and westbound approaches to the bridge between Salter Avenue and Caron Avenue. The purpose of the Slippery When Wet sign is to advise drivers that the surface of the roadway has a significantly reduced wet weather skid resistance. OTM Book 6³ indicates that this sign should be used:

- + At locations where field investigations determine that a pavement has a significantly reduced wet weather skid resistance;
- + Where for no other identifiable reason more than one third of all collision on a given section of highway are occurring on wet pavement;
- + At locations which consistently have an abnormally high number of wet weather conflicts or collisions; or
- + For other reasons related to wet pavement hazards, under approval from the local Road Authority.

CIMA+ was not able to identify any of the conditions above. It appears that the intention of the Slippery When Wet signs is to warn drivers of icy condition on the bridge (which typically occurs before other sections of road). In this case, the “Bridge Ices” (WC-23) sign from TAC’s Manual of Uniform Traffic Control Devices for Canada (MUTCDC) would be more appropriate (**Figure 5**).

³ OTM Book 6 Warning Signs, page 120



Figure 5: Slippery When Wet (left) vs. Bridge Ices (right) Signs

In addition, during the field visit it was also observed that the sign on the westbound direction was not entirely visible by drivers due to obstructions caused by trees, especially on the westbound direction.



Figure 6: Sign Obstructed by Trees (University Avenue WB near Caron Avenue)

Another warning sign observed during the field visit was the 'Blind Person Area' sign. These signs are located along University Avenue, specifically at the intersections of Bridge Avenue and Sunset Avenue. The presence of these signs indicate the expectation of visually impaired pedestrians in the study area, which increases the importance of providing AODA compliant roadway elements such as signals and sidewalks (further details are discussed in Active Transportation Facilities 4.5).

Traffic signs in the study area are installed on illumination poles at offsets within a range of 0.5 to 1 metre from the edge of the traffic lane. These distances are in accordance with Ontario Traffic Manual guidance (the offset for horizontal mounting of ground-mounted signs for urban areas with raised curbs should be between 0.3 and 2 metres from the curb line⁴), relocation of

⁴ OTM Book 1B Sign Design Principles, Section 12.2

signs may be necessary if, for example, the preferred design alternative widens sidewalks sufficiently to increase the offsets of the existing signs beyond OTM guidance.



Figure 7: 'Blind Person Area' Sign at University Avenue and Sunset Avenue

4.3 Pavement Condition

During the field visit, the pavement on University Avenue and Victoria Avenue was observed to be in fair condition, with moderate cracking and some deterioration. Some discomfort was experienced when driving on the residential area (west of Victoria Street). A depression, approximately 4 centimetres deep, was observed to encroach onto the eastbound bicycle lane near 1451 University Avenue West (**Figure 8**). This could contribute to cyclists losing their balance and falling on the road.



Figure 8: Pavement Depression near 1451 University Avenue

4.4 Traffic Signals

As mentioned in section 4.1, the horizontal curve present at the signalized intersection of University Avenue and McDougall Avenue creates a temporary obstruction of the secondary head by the primary northbound signal head. According to OTM Book 12, the minimum distance from which a signal must be visible for an 85th percentile speed of 50 km/h) is 85 metres, which is less the distance of approximately 65 metres where the primary signal head is directly in front of drivers, as observed during the field visit.

The intersection of University Avenue and Huron Church Road also presented a visibility issue. The 85th percentile speed at this location was measured to be 62 km/h⁵ with a visibility distance to the signals of 68 metres. This is not in compliance with OTM Book 12, which specifies that the distance at which the signals should be visible, considering an 85th percentile speed of 70 km/h, is 135 metres⁶.

Two Intersection Pedestrian Signals (IPS) are present at University Avenue and Sunset Avenue and University Avenue and McKay Avenue. The first location has various educational buildings around it such as University of Windsor and Canterbury College, while the second location is in a residential area with a few businesses.

According to OTM Book 12, an IPS is warranted if the subject site exceeds both the minimum pedestrian volume and delay criteria. **Table 4** provides information regarding 8-hour pedestrian and vehicular volumes. Both locations do not exceed the minimum pedestrian volume since they have a low 8-hour vehicular and pedestrian volume⁷. **Figure 10** shows the evaluation for the justification of this roadway element.

⁵ Refer to Table 5 in Section 4.5

⁶ OTM Book 12 Traffic Signals, Table 25

⁷ OTM Book 12 Traffic Signals, Page 87

Table 4: 8-hour Vehicular and Pedestrian Volume

Location	8-hour vehicular volume	8-hour pedestrian volume
University Avenue and Sunset Avenue	2716	325
University Avenue and McKay Avenue	3928	39

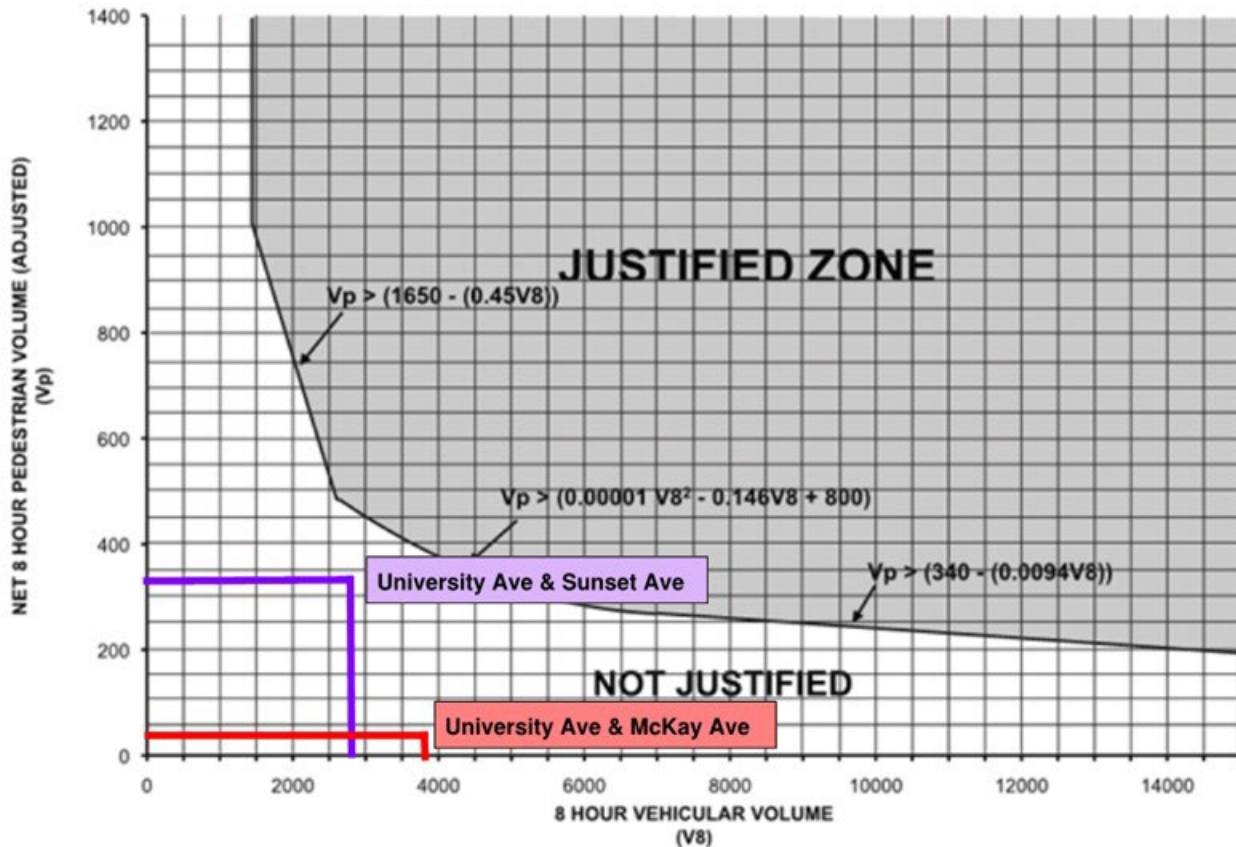


Figure 9: Pedestrian Volume Criteria to Warrant IPS (OTM Book 12, Figure 22)

Based on OTM Book 12 guidance, an IPS is not warranted at either location. Thus, it is important to review if a Pedestrian Crossover (PXO) is warranted. The decision support tool provided in OTM Book 15 was used to assess if this pedestrian crossing treatment is warranted.

Based on the diagram in **Figure 10**, the location of University Avenue and Sunset Avenue is a possible candidate for PXO since the 8-hour vehicular and pedestrian volumes are greater than 750 and 100, respectively (**Table 4**). Even though the site is within 200 metres of another traffic signal – intersection of University Avenue and California Avenue, 84 metres east – this location may have a justification for the PXO due to its proximity to the university campus.

The location of University Avenue and McKay Avenue is also a possible candidate for a PXO. The 8-hour vehicular volumes are greater than 750, but the pedestrian volumes are 39, which do not meet the requirement. However, the closest traffic signal to this site is at the intersection

of University Avenue and Campbell Avenue, approximately 282 metres west. These characteristics make this site a candidate.

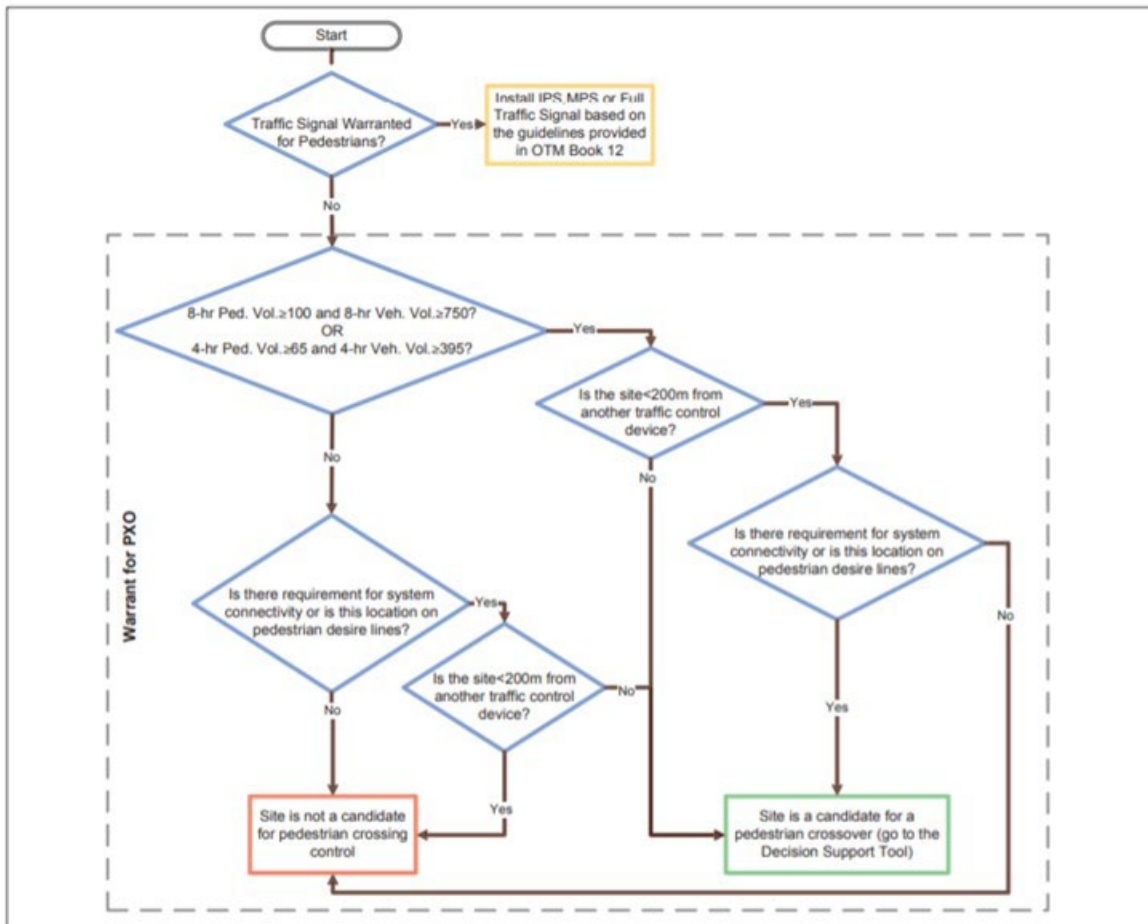


Figure 10: Pedestrian Crossover Assessment - Decision Support Tool (OTM Book 15, Figure 2)

Additionally, the IPS at the intersection of University Avenue and McKay Avenue does not have backboards (Figure 11). According to OTM Book 12, for locations with a posted speed limit of 60 km/h or less, a backboard is recommended for the primary head and optional for the secondary head⁸.

⁸ OTM Book 12 Traffic Signals, Table 26



Figure 11: No Backboard at University Avenue and McKay Avenue

4.5 Active Transportation Facilities

Sidewalks are present on the north and south sides of University Avenue and on the east and west sides Along Victoria Avenue. The majority of sidewalks in the study area have widths ranging between 1.5 and 1.8 metres, which is in compliance with AODA minimum requirement of 1.5 metres⁹. However, at some locations near Bridge Avenue, Crawford Avenue, Dougall Avenue, and Freedom Way, the sidewalk width is reduced to up to 1.1 metres (i.e. less than the minimum requirement) due to obstructions by hydro poles, illumination poles or on-street parking lane. **Figure 12** shows an example of this type of obstruction.

⁹ O.Reg. 191/11 – Integrated Accessibility Standards, Part IV.1 80.23



Figure 12: Sidewalk Width Reduced by Hydro Pole

All intersections within the study area have crosswalks on all four approaches, with the exception of the following intersections:

- + University Avenue and Sunset Avenue (IPS): north-south crosswalk on east side only; and
- + University Avenue and McKay Avenue (IPS): north-south crosswalk on west side only

These are standard crosswalks (i.e. marked with two parallel white lines) that range between 2.5 and 3.0 metres in width, which is in compliance with OTM Book 11 (crosswalks must be at least 2.5 metres wide¹⁰).

Pedestrian signal heads are provided at all intersections in the study area, including the two intersection pedestrian signals. It was observed at some intersections that the pedestrian push button was not located on the side of the pole that corresponds to the natural path of pedestrians (**Figure 13**). In addition, the pedestrian push buttons at each of the intersection within the study area do not comply with the requirements outlined in the Accessibility of Ontarians with Disabilities Act (AODA). For example, there is no locator tone or audible and vibro-tactile walk indicators (**Figure 14**).

¹⁰ OTM Book 11 Pavement Markings, page 80

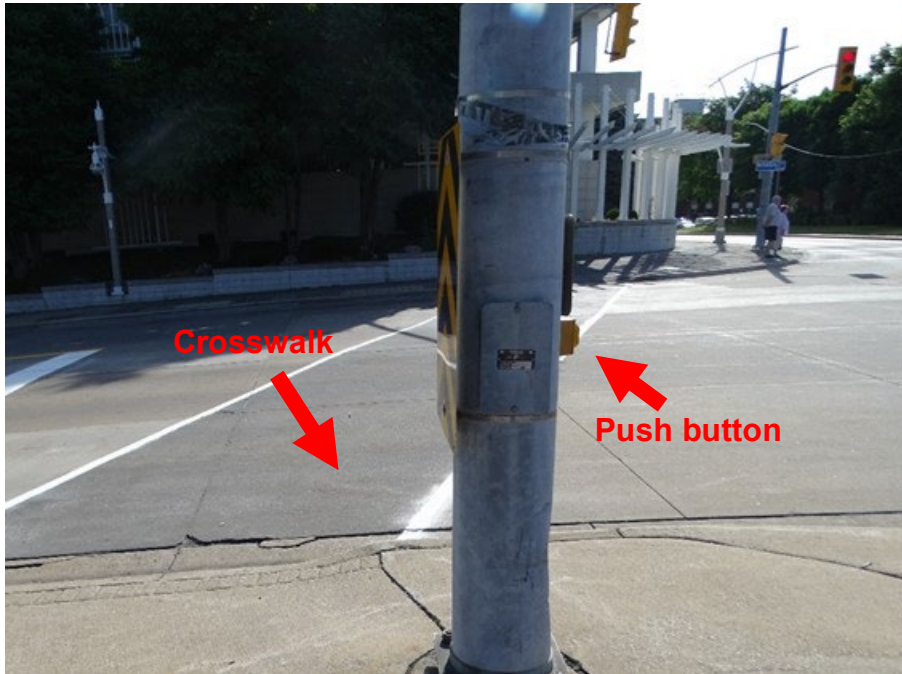


Figure 13: Pedestrian Push Button Located on the Wrong Side of the Pole at University Avenue and McDougall Street



Figure 14: Non-AODA Pedestrian Push Button

As mentioned in Section 4.2, ‘Blind Area Person’ warning signs were observed along University Avenue towards the west section of the study area. However, tactile surface indicators were only observed on only one corner of the intersections of University Avenue with Freedom Way, Bridge Avenue, and Crawford Avenue, which does not comply with AODA (**Figure 15**). Brick pavement was also observed on individual corners at the intersections of University Avenue with Goyeau Street and Victoria Avenue.



Figure 15: Tactile Surface Indicators on the South-West Corner of University Avenue and Crawford Avenue

Dedicated bicycle facilities are provided along University Avenue from Huron Church Road to Bruce Avenue. After this intersection, bicyclists share the road with vehicular traffic. No dedicated bicycle facilities are provided along Victoria Avenue within the study area. The bicycle facilities within the study area will be assess following the processes described in OTM Book 18 – Bicycle Facilities. It is important to mention that the evaluation used – Desirable Cycling Facility Pre-Selection Nomograph – considers only two-lane roads, which is applicable for the east section of the study area. However, the assessment presented below assumes this process to be applicable to four-lane road cross-section. The 85th percentile speeds obtained from speed studies completed on June 26, 2018 are summarized in **Table 5**.

Table 5: 85th Percentile Speeds along University Avenue

Location	85th Percentile Speed	Direction
University Ave between Vista Pl and Patricia Rd	62 km/h	EB/WB
University Ave between Bridge Ave and Josephine Ave	59 km/h	EB/WB
University Ave between Wellington Ave and Elm Ave	63 km/h	EB/WB
University Ave between Salter Ave and Caron Ave	55 km/h	EB/WB
University Ave east of Dougall Ave	48 km/h	EB
University Ave east of Freedom Way	44 km/h	WB

The 85th percentile speeds can be grouped in the following ranges based on west and east sections along University Avenue:

- + West Section: 55 – 63 km/h; and
- + East Section: 44 – 48 km/h.

Using these speeds and the AADT values presented in Section 2, based on OTM Book 18 – Desirable Cycling Facility Pre-Selection Nomograph, illustrated in **Figure 16**, both west and east sections should provide a designated cycling operating space such as paved shoulders and/or exclusive bicycle lanes. However, these facilities are already in place along University Avenue from Huron Church Road to west of Bruce Avenue. Furthermore, considering the future growth in traffic volumes for the west area, a separate facility such as separate bicycle lanes, buffered paved shoulders or in-boulevard active transportation pathway would be appropriate.

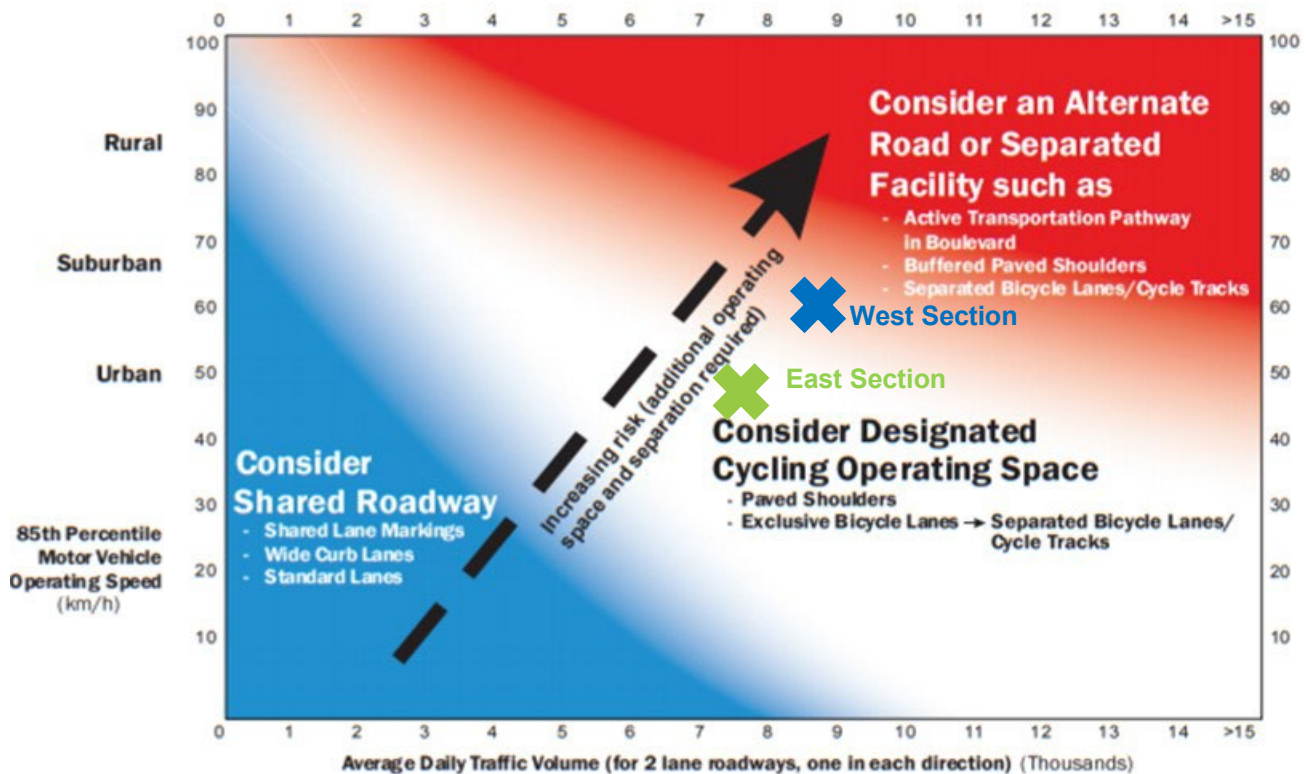


Figure 16: Desirable Cycling Facility Nomograph

4.6 Traffic Operations and Conflicts

Potential traffic conflicts were observed during the field investigation completed by CIMA+. The main issues observed were pedestrians crossing University Avenue at the intersection of Cameron Avenue, Curry Avenue and Sunset Avenue. The first two locations are unsignalized intersections with no designated pedestrian crosswalks. However, they are both located less than 100 metres from University Avenue and McKay Avenue, which is an intersection pedestrian signal (IPS).

The third location is an IPS with a north-south crosswalk on the east side only. However, some pedestrians were observed crossing University Avenue on the leg that did not have a

designated crosswalk. Pedestrians did not use the crossing appropriately as they were observed not pushing the buttons to request the crossing signal.

Another traffic conflict was where a temporary bus stop has been put in place on the south side of University Avenue, approximately 115 metres west of the McDougall Street. During the AM peak hour, a bus was observed stopping at this location, which created queues and restricted visibility for drivers trying to pass the stopped bus. Since the road has a horizontal curve and only a single traffic lane in each direction, this creates the potential for collisions with opposing traffic.

4.7 Night-time Visibility

The night-time visibility within the study area was reviewed during the field investigation. The study area was observed to be well illuminated from both sides of the road, with all pavement markings clearly visible. Traffic signs also presented good reflectivity.

Traffic signal heads within the study area have backboards with no reflective outlines. Although not mandatory, reflective outlines can improve signal visibility and help reduce collision frequency, particularly during periods of low visibility.

5. Study Findings and Recommendations

The following are the main findings based on the review of collision history of University Avenue West and Victoria Avenue, within the study area:

- + A total of 306 collisions – including intersection and midblock collisions – were identified in the study area between January 2013 and December 2017 for both corridors;
- + The 5 locations with the highest collision frequencies are:
 - University Ave W & Huron Church Rd (25 collisions);
 - University Ave W & Ouellette Ave (23 collisions);
 - University Ave W & Crawford Ave (21 collisions);
 - University Ave W & McDougall St (19 collisions); and
 - University Ave W & Campbell Ave (18 collisions).
- + At the top 5 locations listed above, Angle and Turning Movement are the collision impact types that stand out.
- + The locations with 5 or more collisions presenting the highest proportions of injury collisions are:
 - University Ave W & Bridge Ave (71% - 5 out of 7 collisions);
 - University Ave W & Church St (67% - 6 out of 9 collisions);
 - University Ave W & Cameron Ave (63% - 5 out of 8 collisions);
 - University Ave W & Janette Ave (60% - 3 out of 5 collisions); and
 - University Ave W & Campbell Ave (44% - 8 out of 18 collisions).
- + Based on further review of locations presenting collision impact types with 5 or more occurrences, the following relevant patterns were identified:

- At the intersection of University Avenue and California Avenue, 80% of collisions (4 out of 5) occurred between 3:00 and 5:00 p.m.;
- At the intersection of University Avenue and Ouellette Avenue, 80% of collisions (4 out of 5) occurred during dark periods (3 out of these 4 between Midnight and 3:00 a.m.); and
- At the intersection of University Avenue and McDougall Street, 88% of collisions (7 out of 8) occurred between a northbound and a westbound vehicles.

The findings from the field investigation and recommendations to address them are summarized in **Table 6**.

Table 6: Field Investigation Findings and Recommended Safety Improvements

Finding	Recommendation
Geometry	
Horizontal curves on approach to Huron Church Road and McDougall Avenue limit visibility of traffic signals.	Install Traffic Signals Ahead signs (Wb-2) on University Avenue West, eastbound approach to McDougall Avenue and westbound approach to Huron Church Road, in accordance with OTM Book 6 guidance.
Some locations present excessive lane widths (up to 5.6 m), which can encourage higher speeds.	Ensure lane widths are in the range of 3.0 to 3.7 metres, in accordance with TAC Geometric Design Guide (however, wider lanes may acceptable to accommodate future transit service along the corridor).
Signs and Pavement Markings	
Eastbound transition from 4-lane to 2-lane cross section at Crawford Avenue may create conflicts between motor vehicles and bicycles.	Ensure lane alignment does not promote late merging at the intersection. Considering shifting the eastbound right-turn lane closer to the curb, similar to Figure 4.36 in OTM Book 18 (Bicycle Lane Adjacent to Curb Lane Transition).
Incorrect application of Slippery When Whet signs on approaches to bridge between Salter Avenue and Caron Avenue.	Replace Slippery When Wet signs with Bridge Ices (TAC WC-23) signs and ensure they are visible to approaching drivers.
Visibility to westbound Slippery When Wet sign obstructed by trees.	
Depression on pavement encroaching onto eastbound bicycle lane near 1451 University Avenue West.	Ensure there are no depressions or other pavement deficiencies on cyclists' path.
Traffic Signals	
IPS at University Avenue West & Sunset Avenue and University Avenue West & McKay Avenue are not warranted.	Consider replacing the IPSs with PXOs at these locations.
Signal backboard do not have reflective outlines.	Install reflective outlines on signal backboards across the study area.
Active Transportation Facilities	

<p>Sidewalk width narrower than minimum AODA requirement (1.5 m) at some locations due to hydro poles or on-street parking lane.</p>	<p>Ensure sidewalks are at least 1.5 metres wide with no obstructions.</p>
<p>Signalized intersections not compliant with AODA requirements (no locator tone, audible and vibro-tactile walk indicators, missing or substandard tactile surfaces, etc).</p>	<p>Consider upgrading traffic signals to conform to AODA requirements (O.Reg. 191/11).</p>

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