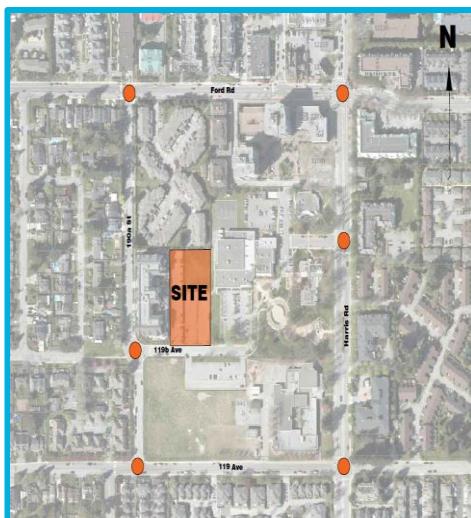


19085 119b Avenue – Pitt Meadows

Traffic Impact Assessment (TIA)

Metro Vancouver Housing



WATT CONSULTING GROUP
May 24, 2022

WATT VANCOUVER
550 – 888 Dunsmuir Street
Vancouver, BC V6C 3K4
(778) 309-1253



19085 119B AVENUE, PIT MEADOWS, BC

Traffic Impact Assessment

Jeeshan Ahmed, P.Eng.
Author

Nathan Carswell, P.Eng.
Reviewer

Prepared For: Metro Vancouver Housing
Date: May 24, 2022
Our File No: 3108.B01

WATT VANCOUVER
550 – 888 Dunsmuir Street
Vancouver, BC V6C 3K4
(778) 309-1253



TABLE OF CONTENTS

1.0	INTRODUCTION.....	6
2.0	STUDY AREA.....	6
3.0	EXISTING CONDITIONS	8
3.1	Land Use	8
3.2	Transportation Network	8
3.2.1	Road Network	8
3.2.2	Transit Network	10
3.2.3	Pedestrian and Cycling Network.....	11
3.3	Traffic Volumes.....	13
3.4	Traffic Model.....	15
3.5	Traffic Conditions	16
4.0	FUTURE CONDITIONS.....	18
4.1	Proposed Land Use and Site Access	18
4.2	Site Trip Generation.....	19
4.3	Site Trip Distribution and Assignment.....	22
4.4	Traffic Volumes – 2025.....	24
4.5	Traffic Conditions – 2025.....	29
4.6	Traffic Volumes – 2035.....	32
4.7	Traffic Conditions – 2035.....	35
5.0	SITE ACCESS	39
6.0	CONCLUSIONS	40

APPENDICES

Appendix A Synchro and Level of Service Background

Appendix B Synchro/Simtraffic Reports



LIST OF FIGURES

Figure 1: Study Area	7
Figure 2: Cycling Network Around the Study Area. Source: City of Pitt Meadows	12
Figure 3: 2021 AM Peak Hour Volumes	14
Figure 4: 2021 PM Peak Hour Volumes.....	15
Figure 5: Proposed Site Plan.....	18
Figure 6: Site Traffic - AM Peak Hour	23
Figure 7: Site Traffic - PM Peak Hour.....	24
Figure 8: 2025 Background Volumes - AM Peak Hour.....	25
Figure 9: 2025 Background Volumes - PM Peak Hour	26
Figure 10: 2025 Total Volumes - AM Peak Hour	27
Figure 11: 2025 Total Volumes - PM Peak Hour.....	28
Figure 12: 2035 Background Volumes - AM Peak Hour	32
Figure 13: 2035 Background Volumes - PM Peak Hour.....	33
Figure 14: 2035 Total Volumes - AM Peak Hour	34
Figure 15: 2035 Total Volumes - PM Peak Hour.....	35



LIST OF TABLES

Table 1: Transit Routes in the Study Area	10
Table 2: 2021 Weekday Peak Hour Traffic Conditions	17
Table 3: Site Traffic - Trip Generation Rates	19
Table 4: Site Traffic - Residential Trips.....	20
Table 5: Site Traffic - Daycare Trips.....	21
Table 6: Site Traffic - Total External Trips	21
Table 7: Site Traffic - Trip Distribution	22
Table 8: Background (2025) Weekday Peak Hour Traffic Conditions	30
Table 9: Total (2025) Weekday Peak Hour Traffic Conditions	31
Table 10: Background (2035) Weekday Peak Hour Traffic Conditions	37
Table 11: Total (2035) Weekday Peak Hour Traffic Conditions	38



1.0 INTRODUCTION

Watt Consulting Group (WATT) was retained by Metro Vancouver Housing to conduct a Traffic Impact Assessment (TIA) for the proposed mixed-use development at 119b Avenue in the City of Pitt Meadows (City). The proposed development will convert an existing gravel parking lot and undeveloped land into affordable residential units and a daycare centre. The purpose of this assessment is to identify and mitigate any impacts to the study area transportation network due to the proposed development.

2.0 STUDY AREA

Figure 1 shows the study area. The site is bounded by multi-family homes to the north and west, a recreation centre to the east, and 119b Avenue to the south. The study area includes the following six intersections:

1. Harris Road/Ford Road
2. Harris Road/Civic Centre
3. Harris Road/119 Avenue
4. Ford Road/190a Street
5. 119 Avenue/190a Street
6. 190a Street/119b Avenue



Figure 1: Study Area



3.0 EXISTING CONDITIONS

3.1 Land Use

The subject site is located on one parcel in the Civic Centre area of the City and the parcel is currently a gravel parking lot with some undeveloped space. The 2014 Pitt Meadows Parking Strategy report indicated that the parking lot has a negligible parking demand.

The surrounding area is a mix of residential homes (single-family, multi-family), civic spaces (recreation centre, plaza, school, city hall, police department, library), and some commercial spaces (groceries, clinic, restaurant, café). Existing uses fronting the site are as follows:

- North: Mid-rise multi-family homes.
- East: Pitt Meadows Family Recreation Centre.
- South: Pitt Meadows Elementary School.
- West: Mid-rise multi-family senior homes.

3.2 Transportation Network

3.2.1 Road Network

The study area includes six roadways for vehicular traffic as follows:

- **Harris Road** is a four-lane urban arterial road that provides north-south travels in the study area connecting Lougheed Highway to the north and urban arterials Hammond Road and Airport Way to the south. This segment of the road has a speed limit of 30km/h due to the adjacent Pitt Meadows Elementary School. No parking is available except for a short-term loading zone on the west side of the road in front of the school. Painted, uni-directional cycling lanes and sidewalks are provided on both sides.
- **Ford Road** is a two-lane urban arterial road that provides east-west travels in the study area connecting with Harris Road to the east and agricultural lands to the west. This segment of the road has a speed limit of 50km/h and painted, uni-directional cycling lanes, sidewalks, and parking is provided on both sides.
- **119 Avenue** is a two-lane local road that provides east-west travels in the study area connecting with Harris Road to the east and providing access to residential



homes to the west. On street parking and sidewalks are provided on both sides of the road.

- **Civic Centre** is a two-lane local road that provides access to various civic spaces in the study area. This road connects with 119b Avenue to the west for a one-way westbound access to the subject site. On street parking and sidewalks are provided on both sides of the road between Harris Road and the civic space access.
- **190a Street** is a two-lane local road that provides north-south connections with Ford Road to the north and 119 Avenue to the south. On street parking is available on both sides of the road. A continuous sidewalk is provided on the east side with intermittent sidewalk facilities on the west side of the road.
- **119b Avenue** is a two-lane local road that provides access to the subject site as well as existing residential homes and parking lot access to the Pitt Meadows Elementary School. This road connects with the Civic Centre road to the east for one-way westbound access. On street parking is permitted on the south side of the road while sidewalks are available on both sides.

The roadways above make up the six intersections in the study area as follows:

- **Harris Road/Ford Road** is a signalized intersection with left turn lanes for northbound, southbound, and eastbound movements. A right turn lane is available for westbound movement. Crosswalks are provided on all four legs of the intersection with twin parallel crosswalk lines.
- **Harris Road/Civic Centre** is a T-intersection with a pedestrian half-signal on the south leg of the intersection which has zebra pavement markings. The west leg also provides a crossing opportunity for pedestrians with twin parallel crosswalk lines. A left turn lane is available for northbound movement while the north leg has a wide median boulevard which provides an opportunity for a two-stage eastbound left turn movement.
- **Harris Road/119 Avenue** is a signalized intersection with left turn lanes for northbound and southbound movements. Pedestrian crossing facilities are provided on all four legs of the intersection with twin parallel crosswalk lines.
- **Ford Road/190a Street** is an unsignalized T-intersection with a stop control for northbound movements. The west and south legs of the intersection have curb extensions with zebra pavement markings and twin parallel crosswalk lines respectively for improved pedestrian crossing opportunities.



- **119 Avenue/190a Street** is an unsignalized T-intersection with a stop control for southbound movements. A crossing opportunity is provided for pedestrians on the north leg with twin parallel crosswalk lines.
- **190a Street/119b Avenue** is a 3-legged, single-lane roundabout with yield controls for all approaching movements. The west side of this roundabout has a paved pedestrian trail and crossing opportunities are provided on all approaching legs of the roundabout with zebra pavement markings.

3.2.2 Transit Network

Table 1 summarizes the transit routes in the site vicinity. A total of three transit routes are available, which provide regional connections to Maple Ridge, Mission, Coquitlam, New Westminster, and local connections to Meadowtown Centre. Route 701 is a part of TransLink's Frequent Transit Network (FTN) which provides service every 15 minutes at all times during the day. Other available routes have a service frequency of 20-30 minutes during peak hours. The existing bus stops are all within 350m from the site, which is less than a five-minute walking distance.

Table 1: Transit Routes in the Study Area

Route	Direction	Approximate Walking Distance	Service Frequency (Peak Hours)
701 – Coquitlam Central Station/Haney Place/Maple Ridge/Mission City Station	East/West	350m	15min
722 – Bonson/Meadowtown	North/South	150m	30min
791 – Braid Station/Haney Place	East/West	350m	20min

The site is also 1km away from the Pitt Meadows West Coast Express (WCE) Station which has parking facilities to enable multi-modal commuter trip making for future residents of the proposed development.



3.2.3 Pedestrian and Cycling Network

Sidewalks and crossing opportunities are available on all roads and intersections in the study area providing convenient connections for short distance trips to the various commercial and civic use spaces.

Figure 2 illustrates the cycling network around the study area. Neighbourhood bikeways are available to the north, south, and west of the site while designated bike lanes are available to the east of the site along Harris Road providing north-south connections for various short to medium distance trips. Designated bike lanes are also provided on Hammond Road which provide east-west cycling connections to the site.

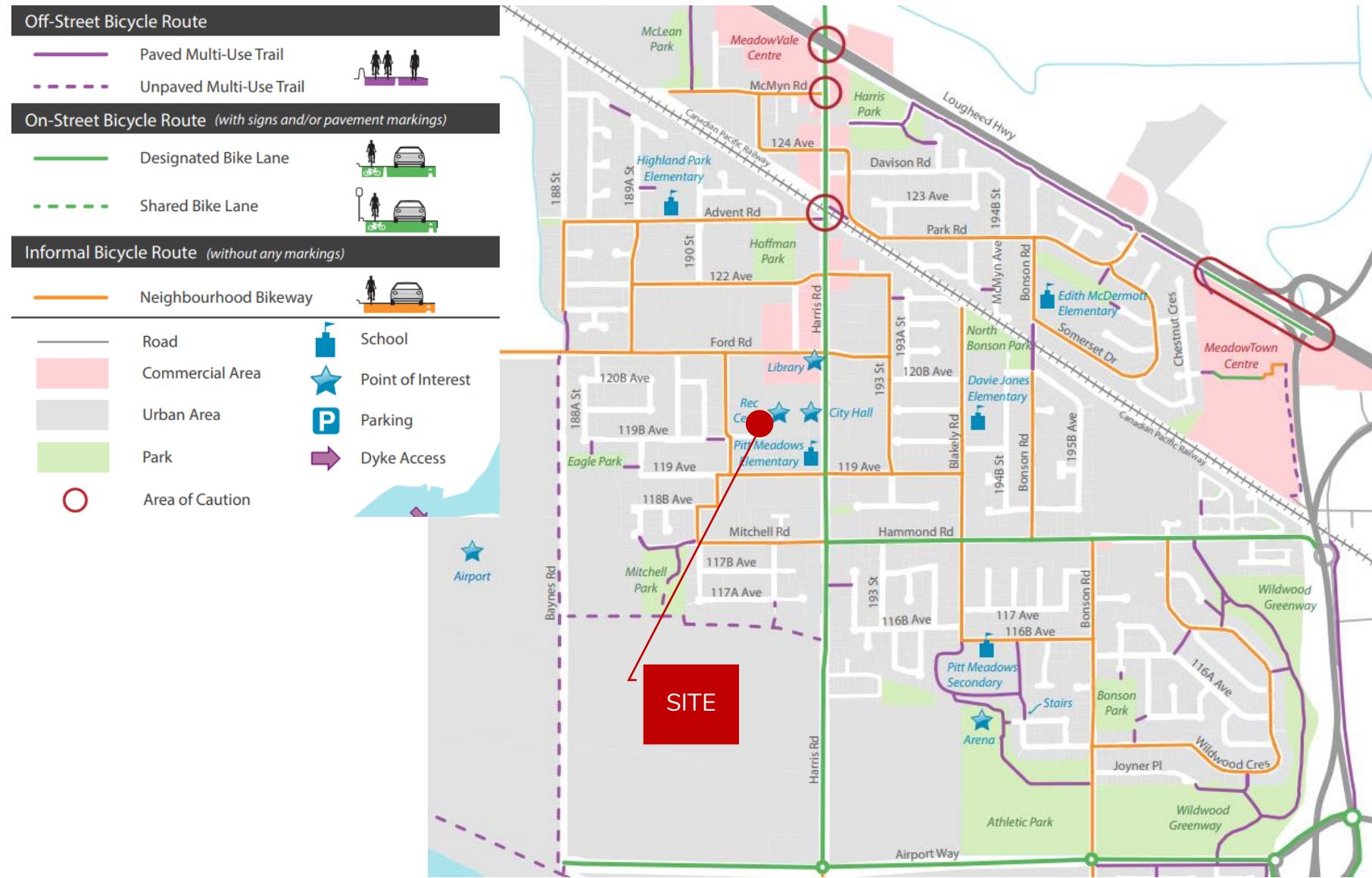


Figure 2: Cycling Network Around the Study Area. Source: City of Pitt Meadows



3.3 Traffic Volumes

Figures 3 and 4 illustrate the weekday AM and PM existing peak hour vehicle volumes respectively at the study area intersections based on counts collected on September 16, 2021 from 7:00am to 9:00am and 2:00pm to 6:00pm. An extended period of traffic data collection was conducted to capture variation in peak traffic hours due to the adjacent elementary school pick-up/drop-off times. The AM and PM peak hours for the study area road network were found to be from 7:45am to 8:45am and from 4:15pm to 5:15pm respectively. Historical peak hour intersection counts for the study area were not available from the City for COVID-19 calibration. However, background traffic has been found to return very close to pre-covid levels based on analysis of traffic data throughout the lower mainland so a lack of covid calibration is not expected to create any significant impacts to the modelling of traffic operations. In addition, the Pitt Meadows Elementary School had sent out newsletters to parents in September 2021 stating that the school will be fully re-opening on September 7, 2021. Since the traffic data collection was performed after the school re-opening date, no adjustment factors were applied to traffic data to account for any changes to school activity due to COVID-19.

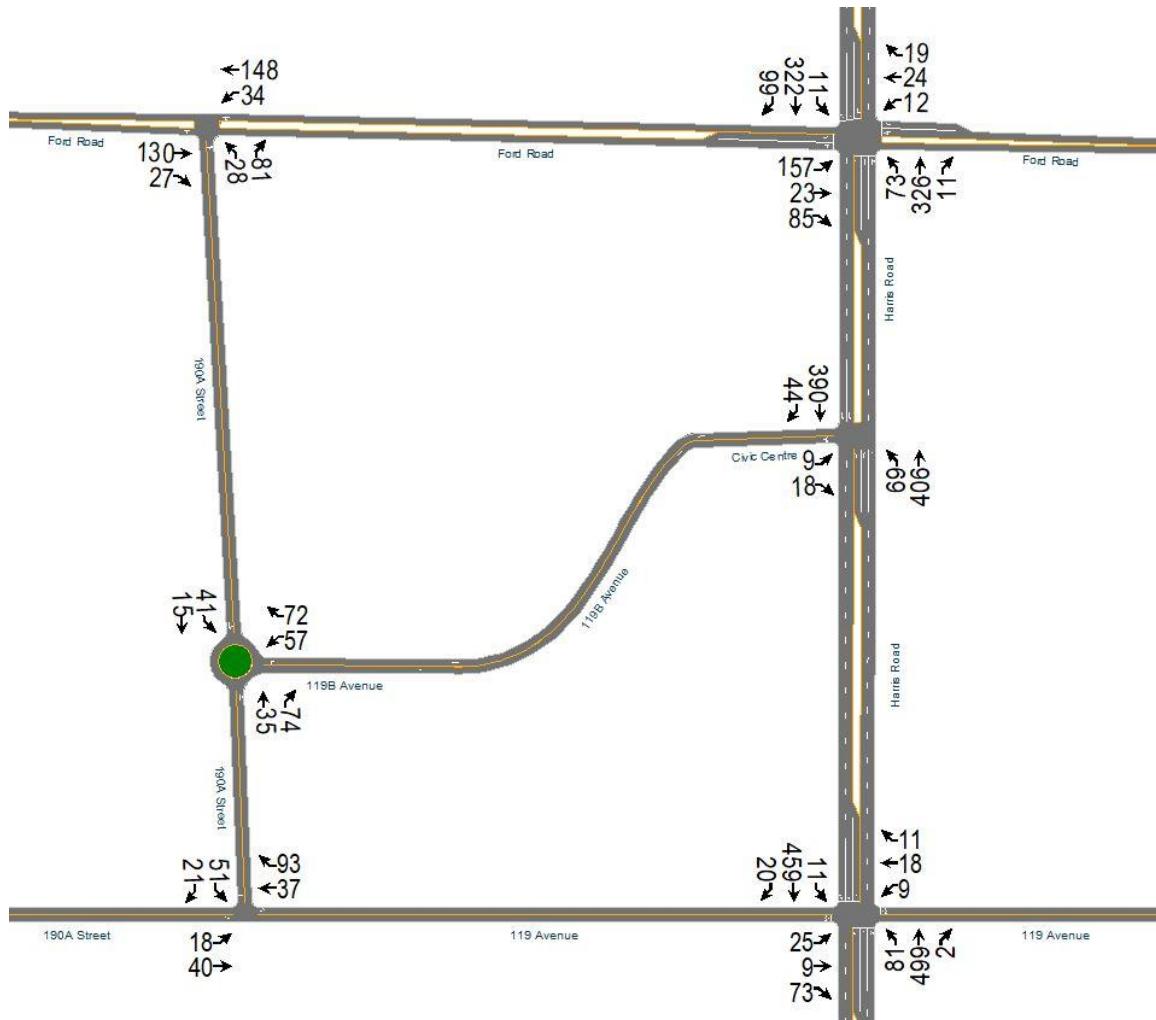


Figure 3: 2021 AM Peak Hour Volumes

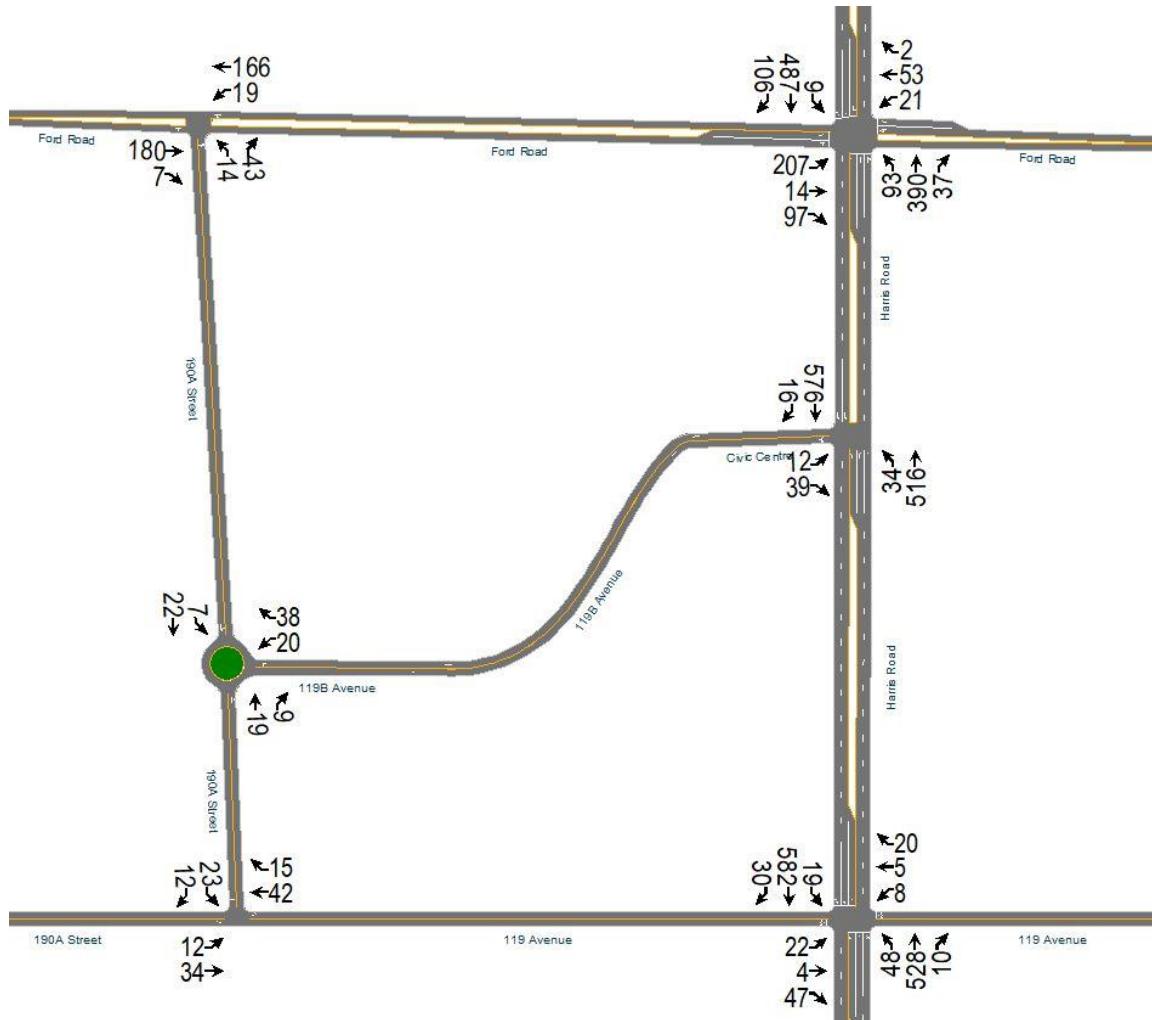


Figure 4: 2021 PM Peak Hour Volumes

3.4 Traffic Model

Weekday AM and PM peak hour traffic conditions were modelled using Synchro/SimTraffic (version 11) for the existing (2021) year as well as opening year (2025 expected) and opening year + 10 years (2035) of the proposed development, with and without development traffic.

Synchro/SimTraffic is a two-part traffic modelling software that provides analysis of the traffic conditions based on methodologies outlined in the Highway Capacity Manual. Measures of effectiveness (MOEs) were evaluated for level of service (LOS), total delay/vehicle, and 95th percentile queue lengths reported from SimTraffic micro-



simulation. A background on Synchro/SimTraffic and LOS is provided in **Appendix A**. The criteria for mitigation used in this report are as follows:

- LOS F for individual turning movements; and
- 95th percentile queues extending beyond queuing capacity.

For signalized intersections, the methodology considers the intersection geometry, traffic volumes, the traffic signal phasing/timing plan, and pedestrian volumes. The average delay/vehicle is calculated for each movement at the intersection approach.

For unsignalized (stop-controlled) intersections, the level of service (LOS) is based on the computed delay on each of the critical movements. LOS A represents minimal delays for minor street traffic movements, and LOS F represents a scenario with an insufficient number of gaps on the major street for minor street motorists to complete their movements without significant delays.

Synchro and SimTraffic reports are provided in **Appendix B**.

3.5 Traffic Conditions

Table 2 summarizes existing traffic conditions on the weekday AM and PM peak hours at the study area intersections. All movements at all intersections are currently operating well above acceptable conditions with LOS C or better. No queuing issues are currently experienced with the available turn lane storage lengths.



Table 2: 2021 Weekday Peak Hour Traffic Conditions

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*	LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*
Harris Rd/Ford Rd	EB L	C	20	35 (55)	C	28	40 (55)
	EB TR	A	7	20	A	6	20
	WB LT	B	14	15	B	15	20
	WB R	A	0	10 (35)	A	0	5 (35)
	NB L	A	9	25 (35)	A	10	30 (35)
	NB T	A	10	30	B	11	30
	NB TR	A	10	35	B	11	40
	SB L	A	8	10 (35)	A	8	5 (35)
	SB T	B	13	35	B	18	50
	SB TR	B	13	35	B	18	45
Harris Rd/Civic Centre	EB LR	B	14	15	B	15	15
	NB L	A	9	20 (30)	A	9	15 (30)
	NB T	A	0	5	A	0	10
	NB T	A	0	5	A	0	10
	SB T	A	0	10	A	0	10
	SB TR	A	0	5	A	0	15
Harris Rd/119 Ave	EB LTR	A	5	25	A	7	25
	WB LTR	A	7	15	A	7	15
	NB L	B	16	35 (40)	B	11	30 (40)
	NB T	B	13	55	A	9	60
	NB TR	B	13	45	A	9	50
	SB L	B	12	10 (40)	B	11	10 (40)
	SB T	B	13	45	A	9	45
	SB TR	B	13	40	A	9	50
Ford Rd/190a St	EB TR	A	0	0	A	0	0
	WB LT	A	8	10	A	8	5
	NB LR	B	11	20	B	10	15
119 Ave/190a St	EB LT	A	8	5	A	7	5
	WB TR	A	0	5	A	0	0
	SB LR	B	11	15	A	9	15
190a St/119b Ave	WB LR	A	5	5	A	4	5
	NB TR	A	4	10	A	4	5
	SB LT	A	4	5	A	4	5



4.0 FUTURE CONDITIONS

4.1 Proposed Land Use and Site Access

Figure 5 illustrates the main floor of the proposed development site plan. The development will convert the existing gravel parking lot and undeveloped land into a six-storey building consisting of 115 affordable, multi-family residential units and a daycare centre for a maximum 150 children with priority registration for children living in the building. Two-way vehicular site access to/from the site is proposed from the existing parking lot access to the Seniors Centre on 119b Avenue. The development is expected to be constructed in one phase with an estimated date of occupancy in 2025.

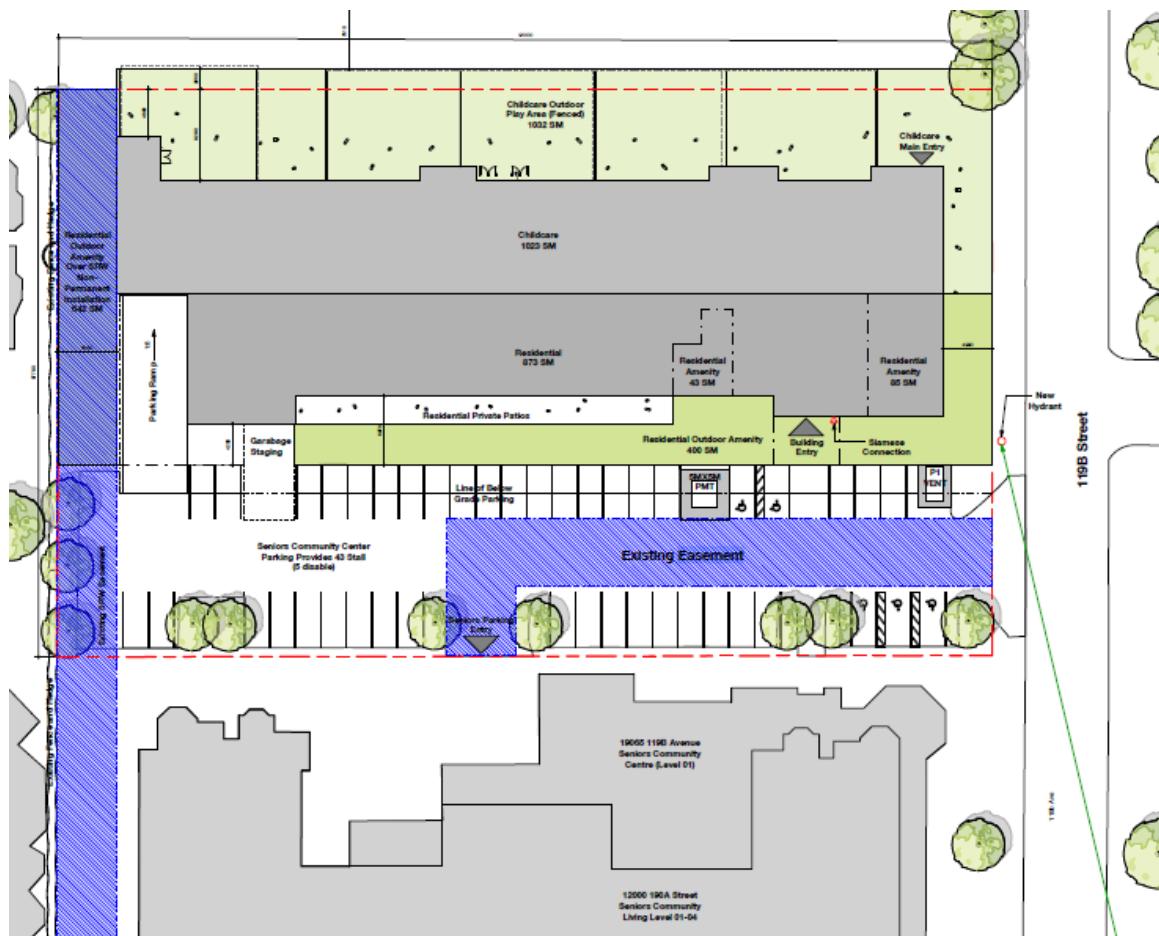


Figure 5: Proposed Site Plan



4.2 Site Trip Generation

Table 3 summarizes the weekday AM and PM peak hour trip generation rates from the Institute of Transportation Engineers (ITE)'s Trip Generation Manual, 10th Edition. It should be noted that the trip rates are for market rate multi-family dwelling units as ITE does not have any data available for affordable (below-market rate) multi-family dwelling units. The trip rates for the daycare centre are dependent on the number of students enrolled. As the existing gravel parking lot on site has a negligible parking demand, it was assumed that the site does not generate any existing vehicle trips during peak hours.

Table 3: Site Traffic - Trip Generation Rates

Land Use	Trip Generation Source	Setting	Units	Trip Type	Weekday AM Peak Hour			Weekday PM Peak Hour		
					Rate	In	Out	Rate	In	Out
Multi-family Housing (Market Rate)	ITE Multifamily Housing (Mid-Rise): Land Use Code 221	General Urban/Suburban	Dwelling Units	Vehicle	0.36	26%	74%	0.44	61%	39%
Childcare Facility	ITE Day Care Center: Land Use Code 565	General Urban/Suburban	Students	Vehicle	0.78	53%	47%	0.79	47%	53%

Table 4 summarizes the net vehicle trips due to the proposed residential component of the development. A 2018 research paper from the Journal of Transport and Land Use titled *Transportation Impacts Of Affordable Housing: Informing Development Review With Travel Behavior Analysis* concluded that trip generation rates for affordable multi-family units are approximately 30% less than that for market rate multi-family units. In addition, vehicle ownership data was collected from representative affordable housing sites in Metro Vancouver and it was determined that vehicle parking demand at these sites are approximately 33% less than normal parking demand rates for multi-family units. Details of the vehicle ownership data analysis can be found in the Parking Study report for this development plan prepared by WATT. Based on the study findings above, a 30% reduction in multi-family residential trips was applied.



Note that the trip generation analysis in **Table 4 below uses a 122 multi-family unit count which was obtained from the original version of the site plan. Subsequent revisions to the site plan dated May 6, 2022 indicates a reduced unit count of 115 multi-family units. As the trip generation analysis in **Table 4** is estimated for a higher number of residential unit counts than the revised plan, it represents a conservative analysis and therefore, the analysis was not updated to reflect the reduced residential unit counts.**

Table 4: Site Traffic - Residential Trips

Land Use	Trip Generation Source	Setting	Units	Trip Type	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
					Total	In	Out	Total	In	Out
Multi-family Housing (Market Rate)	ITE Multifamily Housing (Mid-Rise): Land Use Code 221	General Urban/Suburban	122	Vehicle	44	11	33	54	33	21
30% reduction factor				Vehicle	(13)	(3)	(10)	(16)	(10)	(6)
Multi-family Housing (Affordable)		General Urban/Suburban	122	Vehicle	31	8	23	38	23	15

Table 5 summarizes the net vehicle trips due to the proposed daycare component of the development. As the daycare centre is planned to be prioritized for residents of the building, some of the total trips generated due to daycare use will be subject to internal trip capture. Registration data was obtained from Metro Vancouver Housing for an existing daycare centre with affordable residential units in Port Coquitlam and it was found that approximately 20% of the registered children lived in the residential units. Based on this finding, vehicles trips due to external daycare clients was estimated for 120 children, 20% less than the full daycare capacity of 150 children.

An online survey was conducted with parents/guardians at the Discovery Playhouse, a daycare centre in Pitt Meadows, from September 13 to September 17, 2021 to determine the mode share for pick-up/drop-off activity and it was found that approximately 20% of the trips were made by walking from nearby places while 80% of the trips were made by driving. As a result, 80% of total person trips for daycare was used to estimate vehicle trips for the proposed development. A vehicle occupancy rate of 1.06 persons per vehicle was applied in the conversion between person trips and



vehicle trips based on driver/passenger commuting data obtained from the 2016 Pitt Meadows Census Profile by Statistics Canada.

In addition, 22% of the survey respondents confirmed that they were picking up/dropping off more than one child at the daycare centre. Based on this finding, a 22% reduction of vehicle trips for daycare use was applied as an adjustment factor for children who are expected to share trips with the same parent/guardian. Details of the mode split survey can be found in the Parking Study report for this development plan prepared by WATT.

Table 5: Site Traffic - Daycare Trips

Land Use	Trip Generation Source	Setting	Units	Trip Type	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
					Total	In	Out	Total	In	Out
Childcare Facility	ITE Day Care Center: Land Use Code 565	General Urban/Suburban	120 (20% internal clients)	Vehicle (80% of total person trips)	75	40	35	76	36	40
22% reduction factor					Vehicle	(17)	(9)	(8)	(17)	(8)
Childcare Facility		General Urban/Suburban	120	Vehicle	58	31	27	59	28	31

Table 6 shows the total external vehicle trips expected to be generated by the proposed development. The developed site will generate 89 vehicle trips in the AM peak hour and 97 vehicle trips in the PM peak hour which is approximately one vehicle every 35 to 40 seconds.

Table 6: Site Traffic - Total External Trips

Land Use	Setting	Units	Trip Type	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			
				Total	In	Out	Total	In	Out	
Multi-family Housing (Affordable)	General Urban/Suburban	122 Units	Vehicle	31	8	23	38	23	15	
Childcare Facility	General Urban/Suburban	120 Students	Vehicle	58	31	27	59	28	31	
NET TOTAL				Vehicle	89	39	50	97	51	46



Discovery Playhouse is expected to operate the proposed daycare centre and confirmed that the peak drop-off times at the existing daycare take place at around 8:00am-9:00am while peak pick-up times take place at around 4:00pm-5:30pm. This is similar to the peak hours of the study area road network and therefore, analysis of total traffic during the peak hours of the study area road network will be sufficient to understand the traffic impacts due to site generated traffic. However, it should be noted that 40 out of the total 150 children expected to register for the daycare will be pre-school children who will arrive and depart the daycare centre during off peak hours based on Discovery's planned schedule. As a result, the analysis of total traffic conditions during peak hours will be a very conservative analysis and represents the worst-case scenario.

4.3 Site Trip Distribution and Assignment

Table 7 summarizes percentage distribution of site generated vehicle trips to the study area road network. The estimated trips were distributed based on existing travel patterns in the study area.

Table 7: Site Traffic - Trip Distribution

To/From	Route	Weekday AM	Weekday PM
North	Harris Road	55%	68%
South	Harris Road	28%	20%
East	Ford Road	5%	8%
	119 Avenue	4%	2%
West	Ford Road	8%	2%
TOTAL		100%	100%

Figures 6 and 7 show assignment of site generated vehicle trips to the study area road network in the weekday AM and PM peak hours respectively.



Figure 6: Site Traffic - AM Peak Hour



Figure 7: Site Traffic - PM Peak Hour

4.4 Traffic Volumes – 2025

Figures 8 and 9 illustrate the opening day weekday AM and PM peak hour vehicle volumes respectively at the study area intersections in 2025 without development traffic. **Figures 10 and 11** illustrate the weekday AM and PM peak hour vehicle volumes respectively in 2025 with development traffic. A traffic growth rate of 2% per year was applied to 2021 peak hour vehicle volumes to represent background traffic in 2025.



Figure 8: 2025 Background Volumes - AM Peak Hour

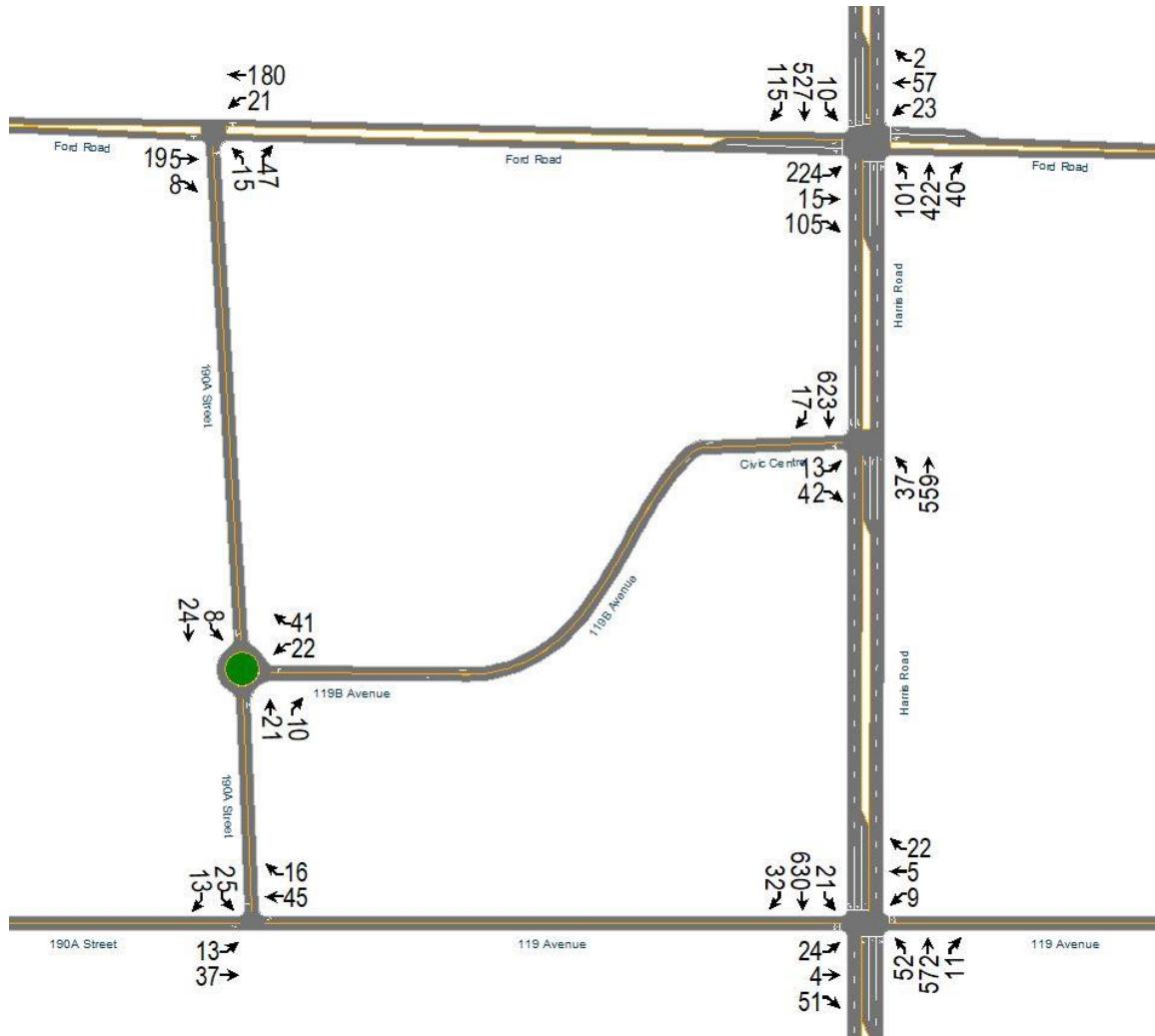


Figure 9: 2025 Background Volumes - PM Peak Hour



Figure 10: 2025 Total Volumes - AM Peak Hour



Figure 11: 2025 Total Volumes - PM Peak Hour



4.5 Traffic Conditions – 2025

Table 8 summarizes expected weekday AM and PM peak hour traffic conditions at the study area intersections in 2025 without development traffic and **Table 9** summarizes traffic conditions for the same time period with development traffic on opening day.

Without development traffic, all movements at all intersections will continue to operate well above acceptable conditions in 2025 at LOS C or better. No queuing issues are expected at the turn lanes with the available storage lengths.

With development traffic, no significant impacts will be created and all movements at all intersections are expected to continue to operate at LOS C or better with no queuing issues. The proposed site access is expected to operate in acceptable conditions at LOS A with a two-lane configuration.



Table 8: Background (2025) Weekday Peak Hour Traffic Conditions

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*	LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*
Harris Rd/Ford Rd	EB L	C	21	40 (55)	C	30	45 (55)
	EB TR	A	7	20	A	6	20
	WB LT	B	14	15	B	15	25
	WB R	A	0	10 (35)	A	0	5 (35)
	NB L	A	9	20 (35)	B	10	30 (35)
	NB T	B	11	30	B	11	40
	NB TR	B	11	35	B	11	45
	SB L	A	8	10 (35)	A	9	5 (35)
	SB T	B	14	35	B	19	55
	SB TR	B	14	35	B	19	50
Harris Rd/Civic Centre	EB LR	B	14	15	C	16	20
	NB L	A	9	25 (30)	A	9	15 (30)
	NB T	A	0	10	A	0	10
	NB T	A	0	10	A	0	5
	SB T	A	0	10	A	0	10
	SB TR	A	0	10	A	0	10
Harris Rd/119 Ave	EB LTR	A	5	25	A	7	25
	WB LTR	A	7	15	A	7	15
	NB L	B	17	35 (40)	B	12	25 (40)
	NB T	B	14	60	A	9	55
	NB TR	B	14	45	A	9	45
	SB L	B	13	10 (40)	B	11	20 (40)
	SB T	B	14	40	A	10	50
	SB TR	B	14	45	A	10	50
Ford Rd/190a St	EB TR	A	0	0	A	0	5
	WB LT	A	8	10	A	8	10
	NB LR	B	11	20	B	11	15
119 Ave/190a St	EB LT	A	8	5	A	7	5
	WB TR	A	0	5	A	0	0
	SB LR	B	11	15	A	9	15
190a St/119b Ave	WB LR	A	5	5	A	4	5
	NB TR	A	5	10	A	4	5
	SB LT	A	4	5	A	4	5



Table 9: Total (2025) Weekday Peak Hour Traffic Conditions

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*	LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*
Harris Rd/Ford Rd	EB L	C	23	40 (55)	C	33	55 (55)
	EB TR	A	7	20	A	6	25
	WB LT	B	14	15	B	15	25
	WB R	A	0	10 (35)	A	0	0 (35)
	NB L	A	9	25 (35)	B	11	30 (35)
	NB T	B	11	30	B	12	35
	NB TR	B	11	35	B	12	40
	SB L	A	8	10 (35)	A	9	5 (35)
	SB T	B	14	40	B	20	55
	SB TR	B	14	35	B	20	50
Harris Rd/Civic Centre	EB LR	B	15	15	C	16	15
	NB L	A	9	25 (30)	A	9	15 (30)
	NB T	A	0	5	A	0	10
	NB TR	A	0	5	A	0	10
	SB T	A	0	10	A	0	15
	SB TR	A	0	10	A	0	15
Harris Rd/119 Ave	EB LTR	A	5	25	A	7	20
	WB LTR	A	7	15	A	7	15
	NB L	B	17	40 (40)	B	12	30 (40)
	NB T	B	14	60	A	9	55
	NB TR	B	14	50	A	9	45
	SB L	B	13	10 (40)	B	11	15 (40)
	SB T	B	14	40	A	10	45
	SB TR	B	14	45	A	10	55
Ford Rd/190a St	EB TR	A	0	5	A	0	0
	WB LT	A	8	10	A	8	10
	NB LR	B	12	20	B	11	15
119 Ave/190a St	EB LT	A	8	10	A	7	0
	WB TR	A	0	10	A	0	5
	SB LR	B	12	15	A	10	15
190a St/119b Ave	WB LR	A	5	10	A	4	5
	NB TR	A	5	15	A	4	5
	SB LT	A	4	5	A	4	5
119b Ave/Site Access	EB LT	A	8	10	A	7	5
	WB TR	A	0	0	A	0	0
	SB LR	A	9	15	A	10	15



4.6 Traffic Volumes – 2035

Figures 12 and 13 illustrate the 2035 weekday AM and PM peak hour vehicle volumes respectively at the study area intersections without development traffic. **Figures 14 and 15** illustrate the weekday AM and PM peak hour vehicle volumes respectively in 2035 with development traffic. A traffic growth rate of 2% per year was applied to 2021 vehicle volumes to estimate background traffic in 2035.



Figure 12: 2035 Background Volumes - AM Peak Hour



Figure 13: 2035 Background Volumes - PM Peak Hour



Figure 14: 2035 Total Volumes - AM Peak Hour

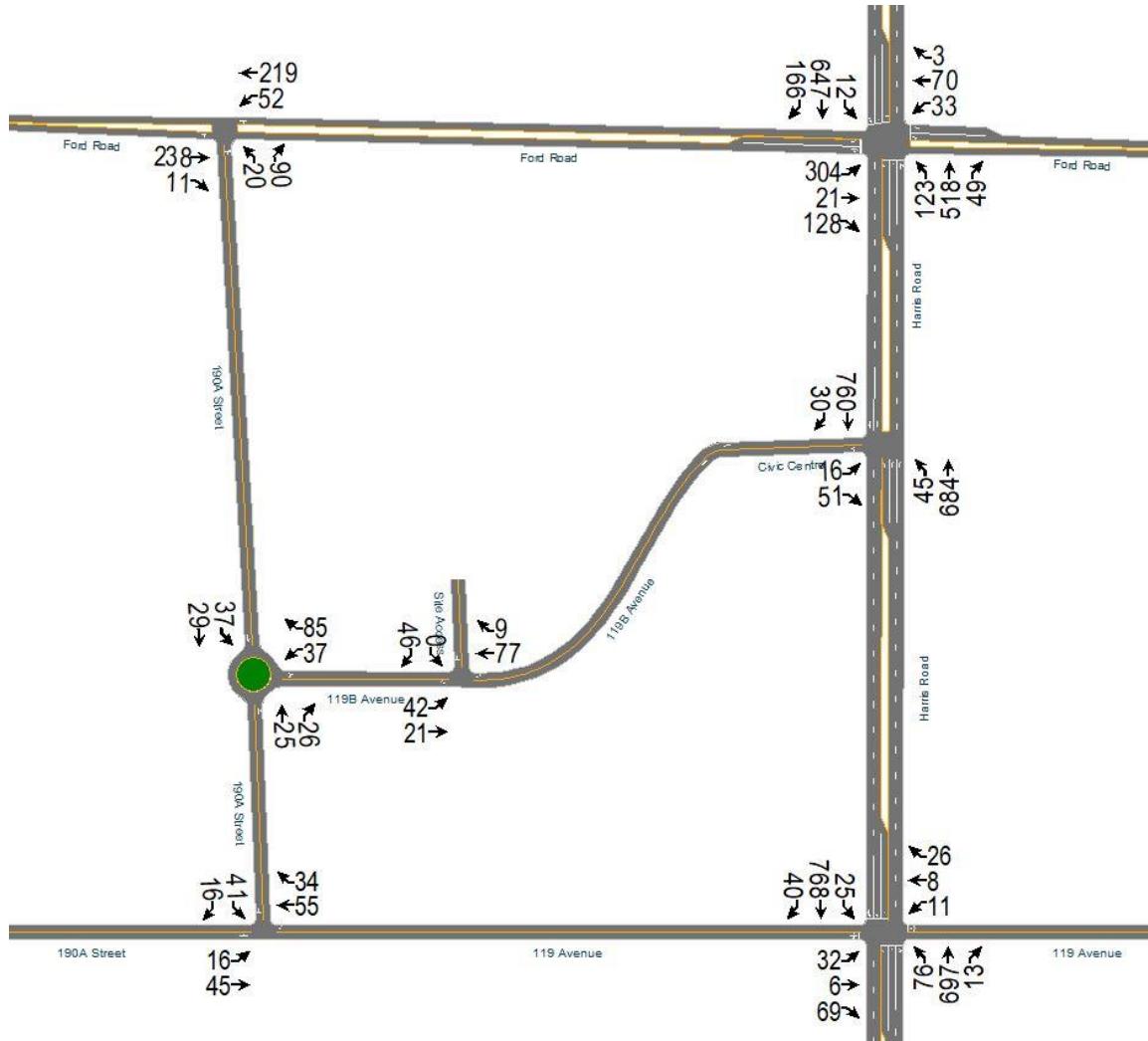


Figure 15: 2035 Total Volumes - PM Peak Hour

4.7 Traffic Conditions – 2035

Table 10 summarizes expected weekday AM and PM peak hour traffic conditions at the study area intersections in 2035 without development traffic and **Table 11** summarizes traffic conditions for the same time period with development traffic in 2035.

Without development traffic, all movements at all intersections will continue to operate in acceptable conditions in 2035 at LOS D or better. The queue length for the eastbound



left movement at Harris Road/Ford Road in the PM peak hour is expected to exceed the available turn lane storage length by about 10m which is less than two vehicles and therefore, it is not expected to be a significant traffic operations impact.

With development traffic, all movements at all intersections are expected to continue to operate at LOS D or better. The queue length for northbound left movement at Harris Road/119 Avenue in the AM peak hour is expected to exceed the available turn lane storage length by about 10m which is less than two vehicles and therefore, it is not expected to be a significant traffic impact due to the proposed development. The proposed site access is expected to continue to operate at LOS A.



Table 10: Background (2035) Weekday Peak Hour Traffic Conditions

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*	LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*
Harris Rd/Ford Rd	EB L	C	24	45 (55)	D	36	65 (55)
	EB TR	A	7	25	A	6	50
	WB LT	B	14	15	B	16	30
	WB R	A	0	15 (35)	A	0	5 (35)
	NB L	B	10	30 (35)	B	13	30 (35)
	NB T	B	12	35	B	13	40
	NB TR	B	12	40	B	13	45
	SB L	A	9	10 (35)	A	9	10 (35)
	SB T	B	18	45	C	25	70
	SB TR	B	18	45	C	25	65
Harris Rd/Civic Centre	EB LR	C	17	15	C	20	20
	NB L	A	9	25 (30)	B	10	15 (30)
	NB T	A	0	10	A	0	5
	NB T	A	0	10	A	0	5
	SB T	A	0	10	A	0	15
	SB TR	A	0	10	A	0	15
Harris Rd/119 Ave	EB LTR	A	7	30	A	10	25
	WB LTR	A	7	15	A	7	15
	NB L	C	21	40 (40)	B	13	35 (40)
	NB T	B	14	70	A	10	70
	NB TR	B	14	55	A	10	55
	SB L	B	13	15 (40)	B	11	20 (40)
	SB T	B	15	50	B	11	65
	SB TR	B	15	50	B	11	70
Ford Rd/190a St	EB TR	A	0	5	A	0	5
	WB LT	A	8	10	A	8	10
	NB LR	B	12	20	B	11	15
119 Ave/190a St	EB LT	A	8	5	A	7	5
	WB TR	A	0	5	A	0	0
	SB LR	B	12	20	A	10	15
190a St/119b Ave	WB LR	A	5	10	A	4	5
	NB TR	A	5	15	A	4	5
	SB LT	A	4	5	A	4	5



Table 11: Total (2035) Weekday Peak Hour Traffic Conditions

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*	LOS	Delay (s/veh)	95 th Percentile Queue (Avail. Storage) [m]*
Harris Rd/Ford Rd	EB L	C	27	50 (55)	D	41	65 (55)
	EB TR	A	7	35	A	6	105
	WB LT	B	14	15	B	16	25
	WB R	A	0	15 (35)	A	0	5 (35)
	NB L	B	11	25 (35)	B	14	35 (35)
	NB T	B	12	25	B	13	35
	NB TR	B	12	35	B	13	50
	SB L	A	9	10 (35)	A	9	20 (35)
	SB T	B	18	45	C	26	65
	SB TR	B	18	45	C	26	65
Harris Rd/Civic Centre	EB LR	C	17	15	C	20	20
	NB L	A	9	20 (30)	B	10	20 (30)
	NB T	A	0	10	A	0	5
	NB TR	A	0	10	A	0	10
	SB T	A	0	10	A	0	10
	SB TR	A	0	15	A	0	15
Harris Rd/119 Ave	EB LTR	A	7	30	B	11	30
	WB LTR	A	7	15	A	7	15
	NB L	C	23	50 (40)	B	14	40 (40)
	NB T	B	14	70	A	10	65
	NB TR	B	14	55	A	10	55
	SB L	B	13	15 (40)	B	11	20 (40)
	SB T	B	15	50	B	11	60
	SB TR	B	15	55	B	11	65
Ford Rd/190a St	EB TR	A	0	5	A	0	0
	WB LT	A	8	15	A	8	15
	NB LR	B	13	20	B	12	20
119 Ave/190a St	EB LT	A	8	10	A	8	5
	WB TR	A	0	15	A	0	5
	SB LR	B	12	15	A	10	15
190a St/119b Ave	WB LR	A	6	10	A	4	5
	NB TR	A	5	15	A	4	5
	SB LT	A	5	10	A	4	5
119b Ave/Site Access	EB LT	A	8	10	A	8	5
	WB TR	A	0	0	A	0	0
	SB LR	A	10	15	A	9	15



5.0 SITE ACCESS

The Transportation Association of Canada (TAC) Geometric Design Guide recommends a minimum 15m clearance between the site access at the local road, 119b Avenue, and the nearest unsignalized intersection at 190a Street/119b Avenue to allow for turning vehicles from 190a Street to perceive any site access maneuvers and safely react to the situation. The recommended clearance also accounts for any queuing with the intersecting roads, creating a possibility of blocking the site access. The proposed site access is planned to be shared with the existing parking lot access at the Pitt Meadows Seniors Center which is located approximately 45m from the nearest unsignalized intersection and, therefore, exceeds the site access spacing guidelines.

A TAC recommended sight line with approximately 90m of distance is recommended for southbound vehicles exiting from the proposed site access location to identify a gap in east/west through movements on 119b Avenue and safely complete a turning maneuver. As westbound vehicle movements from Civic Centre road connecting to 119b Avenue are one-way, exiting vehicles from the site access are only expected to turn right. The distance between the site access and the end of 119b Avenue to the east is approximately 100m and there are no sight line obstructions within this distance.

The site access is also located across from the elementary school parking lot access with an offset of approximately 15m with the school entrance access to the west and approximately 90m with the school exit access to the east. There are no sight line obstructions between the site access and the school parking lot accesses.



6.0 CONCLUSIONS

The proposed redevelopment will convert the existing gravel parking lot into a mixed-use residential and daycare space that are expected to generate 89 vehicle trips in the AM peak hour and 97 vehicle trips in the PM peak hour at approximately one vehicle every 35 to 40 seconds in the study area road network. Sidewalks and crossing opportunities are currently available for short distance walking trips and connections to transit stops within 350m from the site. The transit route 701 is part of TransLink's Frequent Transit Network (FTN) with a service frequency of 15 minutes or less at all times during the day providing regional connections to the site. Designated north-south and east-west cycling lanes are also available around the study area for alternative mode choices.

All movements at all intersections in the study area road network are currently operating well above acceptable conditions at LOS C or better with no queuing issues. On opening day in 2025, all movements are expected to continue to operate at LOS C or better and no queuing issues with and without development traffic. In the long-term, all movements are expected to operate at LOS D or better with and without development traffic. The development traffic will not create any significant traffic impacts to the study area road network.

The proposed site access is expected to operate at LOS A with a two-lane configuration on opening day in 2025 as well as 10 years beyond opening day in 2035. The site access location will meet the recommended access spacing from the nearest intersection. There are no sight line obstructions for exiting vehicles on either side of the site access location.



APPENDIX A

SYNCHRO AND LEVEL OF SERVICE BACKGROUND



The traffic analysis was completed using Synchro and SimTraffic traffic modeling software. Results were measured in delay, level of service (LOS) and 95th percentile queue length. Synchro is based on the Highway Capacity Manual (HCM) methodology. SimTraffic integrates established driver behaviors and characteristics to simulate actual conditions by randomly “seeding” or positioning vehicles travelling throughout the network. The simulation is run five times (five different random seedings of vehicle types, behaviors and arrivals) to obtain statistical significance of the results.

Traffic operations are typically described in terms of levels of service, which rates the amount of delay per vehicle for each movement and the entire intersection. Levels of service range from LOS A (representing best operations) to LOS E/F (LOS E being poor operations and LOS F being unpredictable / disruptive operations). LOS E/F are generally unacceptable levels of service under normal everyday conditions.

The hierarchy of criteria for grading an intersection or movement not only includes delay times, but also takes into account traffic control type (stop signs or traffic signal). For example, if a vehicle is delayed for 19 seconds at an unsignalized intersection, it is considered to have an average operation, and would therefore be graded as an LOS C. However, at a signalized intersection, a 19 second delay would be considered a good operation and therefore it would be given an LOS B. The table below indicates the range of delay for LOS for signalized and unsignalized intersections.

Level of Service	Unsignalized Intersection Average Vehicle Delay (sec/veh)	Signalized Intersection Average Vehicle Delay (sec/veh)
A	Less than 10	Less than 10
B	10 to 15	11 to 20
C	15 to 25	20 to 35
D	25 to 35	35 to 55
E	35 to 50	55 to 80
F	More than 50	More than 80



APPENDIX B

SYNCHRO/SIMTRAFFIC REPORTS

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	130	27	34	148	28	81
Future Vol, veh/h	130	27	34	148	28	81
Conflicting Peds, #/hr	0	29	29	0	23	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	141	29	37	161	30	88
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	199	0	443	186
Stage 1	-	-	-	-	185	-
Stage 2	-	-	-	-	258	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1373	-	572	856
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1339	-	531	834
Mov Cap-2 Maneuver	-	-	-	-	531	-
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	747	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1.5	10.9			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	727	-	-	1339	-	
HCM Lane V/C Ratio	0.163	-	-	0.028	-	
HCM Control Delay (s)	10.9	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-	

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-03-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	157	23	85	12	24	19	73	326	11	11	322	99
Future Volume (vph)	157	23	85	12	24	19	73	326	11	11	322	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	0.0		35.0	35.0		0.0	35.0		0.0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			0.99	0.97	0.98	1.00		0.99	0.99	
Fr _t		0.882				0.850		0.995			0.965	
Flt Protected	0.950				0.984		0.950			0.950		
Satd. Flow (prot)	1575	1341	0	0	1813	1566	1750	3478	0	1750	3329	0
Flt Permitted	0.732				0.888		0.433			0.534		
Satd. Flow (perm)	1189	1341	0	0	1624	1514	782	3478	0	972	3329	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		92				118		6			66	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	25		29	29		25	24		12	12		24
Confl. Bikes (#/hr)								1				1
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	171	25	92	13	26	21	79	354	12	12	350	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	117	0	0	39	21	79	366	0	12	458	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.2	5.0	4.8		5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	54	54		54	54	54		36			36	
Act Effect Green (s)	13.5	13.5		13.5	13.5	24.0	24.7			21.6	20.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.52	0.54			0.47	0.44	
v/c Ratio	0.49	0.25		0.08	0.04	0.14	0.20			0.02	0.30	
Control Delay	20.1	7.0		13.9	0.2	8.6	10.0			8.3	12.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0	0.0	
Total Delay	20.1	7.0		13.9	0.2	8.6	10.0			8.3	12.8	
LOS	C	A		B	A	A	A			A	B	
Approach Delay		14.8			9.1			9.7			12.7	
Approach LOS		B			A			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 45.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 12.0

Intersection LOS: B

Intersection Capacity Utilization 51.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road



Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↑	
Traffic Vol, veh/h	9	18	69	406	390	44
Future Vol, veh/h	9	18	69	406	390	44
Conflicting Peds, #/hr	0	24	24	0	0	24
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	20	75	441	424	48
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	843	284	496	0	-	0
Stage 1	472	-	-	-	-	-
Stage 2	371	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	303	713	1064	-	-	-
Stage 1	594	-	-	-	-	-
Stage 2	668	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	270	684	1042	-	-	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	13.5	1.3	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1042	-	453	-	-	
HCM Lane V/C Ratio	0.072	-	0.065	-	-	
HCM Control Delay (s)	8.7	-	13.5	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

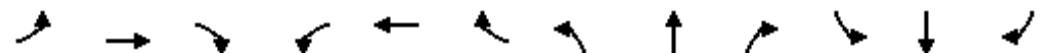
10-03-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	9	73	9	18	11	81	499	2	11	459	20
Future Volume (vph)	25	9	73	9	18	11	81	499	2	11	459	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0			0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0			0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.97			0.98		0.97	1.00		1.00	1.00	
Fr _t		0.908			0.961			0.999			0.994	
Flt Protected		0.988			0.988		0.950			0.950		
Satd. Flow (prot)	0	1438	0	0	1514	0	1750	3440	0	1750	3103	0
Flt Permitted		0.941			0.944		0.442			0.427		
Satd. Flow (perm)	0	1356	0	0	1443	0	787	3440	0	785	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			12			1			9	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6			193.5			227.0	
Travel Time (s)		35.1			12.9			23.2			27.2	
Confl. Peds. (#/hr)	73		19	19		73	51		4	4		51
Confl. Bikes (#/hr)			1						1			3
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
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	27	10	79	10	20	12	88	542	2	12	499	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	0	0	42	0	88	544	0	12	521	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	0.0				0.0			3.5			3.5	
Link Offset(m)	0.0				0.0			0.0			0.0	
Crosswalk Width(m)	2.5				2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-03-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA										
Protected Phases			4			8			2			6
Permitted Phases			4			8			2			6
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (%)	56.9%	56.9%		56.9%	56.9%		43.1%	43.1%		43.1%	43.1%	
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)			5.1			5.1			4.6	4.6	4.6	4.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	92	92		92	92		55	55		55	55	
Act Effct Green (s)			22.2			22.2			26.1	26.1		26.1
Actuated g/C Ratio			0.41			0.41			0.48	0.48		0.48
v/c Ratio			0.19			0.07			0.23	0.33		0.03
Control Delay			4.6			6.5			15.6	13.2		12.4
Queue Delay			0.0			0.0			0.0	0.0		0.0
Total Delay			4.6			6.5			15.6	13.2		12.4
LOS	A			A			B	B		B		B
Approach Delay			4.6			6.5			13.5			13.3
Approach LOS			A			A			B			B

Intersection Summary

Area Type: Other

Cycle Length: 54.7

Actuated Cycle Length: 54.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 12.4

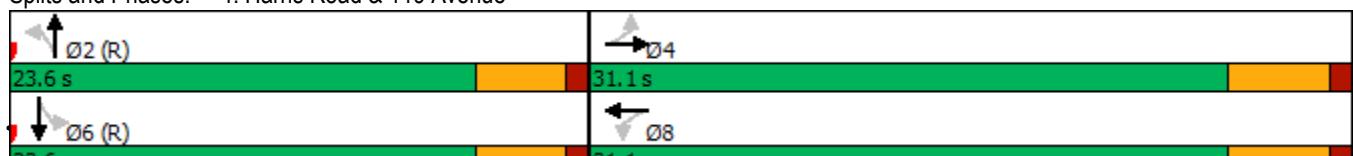
Intersection LOS: B

Intersection Capacity Utilization 56.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	40	37	93	51	21
Future Vol, veh/h	18	40	37	93	51	21
Conflicting Peds, #/hr	70	0	0	70	6	36
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	43	40	101	55	23
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	211	0	-	0	250	197
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	89	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1360	-	-	-	739	844
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	934	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1279	-	-	-	644	770
Mov Cap-2 Maneuver	-	-	-	-	644	-
Stage 1	-	-	-	-	804	-
Stage 2	-	-	-	-	879	-
Approach	EB	WB	SB			
HCM Control Delay, s	2.4	0	11			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1279	-	-	-	676	
HCM Lane V/C Ratio	0.015	-	-	-	0.116	
HCM Control Delay (s)	7.9	0	-	-	11	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.4	

Intersection			
Intersection Delay, s/veh	4.4		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	140	118	61
Demand Flow Rate, veh/h	143	121	62
Vehicles Circulating, veh/h	39	46	63
Vehicles Exiting, veh/h	128	79	119
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	12	48	5
Ped Cap Adj	0.998	0.993	0.999
Approach Delay, s/veh	4.6	4.4	4.0
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	143	121	62
Cap Entry Lane, veh/h	1087	1079	1061
Entry HV Adj Factor	0.979	0.977	0.979
Flow Entry, veh/h	140	118	61
Cap Entry, veh/h	1062	1048	1038
V/C Ratio	0.132	0.113	0.058
Control Delay, s/veh	4.6	4.4	4.0
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	0.7	9.3	18.5
Average Queue (m)	0.1	2.6	11.0
95th Queue (m)	1.4	10.4	17.5
Link Distance (m)	111.8	292.7	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	32.2	19.3	15.3	9.4	22.3	25.6	33.0	8.9	33.8	31.5
Average Queue (m)	19.2	12.0	6.0	3.7	11.8	13.3	19.6	2.4	20.2	17.1
95th Queue (m)	35.2	19.7	16.2	10.8	23.1	27.6	34.2	9.3	33.2	32.9
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)						0	0		1	
Queuing Penalty (veh)						0	0		0	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	11.7	17.5	5.4	4.2	6.8	5.6
Average Queue (m)	6.8	7.7	1.0	0.9	1.6	1.1
95th Queue (m)	14.4	18.2	5.7	5.6	8.1	6.5
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	30.0					
Storage Blk Time (%)	0					
Queuing Penalty (veh)	0					

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	24.0	13.5	31.8	52.2	38.9	9.4	40.0	38.1
Average Queue (m)	13.0	5.2	17.3	36.9	23.2	3.1	24.8	25.5
95th Queue (m)	23.4	14.9	33.7	55.8	43.1	10.6	42.6	42.4
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)				5			1	
Queuing Penalty (veh)				4			0	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	5.5	3.5	13.2
Average Queue (m)	1.1	0.8	9.6
95th Queue (m)	6.0	5.5	14.7
Link Distance (m)	148.4	274.0	100.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	3.5	12.0	4.5
Average Queue (m)	0.3	2.6	0.8
95th Queue (m)	2.7	10.2	4.9
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	180	7	19	166	14	43
Future Vol, veh/h	180	7	19	166	14	43
Conflicting Peds, #/hr	0	8	8	0	7	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	196	8	21	180	15	47
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	212	0	437	208
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	229	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1358	-	577	832
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1349	-	560	826
Mov Cap-2 Maneuver	-	-	-	-	560	-
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	790	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.8	10.3			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	740	-	-	1349	-	
HCM Lane V/C Ratio	0.084	-	-	0.015	-	
HCM Control Delay (s)	10.3	-	-	7.7	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-03-2021

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	207	14	97	21	53	2	93	390	37	9	487	106
Future Volume (vph)	207	14	97	21	53	2	93	390	37	9	487	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0						35.0	35.0		0.0	35.0	0.0
Storage Lanes	1						1	1		0	1	0
Taper Length (m)	8.0						8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			0.99	0.97	0.99	1.00		0.98	0.99	
Fr _t		0.869				0.850		0.987			0.973	
Flt Protected	0.950				0.986		0.950			0.950		
Satd. Flow (prot)	1575	1321	0	0	1816	1566	1750	3439	0	1750	3377	0
Flt Permitted	0.704				0.903		0.281			0.485		
Satd. Flow (perm)	1146	1321	0	0	1655	1515	513	3439	0	878	3377	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		105				118		16			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	24		25	25		24	16		20	20		16
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	225	15	105	23	58	2	101	424	40	10	529	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	225	120	0	0	81	2	101	464	0	10	644	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.2	5.0	4.8		5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	49	49		49	49	49		36			36	
Act Effct Green (s)	15.3	15.3		15.3	15.3	26.0	25.0			22.1	17.7	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.50	0.48			0.42	0.34	
v/c Ratio	0.68	0.26		0.17	0.00	0.24	0.28			0.02	0.55	
Control Delay	28.0	6.2		15.1	0.0	9.7	10.6			8.4	17.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0	0.0	
Total Delay	28.0	6.2		15.1	0.0	9.7	10.6			8.4	17.5	
LOS	C	A		B	A	A	B			A	B	
Approach Delay		20.4			14.7			10.5			17.4	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 52.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

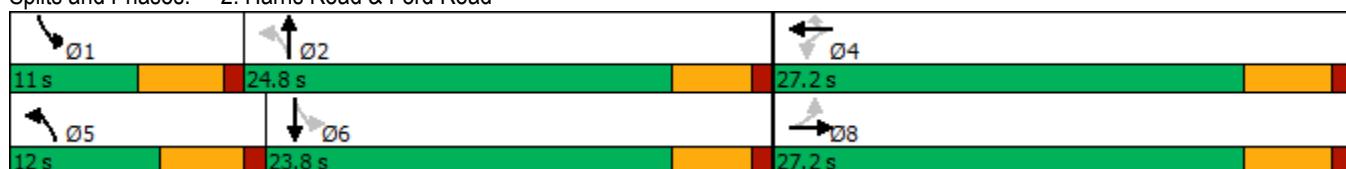
Maximum v/c Ratio: 0.68

Intersection Signal Delay: 15.5 Intersection LOS: B

Intersection Capacity Utilization 54.7% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road



Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↑	
Traffic Vol, veh/h	12	39	34	516	576	16
Future Vol, veh/h	12	39	34	516	576	16
Conflicting Peds, #/hr	0	25	16	0	0	16
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	42	37	561	626	17
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1006	363	659	0	-	0
Stage 1	651	-	-	-	-	-
Stage 2	355	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	238	634	925	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	222	612	912	-	-	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.5	0.6		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	912	-	433	-	-	
HCM Lane V/C Ratio	0.041	-	0.128	-	-	
HCM Control Delay (s)	9.1	-	14.5	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-03-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	4	47	8	5	20	48	528	10	19	582	30
Future Volume (vph)	22	4	47	8	5	20	48	528	10	19	582	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	1.00		0.99	1.00	
Fr _t		0.913			0.917			0.997			0.993	
Flt Protected		0.985			0.988		0.950			0.950		
Satd. Flow (prot)	0	1451	0	0	1443	0	1750	3431	0	1750	3103	0
Flt Permitted		0.908			0.928		0.392			0.431		
Satd. Flow (perm)	0	1331	0	0	1355	0	713	3431	0	789	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			22			4			10	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6			193.5			227.0	
Travel Time (s)		35.1			12.9			23.2			27.2	
Confl. Peds. (#/hr)	26		5	5		26	24		11	11		24
Confl. Bikes (#/hr)			1						4			4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	24	4	51	9	5	22	52	574	11	21	633	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	0	0	36	0	52	585	0	21	666	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	0.0				0.0			3.5			3.5	
Link Offset(m)	0.0				0.0			0.0			0.0	
Crosswalk Width(m)	2.5				2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-03-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA										
Protected Phases				4			8			2		6
Permitted Phases				4			8			2		6
Detector Phase	4	4			8	8		2	2		6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		24.6	24.6		24.6	24.6	
Total Split (%)	55.8%	55.8%		55.8%	55.8%		44.2%	44.2%		44.2%	44.2%	
Maximum Green (s)	26.0	26.0		26.0	26.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)				5.1			4.6	4.6		4.6	4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	31	31		31	31		35	35		35	35	
Act Effct Green (s)		14.6			14.6		38.1	38.1		38.1	38.1	
Actuated g/C Ratio		0.26			0.26		0.68	0.68		0.68	0.68	
v/c Ratio		0.20			0.10		0.11	0.25		0.04	0.31	
Control Delay		6.6			6.6		10.9	8.5		10.7	9.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		6.6			6.6		10.9	8.5		10.7	9.0	
LOS	A			A			B	A		B	A	
Approach Delay		6.6			6.6				8.7		9.1	
Approach LOS		A			A			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 55.7

Actuated Cycle Length: 55.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.31

Intersection Signal Delay: 8.7

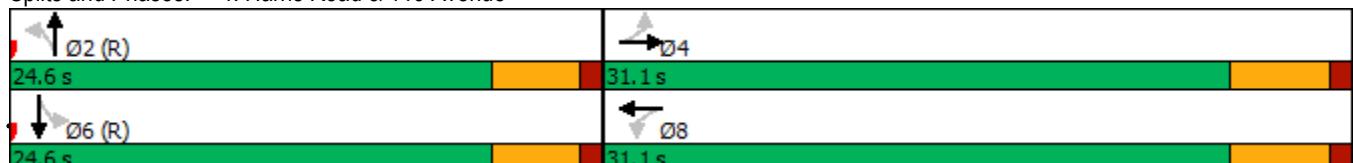
Intersection LOS: A

Intersection Capacity Utilization 52.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	34	42	15	23	12
Future Vol, veh/h	12	34	42	15	23	12
Conflicting Peds, #/hr	10	0	0	10	10	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	37	46	16	25	13
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	72	0	-	0	137	68
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	73	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1528	-	-	-	856	995
Stage 1	-	-	-	-	959	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1515	-	-	-	835	983
Mov Cap-2 Maneuver	-	-	-	-	835	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	942	-
Approach	EB	WB	SB			
HCM Control Delay, s	1.9	0	9.3			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1515	-	-	-	880	
HCM Lane V/C Ratio	0.009	-	-	-	0.043	
HCM Control Delay (s)	7.4	0	-	-	9.3	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection			
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	63	31	32
Demand Flow Rate, veh/h	64	31	32
Vehicles Circulating, veh/h	21	8	22
Vehicles Exiting, veh/h	18	46	63
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	8	25	10
Ped Cap Adj	0.999	0.997	0.999
Approach Delay, s/veh	3.8	3.5	3.6
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	64	31	32
Cap Entry Lane, veh/h	1106	1121	1105
Entry HV Adj Factor	0.984	0.987	0.985
Flow Entry, veh/h	63	31	32
Cap Entry, veh/h	1088	1102	1088
V/C Ratio	0.058	0.028	0.029
Control Delay, s/veh	3.8	3.5	3.6
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	1.3	7.8	11.0
Average Queue (m)	0.1	1.0	7.9
95th Queue (m)	1.4	6.0	13.6
Link Distance (m)	111.8	292.7	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	38.8	18.2	17.2	4.1	26.5	30.5	36.1	6.0	48.4	43.4
Average Queue (m)	26.2	11.5	8.6	0.6	14.8	16.9	23.9	1.4	33.3	25.0
95th Queue (m)	42.2	19.6	18.7	4.1	28.4	32.0	38.4	6.0	51.6	45.4
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)	0				0	0			6	
Queuing Penalty (veh)	0				1	0			1	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	11.8	12.6	11.7	7.8	10.6	12.2
Average Queue (m)	7.8	4.9	2.1	1.2	1.8	2.6
95th Queue (m)	14.8	14.3	9.7	8.8	11.4	12.7
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		30.0				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	22.0	11.0	31.3	57.6	49.2	10.0	41.6	44.8
Average Queue (m)	10.6	5.1	11.3	35.5	23.2	4.1	23.8	28.2
95th Queue (m)	23.1	12.8	30.8	60.4	50.0	12.0	45.2	50.3
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)				5			1	
Queuing Penalty (veh)				2			0	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	1.8	13.7
Average Queue (m)	0.4	6.8
95th Queue (m)	3.3	15.0
Link Distance (m)	148.4	100.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	2.6	1.8	1.8
Average Queue (m)	0.4	0.3	0.3
95th Queue (m)	3.3	2.8	2.8
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	141	29	37	160	30	88
Future Vol, veh/h	141	29	37	160	30	88
Conflicting Peds, #/hr	0	29	29	0	23	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	153	32	40	174	33	96
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	214	0	475	199
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	277	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1356	-	548	842
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	770	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1323	-	507	821
Mov Cap-2 Maneuver	-	-	-	-	507	-
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	730	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1.5	11.2			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	709	-	-	1323	-	
HCM Lane V/C Ratio	0.181	-	-	0.03	-	
HCM Control Delay (s)	11.2	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-	

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	170	25	92	13	26	21	79	353	12	12	349	107
Future Volume (vph)	170	25	92	13	26	21	79	353	12	12	349	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	0.0		35.0	35.0		0.0	35.0		0.0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			0.99	0.97	0.98	1.00		0.99	0.99	
Fr _t		0.882				0.850		0.995			0.965	
Flt Protected	0.950				0.984		0.950			0.950		
Satd. Flow (prot)	1575	1341	0	0	1813	1566	1750	3478	0	1750	3330	0
Flt Permitted	0.730				0.898		0.397			0.518		
Satd. Flow (perm)	1186	1341	0	0	1643	1514	718	3478	0	943	3330	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		100				118		6			65	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	25		29	29		25	24		12	12		24
Confl. Bikes (#/hr)								1				1
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	185	27	100	14	28	23	86	384	13	13	379	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	185	127	0	0	42	23	86	397	0	13	495	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.2	5.0	4.8		5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	54	54		54	54	54		36			36	
Act Effect Green (s)	14.3	14.3		14.3	14.3	23.0	22.2			20.5	17.6	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.47	0.45			0.42	0.36	
v/c Ratio	0.53	0.27		0.09	0.04	0.18	0.25			0.03	0.40	
Control Delay	21.4	7.1		13.9	0.1	9.0	10.6			8.4	13.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0	0.0	
Total Delay	21.4	7.1		13.9	0.1	9.0	10.6			8.4	13.8	
LOS	C	A		B	A	A	B			A	B	
Approach Delay		15.6			9.0			10.3			13.7	
Approach LOS		B			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 49

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 12.7

Intersection LOS: B

Intersection Capacity Utilization 52.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road



Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↓	
Traffic Vol, veh/h	10	19	75	439	422	48
Future Vol, veh/h	10	19	75	439	422	48
Conflicting Peds, #/hr	0	24	24	0	0	24
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	21	82	477	459	52
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	912	304	535	0	-	0
Stage 1	509	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	273	692	1029	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	241	664	1008	-	-	-
Mov Cap-2 Maneuver	241	-	-	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.4	1.3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1008	-	414	-	-	
HCM Lane V/C Ratio	0.081	-	0.076	-	-	
HCM Control Delay (s)	8.9	-	14.4	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	0.2	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	10	79	10	19	12	88	540	2	12	497	22
Future Volume (vph)	27	10	79	10	19	12	88	540	2	12	497	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.97			0.98		0.97	1.00		1.00	1.00	
Fr _t		0.908			0.961			0.999			0.994	
Flt Protected		0.989			0.988		0.950			0.950		
Satd. Flow (prot)	0	1440	0	0	1514	0	1750	3440	0	1750	3103	0
Flt Permitted		0.940			0.940		0.414			0.399		
Satd. Flow (perm)	0	1355	0	0	1437	0	739	3440	0	733	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86			13			1			9	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6			193.5			227.0	
Travel Time (s)		35.1			12.9			23.2			27.2	
Confl. Peds. (#/hr)	73		19	19		73	51		4	4		51
Confl. Bikes (#/hr)			1						1			3
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
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	29	11	86	11	21	13	96	587	2	13	540	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	0	0	45	0	96	589	0	13	564	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	0.0				0.0			3.5			3.5	
Link Offset(m)	0.0				0.0			0.0			0.0	
Crosswalk Width(m)	2.5				2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases				4			8			2		6
Permitted Phases				4			8			2		6
Detector Phase	4	4			8		8		2	2		6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (%)	56.9%	56.9%		56.9%	56.9%		43.1%	43.1%		43.1%	43.1%	
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)				5.1			5.1			4.6	4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	92	92		92	92		55	55		55	55	
Act Effct Green (s)				22.2			26.1	26.1		26.1	26.1	
Actuated g/C Ratio				0.41			0.48	0.48		0.48	0.48	
v/c Ratio				0.21			0.27	0.36		0.04	0.38	
Control Delay				4.6			6.5	16.5	13.5	12.5	13.6	
Queue Delay				0.0			0.0	0.0		0.0	0.0	
Total Delay				4.6			6.5	16.5	13.5	12.5	13.6	
LOS	A			A			B	B		B	B	
Approach Delay				4.6			6.5		13.9		13.6	
Approach LOS				A			A		B		B	

Intersection Summary

Area Type: Other

Cycle Length: 54.7

Actuated Cycle Length: 54.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 12.7

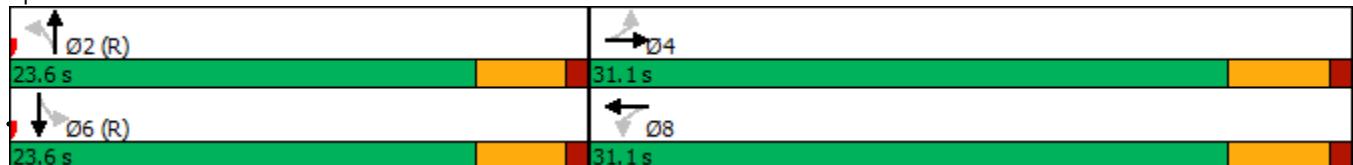
Intersection LOS: B

Intersection Capacity Utilization 56.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	43	40	101	55	23
Future Vol, veh/h	19	43	40	101	55	23
Conflicting Peds, #/hr	70	0	0	70	6	36
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	47	43	110	60	25
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	223	0	-	0	263	204
Stage 1	-	-	-	-	168	-
Stage 2	-	-	-	-	95	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1346	-	-	-	726	837
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1266	-	-	-	632	763
Mov Cap-2 Maneuver	-	-	-	-	632	-
Stage 1	-	-	-	-	797	-
Stage 2	-	-	-	-	874	-
Approach	EB	WB	SB			
HCM Control Delay, s	2.4	0	11.2			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1266	-	-	-	666	
HCM Lane V/C Ratio	0.016	-	-	-	0.127	
HCM Control Delay (s)	7.9	0	-	-	11.2	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	

Intersection			
Intersection Delay, s/veh	4.5		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	152	128	65
Demand Flow Rate, veh/h	155	131	66
Vehicles Circulating, veh/h	42	49	68
Vehicles Exiting, veh/h	138	85	129
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	12	48	5
Ped Cap Adj	0.998	0.993	0.999
Approach Delay, s/veh	4.7	4.5	4.0
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	155	131	66
Cap Entry Lane, veh/h	1083	1076	1056
Entry HV Adj Factor	0.981	0.978	0.980
Flow Entry, veh/h	152	128	65
Cap Entry, veh/h	1061	1046	1034
V/C Ratio	0.143	0.123	0.063
Control Delay, s/veh	4.7	4.5	4.0
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	1.5	10.4	21.6
Average Queue (m)	0.2	1.9	11.9
95th Queue (m)	2.3	8.6	20.4
Link Distance (m)	111.8	292.7	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	35.0	18.7	14.9	7.8	20.2	29.2	32.8	9.5	33.8	36.3
Average Queue (m)	24.3	11.3	5.2	2.8	12.0	13.2	17.6	3.2	22.2	19.0
95th Queue (m)	38.5	20.1	15.2	9.3	21.9	29.0	34.9	9.5	36.5	35.6
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)						0			1	
Queuing Penalty (veh)						0			0	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	12.4	21.2	8.7	8.8	9.9	7.4
Average Queue (m)	7.4	9.4	1.1	1.0	2.2	1.5
95th Queue (m)	15.0	22.5	7.6	9.0	10.0	7.5
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		30.0				
Storage Blk Time (%)		0				
Queuing Penalty (veh)		0				

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	22.3	14.8	37.1	61.1	42.4	9.1	37.0	43.6
Average Queue (m)	12.4	6.3	18.6	39.5	24.2	2.0	24.2	26.9
95th Queue (m)	23.0	15.5	36.7	60.7	43.8	8.7	39.5	45.4
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)			0	6			0	
Queuing Penalty (veh)			0	6			0	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	7.8	5.8	15.5
Average Queue (m)	1.5	0.8	9.6
95th Queue (m)	7.3	6.2	16.6
Link Distance (m)	148.4	274.0	100.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	6.1	11.2	3.6
Average Queue (m)	1.2	3.6	0.9
95th Queue (m)	6.7	12.3	5.4
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	195	8	21	180	15	47
Future Vol, veh/h	195	8	21	180	15	47
Conflicting Peds, #/hr	0	8	8	0	7	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	212	9	23	196	16	51
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	229	0	474	225
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	249	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1339	-	549	814
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1330	-	531	808
Mov Cap-2 Maneuver	-	-	-	-	531	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	772	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.8	10.5			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	717	-	-	1330	-	
HCM Lane V/C Ratio	0.094	-	-	0.017	-	
HCM Control Delay (s)	10.5	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	15	105	23	57	2	101	422	40	10	527	115
Future Volume (vph)	224	15	105	23	57	2	101	422	40	10	527	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	0.0		35.0	35.0		0.0	35.0		0.0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			0.99	0.97	0.99	1.00		0.98	0.99	
Fr _t		0.868				0.850		0.987			0.973	
Flt Protected	0.950				0.986		0.950			0.950		
Satd. Flow (prot)	1575	1320	0	0	1816	1566	1750	3439	0	1750	3377	0
Flt Permitted	0.701				0.899		0.250			0.468		
Satd. Flow (perm)	1141	1320	0	0	1647	1515	457	3439	0	848	3377	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		114				118		16			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	24		25	25		24	16		20	20		16
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	243	16	114	25	62	2	110	459	43	11	573	125
Shared Lane Traffic (%)												
Lane Group Flow (vph)	243	130	0	0	87	2	110	502	0	11	698	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases			8			4		5	2		1	6
Permitted Phases	8				4		4	2			6	
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.2	5.0	4.8		5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	49	49		49	49	49		36			36	
Act Effct Green (s)	15.9	15.9		15.9	15.9	25.5	24.5			21.7	17.4	
Actuated g/C Ratio	0.30	0.30		0.30	0.30	0.48	0.46			0.41	0.33	
v/c Ratio	0.71	0.27		0.18	0.00	0.28	0.31			0.02	0.61	
Control Delay	29.7	6.2		15.3	0.0	10.2	11.0			8.5	18.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0	0.0	
Total Delay	29.7	6.2		15.3	0.0	10.2	11.0			8.5	18.6	
LOS	C	A		B	A	B	B			A	B	
Approach Delay		21.5			15.0			10.9			18.5	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 52.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 16.3

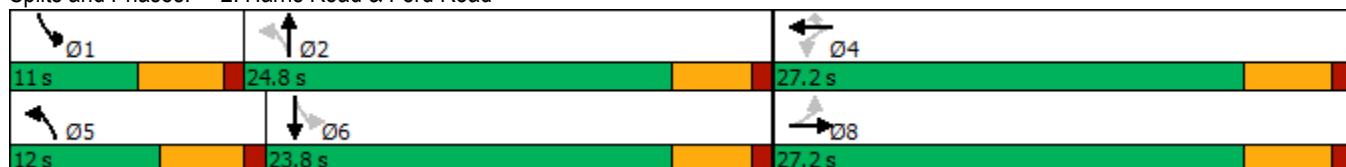
Intersection LOS: B

Intersection Capacity Utilization 55.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		T	↑↑	↑↓	
Traffic Volume (vph)	13	42	37	559	623	17
Future Volume (vph)	13	42	37	559	623	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0		0.0	
Storage Lanes	1	0	1		0	
Taper Length (m)	8.0		8.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Fr _t	0.896			0.996		
Flt Protected	0.988		0.950			
Satd. Flow (prot)	1631	0	1750	3444	3430	0
Flt Permitted	0.988		0.950			
Satd. Flow (perm)	1631	0	1750	3444	3430	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	80.7			227.0	142.8	
Travel Time (s)	5.8			16.3	10.3	
Confl. Peds. (#/hr)		25	16		16	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Bus Blockages (#/hr)	0	0	0	8	8	8
Adj. Flow (vph)	14	46	40	608	677	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	0	40	608	695	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	2.5			2.5	2.5	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.04	1.04	1.01
Turning Speed (k/h)	24	14	24		14	
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 40.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↓	
Traffic Vol, veh/h	13	42	37	559	623	17
Future Vol, veh/h	13	42	37	559	623	17
Conflicting Peds, #/hr	0	25	16	0	0	16
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	46	40	608	677	18
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1086	389	711	0	-	0
Stage 1	702	-	-	-	-	-
Stage 2	384	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	211	610	884	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	196	589	872	-	-	-
Mov Cap-2 Maneuver	196	-	-	-	-	-
Stage 1	426	-	-	-	-	-
Stage 2	649	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	15.6	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	872	-	400	-	-	
HCM Lane V/C Ratio	0.046	-	0.149	-	-	
HCM Control Delay (s)	9.3	-	15.6	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	4	51	9	5	22	52	572	11	21	630	32
Future Volume (vph)	24	4	51	9	5	22	52	572	11	21	630	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	1.00		0.99	1.00	
Fr _t		0.913			0.917			0.997			0.993	
Flt Protected		0.985			0.987		0.950			0.950		
Satd. Flow (prot)	0	1451	0	0	1442	0	1750	3431	0	1750	3103	0
Flt Permitted		0.910			0.929		0.361			0.404		
Satd. Flow (perm)	0	1334	0	0	1356	0	657	3431	0	740	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			24			4			10	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6			193.5			227.0	
Travel Time (s)		35.1			12.9			23.2			27.2	
Confl. Peds. (#/hr)	26		5	5		26	24		11	11		24
Confl. Bikes (#/hr)			1					4				4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	26	4	55	10	5	24	57	622	12	23	685	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	39	0	57	634	0	23	720	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA										
Protected Phases				4			8			2		6
Permitted Phases				4			8			2		6
Detector Phase	4	4			8	8		2	2		6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		24.6	24.6		24.6	24.6	
Total Split (%)	55.8%	55.8%		55.8%	55.8%		44.2%	44.2%		44.2%	44.2%	
Maximum Green (s)	26.0	26.0		26.0	26.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)			5.1			5.1		4.6	4.6		4.6	4.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	31	31		31	31		35	35		35	35	
Act Effct Green (s)		14.6			14.6		34.7	34.7		34.7	34.7	
Actuated g/C Ratio		0.26			0.26		0.62	0.62		0.62	0.62	
v/c Ratio		0.22			0.10		0.14	0.30		0.05	0.37	
Control Delay		6.6			6.6		11.6	9.2		10.9	9.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		6.6			6.6		11.6	9.2		10.9	9.9	
LOS		A			A		B	A		B	A	
Approach Delay		6.6			6.6			9.4			9.9	
Approach LOS		A			A			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 55.7

Actuated Cycle Length: 55.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 9.4

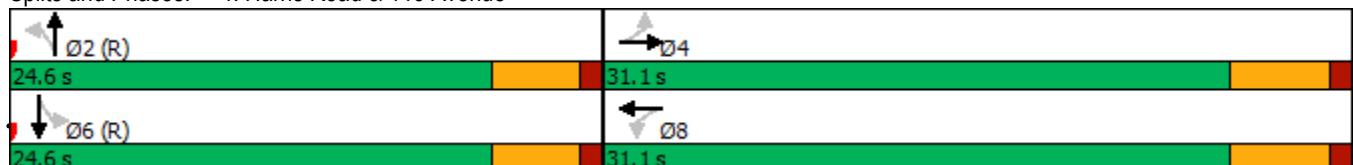
Intersection LOS: A

Intersection Capacity Utilization 53.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	37	45	16	25	13
Future Vol, veh/h	13	37	45	16	25	13
Conflicting Peds, #/hr	10	0	0	10	10	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	40	49	17	27	14
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	76	0	-	0	146	72
Stage 1	-	-	-	-	68	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1523	-	-	-	846	990
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1510	-	-	-	825	978
Mov Cap-2 Maneuver	-	-	-	-	825	-
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	937	-
Approach	EB	WB	SB			
HCM Control Delay, s	1.9	0	9.3			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1510	-	-	-	872	
HCM Lane V/C Ratio	0.009	-	-	-	0.047	
HCM Control Delay (s)	7.4	0	-	-	9.3	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection			
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	69	34	35
Demand Flow Rate, veh/h	70	34	36
Vehicles Circulating, veh/h	23	9	24
Vehicles Exiting, veh/h	20	51	69
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	8	25	10
Ped Cap Adj	0.999	0.997	0.999
Approach Delay, s/veh	3.9	3.5	3.6
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	70	34	36
Cap Entry Lane, veh/h	1104	1120	1103
Entry HV Adj Factor	0.986	0.987	0.985
Flow Entry, veh/h	69	34	35
Cap Entry, veh/h	1087	1101	1085
V/C Ratio	0.063	0.030	0.033
Control Delay, s/veh	3.9	3.5	3.6
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	2.7	8.1	12.6
Average Queue (m)	0.4	1.9	8.3
95th Queue (m)	3.4	8.8	13.8
Link Distance (m)	111.8	292.7	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	44.5	22.9	21.2	3.9	30.3	34.5	41.4	6.2	53.6	46.6
Average Queue (m)	29.0	12.4	10.6	0.5	15.3	17.8	24.9	1.6	34.3	27.7
95th Queue (m)	46.9	22.3	23.1	3.9	29.2	37.8	45.1	6.6	52.8	47.6
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)	0				0	1			7	
Queuing Penalty (veh)	1				1	1			1	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	17.6	13.2	9.5	4.9	12.9	11.3
Average Queue (m)	9.4	5.2	1.6	1.2	2.4	1.5
95th Queue (m)	18.8	14.6	9.1	7.3	12.2	8.4
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		30.0				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	25.5	12.4	21.3	54.3	41.8	18.2	48.5	48.7
Average Queue (m)	12.4	5.4	10.5	32.5	18.9	6.2	25.4	29.1
95th Queue (m)	24.6	13.7	26.0	55.8	44.2	20.5	49.6	51.9
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)				3			2	
Queuing Penalty (veh)				2			0	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	3.6	0.9	10.9
Average Queue (m)	0.4	0.1	7.3
95th Queue (m)	3.4	1.9	13.9
Link Distance (m)	148.4	274.0	100.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	1.8	1.8	2.8
Average Queue (m)	0.3	0.3	0.4
95th Queue (m)	2.7	3.1	3.5
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection

Int Delay, s/veh 4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	141	33	50	160	34	116
Future Vol, veh/h	141	33	50	160	34	116
Conflicting Peds, #/hr	0	29	29	0	23	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	153	36	54	174	37	126

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	218	0	505 201
Stage 1	-	-	-	-	200 -
Stage 2	-	-	-	-	305 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1352	-	527 840
Stage 1	-	-	-	-	834 -
Stage 2	-	-	-	-	748 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1319	-	481 819
Mov Cap-2 Maneuver	-	-	-	-	481 -
Stage 1	-	-	-	-	813 -
Stage 2	-	-	-	-	700 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	11.6
HCM LOS		B	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	706	-	-	1319	-
HCM Lane V/C Ratio	0.231	-	-	0.041	-
HCM Control Delay (s)	11.6	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	196	27	92	15	26	21	79	353	12	12	349	121
Future Volume (vph)	196	27	92	15	26	21	79	353	12	12	349	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	0.0		35.0	35.0		0.0	35.0		0.0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			0.99	0.97	0.98	1.00		0.99	0.98	
Fr _t		0.884				0.850		0.995			0.961	
Flt Protected	0.950				0.982		0.950			0.950		
Satd. Flow (prot)	1575	1345	0	0	1809	1566	1750	3478	0	1750	3311	0
Flt Permitted	0.728				0.889		0.382			0.518		
Satd. Flow (perm)	1183	1345	0	0	1625	1514	691	3478	0	943	3311	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		100				118		6			79	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	25		29	29		25	24		12	12		24
Confl. Bikes (#/hr)									1			1
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	213	29	100	16	28	23	86	384	13	13	379	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	213	129	0	0	44	23	86	397	0	13	511	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.0	4.8			5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	54	54		54	54	54		36			36	
Act Effect Green (s)	14.9	14.9		14.9	14.9	22.4	21.5			19.9	17.0	
Actuated g/C Ratio	0.30	0.30		0.30	0.30	0.46	0.44			0.41	0.35	
v/c Ratio	0.59	0.27		0.09	0.04	0.18	0.26			0.03	0.42	
Control Delay	22.9	7.1		13.9	0.1	9.2	10.9			8.4	13.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0	0.0	
Total Delay	22.9	7.1		13.9	0.1	9.2	10.9			8.4	13.9	
LOS	C	A		B	A	A	B			A	B	
Approach Delay		16.9			9.2			10.6			13.8	
Approach LOS		B			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 48.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 13.2

Intersection LOS: B

Intersection Capacity Utilization 53.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road



Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↑	
Traffic Vol, veh/h	10	19	75	444	422	56
Future Vol, veh/h	10	19	75	444	422	56
Conflicting Peds, #/hr	0	24	24	0	0	24
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	21	82	483	459	61
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	920	308	544	0	-	0
Stage 1	514	-	-	-	-	-
Stage 2	406	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	270	688	1021	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	238	660	1000	-	-	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	509	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	14.5	1.3	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1000	-	410	-	-	
HCM Lane V/C Ratio	0.082	-	0.077	-	-	
HCM Control Delay (s)	8.9	-	14.5	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	0.2	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	11	92	10	21	12	99	540	2	12	497	22
Future Volume (vph)	31	11	92	10	21	12	99	540	2	12	497	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.97			0.98		0.97	1.00		1.00	1.00	
Fr _t		0.908			0.963			0.999			0.994	
Flt Protected		0.988			0.988		0.950			0.950		
Satd. Flow (prot)	0	1438	0	0	1518	0	1750	3440	0	1750	3103	0
Flt Permitted		0.936			0.939		0.414			0.399		
Satd. Flow (perm)	0	1349	0	0	1439	0	739	3440	0	733	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94			13			1			9	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6		193.5			227.0		
Travel Time (s)		35.1			12.9		23.2			27.2		
Confl. Peds. (#/hr)	73		19	19		73	51		4	4		51
Confl. Bikes (#/hr)			1						1			3
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
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	34	12	100	11	23	13	108	587	2	13	540	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	146	0	0	47	0	108	589	0	13	564	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	0.0				0.0			3.5			3.5	
Link Offset(m)	0.0				0.0			0.0			0.0	
Crosswalk Width(m)	2.5				2.5		2.5			2.5		
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA										
Protected Phases				4			8			2		6
Permitted Phases				4			8			2		6
Detector Phase	4	4			8		8		2	2		6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (%)	56.9%	56.9%		56.9%	56.9%		43.1%	43.1%		43.1%	43.1%	
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)				5.1			5.1			4.6	4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	92	92		92	92		55	55		55	55	
Act Effct Green (s)				22.2			26.1	26.1		26.1	26.1	
Actuated g/C Ratio				0.41			0.48	0.48		0.48	0.48	
v/c Ratio				0.24			0.31	0.36		0.04	0.38	
Control Delay				4.8			17.2	13.5		12.5	13.6	
Queue Delay				0.0			0.0	0.0		0.0	0.0	
Total Delay				4.8			17.2	13.5		12.5	13.6	
LOS	A			A			B	B		B	B	
Approach Delay				4.8			6.6			14.0		13.6
Approach LOS				A			A			B		B

Intersection Summary

Area Type: Other

Cycle Length: 54.7

Actuated Cycle Length: 54.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 12.7

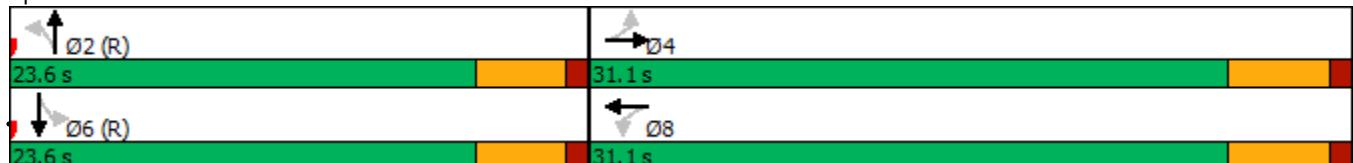
Intersection LOS: B

Intersection Capacity Utilization 56.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	43	40	114	73	23
Future Vol, veh/h	19	43	40	114	73	23
Conflicting Peds, #/hr	70	0	0	70	6	36
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	47	43	124	79	25
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	237	0	-	0	270	211
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	95	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1330	-	-	-	719	829
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1251	-	-	-	626	756
Mov Cap-2 Maneuver	-	-	-	-	626	-
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	874	-
Approach	EB	WB	SB			
HCM Control Delay, s	2.4	0	11.6			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1251	-	-	-	653	
HCM Lane V/C Ratio	0.017	-	-	-	0.16	
HCM Control Delay (s)	7.9	0	-	-	11.6	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	

Intersection			
Intersection Delay, s/veh	4.9		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	206	143	84
Demand Flow Rate, veh/h	210	146	85
Vehicles Circulating, veh/h	42	68	88
Vehicles Exiting, veh/h	172	105	164
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	12	48	5
Ped Cap Adj	0.998	0.993	0.999
Approach Delay, s/veh	5.2	4.8	4.3
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	210	146	85
Cap Entry Lane, veh/h	1083	1056	1035
Entry HV Adj Factor	0.981	0.981	0.984
Flow Entry, veh/h	206	143	84
Cap Entry, veh/h	1061	1028	1018
V/C Ratio	0.194	0.139	0.082
Control Delay, s/veh	5.2	4.8	4.3
LOS	A	A	A
95th %tile Queue, veh	1	0	0

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	124	140	8	0	50
Future Vol, veh/h	31	124	140	8	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	135	152	9	0	54
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	161	0	-	0	360	157
Stage 1	-	-	-	-	157	-
Stage 2	-	-	-	-	203	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1418	-	-	-	639	889
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	831	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1418	-	-	-	622	889
Mov Cap-2 Maneuver	-	-	-	-	622	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	831	-
Approach	EB	WB	SB			
HCM Control Delay, s	1.5	0	9.3			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1418	-	-	-	889	
HCM Lane V/C Ratio	0.024	-	-	-	0.061	
HCM Control Delay (s)	7.6	0	-	-	9.3	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	3.5	12.0	20.4
Average Queue (m)	0.5	2.8	12.6
95th Queue (m)	4.0	10.8	20.8
Link Distance (m)	111.8	292.7	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	39.6	18.6	15.2	10.0	21.0	27.8	34.4	8.3	35.4	30.7
Average Queue (m)	25.7	11.9	6.3	4.0	12.3	14.7	19.0	2.2	24.0	19.9
95th Queue (m)	40.9	21.0	16.2	11.2	23.1	28.6	35.9	8.1	38.3	34.2
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)	0					0			1	
Queuing Penalty (veh)	0					0			0	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	10.5	22.4	4.5	4.6	7.4	10.0
Average Queue (m)	6.5	10.0	0.9	0.5	1.6	2.0
95th Queue (m)	13.6	23.0	5.3	5.1	8.5	10.6
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		30.0				
Storage Blk Time (%)		0				
Queuing Penalty (veh)		1				

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	26.9	14.3	32.0	54.9	44.0	10.3	40.0	41.3
Average Queue (m)	15.3	6.1	18.9	38.4	24.7	3.3	24.5	25.6
95th Queue (m)	26.8	15.5	38.7	61.1	49.8	10.9	42.1	44.1
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)			1	5			1	
Queuing Penalty (veh)			2	5			0	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	8.9	7.1	17.3
Average Queue (m)	1.5	1.3	10.8
95th Queue (m)	7.5	8.0	17.4
Link Distance (m)	148.4	274.0	100.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.4	15.1	5.5
Average Queue (m)	3.0	5.3	1.0
95th Queue (m)	11.3	16.0	5.8
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

10-01-2021

Intersection: 7: 119B Avenue & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	5.5	15.3
Average Queue (m)	2.0	8.4
95th Queue (m)	8.1	16.4
Link Distance (m)	76.9	40.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 8

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	195	9	47	180	17	80
Future Vol, veh/h	195	9	47	180	17	80
Conflicting Peds, #/hr	0	8	8	0	7	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	212	10	51	196	18	87
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	230	0	530	225
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	305	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1338	-	510	814
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	748	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1329	-	482	808
Mov Cap-2 Maneuver	-	-	-	-	482	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	711	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1.6	10.8			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	722	-	-	1329	-	
HCM Lane V/C Ratio	0.146	-	-	0.038	-	
HCM Control Delay (s)	10.8	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-	

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓			↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	255	17	105	28	57	2	101	422	40	10	527	141
Future Volume (vph)	255	17	105	28	57	2	101	422	40	10	527	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	0.0		35.0	35.0		0.0	35.0		0.0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			0.99	0.97	0.99	1.00		0.98	0.99	
Fr _t		0.870				0.850		0.987			0.968	
Flt Protected	0.950				0.984			0.950			0.950	
Satd. Flow (prot)	1575	1323	0	0	1813	1566	1750	3439	0	1750	3355	0
Flt Permitted	0.697				0.886		0.227			0.468		
Satd. Flow (perm)	1135	1323	0	0	1623	1515	415	3439	0	848	3355	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		114				118		16			55	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	24		25	25		24	16		20	20		16
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	277	18	114	30	62	2	110	459	43	11	573	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	277	132	0	0	92	2	110	502	0	11	726	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.2	5.0	4.8		5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	49	49		49	49	49		36			36	
Act Effct Green (s)	17.4	17.4		17.4	17.4	24.7	23.7			21.0	16.8	
Actuated g/C Ratio	0.32	0.32		0.32	0.32	0.46	0.44			0.39	0.31	
v/c Ratio	0.75	0.26		0.18	0.00	0.30	0.33			0.03	0.67	
Control Delay	32.8	6.1		15.2	0.0	10.8	11.6			8.7	19.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0	0.0	
Total Delay	32.8	6.1		15.2	0.0	10.8	11.6			8.7	19.9	
LOS	C	A		B	A	B	B			A	B	
Approach Delay		24.2			14.9			11.4			19.7	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 53.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 17.7

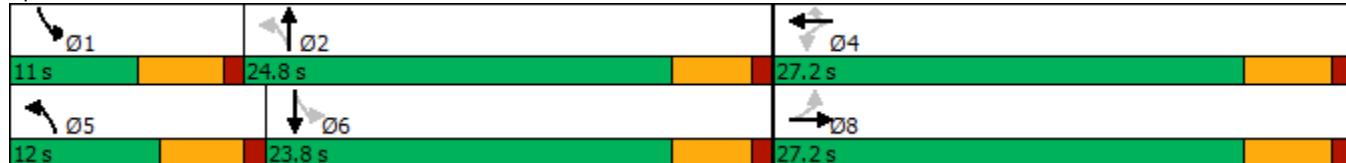
Intersection LOS: B

Intersection Capacity Utilization 65.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road



Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↓	
Traffic Vol, veh/h	13	42	37	562	623	26
Future Vol, veh/h	13	42	37	562	623	26
Conflicting Peds, #/hr	0	25	16	0	0	16
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	46	40	611	677	28
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1093	394	721	0	-	0
Stage 1	707	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	209	605	877	-	-	-
Stage 1	450	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	194	584	865	-	-	-
Mov Cap-2 Maneuver	194	-	-	-	-	-
Stage 1	423	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	15.7	0.6	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	865	-	396	-	-	
HCM Lane V/C Ratio	0.046	-	0.151	-	-	
HCM Control Delay (s)	9.4	-	15.7	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	5	58	9	7	22	65	572	11	21	630	32
Future Volume (vph)	27	5	58	9	7	22	65	572	11	21	630	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	1.00		0.99	1.00	
Fr _t		0.912			0.923			0.997			0.993	
Flt Protected		0.985			0.988		0.950			0.950		
Satd. Flow (prot)	0	1450	0	0	1454	0	1750	3431	0	1750	3103	0
Flt Permitted		0.908			0.931		0.361			0.404		
Satd. Flow (perm)	0	1330	0	0	1369	0	657	3431	0	740	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			24			4			10	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6		193.5			227.0		
Travel Time (s)		35.1			12.9		23.2			27.2		
Confl. Peds. (#/hr)	26		5	5		26	24		11	11		24
Confl. Bikes (#/hr)			1					4				4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	29	5	63	10	8	24	71	622	12	23	685	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	97	0	0	42	0	71	634	0	23	720	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5		2.5			2.5		
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA										
Protected Phases				4			8			2		6
Permitted Phases				4			8			2		6
Detector Phase	4	4			8	8		2	2		6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		24.6	24.6		24.6	24.6	
Total Split (%)	55.8%	55.8%		55.8%	55.8%		44.2%	44.2%		44.2%	44.2%	
Maximum Green (s)	26.0	26.0		26.0	26.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)				5.1			4.6	4.6		4.6	4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	31	31		31	31		35	35		35	35	
Act Effct Green (s)		14.6			14.6		34.7	34.7		34.7	34.7	
Actuated g/C Ratio		0.26			0.26		0.62	0.62		0.62	0.62	
v/c Ratio		0.25			0.11		0.17	0.30		0.05	0.37	
Control Delay		6.8			6.9		12.1	9.2		10.9	9.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		6.8			6.9		12.1	9.2		10.9	9.9	
LOS	A			A			B	A		B	A	
Approach Delay		6.8			6.9			9.5			9.9	
Approach LOS		A			A			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 55.7

Actuated Cycle Length: 55.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 9.4

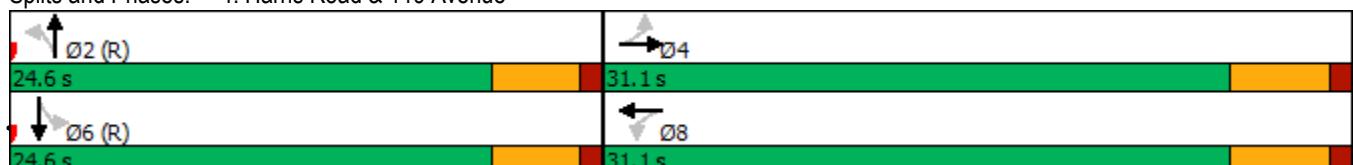
Intersection LOS: A

Intersection Capacity Utilization 53.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	37	45	30	36	13
Future Vol, veh/h	13	37	45	30	36	13
Conflicting Peds, #/hr	10	0	0	10	10	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	40	49	33	39	14
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	92	0	-	0	154	80
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1503	-	-	-	838	980
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1490	-	-	-	816	968
Mov Cap-2 Maneuver	-	-	-	-	816	-
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	937	-
Approach	EB	WB	SB			
HCM Control Delay, s	1.9	0	9.5			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1490	-	-	-	851	
HCM Lane V/C Ratio	0.009	-	-	-	0.063	
HCM Control Delay (s)	7.4	0	-	-	9.5	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection			
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	119	49	65
Demand Flow Rate, veh/h	122	50	67
Vehicles Circulating, veh/h	23	40	37
Vehicles Exiting, veh/h	67	64	108
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	8	25	10
Ped Cap Adj	0.999	0.997	0.999
Approach Delay, s/veh	4.3	3.8	3.9
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	122	50	67
Cap Entry Lane, veh/h	1104	1086	1089
Entry HV Adj Factor	0.975	0.971	0.977
Flow Entry, veh/h	119	49	65
Cap Entry, veh/h	1076	1051	1063
V/C Ratio	0.111	0.046	0.062
Control Delay, s/veh	4.3	3.8	3.9
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	42	17	63	9	0	46
Future Vol, veh/h	42	17	63	9	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	18	68	10	0	50
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	78	0	-	0	183	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1520	-	-	-	806	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1520	-	-	-	781	989
Mov Cap-2 Maneuver	-	-	-	-	781	-
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	915	-
Approach	EB	WB	SB			
HCM Control Delay, s	5.3	0	8.8			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1520	-	-	-	989	
HCM Lane V/C Ratio	0.03	-	-	-	0.051	
HCM Control Delay (s)	7.4	0	-	-	8.8	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	10.3	15.5
Average Queue (m)	2.5	9.8
95th Queue (m)	10.1	16.4
Link Distance (m)	292.7	234.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	53.3	22.9	21.8	0.8	28.4	32.6	37.2	5.3	54.1	48.8
Average Queue (m)	33.9	11.8	11.7	0.0	15.8	18.0	23.9	1.2	35.9	28.9
95th Queue (m)	57.4	24.9	23.3	0.0	28.4	34.6	39.6	5.8	57.4	51.2
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)	2		0		0	1			7	
Queuing Penalty (veh)	3		0		1	1			1	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	15.9	12.2	8.4	12.4	16.2	14.6
Average Queue (m)	9.6	6.1	1.7	2.3	3.8	3.6
95th Queue (m)	17.0	14.8	8.6	12.2	16.0	14.3
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		30.0				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	22.3	14.3	32.6	51.4	40.2	15.0	45.0	54.3
Average Queue (m)	10.4	6.4	13.6	34.0	20.1	6.0	27.5	34.1
95th Queue (m)	21.3	16.3	31.9	56.3	42.6	17.0	47.1	56.2
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)				4			2	
Queuing Penalty (veh)				3			1	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	0.9	2.6	9.8
Average Queue (m)	0.1	0.4	6.7
95th Queue (m)	1.9	4.1	13.5
Link Distance (m)	148.4	274.0	100.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	3.7	4.6	5.9
Average Queue (m)	0.6	0.7	0.8
95th Queue (m)	4.1	4.6	5.9
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

10-01-2021

Intersection: 7: 119B Avenue & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	3.6	13.2
Average Queue (m)	0.5	8.3
95th Queue (m)	4.0	15.3
Link Distance (m)	76.9	40.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 8

Intersection						
Int Delay, s/veh	3.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↓	↔	↔		
Traffic Vol, veh/h	172	36	45	195	37	107
Future Vol, veh/h	172	36	45	195	37	107
Conflicting Peds, #/hr	0	29	29	0	23	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	187	39	49	212	40	116
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	255	0	569	237
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	333	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1310	-	484	802
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	726	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1278	-	443	782
Mov Cap-2 Maneuver	-	-	-	-	443	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	681	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1.5	12.2			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	654	-	-	1278	-	
HCM Lane V/C Ratio	0.239	-	-	0.038	-	
HCM Control Delay (s)	12.2	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-	

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	207	30	112	16	32	25	96	430	15	15	425	131
Future Volume (vph)	207	30	112	16	32	25	96	430	15	15	425	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	0.0		35.0	35.0		0.0	35.0		0.0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			0.99	0.97	0.99	1.00		0.99	0.99	
Fr _t		0.882				0.850		0.995			0.965	
Flt Protected	0.950				0.984		0.950			0.950		
Satd. Flow (prot)	1575	1341	0	0	1813	1566	1750	3478	0	1750	3330	0
Flt Permitted	0.723				0.894		0.294			0.476		
Satd. Flow (perm)	1175	1341	0	0	1636	1514	534	3478	0	868	3330	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		122				118		6			66	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	25		29	29		25	24		12	12		24
Confl. Bikes (#/hr)								1				1
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	225	33	122	17	35	27	104	467	16	16	462	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	225	155	0	0	52	27	104	483	0	16	604	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.2	5.0	4.8		5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	54	54		54	54	54		36			36	
Act Effect Green (s)	16.4	16.4		16.4	16.4	24.6	23.7			20.8	16.5	
Actuated g/C Ratio	0.31	0.31		0.31	0.31	0.47	0.45			0.40	0.31	
v/c Ratio	0.61	0.31		0.10	0.05	0.25	0.31			0.04	0.55	
Control Delay	24.3	6.9		14.1	0.2	10.3	11.6			8.9	17.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0	0.0	
Total Delay	24.3	6.9		14.1	0.2	10.3	11.6			8.9	17.5	
LOS	C	A		B	A	B	B			A	B	
Approach Delay		17.2			9.3			11.4			17.3	
Approach LOS		B			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 52.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 14.8

Intersection LOS: B

Intersection Capacity Utilization 54.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road



Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↑	
Traffic Vol, veh/h	12	24	91	536	515	58
Future Vol, veh/h	12	24	91	536	515	58
Conflicting Peds, #/hr	0	24	24	0	0	24
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	26	99	583	560	63
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1106	360	647	0	-	0
Stage 1	616	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	205	637	934	-	-	-
Stage 1	501	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	176	611	915	-	-	-
Mov Cap-2 Maneuver	176	-	-	-	-	-
Stage 1	438	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	17.2	1.4		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	915	-	335	-	-	
HCM Lane V/C Ratio	0.108	-	0.117	-	-	
HCM Control Delay (s)	9.4	-	17.2	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.4	-	0.4	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	12	96	12	24	15	107	658	3	15	606	26
Future Volume (vph)	33	12	96	12	24	15	107	658	3	15	606	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0			0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0			0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.97			0.98		0.97	1.00		1.00	1.00	
Fr _t		0.908			0.961			0.999			0.994	
Flt Protected		0.988			0.988		0.950			0.950		
Satd. Flow (prot)	0	1438	0	0	1514	0	1750	3440	0	1750	3103	0
Flt Permitted		0.933			0.935		0.341			0.324		
Satd. Flow (perm)	0	1345	0	0	1429	0	612	3440	0	596	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			16			1			8	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6			193.5			227.0	
Travel Time (s)		35.1			12.9			23.2			27.2	
Confl. Peds. (#/hr)	73		19	19		73	51		4	4		51
Confl. Bikes (#/hr)			1						1			3
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
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	36	13	104	13	26	16	116	715	3	16	659	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	153	0	0	55	0	116	718	0	16	687	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA										
Protected Phases				4			8			2		6
Permitted Phases				4			8			2		6
Detector Phase	4	4			8	8		2	2		6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (%)	56.9%	56.9%		56.9%	56.9%		43.1%	43.1%		43.1%	43.1%	
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)				5.1			4.6	4.6		4.6	4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	92	92		92	92		55	55		55	55	
Act Effct Green (s)				22.2			26.1	26.1		26.1	26.1	
Actuated g/C Ratio	0.41				0.41		0.48	0.48		0.48	0.48	
v/c Ratio	0.26				0.09		0.40	0.44		0.06	0.46	
Control Delay	6.9			6.6			21.1	14.2		12.9	14.6	
Queue Delay	0.0			0.0			0.0	0.0		0.0	0.0	
Total Delay	6.9			6.6			21.1	14.2		12.9	14.6	
LOS	A			A			C	B		B	B	
Approach Delay	6.9				6.6			15.2			14.6	
Approach LOS				A				B			B	

Intersection Summary

Area Type: Other

Cycle Length: 54.7

Actuated Cycle Length: 54.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 13.9

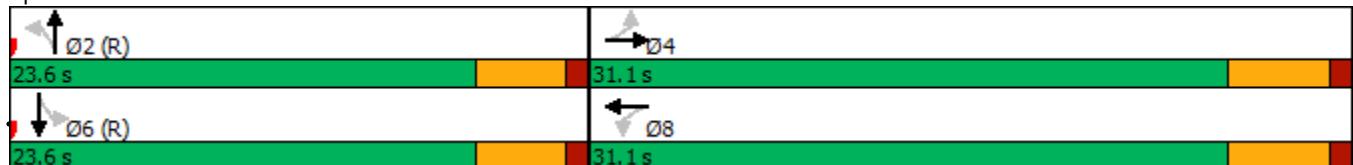
Intersection LOS: B

Intersection Capacity Utilization 58.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	53	49	123	67	28
Future Vol, veh/h	24	53	49	123	67	28
Conflicting Peds, #/hr	70	0	0	70	6	36
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	58	53	134	73	30
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	257	0	-	0	306	226
Stage 1	-	-	-	-	190	-
Stage 2	-	-	-	-	116	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1308	-	-	-	686	813
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	909	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1230	-	-	-	594	742
Mov Cap-2 Maneuver	-	-	-	-	594	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	855	-
Approach	EB	WB	SB			
HCM Control Delay, s	2.5	0	11.8			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1230	-	-	-	631	
HCM Lane V/C Ratio	0.021	-	-	-	0.164	
HCM Control Delay (s)	8	0	-	-	11.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	

Intersection			
Intersection Delay, s/veh	4.8		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	185	157	81
Demand Flow Rate, veh/h	189	160	82
Vehicles Circulating, veh/h	51	60	84
Vehicles Exiting, veh/h	169	106	156
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	12	48	5
Ped Cap Adj	0.998	0.993	0.999
Approach Delay, s/veh	5.0	4.8	4.2
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	189	160	82
Cap Entry Lane, veh/h	1074	1064	1039
Entry HV Adj Factor	0.979	0.981	0.983
Flow Entry, veh/h	185	157	81
Cap Entry, veh/h	1049	1037	1020
V/C Ratio	0.176	0.151	0.079
Control Delay, s/veh	5.0	4.8	4.2
LOS	A	A	A
95th %tile Queue, veh	1	1	0

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	2.2	12.1	20.4
Average Queue (m)	0.3	3.4	12.3
95th Queue (m)	2.8	11.7	21.0
Link Distance (m)	111.8	292.7	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	41.7	21.8	10.9	13.2	24.6	31.6	36.0	7.6	41.6	43.5
Average Queue (m)	26.0	12.7	5.8	4.6	14.2	15.8	21.8	2.2	26.9	24.2
95th Queue (m)	44.3	22.9	13.5	13.0	27.6	35.6	39.8	7.8	44.2	44.7
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)	0				0	0			2	
Queuing Penalty (veh)	0				1	0			0	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	12.9	20.6	7.6	7.7	10.3	9.5
Average Queue (m)	6.6	10.7	1.2	1.5	2.1	2.0
95th Queue (m)	15.4	22.6	7.8	7.8	10.3	8.9
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		30.0				
Storage Blk Time (%)		0				
Queuing Penalty (veh)		0				

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	26.4	15.3	42.0	70.0	51.7	11.9	45.7	49.0
Average Queue (m)	16.1	6.6	20.7	45.9	29.5	4.3	27.6	30.7
95th Queue (m)	28.2	15.9	41.9	70.0	54.0	12.9	47.8	50.4
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)			0	11			2	
Queuing Penalty (veh)			1	13			0	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	8.7	6.5	17.8
Average Queue (m)	1.4	1.0	10.6
95th Queue (m)	7.0	7.3	18.0
Link Distance (m)	148.4	274.0	100.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	9.9	13.4	6.3
Average Queue (m)	2.0	5.1	1.3
95th Queue (m)	8.6	15.8	6.5
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	238	9	25	219	18	57
Future Vol, veh/h	238	9	25	219	18	57
Conflicting Peds, #/hr	0	8	8	0	7	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	259	10	27	238	20	62
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	277	0	571	272
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	299	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1286	-	482	767
Stage 1	-	-	-	-	774	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1277	-	464	762
Mov Cap-2 Maneuver	-	-	-	-	464	-
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	729	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.8	11.2			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	660	-	-	1277	-	
HCM Lane V/C Ratio	0.124	-	-	0.021	-	
HCM Control Delay (s)	11.2	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-	

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	18	128	28	70	3	123	515	49	12	643	140
Future Volume (vph)	273	18	128	28	70	3	123	515	49	12	643	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	0.0		35.0	35.0		0.0	35.0		0.0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			1.00	0.97	0.99	1.00		0.99	0.99	
Fr _t		0.869				0.850		0.987			0.973	
Flt Protected	0.950				0.986		0.950			0.950		
Satd. Flow (prot)	1575	1321	0	0	1816	1566	1750	3439	0	1750	3377	0
Flt Permitted	0.689				0.894		0.167			0.420		
Satd. Flow (perm)	1122	1321	0	0	1639	1515	306	3439	0	764	3377	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		139				118		16			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	24		25	25		24	16		20	20		16
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	297	20	139	30	76	3	134	560	53	13	699	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	297	159	0	0	106	3	134	613	0	13	851	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.2	5.0	4.8		5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	49	49		49	49	49		36			36	
Act Effct Green (s)	18.8	18.8		18.8	18.8	25.1	24.1			21.5	17.4	
Actuated g/C Ratio	0.34	0.34		0.34	0.34	0.45	0.43			0.39	0.31	
v/c Ratio	0.79	0.30		0.19	0.01	0.41	0.41			0.03	0.79	
Control Delay	35.6	5.9		15.5	0.0	13.1	12.6			8.8	24.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0	0.0	
Total Delay	35.6	5.9		15.5	0.0	13.1	12.6			8.8	24.6	
LOS	D	A		B	A	B	B			A	C	
Approach Delay		25.3			15.1			12.7			24.4	
Approach LOS		C			B			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 55.6

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 20.1

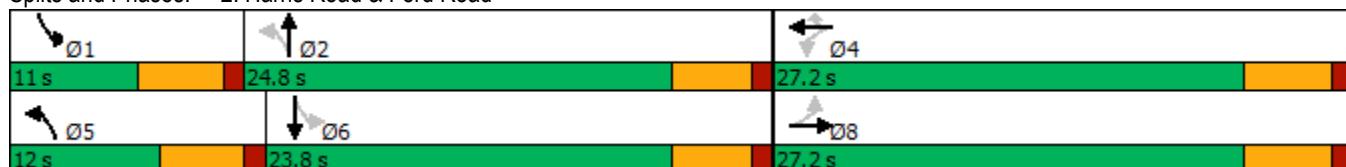
Intersection LOS: C

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road



Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↑	
Traffic Vol, veh/h	16	51	45	681	760	21
Future Vol, veh/h	16	51	45	681	760	21
Conflicting Peds, #/hr	0	25	16	0	0	16
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	55	49	740	826	23
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1322	466	865	0	-	0
Stage 1	854	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	148	543	774	-	-	-
Stage 1	377	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	135	524	764	-	-	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	348	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	20.1	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	764	-	310	-	-	
HCM Lane V/C Ratio	0.064	-	0.235	-	-	
HCM Control Delay (s)	10	-	20.1	-	-	
HCM Lane LOS	B	-	C	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.9	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	5	62	11	7	26	63	697	13	25	768	40
Future Volume (vph)	29	5	62	11	7	26	63	697	13	25	768	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	1.00		1.00	1.00	
Fr _t		0.913			0.921			0.997			0.993	
Flt Protected		0.985			0.988		0.950			0.950		
Satd. Flow (prot)	0	1451	0	0	1451	0	1750	3431	0	1750	3103	0
Flt Permitted		0.903			0.925		0.290			0.336		
Satd. Flow (perm)	0	1324	0	0	1357	0	530	3431	0	616	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			28			4			10	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6			193.5			227.0	
Travel Time (s)		35.1			12.9			23.2			27.2	
Confl. Peds. (#/hr)	26		5	5		26	24		11	11		24
Confl. Bikes (#/hr)			1					4				4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	32	5	67	12	8	28	68	758	14	27	835	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	104	0	0	48	0	68	772	0	27	878	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA										
Protected Phases				4			8			2		6
Permitted Phases				4			8			2		6
Detector Phase	4	4			8	8		2	2		6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		24.6	24.6		24.6	24.6	
Total Split (%)	55.8%	55.8%		55.8%	55.8%		44.2%	44.2%		44.2%	44.2%	
Maximum Green (s)	26.0	26.0		26.0	26.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)			5.1			5.1		4.6	4.6		4.6	4.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	31	31		31	31		35	35		35	35	
Act Effct Green (s)		14.8			14.8		34.5	34.5		34.5	34.5	
Actuated g/C Ratio		0.27			0.27		0.62	0.62		0.62	0.62	
v/c Ratio		0.27			0.13		0.21	0.36		0.07	0.46	
Control Delay		10.0			6.7		13.3	9.8		11.3	11.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		10.0			6.7		13.3	9.8		11.3	11.3	
LOS		A			A		B	A		B	B	
Approach Delay		10.0			6.7			10.1			11.3	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 55.7

Actuated Cycle Length: 55.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 10.6

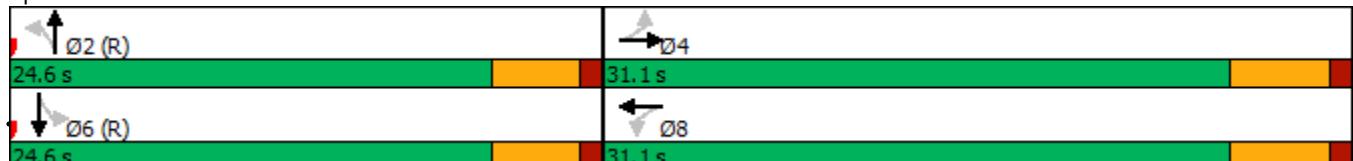
Intersection LOS: B

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	45	55	20	30	16
Future Vol, veh/h	16	45	55	20	30	16
Conflicting Peds, #/hr	10	0	0	10	10	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	49	60	22	33	17
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	92	0	-	0	174	85
Stage 1	-	-	-	-	81	-
Stage 2	-	-	-	-	93	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1503	-	-	-	816	974
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	931	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1490	-	-	-	793	962
Mov Cap-2 Maneuver	-	-	-	-	793	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	924	-
Approach	EB	WB	SB			
HCM Control Delay, s	2	0	9.5			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1490	-	-	-	845	
HCM Lane V/C Ratio	0.012	-	-	-	0.059	
HCM Control Delay (s)	7.4	0	-	-	9.5	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection			
Intersection Delay, s/veh	3.8		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	82	40	42
Demand Flow Rate, veh/h	84	41	43
Vehicles Circulating, veh/h	28	10	29
Vehicles Exiting, veh/h	23	62	83
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	8	25	10
Ped Cap Adj	0.999	0.997	0.999
Approach Delay, s/veh	4.0	3.6	3.7
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	84	41	43
Cap Entry Lane, veh/h	1099	1119	1098
Entry HV Adj Factor	0.976	0.987	0.985
Flow Entry, veh/h	82	40	42
Cap Entry, veh/h	1071	1100	1080
V/C Ratio	0.077	0.037	0.039
Control Delay, s/veh	4.0	3.6	3.7
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	1.8	12.0	11.4
Average Queue (m)	0.3	2.8	8.4
95th Queue (m)	2.7	11.1	13.6
Link Distance (m)	111.8	292.7	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	58.2	34.0	25.8	4.7	31.3	37.0	44.6	9.3	66.2	59.8
Average Queue (m)	41.6	18.9	13.9	1.1	18.1	21.5	27.6	2.1	47.8	41.4
95th Queue (m)	64.1	50.3	27.8	5.6	31.5	39.5	47.3	11.5	68.9	64.6
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)	7		0		0	1			18	
Queuing Penalty (veh)	11		0		1	2			2	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	17.7	13.8	8.6	6.5	18.2	18.7
Average Queue (m)	10.2	6.2	1.3	1.1	4.8	4.8
95th Queue (m)	18.2	15.9	6.6	7.0	17.3	16.8
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		30.0				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	23.9	13.1	32.4	63.7	51.7	19.9	58.2	63.6
Average Queue (m)	13.0	7.2	13.8	42.0	27.6	6.9	34.0	39.0
95th Queue (m)	24.2	15.3	32.6	69.0	53.9	21.5	62.7	69.2
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)			0	8			6	
Queuing Penalty (veh)			1	5			2	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	3.6	9.8
Average Queue (m)	0.6	6.9
95th Queue (m)	4.2	13.5
Link Distance (m)	148.4	100.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	6.1	1.8	1.8
Average Queue (m)	1.0	0.4	0.3
95th Queue (m)	5.4	3.1	2.8
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection

Int Delay, s/veh 4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	172	40	58	195	41	135
Future Vol, veh/h	172	40	58	195	41	135
Conflicting Peds, #/hr	0	29	29	0	23	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	187	43	63	212	45	147

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	259	0	599 239
Stage 1	-	-	-	-	238 -
Stage 2	-	-	-	-	361 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1306	-	465 800
Stage 1	-	-	-	-	802 -
Stage 2	-	-	-	-	705 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1274	-	420 780
Mov Cap-2 Maneuver	-	-	-	-	420 -
Stage 1	-	-	-	-	782 -
Stage 2	-	-	-	-	653 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	12.8
HCM LOS		B	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	650	-	-	1274	-
HCM Lane V/C Ratio	0.294	-	-	0.049	-
HCM Control Delay (s)	12.8	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.2	-

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑			↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	233	33	112	18	32	25	96	430	15	15	425	144
Future Volume (vph)	233	33	112	18	32	25	96	430	15	15	425	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	0.0		35.0	35.0		0.0	35.0		0.0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			0.99	0.97	0.99	1.00		0.99	0.98	
Fr _t		0.884				0.850		0.995			0.962	
Flt Protected	0.950				0.982		0.950			0.950		
Satd. Flow (prot)	1575	1345	0	0	1809	1566	1750	3478	0	1750	3316	0
Flt Permitted	0.721				0.880		0.281			0.476		
Satd. Flow (perm)	1172	1345	0	0	1609	1514	510	3478	0	868	3316	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		122				118		6			76	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	25		29	29		25	24		12	12		24
Confl. Bikes (#/hr)								1				1
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	253	36	122	20	35	27	104	467	16	16	462	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	253	158	0	0	55	27	104	483	0	16	619	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.0	4.8			5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	54	54		54	54	54		36			36	
Act Effect Green (s)	16.8	16.8		16.8	16.8	23.8	22.8			20.0	15.8	
Actuated g/C Ratio	0.32	0.32			0.32	0.32	0.46	0.44		0.38	0.30	
v/c Ratio	0.67	0.31			0.11	0.05	0.26	0.32		0.04	0.59	
Control Delay	26.5	7.0			14.1	0.2	10.5	11.8		8.9	17.8	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.5	7.0			14.1	0.2	10.5	11.8		8.9	17.8	
LOS	C	A			B	A	B	B		A	B	
Approach Delay		19.0			9.5			11.6			17.6	
Approach LOS		B			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 52.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 15.5

Intersection LOS: B

Intersection Capacity Utilization 55.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road



Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↑	
Traffic Vol, veh/h	12	24	91	540	515	66
Future Vol, veh/h	12	24	91	540	515	66
Conflicting Peds, #/hr	0	24	24	0	0	24
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	26	99	587	560	72
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1112	364	656	0	-	0
Stage 1	620	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	203	633	927	-	-	-
Stage 1	499	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	174	608	908	-	-	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	436	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	17.3	1.4		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	908	-	332	-	-	
HCM Lane V/C Ratio	0.109	-	0.118	-	-	
HCM Control Delay (s)	9.4	-	17.3	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.4	-	0.4	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	13	109	12	26	15	119	658	3	15	606	26
Future Volume (vph)	37	13	109	12	26	15	119	658	3	15	606	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0			0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0			0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.97			0.98		0.97	1.00		1.00	1.00	
Fr _t		0.907			0.962			0.999			0.994	
Flt Protected		0.989			0.989		0.950			0.950		
Satd. Flow (prot)	0	1438	0	0	1518	0	1750	3440	0	1750	3103	0
Flt Permitted		0.931			0.934		0.341			0.324		
Satd. Flow (perm)	0	1340	0	0	1430	0	612	3440	0	596	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			16			1			8	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6			193.5			227.0	
Travel Time (s)		35.1			12.9			23.2			27.2	
Confl. Peds. (#/hr)	73		19	19		73	51		4	4		51
Confl. Bikes (#/hr)			1						1			3
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
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	40	14	118	13	28	16	129	715	3	16	659	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	0	0	57	0	129	718	0	16	687	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA										
Protected Phases			4			8			2			6
Permitted Phases			4			8			2			6
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (%)	56.9%	56.9%		56.9%	56.9%		43.1%	43.1%		43.1%	43.1%	
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)			5.1			5.1			4.6	4.6		4.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	92	92		92	92		55	55		55	55	
Act Effct Green (s)		22.2			22.2		26.1	26.1		26.1	26.1	
Actuated g/C Ratio		0.41			0.41		0.48	0.48		0.48	0.48	
v/c Ratio		0.30			0.10		0.44	0.44		0.06	0.46	
Control Delay		7.4			6.7		23.0	14.2		12.9	14.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		7.4			6.7		23.0	14.2		12.9	14.6	
LOS		A			A		C	B		B	B	
Approach Delay		7.4			6.7			15.6			14.6	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 54.7

Actuated Cycle Length: 54.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 14.1

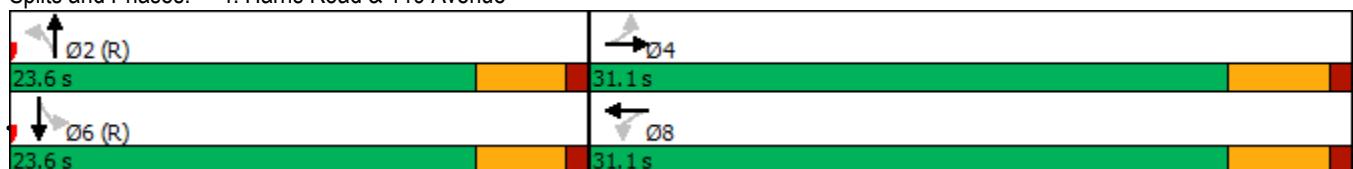
Intersection LOS: B

Intersection Capacity Utilization 58.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection

Int Delay, s/veh 4.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	53	49	136	85	28
Future Vol, veh/h	24	53	49	136	85	28
Conflicting Peds, #/hr	70	0	0	70	6	36
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	58	53	148	92	30

Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	271	0	-	0	313	233
Stage 1	-	-	-	-	197	-
Stage 2	-	-	-	-	116	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1292	-	-	-	680	806
Stage 1	-	-	-	-	836	-
Stage 2	-	-	-	-	909	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1215	-	-	-	589	735
Mov Cap-2 Maneuver	-	-	-	-	589	-
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	855	-

Approach	EB	WB	SB			
HCM Control Delay, s	2.5	0	12.3			
HCM LOS			B			

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1215	-	-	-	619	
HCM Lane V/C Ratio	0.021	-	-	-	0.198	
HCM Control Delay (s)	8	0	-	-	12.3	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	

Intersection			
Intersection Delay, s/veh	5.2		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	240	171	99
Demand Flow Rate, veh/h	245	174	101
Vehicles Circulating, veh/h	51	79	103
Vehicles Exiting, veh/h	202	125	193
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	12	48	5
Ped Cap Adj	0.998	0.993	0.999
Approach Delay, s/veh	5.6	5.1	4.5
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	245	174	101
Cap Entry Lane, veh/h	1074	1044	1019
Entry HV Adj Factor	0.980	0.983	0.976
Flow Entry, veh/h	240	171	99
Cap Entry, veh/h	1050	1019	994
V/C Ratio	0.229	0.168	0.099
Control Delay, s/veh	5.6	5.1	4.5
LOS	A	A	A
95th %tile Queue, veh	1	1	0

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	152	170	8	0	50
Future Vol, veh/h	31	152	170	8	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	165	185	9	0	54
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	194	0	-	0	423	190
Stage 1	-	-	-	-	190	-
Stage 2	-	-	-	-	233	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1379	-	-	-	588	852
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	806	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1379	-	-	-	572	852
Mov Cap-2 Maneuver	-	-	-	-	572	-
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	806	-
Approach	EB	WB	SB			
HCM Control Delay, s	1.3	0	9.5			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1379	-	-	-	852	
HCM Lane V/C Ratio	0.024	-	-	-	0.064	
HCM Control Delay (s)	7.7	0	-	-	9.5	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	6.3	14.8	18.2
Average Queue (m)	0.6	4.8	12.7
95th Queue (m)	5.0	15.1	19.4
Link Distance (m)	111.8	292.7	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	47.0	34.4	14.0	10.8	22.9	24.1	29.1	6.7	42.1	42.7
Average Queue (m)	32.1	14.9	7.4	4.5	14.7	12.2	17.1	1.9	28.5	25.7
95th Queue (m)	50.5	34.7	16.7	13.1	24.1	27.4	32.6	7.6	45.4	44.0
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)	1					0			3	
Queuing Penalty (veh)	1					0			0	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	13.0	16.6	10.8	12.1	13.6	15.6
Average Queue (m)	7.2	9.2	2.2	2.6	2.7	3.1
95th Queue (m)	15.1	18.2	10.5	11.7	12.4	14.1
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		30.0				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	28.4	13.5	43.2	68.0	55.9	12.2	47.9	50.5
Average Queue (m)	16.4	5.0	25.9	44.8	29.7	4.0	32.6	36.1
95th Queue (m)	30.0	13.9	47.7	69.5	54.8	12.5	51.3	55.0
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)			3	10			3	
Queuing Penalty (veh)			10	12			0	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	11.0	13.1	15.6
Average Queue (m)	2.2	2.5	10.4
95th Queue (m)	9.4	13.2	15.2
Link Distance (m)	148.4	274.0	100.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	10.9	14.4	9.4
Average Queue (m)	3.0	4.7	2.3
95th Queue (m)	10.7	15.1	10.0
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

10-01-2021

Intersection: 7: 119B Avenue & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	10.3	12.1
Average Queue (m)	2.2	8.1
95th Queue (m)	10.0	14.2
Link Distance (m)	76.9	40.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 24

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	238	11	52	219	20	90
Future Vol, veh/h	238	11	52	219	20	90
Conflicting Peds, #/hr	0	8	8	0	7	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	259	12	57	238	22	98
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	279	0	632	273
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	359	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1284	-	444	766
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1275	-	416	761
Mov Cap-2 Maneuver	-	-	-	-	416	-
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	666	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	1.5	11.6			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	661	-	-	1275	-	
HCM Lane V/C Ratio	0.181	-	-	0.044	-	
HCM Control Delay (s)	11.6	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-	

Lanes, Volumes, Timings
2: Harris Road & Ford Road

10-01-2021

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓			↑	↑	↑	↑↓		↑	↑↓	
Traffic Volume (vph)	304	21	128	33	70	3	123	515	49	12	643	166
Future Volume (vph)	304	21	128	33	70	3	123	515	49	12	643	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	0.0		35.0	35.0		0.0	35.0		0.0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.97			0.99	0.97	0.99	1.00		0.99	0.99	
Fr _t		0.871				0.850		0.987			0.969	
Flt Protected	0.950				0.984		0.950			0.950		
Satd. Flow (prot)	1575	1325	0	0	1813	1566	1750	3439	0	1750	3359	0
Flt Permitted	0.685				0.878		0.164			0.420		
Satd. Flow (perm)	1116	1325	0	0	1608	1515	300	3439	0	764	3359	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		139				118		16			52	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		309.2			173.4			142.8			230.2	
Travel Time (s)		22.3			12.5			10.3			16.6	
Confl. Peds. (#/hr)	24		25	25		24	16		20	20		16
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
Parking (#/hr)	0	10	10									
Adj. Flow (vph)	330	23	139	36	76	3	134	560	53	13	699	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	330	162	0	0	112	3	134	613	0	13	879	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.16	1.25	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4		4	2			6		
Detector Phase	8	8		4	4	4	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	27.2	27.2		27.2	27.2	27.2	11.0	23.8		11.0	23.8	
Total Split (s)	27.2	27.2		27.2	27.2	27.2	12.0	24.8		11.0	23.8	
Total Split (%)	43.2%	43.2%		43.2%	43.2%	43.2%	19.0%	39.4%		17.5%	37.8%	
Maximum Green (s)	22.0	22.0		22.0	22.0	22.0	7.0	20.0		6.0	19.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	4.0	3.8		4.0	3.8	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2	5.2	5.0	4.8		5.0	4.8	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0		12.0			12.0	
Pedestrian Calls (#/hr)	49	49		49	49	49		36			36	
Act Effct Green (s)	20.2	20.2		20.2	20.2	25.5	24.4			21.8	17.7	
Actuated g/C Ratio	0.35	0.35		0.35	0.35	0.45	0.43			0.38	0.31	
v/c Ratio	0.84	0.29		0.20	0.00	0.43	0.42			0.03	0.82	
Control Delay	40.9	5.9		15.6	0.0	13.7	13.0			8.8	26.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0			0.0	0.0	
Total Delay	40.9	5.9		15.6	0.0	13.7	13.0			8.8	26.4	
LOS	D	A		B	A	B	B			A	C	
Approach Delay		29.4			15.2			13.1			26.2	
Approach LOS		C			B			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 63

Actuated Cycle Length: 57.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 22.0

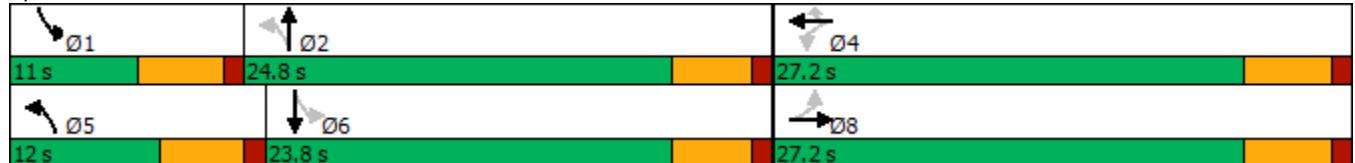
Intersection LOS: C

Intersection Capacity Utilization 75.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Harris Road & Ford Road



Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		T	↑↑	↑↓	
Traffic Vol, veh/h	16	51	45	684	760	30
Future Vol, veh/h	16	51	45	684	760	30
Conflicting Peds, #/hr	0	25	16	0	0	16
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	55	49	743	826	33
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1329	471	875	0	-	0
Stage 1	859	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	146	539	767	-	-	-
Stage 1	375	-	-	-	-	-
Stage 2	595	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	133	520	757	-	-	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	346	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	20.3	0.6	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	757	-	307	-	-	
HCM Lane V/C Ratio	0.065	-	0.237	-	-	
HCM Control Delay (s)	10.1	-	20.3	-	-	
HCM Lane LOS	B	-	C	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.9	-	-	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	6	69	11	8	26	76	697	13	25	768	40
Future Volume (vph)	32	6	69	11	8	26	76	697	13	25	768	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	8.0			8.0			8.0			8.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99			0.98		0.99	1.00		1.00	1.00	
Fr _t		0.913			0.923			0.997			0.993	
Flt Protected		0.985			0.988		0.950			0.950		
Satd. Flow (prot)	0	1451	0	0	1454	0	1750	3431	0	1750	3103	0
Flt Permitted		0.903			0.924		0.289			0.335		
Satd. Flow (perm)	0	1324	0	0	1359	0	528	3431	0	614	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			28			4			10	
Link Speed (k/h)		30			50			30			30	
Link Distance (m)		292.9			179.6			193.5			227.0	
Travel Time (s)		35.1			12.9			23.2			27.2	
Confl. Peds. (#/hr)	26		5	5		26	24		11	11		24
Confl. Bikes (#/hr)			1					4				4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	8	0
Parking (#/hr)	3	3	3	4	4	4					16	16
Adj. Flow (vph)	35	7	75	12	9	28	83	758	14	27	835	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	117	0	0	49	0	83	772	0	27	878	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.5			2.5			2.5			2.5	
Two way Left Turn Lane												
Headway Factor	1.01	1.19	1.01	1.01	1.19	1.01	1.01	1.04	1.01	1.01	1.17	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru										
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings
4: Harris Road & 119 Avenue

10-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)				0.0			0.0			0.0		0.0
Turn Type	Perm	NA										
Protected Phases				4			8			2		6
Permitted Phases				4			8			2		6
Detector Phase	4	4			8	8		2	2		6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		23.6	23.6		23.6	23.6	
Total Split (s)	31.1	31.1		31.1	31.1		24.6	24.6		24.6	24.6	
Total Split (%)	55.8%	55.8%		55.8%	55.8%		44.2%	44.2%		44.2%	44.2%	
Maximum Green (s)	26.0	26.0		26.0	26.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)				5.1			4.6	4.6		4.6	4.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	31	31		31	31		35	35		35	35	
Act Effct Green (s)		14.9			14.9		34.4	34.4		34.4	34.4	
Actuated g/C Ratio		0.27			0.27		0.62	0.62		0.62	0.62	
v/c Ratio		0.30			0.13		0.25	0.36		0.07	0.46	
Control Delay		10.8			6.8		14.2	9.8		11.3	11.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		10.8			6.8		14.2	9.8		11.3	11.3	
LOS		B			A		B	A		B	B	
Approach Delay		10.8			6.8			10.2			11.3	
Approach LOS		B			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 55.7

Actuated Cycle Length: 55.7

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 10.7

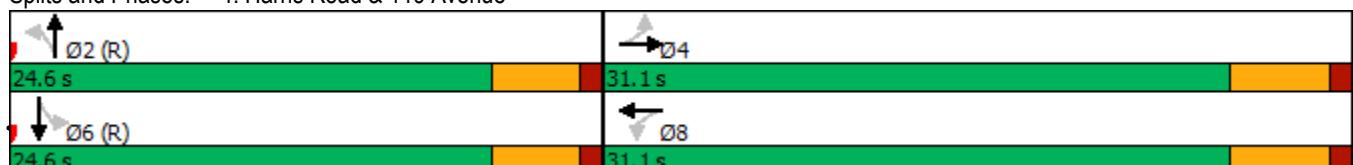
Intersection LOS: B

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Harris Road & 119 Avenue



Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	45	55	34	41	16
Future Vol, veh/h	16	45	55	34	41	16
Conflicting Peds, #/hr	10	0	0	10	10	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	49	60	37	45	17
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	107	0	-	0	182	93
Stage 1	-	-	-	-	89	-
Stage 2	-	-	-	-	93	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1484	-	-	-	807	964
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	931	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1471	-	-	-	784	953
Mov Cap-2 Maneuver	-	-	-	-	784	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	924	-
Approach	EB	WB	SB			
HCM Control Delay, s	2	0	9.7			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1471	-	-	-	825	
HCM Lane V/C Ratio	0.012	-	-	-	0.075	
HCM Control Delay (s)	7.5	0	-	-	9.7	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection			
Intersection Delay, s/veh	4.2		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	132	55	72
Demand Flow Rate, veh/h	135	57	74
Vehicles Circulating, veh/h	28	41	41
Vehicles Exiting, veh/h	70	74	122
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	8	25	10
Ped Cap Adj	0.999	0.997	0.999
Approach Delay, s/veh	4.4	3.9	4.0
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	135	57	74
Cap Entry Lane, veh/h	1099	1085	1085
Entry HV Adj Factor	0.978	0.973	0.978
Flow Entry, veh/h	132	55	72
Cap Entry, veh/h	1073	1051	1059
V/C Ratio	0.123	0.053	0.068
Control Delay, s/veh	4.4	3.9	4.0
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	42	21	77	9	0	46
Future Vol, veh/h	42	21	77	9	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	23	84	10	0	50
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	94	0	-	0	204	89
Stage 1	-	-	-	-	89	-
Stage 2	-	-	-	-	115	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1500	-	-	-	784	969
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	910	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1500	-	-	-	760	969
Mov Cap-2 Maneuver	-	-	-	-	760	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	910	-
Approach	EB	WB	SB			
HCM Control Delay, s	5	0	8.9			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1500	-	-	-	969	
HCM Lane V/C Ratio	0.03	-	-	-	0.052	
HCM Control Delay (s)	7.5	0	-	-	8.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	

Queuing and Blocking Report

10-01-2021

Intersection: 1: 190A Street & Ford Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	0.9	14.2	18.4
Average Queue (m)	0.1	4.7	11.1
95th Queue (m)	1.9	15.7	19.0
Link Distance (m)	111.8	292.7	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Harris Road & Ford Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	59.6	72.6	26.1	6.7	31.8	35.0	45.8	22.3	59.8	59.8
Average Queue (m)	43.7	32.3	13.2	1.1	19.9	20.8	28.4	4.8	43.1	39.4
95th Queue (m)	66.0	105.3	27.1	5.7	36.0	36.2	47.8	21.3	62.8	65.4
Link Distance (m)		292.7	162.0			127.4	127.4		219.2	219.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0			35.0	35.0			35.0		
Storage Blk Time (%)	11		0		1	1			14	
Queuing Penalty (veh)	18		0		4	1			2	

Intersection: 3: Harris Road & Civic Centre

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	TR
Maximum Queue (m)	17.6	16.6	7.7	5.8	12.7	13.2
Average Queue (m)	9.8	5.9	1.2	1.6	2.7	3.2
95th Queue (m)	18.6	17.6	7.1	8.1	11.9	14.5
Link Distance (m)	65.3		216.2	216.2	127.4	127.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		30.0				
Storage Blk Time (%)		0				
Queuing Penalty (veh)		0				

Queuing and Blocking Report

10-01-2021

Intersection: 4: Harris Road & 119 Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	26.0	13.4	37.3	62.6	55.9	19.5	55.4	59.6
Average Queue (m)	14.2	6.2	17.0	40.3	30.3	6.9	32.1	36.4
95th Queue (m)	28.0	15.4	39.2	66.1	56.1	19.5	60.0	65.2
Link Distance (m)	274.0	168.3		187.5	187.5		216.2	216.2
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			40.0			40.0		
Storage Blk Time (%)			0	7			5	
Queuing Penalty (veh)			1	6			1	

Intersection: 5: 190A Street & 119 Avenue

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	3.6	1.8	11.2
Average Queue (m)	0.5	0.3	8.4
95th Queue (m)	4.0	2.8	13.1
Link Distance (m)	148.4	274.0	100.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: 190A Street & 119B Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	5.3	6.6	6.1
Average Queue (m)	1.1	1.1	0.9
95th Queue (m)	5.8	6.1	5.9
Link Distance (m)	76.9	100.4	234.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

10-01-2021

Intersection: 7: 119B Avenue & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	7.0	14.8
Average Queue (m)	1.1	8.6
95th Queue (m)	6.4	16.4
Link Distance (m)	76.9	40.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 33

WATT VICTORIA
#501, 740 Hillside Avenue
Victoria, BC V8T 1Z4
(250) 388-9877

WATT VANCOUVER
550 – 888 Dunsmuir Street
Vancouver, BC V6C 3K4
(778) 309-1253

WATT OKANAGAN
#8 - 2483 Main Street
West Kelowna, BC V4T 2E8
(778) 313-1014

WATT EDMONTON
500 Empire Building,
10080 Jasper Avenue
Edmonton, AB T5J 1V9
(780) 800-2957

WATT LLOYDMINSTER
201B 5004 18th Street
Lloydminster, AB T9V 1V4
(780) 870-4338

WATT CALGARY
#310, 3016 – 5th Avenue NE
Calgary, AB T2A 6K4
(403) 273-9001