

Transportation Impact Assessment Report, Revision 1

Proposed Development at 347 Franktown Road,
Carleton Place, Ontario

Revised November 4, 2021

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Table of Contents

1. Introduction.....1

 1.1. Background1

 1.2. Proposed Development2

2. Existing Conditions (2021).....4

 2.1. Roadway Geometry4

 2.2. Transit Service.....5

 2.3. Provisions for Pedestrians and Cyclists.....6

 2.4. Traffic Operations6

3. Background Traffic.....9

 3.1. 2028 Background Traffic (Phase 1)9

 3.2. 2032 Background Traffic12

4. Site Travel Demands15

 4.1. Trip Generation.....15

 4.2. Scenario 1 (Phase 1 of Development).....16

 4.2.1. Trip Distribution and Assignment16

 4.2.2. 2028 Total (Phase 1) Traffic.....18

 4.3. Scenario 222

 4.3.1. Trip Distribution and Assignment22

 4.3.2. 2032 Total (Scenario 2) Traffic.....24

 4.4. Scenario 328

 4.4.1. Trip Distribution and Assignment28

 4.4.2. 2032 Total (Scenario 3) Traffic.....30

5. Site Circulation and Access Review33

 5.1. Scenario 1 (Phase 1 of Development).....33

 5.2. Scenario 233

 5.3. Scenario 333

 5.4. Parking33

6. Conclusions and Recommendations35

List of Figures

Figure 1: Site Location..... 1

Figure 2: Existing Lane Geometry at Key Intersections 5

Figure 3: Existing (2021) AM (PM) Peak Hour Traffic Volumes 7

Figure 4: 2028 Background AM (PM) Peak Hour Traffic Volumes..... 10

Figure 5: 2032 Background AM (PM) Peak Hour Traffic Volumes..... 13

Figure 6: Scenario 1 AM (PM) Peak Hour Site Generated Traffic 23

Figure 7: Left Turn Warrant Nomograph at Site Access, 2032 Scenario 1 Total Traffic 25
Figure 8: 2032 Scenario 1 Total Future AM (PM) Peak Hour Traffic 26
Figure 9: Scenario 2 AM (PM) Peak Hour Site Generated Traffic 17
Figure 10: Left Turn Warrant Nomograph at Temporary Site Access, 2028 Scenario 2 Total
Traffic..... 19
Figure 8: 2028 Scenario 2 Total Future AM (PM) Peak Hour Traffic 20
Figure 9: Scenario 3 AM (PM) Peak Hour Site Generated Traffic 29
Figure 8: 2032 Scenario 3 Total Future AM (PM) Peak Hour Traffic 31

List of Tables

Table 1: Phase 1 - Building Supply Outlet 2
Table 2: Study Area Roadways 4
Table 3: Turning Movement Count Location and Source 6
Table 4: Existing Traffic Operations..... 8
Table 5: 2028 Background Traffic Operations 11
Table 6: 2032 Background Traffic Operations 14
Table 7: Trip Generation, Full Development..... 15
Table 8: 2032 Scenario 1 Total Traffic Operations 27
Table 8: 2032 Scenario 2 Total Traffic Operations 21
Table 8: 2032 Scenario 3 Total Traffic Operations 32

List of Appendices

Appendix A Preliminary Draft Subdivision Plan
Appendix B Traffic Analysis Outputs

1. INTRODUCTION

1.1. Background

BT Engineering (BTE) was retained to prepare a Transportation Impact Assessment (TIA) for a proposed development at 347 Franktown Road in the Town of Carleton Place, Ontario. The proposed development is located on the east side of Franktown Road, north of Highway 7, and is bounded by lands proposed for future residential/commercial development. In total, the size of the study area is approximately 3 ha. The general location of the proposed development is illustrated in **Figure 1**. MTO confirmed that the site is located beyond their permit control area. Scenario 1 and Scenario 3, as described in this report, would have access being located closer to Highway 7 (within MTO’s permit control area) and would be subject to MTO approval. For the purposes of this report the orientation of Franktown Road is described as north-south.



Figure 1: Site Location

A Transportation Environmental Study Report (TESR) was completed for Highway 7 and Highway 15 intersection improvements in July 2020. This Study recommended: the addition of a southbound through lane on Franktown Road for approximately 430 m north of Highway 7 (to approximately Alexander Street); elimination of the channelized right-turn lane on Highway 7

westbound onto Franktown Road with a controlled right-turn lane; and the provision of sidewalks on the west side of Franktown Road from Highway 7 to Findlay Avenue.

Additionally, the intersection of Franktown Road and Coleman Street was recently reconstructed to accommodate development within the Town of Carleton Place. The reconstruction included an auxiliary northbound and southbound left-turn lane.

These improvements were recommended taking into consideration planned / future development within Carleton Place. As a result, based on discussions with Town of Carleton Place staff, the intersections of Franktown Road at Coleman Street and Highway 7 were not included as part of this analysis.

1.2. Proposed Development

The proposed development at 347 Franktown Road is planned to include a retirement care home, senior’s apartment building, commercial plaza and townhouse development. Construction will occur in four phases as summarized in **Table 1**. This table also provides a breakdown of the development areas for all phases.

Table 1: Phase 1 - Building Supply Outlet

Phase	Description	Area
Phase 1	Retirement Home Building	126,153 ft ²
Phase 2	Senior’s Apartment Building	83,743 ft ²
Phase 3	Medical Clinic Building	12,174 ft ²
Phase 4	Townhouse Development	0.3196 ha

The subdivision preliminary draft plan is provided in **Appendix A**. Three scenarios for principal site access were analyzed based on input from the Town and MTO. These included:

- **Scenario 1 (Phase 1 of Development):** For Phase 1 of the development with site access provided via right-in access at 347 Franktown Road, and temporary full-movement access south of the commercial plaza located at 355 Franktown Road. This Scenario only evaluated to buildout of Phase 1 of the development. Following Phase 1, it is assumed that the temporary access south of the commercial plaza would be closed to vehicular traffic and would be limited to an emergency/fire access route.
- **Scenario 2:** Full buildout of the development, with principal site access provided via full-movement access at 347 Franktown Road. A secondary access would connect to the proposed development on the east side via a planned north-south Municipal Street. (This access scenario was evaluated previously but the Town’s initial reaction was not supportive due to the proximity of the access, offset from Alexander Street .)
- **Scenario 3:** Full buildout of the development, with principal site access provided on the east side of the site via a planned north-south Municipal Street connecting to Nelson Street. In addition, a secondary right-in access would be provided at 347 Franktown Road.

It is anticipated that Phase 1 of the development could be completed by 2023 and that the full buildout of the development would be complete by 2027.

A potential 4th access scenario was discussed but has not been evaluated as part of this study. This would involve extension of the planned north-south Municipal Street south to a proposed extension of Findlay Avenue as proposed in the Transportation Master Plan and approved as part of the Highway 7 Secondary Plan. It would be dependent on the Town of Carleton Place securing the required public right-of-way through private property and should be addressed as part of the Transportation Master Plan.

2. EXISTING CONDITIONS (2021)

2.1. Roadway Geometry

The characteristics of the various roadways in the study area are summarized in **Table 2**.

Table 2: Study Area Roadways

Road	Classification	Cross Section	Posted Speed	Comments
Franktown Road	Arterial	2-lane	50 km/h	<ul style="list-style-type: none"> North-south arterial providing access to residential/ commercial developments. Provides access to the wider transportation network to the south (becomes Highway 15) and via Highway 7. Nelson Street, Findlay Avenue and Alexander Street are stop controlled at Franktown Road.
Coleman Street	Collector	2-lane	50 km/h	<ul style="list-style-type: none"> East-west collector providing access to residential/commercial developments. Park Avenue is stop controlled at Coleman Street.
Highway 7	Provincial Highway	4-lane with a continuous two-way left-tun lane	60 km/h	<ul style="list-style-type: none"> Provincial highway providing access to the Greater Toronto Area and Ottawa.
Park Avenue	Local Road	2-lane	50 km/h	<ul style="list-style-type: none"> Connects to Coleman Street at stop-controlled intersection.
Nelson Street	Local Road	2-lane	50 km/h	<ul style="list-style-type: none"> Connects to Franktown at stop-controlled intersection.
Findlay Avenue	Local Road	2-lane	50 km/h	<ul style="list-style-type: none"> Connects to Franktown at stop-controlled intersection.
Alexander Street	Local Road	2-lane	50 km/h	<ul style="list-style-type: none"> Connects to Franktown at stop-controlled intersection.

The existing lane geometry and traffic control at key intersections is illustrated on **Figure 2**.

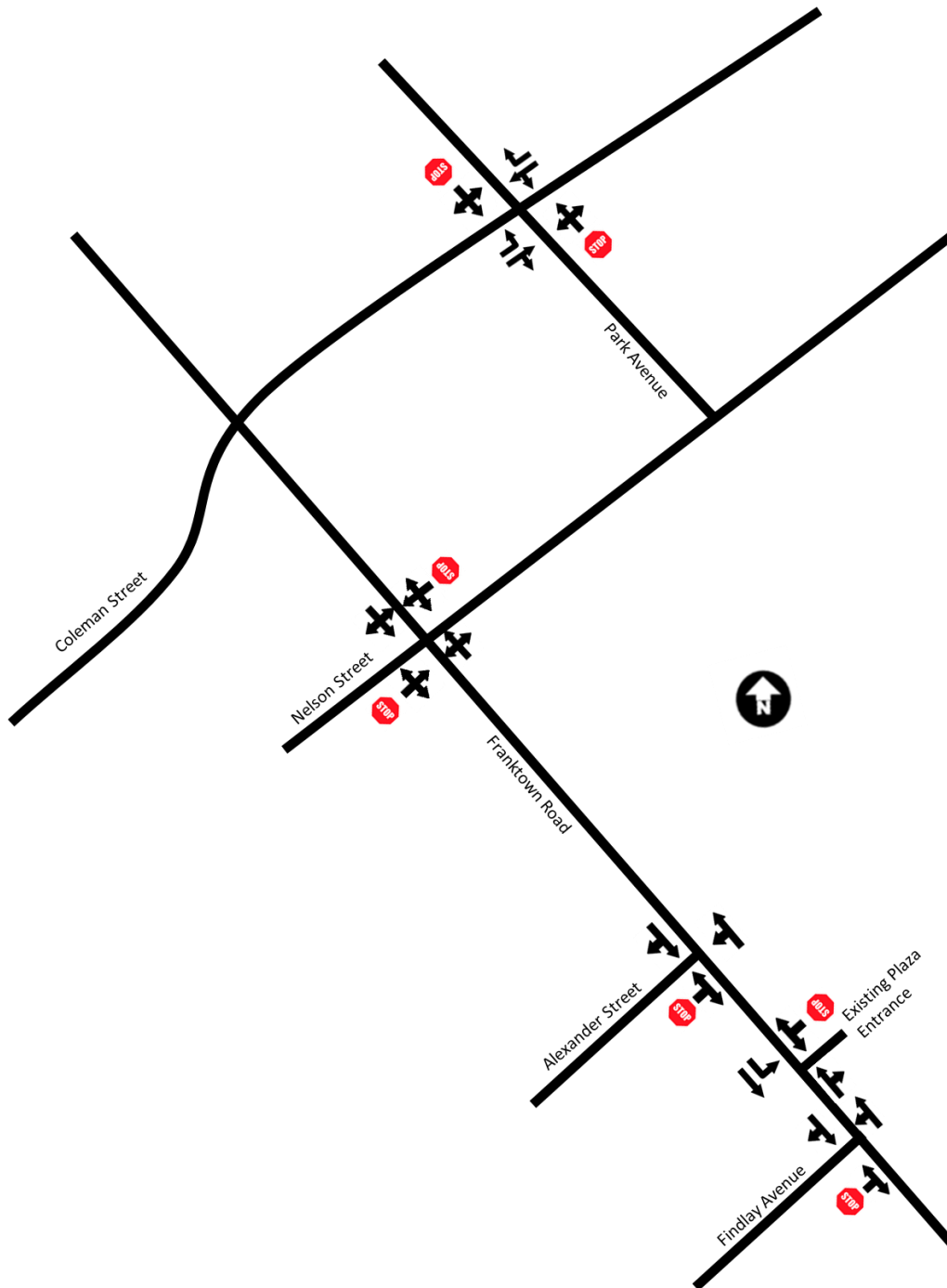


Figure 2: Existing Lane Geometry at Key Intersections

2.2. Transit Service

Currently the site is not serviced by any transit routes. Approximately 0.3 km north of Nelson Street, the area is serviced by Leduc Bus Lines Route 538 to provide daily commuter services to Ottawa. Due to low ridership, Route 538 was suspended on October 30, 2020 and will

remain temporarily suspended until further notice. Lanark Transportation, a community bus service for medical/social service appointments, offers services at the locations of Carabeck Community Centre and Carleton Place Town Hall biweekly on Tuesdays. The bus service also offers personalized in-town pick ups and drop-offs.

2.3. Provisions for Pedestrians and Cyclists

In the study area, Franktown Road has sidewalks with boulevards along the west side. The east side has portions of sidewalk starting at the Alexander Street intersection and continuing north towards the end of the project limits. The Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study (2020) recommended the provision of sidewalks on the east side of Franktown Boulevard south of Alexander Street. The side streets do not have pedestrian facilities.

There are no existing cycling facilities in the study area.

2.4. Traffic Operations

Existing traffic demands throughout the study area were obtained from peak period traffic counts provided in previous traffic reports and from turning movement counts. A list of the intersections and the counts obtained is presented in **Table 3**. This traffic impact study has utilized previous traffic counts, factoring them to 2021, to reflect more normal (pre COVID-19) conditions.

Table 3: Turning Movement Count Location and Source

Intersection	Source
Coleman Street at Park Avenue	Traffic Impact Study Addendum – Coleman Street Subdivision (McIntosh Perry Consulting Engineers Ltd., 2019)
Franktown Road at Nelson Street	
Franktown Road at Alexander Street	Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study – Traffic Analysis Report (2020)
Franktown Road at Findlay Avenue	
Franktown Road at Existing Commercial Plaza (355 Franktown Road)	BTE Turning Movement Count on October 21, 2021 (PM) and October 22, 2021 (AM)

Existing peak hour traffic demands are shown in **Figure 3**. The existing roadway capacity in the area was evaluated using Synchro 9 and is summarized in **Table 4**. Detailed analysis reports are provided in **Appendix B**.

				(23)	(5)	(14)	↑	8	(42)	
Coleman Street				16	3	13	←	140	(319)	
				←	↓	↘	↓	3	(24)	
				(16)	11		↑	↑	↑	
				(189)	142		→	3	3	11
				(6)	3		↓	(4)	(3)	(12)
			Franktown Road							
				(16)	(479)	(4)	↑	3	(5)	
				4	300	4	←	2	(0)	
Nelson Street West				←	↓	↘	↓	6	(13)	
				(15)	20		↑	↑	↑	
				(0)	1		→	4	356	3
				(5)	9		↓	(11)	(563)	(8)
				(1)	(495)					
				1	330					
Alexander Street				←	↓					
				(4)	3		↑	8	344	
				(11)	14		↓	(19)	(589)	
				(479)	(27)		↑	11	(41)	
				317	13		↓	11	(44)	Existing Commerical Plaza
							↑	331	20	
							↓	(556)	(52)	
				(14)	(492)					
				36	307					
Findlay Avenue				←	↓					
				(31)	18		↑	52	333	
				(39)	35		↓	(38)	(577)	

Figure 3: Existing (2021) AM (PM) Peak Hour Traffic Volumes

Table 4: Existing Traffic Operations

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		V/C	Delay (s)	LOS	95th Queue (m)	V/C	Delay (s)	LOS	95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.6	A	0.2	0.01	8.1	A	0.4
	EBTR	0.09	0.0	A	0.0	0.12	0.0	A	0.0
	WBL	0.0	7.5	A	0.1	0.02	7.7	A	0.5
	WBTR	0.09	0.0	A	0.0	0.23	0.0	A	0.0
	SBLTR	0.05	10.4	B	1.2	0.09	13.2	B	2.5
	NBLTR	0.02	9.9	A	0.6	0.04	11.7	B	0.9
	Overall		1.7	A		1.6	A		
Franktown Road at Nelson Street	SBLTR	0.0	0.1	A	0.1	0.0	0.1	A	0.1
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.08	15.0	B	2.2	0.11	25.6	D	2.8
	WBLTR	0.03	14.9	B	0.8	0.10	25.5	D	2.7
	Overall		1.0	A		1.1	A		
Franktown Road at Alexander Street	SBTR	0.21	0.0	A	0.0	0.32	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.5	A	0.5
	EBLR	0.03	11.2	B	0.7	0.04	15.0	C	1.1
	Overall		0.4	A		0.5	A		
Franktown Road at Commercial Plaza (355 Franktown)	SBL	0.01	8.1	A	0.3	0.03	9.0	A	0.8
	SBT	0.20	0.0	A	0.0	0.31	0.0	A	0.0
	NBTR	0.22	0.0	A	0.0	0.39	0.0	A	0.0
	WBLR	0.05	12.8	B	1.2	0.34	24.8	C	11.6
	Overall		0.6	A		2.0	A		
Franktown Road at Findlay Avenue	SBTR	0.22	0.0	A	0.0	0.32	0.0	A	0.0
	NBLT	0.05	1.5	A	1.2	0.04	1.1	A	1.0
	EBLR	0.12	13.2	B	3.2	0.26	21.9	C	8.3
		Overall		1.7	A		1.8	A	

The analysis found that all existing intersections operated well within their capacity, at a reasonable level of service during the peak hours.

3. BACKGROUND TRAFFIC

An annual growth rate of 1.5% has been assumed for the background traffic along Franktown Road and Coleman Street. Additionally, the development generated traffic from the Coleman Street Subdivision Traffic Impact Study Addendum (2019) has been added to the background growth at the intersections of Franktown Road/Nelson Street and Coleman Street/Park Avenue.

3.1.2028 Background Traffic (Phase 1)

Phase 1 of the subject site could potentially be fully developed by 2023. The year 2028 was therefore assumed as the 5-year planning horizon beyond Phase 1 development.

The resulting 2028 background traffic volumes are presented in **Figure 4**. The traffic operations of the intersections were evaluated using Synchro 11.

					(23)	(11)	(14)	↑	8	(42)	
					16	6	13	←	170	(358)	
Coleman Street					↖	↓	↗	↘	9	(48)	
					(16)	11		↖	↑	↗	
					(238)	165		→	12	10	31
					(14)	6		↘	(9)	(7)	(25)
			Franktown Road								
					(16)	(529)	(18)	↑	17	(18)	
					4	340	6	←	2	(0)	
Nelson Street West					↖	↓	↗	↘	17	(14)	
					(15)	20		↖	↑	↗	
					(0)	1		→	4	370	9
					(5)	9		↘	(11)	(624)	(20)
					(1)	(547)					
					1	365					
Alexander Street					↖	↓					
					(4)	3		↖	↑		
								8	380		
					(11)	14		↘	(19)	(651)	
					(531)	(27)		↑	11	(41)	
					366	13					
					↓	↗		↘	11	(44)	Existing Commerical Plaza
								↑	↗		
								377	20		
								(629)	(52)		
					(14)	(561)					
					36	341					
Findlay Avenue					↖	↓					
					(31)	18		↖	↑		
								52	379		
					(39)	35		↘	(38)	(650)	

Figure 4: 2028 Background AM (PM) Peak Hour Traffic Volumes

Table 5 provides a summary of the background traffic conditions in 2028. The intersections under study are anticipated to continue to operate well within their capacity. During the PM peak hour the stop-controlled approaches at Franktown Road/ Nelson Street and Franktown Road / Findlay Avenue are operating at a reduced level of services and experience longer delays (LOS D). However, they continue to operate below capacity at an acceptable level of service.

Table 5: 2028 Background Traffic Operations

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		V/C	Delay (s)	LOS	95th Queue (m)	V/C	Delay (s)	LOS	95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.6	A	0.2	0.02	8.3	A	0.4
	EBTR	0.11	0.0	A	0.0	0.16	0.0	A	0.0
	WBL	0.01	7.6	A	0.2	0.04	7.9	A	1.0
	WBTR	0.11	0.0	A	0.0	0.26	0.0	A	0.0
	SBLTR	0.06	11.3	B	1.6	0.14	16.1	C	3.8
	NBLTR	0.09	10.9	B	2.3	0.10	14.0	B	2.7
	Overall			2.5	A		2.3	A	
Franktown Road at Nelson Street	SBLTR	0.01	0.2	A	0.1	0.02	0.6	A	0.5
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.1	16.6	C	2.5	0.15	34.3	D	1.0
	WBLTR	0.1	15.1	C	2.5	0.17	25.3	D	4.6
	Overall		1.4	A		1.6	A		
Franktown Road at Alexander Street	SBTR	0.23	0.0	A	0.0	0.35	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.6	A	0.5
	EBLR	0.03	11.6	B	0.8	0.05	16.4	C	1.2
	Overall		0.4	A		0.5	A		
Franktown Road at Commercial Plaza (355 Franktown)	SBL	0.01	8.2	A	0.3	0.03	9.3	A	0.8
	SBT	0.23	0.0	A	0.0	0.34	0.0	A	0.0
	NBTR	0.25	0.0	A	0.0	0.44	0.0	A	0.0
	WBLR	0.06	13.8	B	1.4	0.40	30.7	D	14.6
	Overall		0.5	A		2.2	A		
Franktown Road at Findlay Avenue	SBTR	0.24	0.0	A	0.0	0.37	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.04	1.1	A	1.1
	EBLR	0.13	14.1	B	3.5	0.32	26.9	D	10.5
	Overall		1.6	A		2.0	A		

3.2. 2032 Background Traffic

Phases 1 to 4 of the subject site could potentially be fully developed by 2027. The year 2032 was therefore assumed as the 5-year planning horizon beyond full development.

The resulting 2032 background traffic volumes are presented in **Figure 5**. The traffic operations of the intersections were evaluated using Synchro 11.

				(23)	(11)	(14)	↑	8	(42)
				16	6	13	←	181	(379)
Coleman Street				←	↓	↘	↘	9	(48)
				(16)	11		↑	↑	↗
				(252)	175		→	12	10 31
				(14)	6		↓	(9)	(7) (25)
			Franktown Road						
	(16)	(562)	(18)	↑	17	(18)			
	4	362	6	←	2	(0)			
Nelson Street West	←	↓	↘	↘	17	(14)			
	(15)	20	↑	←	↑	↗			
	(0)	1	→	4	393	9			
	(5)	9	↓	(11)	(663)	(20)			
	(1)	(580)							
	1	387							
Alexander Street	←	↓							
	(4)	3	↑	←	↑				
				8	403				
	(11)	14	↓	(19)	(690)				
	(564)	(27)	↑	11	(41)				
	388	13							
	↓	↘	↘	11	(44)	Existing Commerical Plaza			
				↑	↗				
				400	20				
				(668)	(52)				
	(14)	(594)							
	36	363							
Findlay Avenue	←	↓							
	(31)	18	↑	←	↑				
				52	402				
	(39)	35	↓	(38)	(689)				

Figure 5: 2032 Background AM (PM) Peak Hour Traffic Volumes

Table 6 provides a summary of the background traffic conditions in 2032. The intersections under study are anticipated to operate similar to the 2028 Background Traffic scenario. The road network will continue to operate well within their capacity with some minor delays at the stop-controlled approaches to Franktown Road at Nelson Street and Findlay Avenue.

Table 6: 2032 Background Traffic Operations

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		V/C	Delay (s)	LOS	95th Queue (m)	V/C	Delay (s)	LOS	95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.7	A	0.2	0.02	8.3	A	0.4
	EBTR	0.12	0.0	A	0.0	0.17	0.0	A	0.0
	WBL	0.01	7.6	A	0.2	0.04	7.9	A	1.0
	WBTR	0.12	0.0	A	0.0	0.27	0.0	A	0.0
	SBLTR	0.06	11.5	B	1.6	0.15	16.8	C	4.0
	NBLTR	0.09	11.0	B	2.3	0.11	14.5	B	2.8
	Overall			2.4	A		2.3	A	
Franktown Road at Nelson Street	SBLTR	0.01	0.2	A	0.2	0.02	0.6	A	0.6
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.1	17.5	C	2.7	0.17	38.9	E	4.6
	WBLTR	0.1	15.8	C	2.7	0.18	28.2	D	5.2
	Overall		1.4	A		1.7	A		
Franktown Road at Alexander Street	SBTR	0.25	0.0	A	0.0	0.37	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.6	A	0.5
	EBLR	0.03	11.9	B	0.8	0.05	17.1	C	1.3
	Overall		0.4	A		0.5	A		
Franktown Road at Commercial Plaza (355 Franktown)	SBL	0.01	8.3	A	0.3	0.03	9.5	A	0.9
	SBT	0.25	0.0	A	0.0	0.36	0.0	A	0.0
	NBTR	0.27	0.0	A	0.0	0.46	0.0	A	0.0
	WBLR	0.06	14.4	B	1.5	0.44	35.1	E	16.7
	Overall		0.5	A		2.3	A		
Franktown Road at Findlay Avenue	SBTR	0.26	0.0	A	0.0	0.39	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.04	1.1	A	1.1
	EBLR	0.13	14.6	B	3.7	0.35	30.1	D	11.9
	Overall		1.6	A		2.1	A		

4. SITE TRAVEL DEMANDS

4.1. Trip Generation

The ITE Trip Generation Manual was used to estimate the traffic volumes generated by the construction of the proposed development. The projected AM and PM peak hour site-generated traffic volumes are presented in **Table 7**.

Table 7: Site Trip Generation, Full Development

Phase	ITE Land Use	ITE Unit	Item	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
Phase 1 - Retirement Home Building (Independent Retirement Units)	Congregate Care Facility (253)	Dwelling Unit	Quantity	59			59		
			Trip Rate	0.06			0.17		
			Distribution	100%	59%	41%	100%	55%	45%
			Veh. Trips	5	3	2	11	6	5
Phase 1 - Retirement Home Building (Assisted Care/Memory Care)	Assisted Living (254)	Dwelling Unit	Quantity	93			93		
			Trip Rate	0.18			0.29		
			Distribution	100%	68%	32%	100%	50%	50%
			Veh. Trips	18	12	6	28	14	14
Subtotal				23	15	8	39	20	19
Phase 2 - Senior's Apartment Building	Senior Adult Housing - Attached (252)	Dwelling Unit	Quantity	70			70		
			Trip Rate	0.2			0.25		
			Distribution	100%	34%	66%	100%	54%	46%
			Veh. Trips	15	5	10	19	10	9
Subtotal				15	5	10	19	10	9
Phase 3 - Medical Clinic Building	Medical-Dental Office Building (720)	Gross Floor Area (1000 sq ft)	Quantity	12.174			12.174		
			Trip Rate	2.39			3.57		
			Distribution	100%	79%	21%	100%	28%	72%
			Veh. Trips	30	23	7	45	13	32
Subtotal				30	23	7	45	13	32
Phase 4 - Townhouse Development	Residential Condominium / Townhouse (230)	Dwelling Unit	Quantity	18			18		
			Trip Rate	0.44			0.52		
			Distribution	100%	17%	83%	100%	67%	33%
			Veh. Trips	9	2	7	11	7	4
Subtotal				9	2	7	11	7	4
TOTAL				77	45	32	114	50	64

4.2. Scenario 1 (Phase 1 of Development)

4.2.1. Trip Distribution and Assignment

Scenario 1 applies to Phase 1 of the development. Under this scenario, principal site access would be provided via full-movement access south of the commercial plaza located at 355 Franktown Road. The Site Plan identifies that this access would remain for emergency vehicles only beyond Phase 1 of the development. Constructing a site access south of the commercial plaza would include realignment of the existing entrance to the commercial plaza to the north of the commercial site consistent with MTO's longer term plan. A driveway to the commercial plaza would also be provided from the temporary site access. It is assumed that 2/3 of the vehicles travelling to/from the commercial site would enter the plaza via the first entrance on their route.

Secondary access to the development would be provided via right-in access at 347 Franktown Road and to the east side of the development via a planned north-south Municipal Street. Following Phase 1, it is assumed that the temporary access south of the commercial plaza would be closed to vehicular traffic and would become an emergency/fire access route.

This Scenario only evaluated traffic conditions up to buildout of Phase 1 (2028). The distribution and assignment of site-generated traffic, as presented in **Figure 6**, was based on existing travel patterns observed in the study area. It was assumed that traffic to/from the site would be split 50/50 from the north and south.

4.2.2. 2028 Total (Phase 1) Traffic

Total traffic values were calculated by combining the projected Phase 1 site generated traffic with the 2028 background traffic volumes. The resulting 2028 total peak hour traffic projections are presented in Figure 8.

The warrant for the southbound left-turn movement entering the site access south of the commercial plaza at 355 Franktown Road was prepared using the nomograph for the MTO Geometric Design Standards for Ontario Highways corresponding to a 5% proportion of left turns and a design speed of 60 km/h (see **Figure 7**). The warrant was analysed by combining the left-turning vehicles at the realigned commercial plaza entrance and the temporary site access. These volumes were combined due to the proximity of the realigned entrance and the temporary site access, and a left turn lane would be warranted during the PM Peak hour.

It is recommended that the pavement markings be modified to extend the existing left-turn lane so that it continues to serve the commercial plaza entrance as well as the temporary site access.

A summary of the resulting peak hour traffic operations projected for the 2028 total traffic for Scenario 1 (full-movement access at 347 Franktown Road) is provided in **Table 8**. The proposed site access and adjacent intersection are all projected to operate within capacity in 2028. The Total Traffic reflects similar operational constraints seen in the Background Traffic, however the intersections will remain at reasonable levels of service and all operate well within their capacities.

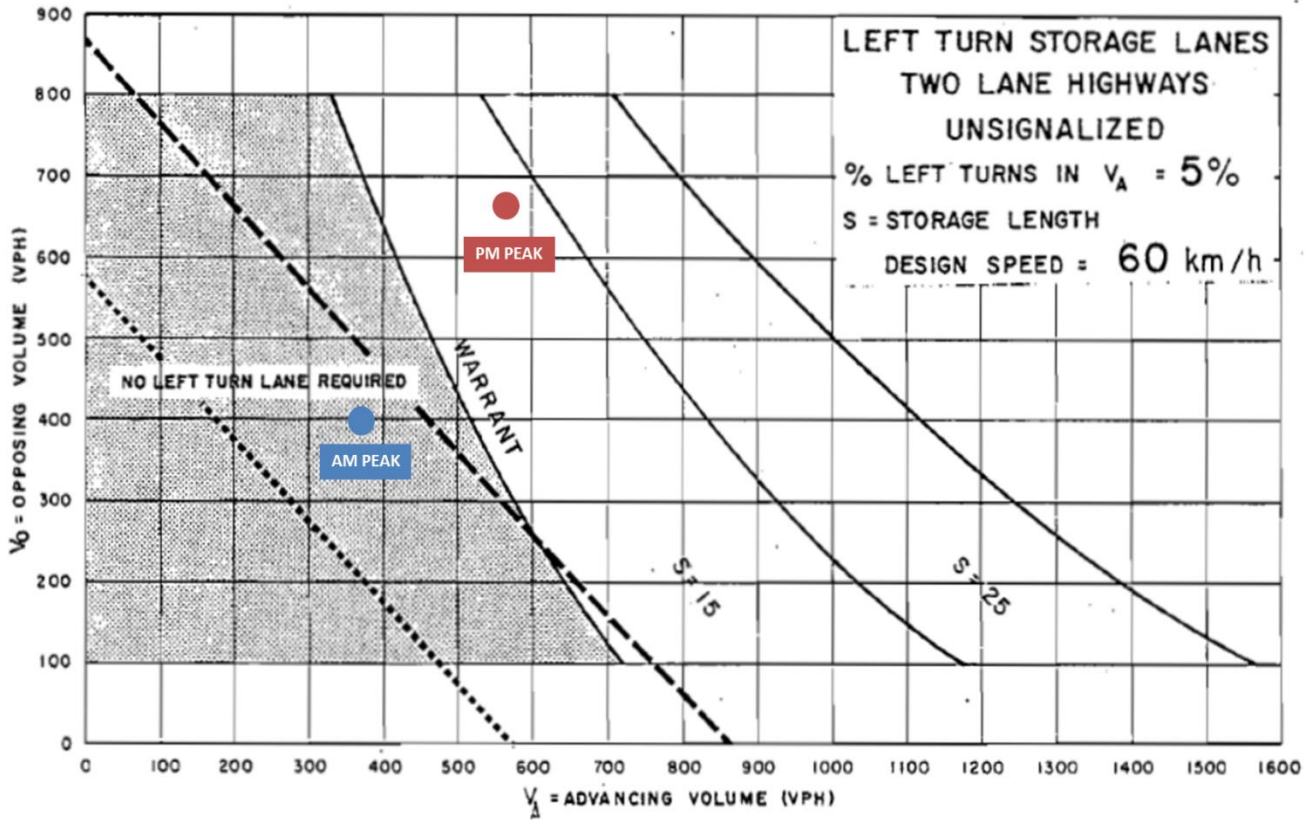


Figure 7: Left Turn Warrant Nomograph at Temporary Site Access, 2028 Scenario 1
Total Traffic

Table 8: 2032 Scenario 1 Total Traffic Operations

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		V/C	Delay (s)	LOS	95th Queue (m)	V/C	Delay (s)	LOS	95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.6	A	0.2	0.02	8.3	A	0.4
	EBTR	0.11	0.0	A	0.0	0.16	0.0	A	0.0
	WBL	0.01	7.6	A	0.2	0.04	7.9	A	1.0
	WBTR	0.11	0.0	A	0.0	0.26	0.0	A	0.0
	SBLTR	0.06	11.3	B	1.6	0.14	16.1	C	3.8
	NBLTR	0.09	10.9	B	2.3	0.10	14.0	B	2.7
	Overall			2.5	A		2.3	A	
Franktown Road at Nelson Street	SBLTR	0.01	0.2	A	0.1	0.02	0.6	A	0.6
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.1	16.8	C	2.6	0.15	35.5	E	4.1
	WBLTR	0.1	15.3	C	2.6	0.17	26.1	D	4.8
	Overall			1.4	A		1.6	A	
Franktown Road at Alexander Street	SBTR	0.24	0.0	A	0.0	0.36	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.6	A	0.5
	EBLR	0.03	11.7	B	0.8	0.05	16.7	C	1.2
	Overall			0.4	A		0.5	A	
Franktown Road at Site Access (R-in)	SBT	0.25	0.0	A	0.0	0.36	0.0	A	0.0
	NBTR	0.25	0.0	A	0.0	0.44	0.0	A	0.0
	Overall			0.0	A		0.0	A	
Franktown Road at Realigned Commercial Plaza	SBL	0.01	8.2	A	0.2	0.02	9.2	A	0.6
	SBT	0.24	0.0	A	0.0	0.35	0.0	A	0.0
	NBTR	0.25	0.0	A	0.0	0.43	0.0	A	0.0
	WBLR	0.03	12.7	B	0.6	0.17	21.1	C	4.7
	Overall			0.3	A		0.8	A	
Franktown Road at Phase 1 Access	SBT	0.01	8.3	A	0.3	0.02	9.3	A	0.6
	SBL	0.24	0.0	A	0.0	0.35	0.0	A	0.0
	SBTR	0.26	0.0	A	0.0	0.44	0.0	A	0.0
	WBLR	0.05	14.3	B	1.3	0.32	30.6	D	10.7
	Overall			0.5	A		1.6	A	
Franktown Road at Findlay Avenue	SBTR	0.24	0.0	A	0.0	0.37	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.04	1.1	A	1.1
	EBLR	0.13	14.2	B	3.5	0.33	27.7	D	10.9
	Overall			1.6	A		2.0	A	

4.3. Scenario 2

4.3.1. Trip Distribution and Assignment

Scenario 2 assumes that for full buildout of the development (Phases 1 to 4), principal site access would be provided via full-movement access on the south side of 347 Franktown Road, along the frontage that was created onto Franktown Road as part of the property severance. A secondary access will connect to the proposed development on the east side via a planned north-south Municipal Street. The resulting Franktown Road access would be offset approximately 20 m from the intersection with Alexander Street.

The distribution and assignment of site-generated traffic, as presented in **Figure 9**, was based on existing travel patterns observed in the study area. It was assumed that 80% of traffic to/from the development would utilize Franktown Road to access the site. The remaining 20% would use the proposed north-south Municipal Street that connects through adjacent developments to the local road network.

			Franktown Road			Park Avenue		
<u>Coleman Street</u>			(0) 0 ←	(0) 0 ↓	(0) 0 ↘	↑	0	(0)
			↖	↙	↘	↖	9	(10)
			(0) (0) (0)	0 0 0	↖ → ↘	↖	↑	↖
						0	0	6
						(0)	(0)	(13)
<u>Nelson Street West</u>			(0) 0 ←	(19) 17 ↓	(0) 0 ↘	↑	0	(0)
			↖	↙	↘	↖	1	(1)
			(0) (0) (0)	0 0 0	↖ → ↘	↖	↑	↖
						0	13	0
						(0)	(25)	(1)
<u>Alexander Street</u>			(0) 0 ←	(20) 18 ↓		↑	0	(0)
			↖	↙	↘	↖	↑	
			(0) (0)	0 0	↖ ↘	↖	0	13
						(0)	(26)	
			(0) 0 ↓	(20) 18 ↘		↑	13	(26)
						↖	13	(26)
								Site Access (Full Movement)
						↑	↖	
						0	18	
						(0)	(20)	
			(26) 13 ↓	(0) 0 ↘		↑	0	(0)
						↖	0	(0)
								Existing Commerical Plaza
						↑	↖	
						18	0	
						(20)	(0)	
<u>Findlay Avenue</u>			(0) 0 ←	(26) 13 ↓		↑	0	(0)
			↖	↙	↘	↖	↑	
			(0) (0)	0 0	↖ ↘	↖	0	18
						(0)	(20)	

Figure 9: Scenario 2 AM (PM) Peak Hour Site Generated Traffic

4.3.2. 2032 Total (Scenario 2) Traffic

Total traffic values were calculated by combining the projected site generated traffic with the 2032 background traffic volumes. The resulting 2032 total peak hour traffic projections are presented in **Figure 11**.

The warrant for the southbound left-turn movement entering the site was prepared using the nomograph for the MTO Geometric Design Standards for Ontario Highways corresponding to a 5% proportion of left turns and a design speed of 60 km/h (see **Figure 10**). The proportion of left-turning vehicles during the peak hour is approximately 3-4%.

Based on this analysis, a left-turn lane would be warranted at the site access for a portion of the day; however, considering the proximity to the Alexander Street intersection, and that the projected left-turn volume represents only 3% of the approaching volume in the PM Peak, delineation of a left-turn lane is not recommended. Maintaining the existing shared left and through lane was found to have no significant impact on the operation or LOS on Franktown Road. The existing pavement width also allows most motorists to bypass a stopped left-turning vehicle, if on-street parking is prohibited on Franktown Road, adjacent to the intersection with Alexander Street.

A summary of the resulting peak hour traffic operations projected for the 2032 total traffic for Scenario 2 (full-movement access at 347 Franktown Road) is provided in **Table 9**. The proposed site access and adjacent intersection are all projected to operate within capacity in 2032. The Total Traffic reflects similar operational constraints seen in the Background Traffic during the PM Peak (i.e. relatively minor delays for motorists and a reduced level of service on stop-controlled approaches to Franktown Road); however, the intersections will remain at reasonable levels of service and all operate well within their capacities.

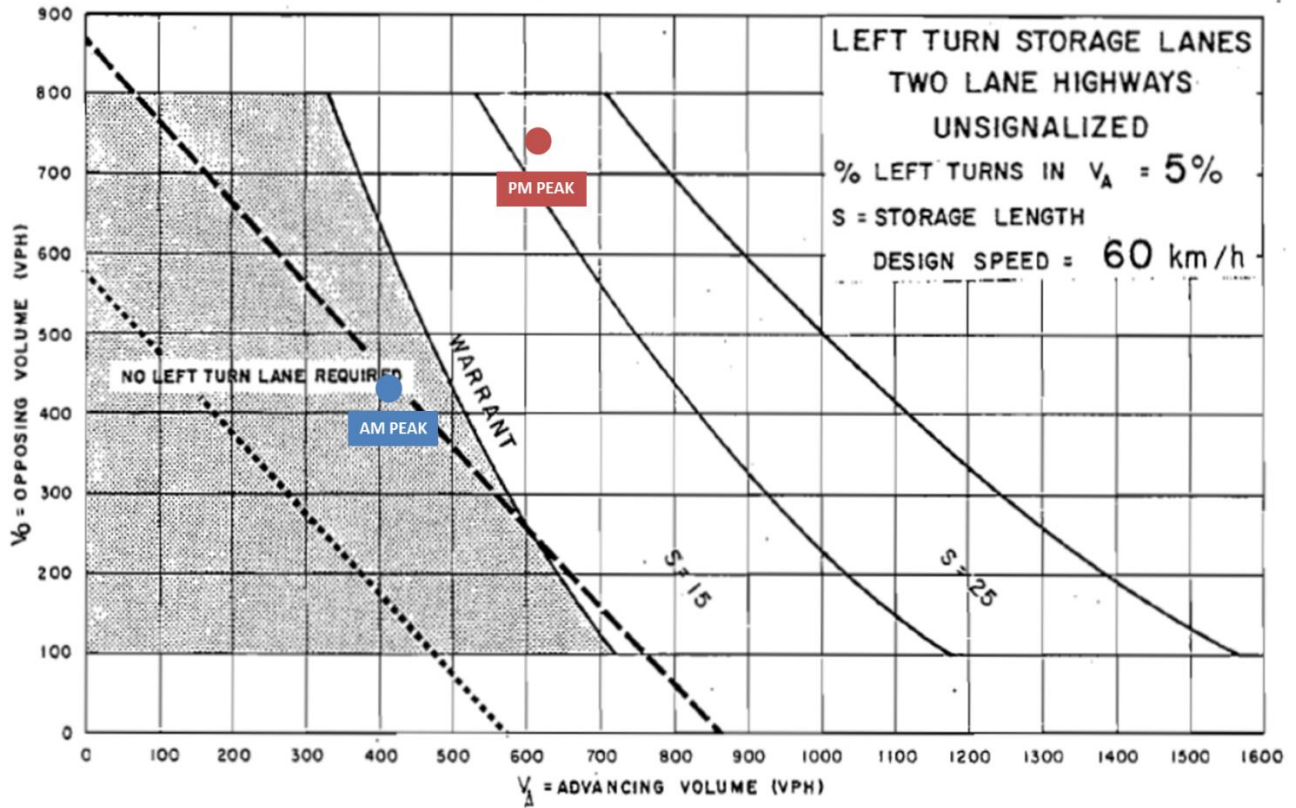


Figure 10: Left Turn Warrant Nomograph at Site Access, 2032 Scenario 2 Total Traffic

				(23)	(11)	(14)	↑	8	(42)
				16	6	13	←	181	(379)
Coleman Street				↖	↓	↘	↙	18	(58)
				(16)	11	↓	↖	↑	↗
				(252)	175	→	12	10	37
				(14)	6	↘	(9)	(7)	(38)
			Franktown Road						
	(16)	(581)	(18)	↑	17	(18)			
	4	379	6	←	2	(0)			
Nelson Street West	↖	↓	↘	↙	18	(15)			
	(15)	20	↑	↖	↑	↗			
	(0)	1	→	4	405	9			
	(5)	9	↘	(11)	(688)	(21)			
	(1)	(600)							
	1	405							
Alexander Street	↖	↓							
	(4)	3	↑	↖	↑				
				8	415				
	(11)	14	↘	(19)	(716)				
	(591)	(20)		↑	13	(26)			
	401	18							
	↓	↘		↙	13	(26)			Site Access (Full Movement)
				↑	↗				
				411	18				
				(709)	(20)				
	(590)	(27)		↑	11	(41)			
	401	13							
	↓	↘		↙	11	(44)			Existing Commerical Plaza
				↑	↗				
				418	20				
				(688)	(52)				
	(14)	(620)							
	36	376							
Findlay Avenue	↖	↓							
	(31)	18	↑	↖	↑				
				52	420				
	(39)	35	↘	(38)	(709)				

Figure 11: 2032 Scenario 2 Total Future AM (PM) Peak Hour Traffic

Table 9: 2032 Scenario 2 Total Traffic Operations

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		V/C	Delay (s)	LOS	95th Queue (m)	V/C	Delay (s)	LOS	95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.7	A	0.2	0.02	8.3	A	0.4
	EBTR	0.12	0.0	A	0.0	0.17	0.0	A	0.0
	WBL	0.01	7.7	A	0.4	0.05	8.0	A	1.2
	WBTR	0.12	0.0	A	0.0	0.27	0.0	A	0.0
	SBLTR	0.07	11.7	B	1.7	0.15	17.5	C	4.3
	NBLTR	0.10	11.1	B	2.6	0.13	13.9	B	3.5
	Overall			2.6	A		2.5	A	
Franktown Road at Nelson Street	SBLTR	0.01	0.2	A	0.2	0.02	0.6	A	0.6
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.11	18.2	C	2.9	0.18	42.1	E	5.0
	WBLTR	0.11	16.6	C	3.1	0.21	31.0	D	6.0
	Overall			1.5	A		1.8	A	
Franktown Road at Alexander Street	SBTR	0.26	0.0	A	0.0	0.38	0.0	A	0.0
	NBTL	0.01	0.2	A	0.2	0.02	0.6	A	0.6
	EBLR	0.03	12.1	B	0.8	0.05	18.1	C	1.4
	Overall			0.4	A		0.5	A	
Franktown Road at Site Access	SBTL	0.02	0.6	A	0.4	0.03	0.7	A	0.7
	NBTR	0.27	0.0	A	0.0	0.47	0.0	A	0.0
	WBLR	0.07	14.9	B	1.8	0.28	29.3	D	8.6
	Overall			0.7	A		1.4	A	
Franktown Road at Commercial Plaza (355 Franktown)	SBL	0.01	8.4	A	0.3	0.04	9.6	A	0.9
	SBT	0.26	0.0	A	0.0	0.38	0.0	A	0.0
	NBTR	0.28	0.0	A	0.0	0.47	0.0	A	0.0
	WBLR	0.06	14.7	B	1.6	0.47	38.5	E	12.8
	Overall			0.5	A		2.5	A	
Franktown Road at Findlay Avenue	SBTR	0.26	0.0	A	0.0	0.41	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.05	1.2	A	1.1
	EBLR	0.14	15.0	C	3.8	0.37	32.6	D	12.9
	Overall			1.6	A		2.2	A	

4.4. Scenario 3

4.4.1. Trip Distribution and Assignment

Scenario 3 assumes that for full buildout of the development (Phases 1 to 4), principal site access would be provided on the east side via a planned north-south Municipal Street connecting to Nelson Street. In addition, a secondary right-in access would be provided at 347 Franktown Road. This scenario assumes the temporary site access south of the commercial plaza would become a fire access route and would be closed to vehicular traffic.

The distribution and assignment of site-generated traffic, as presented in **Figure 12**, was based on existing travel patterns observed in the study area.

			(0)	(0)	(0)	↑	0	(0)
			0	0	0	←	0	(0)
Coleman Street			↙	↓	↘	↓	13	(15)
			(0)	0	↑	↖	↑	↗
			(0)	0	→	6	0	10
			(3)	2	↓	(13)	(0)	(19)
			Franktown Road			Park Avenue		
			(0)	(0)	(8)	↑	0	(0)
			0	0	7	←	0	(0)
Nelson Street West			↙	↓	↘	↓	16	(32)
			(0)	0	↑	↖	↑	↗
			(0)	0	→	0	0	0
			(0)	0	↓	(0)	(0)	(0)
			(0)	(32)				
			0	16				
Alexander Street			↙	↓				
			(0)	0	↑	↖	↑	
			(0)	0	↓	0	0	
						(0)	(0)	
			(32)					
			16					
			↓			Site Access (R-in)		
						↑	↗	
						0	23	
						(0)	(25)	
			(32)					
			16					
			↓			Realigned Plaza Entrance		
						↑		
						23		
						(25)		
			(32)					
			16					
			↓			Fire Access Route (No Access)		
						↑		
						23		
						(25)		
			(0)	(32)				
			0	16				
Findlay Avenue			↙	↓				
			(0)	0	↑	↖	↑	
			(0)	0	↓	0	23	
						(0)	(25)	

Figure 12: Scenario 3 AM (PM) Peak Hour Site Generated Traffic

4.4.2. 2032 Total (Scenario 3) Traffic

Total Scenario 3 traffic values were calculated by combining the projected Scenario 3 site generated traffic with the 2032 background traffic volumes. The resulting 2032 total peak hour traffic projections are presented in **Figure 14**.

A summary of the resulting peak hour traffic operations projected for the 2032 total traffic for Scenario 3 (access provided via north-south municipal streets) is provided in **Table 10**. The proposed site access and adjacent intersection are all projected to operate within capacity in 2032. Left-turning vehicles will experience minor delays and a reduced level of service on stop-controlled approaches. However, the intersections will continue to operate well within their capacities. During the PM peak hour, although the westbound approach to Franktown Road on Nelson Street would be reduced to LOS F, the projected capacity would remain approximately double the traffic demand.

The warrant for the provision of a left-turn lane on Franktown Road at Nelson Street was evaluated as shown in **Figure 13**. A left-turn lane was found to be warranted on Franktown Road during the PM peak hour.

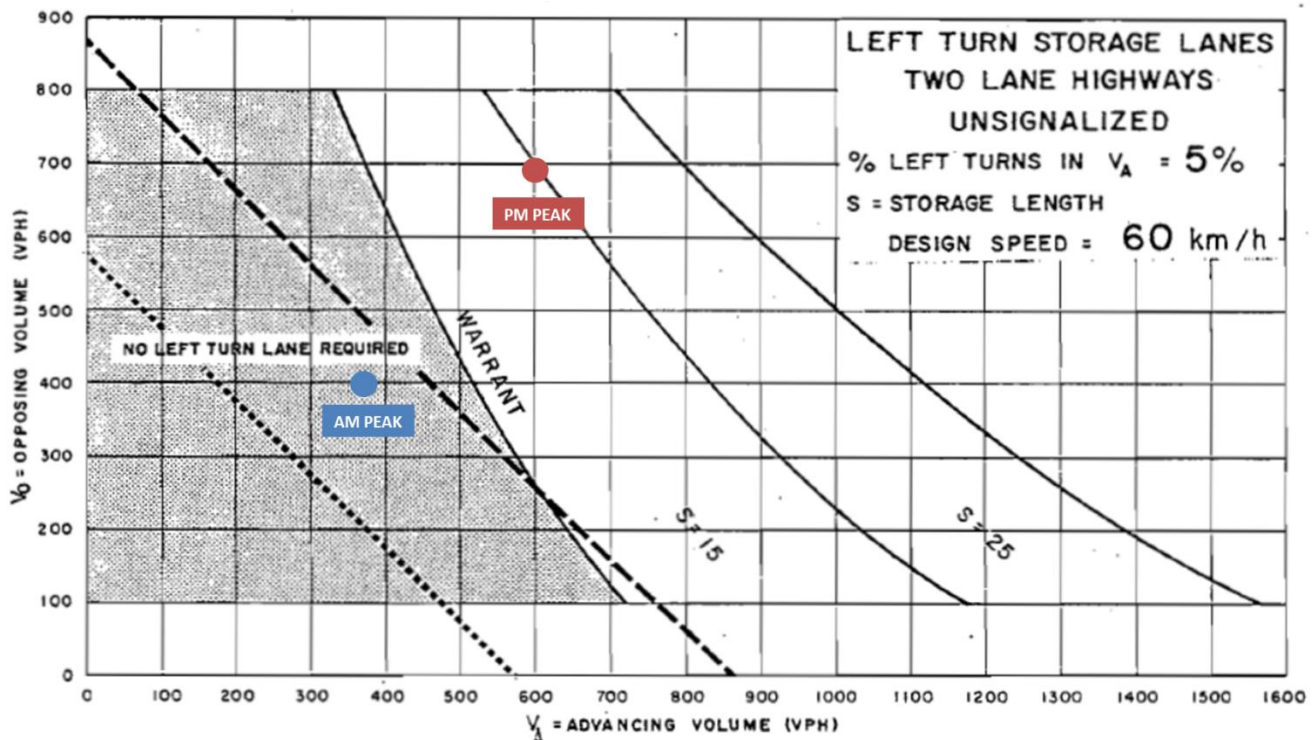


Figure 13: Left Turn Warrant Nomograph at Site Access, 2032 Scenario 3 Total Traffic

Table 10: 2032 Scenario 3 Total Traffic Operations

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		V/C	Delay (s)	LOS	95th Queue (m)	V/C	Delay (s)	LOS	95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.7	A	0.2	0.02	8.3	A	0.4
	EBTR	0.12	0.0	A	0.0	0.17	0.0	A	0.0
	WBL	0.02	7.7	A	0.4	0.05	8.0	A	1.4
	WBTR	0.12	0.0	A	0.0	0.27	0.0	A	0.0
	SBLTR	0.07	11.9	B	1.7	0.16	17.8	C	4.4
	NBLTR	0.12	11.4	B	3.2	0.20	16.2	C	5.9
	Overall			2.9	A		3.0	A	
Franktown Road at Nelson Street	SBLTR	0.01	0.4	A	0.3	0.03	0.9	A	0.8
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.11	17.8	C	2.8	0.17	40.1	E	4.7
	WBLTR	0.17	18.4	C	4.9	0.52	57.3	F	19.8
	Overall			2.0	A		3.8	A	
Franktown Road at Alexander Street	SBTR	0.26	0.0	A	0.0	0.39	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.6	A	0.6
	EBLR	0.03	12.0	B	0.8	0.05	18.0	C	1.4
	Overall		0.4	A		0.5	A		
Franktown Road at Site Access (R-in)	SBT	0.27	0.0	A	0.0	0.40	0.0	A	0.0
	NBTR	0.28	0.0	A	0.0	0.47	0.0	A	0.0
	Overall		0.0	A		0.0	A		
Franktown Road at Realigned Commercial Plaza	SBL	0.01	8.4	A	0.3	0.04	9.6	A	0.9
	SBT	0.26	0.0	A	0.0	0.38	0.0	A	0.0
	NBTR	0.28	0.0	A	0.0	0.48	0.0	A	0.0
	WBLR	0.06	14.8	B	1.6	0.48	39.4	E	18.6
	Overall		0.5	A		2.5	A		
Franktown Road at Findlay Avenue	SBTR	0.27	0.0	A	0.0	0.41	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.05	1.2	A	1.1
	EBLR	0.14	15.1	C	3.9	0.38	33.2	D	13.1
	Overall		1.6	A		2.2	A		

5. SITE CIRCULATION AND ACCESS REVIEW

5.1. Scenario 1 (Phase 1 of Development)

For Phase 1 of the development the site access is located on Franktown Road approximately 125 m south of Alexander Street. A right-in access is located at 347 Franktown Road. During Phases 2 to 4 of construction, the south access would be closed to vehicular traffic and would become an emergency access route.

This site access would be located across the south limits of the commercial plaza located at 355 Franktown Road. The plaza entrance would be realigned to the north limits of the commercial plaza site. A secondary access to the plaza would be provided off of the site access road.

5.2. Scenario 2

The site access in this scenario would be located on Franktown Road approximately 20 m south of Alexander Street. Two secondary accesses are provided to/from a planned municipal street at the east limits of the site. The site access is located in close proximity to the residential properties at 347 Franktown Road and 349 Franktown Road. The Town of Carlton Place's initial reaction was not supportive of this access scenario.

Vehicular traffic and emergency vehicles could access the development from the main entrance on Franktown Road as well as the secondary access via the north-south Municipal Street connecting to adjacent developments. A 7 m east-west fire access lane from the Franktown Road site access to the Municipal Street could suitably accommodate access for emergency vehicles.

5.3. Scenario 3

The site access in this scenario would be provided via a planned Municipal Street at the east limits of the site. A right-in access at 347 Franktown Road would also be provided. A 7 m east-west fire access lane would be provided via the interim access described in Scenario 2. This lane can suitably accommodate access for emergency vehicles.

To minimize cut-through traffic through the development, traffic calming measures are recommended to slow traffic and deter motorists on Franktown Road from utilizing the development's internal roads. This may include the provision of raised crosswalks at the 3 pedestrian walkways crossing the main east/west fire route through the site.

5.4. Parking

On-site parking is proposed to consist of a total of 209 parking spaces as follows:

- Phase 1 – 52 parking spaces (38 spaces for residents, 14 spaces for staff)
- Phase 2 – 107 parking spaces (89 spaces for residents, 18 spaces for visitors)

- Phase 3 – 50 parking spaces

Additional parking is provided for each of the proposed townhouse units, identified as Phase 4, individually. The townhouse units would front onto the planned Municipal Street to be located on the east side of the site. The proposed 209 parking spaces supplied for Phases 1 – 3 will exceed zoning bylaw requirements.

6. CONCLUSIONS AND RECOMMENDATIONS

The proposed development at 347 Franktown Road will consist of a retirement care home, senior's apartment building, medical offices and a townhouse development. Construction completion of Phase 1 could potentially be in 2023 and Phases 2-4 by 2027. The transportation impact assessment included the evaluation of existing (2021) traffic and projected (2028 and 2032) traffic conditions for the AM and PM peak hours as the planning horizon for Phase 1 and full buildout of the development.

Three scenarios were evaluated for total traffic conditions including:

- Scenario 1 (Phase 1 of Development): Site access via: right-in access at 347 Franktown Road and a temporary full-movement access south of the commercial plaza. This Scenario only evaluated to buildout of Phase 1 of the development.
- Scenario 2: Principal site access provided via full-movement access at 347 Franktown Road and secondary access on the east side via a planned north-south Municipal Street.
- Scenario 3: Principal site access provided on the east side via a planned north-south Municipal Street connecting to Nelson Street and a secondary right-in access at 347 Franktown Road.

Under all scenarios, the proposed development was found to have no significant impacts on the existing road network, with relatively minor delays for left-turning vehicles at the stop approaches. These delays are mainly a result of background growth within the Town and are reflected in both the Background and Total Traffic scenarios.

It is recommended that Access Scenario 1 be accepted to provide access to Phase 1 of the planned development. To address the concerns expressed by the Town of Carleton Place regarding Access Scenario 2, it is further recommended that prior to development of Phase 2, Access Scenario 3 should be implemented with the Phase 1 access to Franktown Road (south of the commercial plaza) controlled to limit its use to emergency vehicles only. The measures to control that access would be subject to MTO approval.

For the Access Scenario (Phase 1 development), it is recommended that the existing pavement markings on Franktown Road be revised to extend the current left-turn lane to provide access to both the relocated plaza entrance and the access to be located on the south side of the commercial plaza.

As part of the overall area development, consideration should be given to revising the existing pavement markings on Franktown Road at Nelson Street to delineate a north/south left-turn lane. It is recommended that the Transportation Master Plan currently being developed for the Town of Carleton Place consider the extension of the planned north-south Municipal Street

south to the proposed extension of Findlay Avenue. This would accommodate a more balanced distribution of all area development traffic.

Within the proposed site, consideration could be given to the provision of raised crosswalks at 3 locations within the site, crossing the main access which also serves as the east/west fire access lane. This would assist in controlling traffic speeds within the site and would help to discourage external traffic from cutting through the site. Pedestrian access from Franktown Road must be accommodated upon completion of the first phase of development and ultimately also be provided from the local municipal road network at the east end of the site.

Report prepared by:



Stephen Brook, P.Eng.
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Appendix A

Preliminary Draft Subdivision Plan

















Appendix B

Traffic Analysis Outputs

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

															
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR			
Lane Configurations															
Traffic Volume (veh/h)	4	300	4	4	356	3	20	1	9	6	2	3			
Future Volume (Veh/h)	4	300	4	4	356	3	20	1	9	6	2	3			
Sign Control		Free			Free			Stop			Stop				
Grade		0%			0%			0%			0%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Hourly flow rate (vph)	4	326	4	4	387	3	22	1	10	7	2	3			
Pedestrians															
Lane Width (m)															
Walking Speed (m/s)															
Percent Blockage															
Right turn flare (veh)															
Median type	None				None										
Median storage (veh)															
Upstream signal (m)															
pX, platoon unblocked															
vC, conflicting volume	390			330			736			734			388		
vC1, stage 1 conf vol															
vC2, stage 2 conf vol															
vCu, unblocked vol	390			330			736			734			388		
tC, single (s)	4.1			4.1			7.1			6.5			6.2		
tC, 2 stage (s)															
tF (s)	2.2			2.2			3.5			4.0			3.3		
p0 queue free %	100			100			93			100			99		
cM capacity (veh/h)	1169			1229			330			345			660		
Direction, Lane #	SE 1	NW 1	NE 1	SW 1											
Volume Total	334	394	33	12											
Volume Left	4	4	22	7											
Volume Right	4	3	10	3											
cSH	1169	1229	395	376											
Volume to Capacity	0.00	0.00	0.08	0.03											
Queue Length 95th (m)	0.1	0.1	2.2	0.8											
Control Delay (s)	0.1	0.1	15.0	14.9											
Lane LOS	A	A	B	B											
Approach Delay (s)	0.1	0.1	15.0	14.9											
Approach LOS			B	B											
Intersection Summary															
Average Delay				1.0											
Intersection Capacity Utilization				31.2%	ICU Level of Service	A									
Analysis Period (min)				15											

HCM Unsignalized Intersection Capacity Analysis

6: Franktown Road & Plaza Entrance

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	13	317	331	20	11	11
Future Volume (Veh/h)	13	317	331	20	11	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	345	360	22	12	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	382				744	371
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382				744	371
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	98
cM capacity (veh/h)	1176				378	675
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	14	345	382	24		
Volume Left	14	0	0	12		
Volume Right	0	0	22	12		
cSH	1176	1700	1700	484		
Volume to Capacity	0.01	0.20	0.22	0.05		
Queue Length 95th (m)	0.3	0.0	0.0	1.2		
Control Delay (s)	8.1	0.0	0.0	12.8		
Lane LOS	A			B		
Approach Delay (s)	0.3		0.0	12.8		
Approach LOS				B		
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			28.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑			↑	↑	
Traffic Volume (veh/h)	330	1	8	344	3	14
Future Volume (Veh/h)	330	1	8	344	3	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	359	1	9	374	3	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			360		752	360
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			360		752	360
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1199		375	685
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	360	383	18			
Volume Left	0	9	3			
Volume Right	1	0	15			
cSH	1700	1199	602			
Volume to Capacity	0.21	0.01	0.03			
Queue Length 95th (m)	0.0	0.2	0.7			
Control Delay (s)	0.0	0.3	11.2			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.3	11.2			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			34.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021






















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑			↑	↘	↘
Traffic Volume (veh/h)	307	36	52	333	18	35
Future Volume (Veh/h)	307	36	52	333	18	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	334	39	57	362	20	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			373			830 354
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			373			830 354
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			95			94 94
cM capacity (veh/h)			1185			324 690
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	373	419	58			
Volume Left	0	57	20			
Volume Right	39	0	38			
cSH	1700	1185	497			
Volume to Capacity	0.22	0.05	0.12			
Queue Length 95th (m)	0.0	1.2	3.2			
Control Delay (s)	0.0	1.5	13.2			
Lane LOS			A	B		
Approach Delay (s)	0.0	1.5	13.2			
Approach LOS			B			
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			52.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

















11-02-2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations													
Traffic Volume (veh/h)	11	142	3	3	140	8	13	3	16	3	3	11	
Future Volume (Veh/h)	11	142	3	3	140	8	13	3	16	3	3	11	
Sign Control		Free			Free			Stop				Stop	
Grade		0%			0%			0%				0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	12	154	3	3	152	9	14	3	17	3	3	12	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type		None			None								
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	161			157			354	344	156	356	346	156	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	161			157			354	344	156	356	346	156	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	99			100			98	99	98	99	99	99	
cM capacity (veh/h)	1418			1423			586	573	889	581	571	890	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1							
Volume Total	12	157	3	161	34	18							
Volume Left	12	0	3	0	14	3							
Volume Right	0	3	0	9	17	12							
cSH	1418	1700	1423	1700	705	753							
Volume to Capacity	0.01	0.09	0.00	0.09	0.05	0.02							
Queue Length 95th (m)	0.2	0.0	0.1	0.0	1.2	0.6							
Control Delay (s)	7.6	0.0	7.5	0.0	10.4	9.9							
Lane LOS	A		A		B	A							
Approach Delay (s)	0.5		0.1		10.4	9.9							
Approach LOS					B	A							
Intersection Summary													
Average Delay			1.7										
Intersection Capacity Utilization			19.5%		ICU Level of Service		A						
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	4	479	16	11	563	8	15	0	5	14	0	5
Future Volume (Veh/h)	4	479	16	11	563	8	15	0	5	14	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	521	17	12	612	9	16	0	5	15	0	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	621			538			1183	1182	530	1183	1186	616
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	621			538			1183	1182	530	1183	1186	616
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			90	100	99	91	100	99
cM capacity (veh/h)	960			1030			163	187	549	163	186	490
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	542	633	21	20								
Volume Left	4	12	16	15								
Volume Right	17	9	5	5								
cSH	960	1030	195	195								
Volume to Capacity	0.00	0.01	0.11	0.10								
Queue Length 95th (m)	0.1	0.3	2.8	2.7								
Control Delay (s)	0.1	0.3	25.6	25.5								
Lane LOS	A	A	D	D								
Approach Delay (s)	0.1	0.3	25.6	25.5								
Approach LOS			D	D								
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			47.3%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

6: Franktown Road & Plaza Entrance

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	27	479	556	52	44	41
Future Volume (Veh/h)	27	479	556	52	44	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	521	604	57	48	45
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	661				1212	632
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	661				1212	632
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				75	91
cM capacity (veh/h)	927				195	480
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	29	521	661	93		
Volume Left	29	0	0	48		
Volume Right	0	0	57	45		
cSH	927	1700	1700	274		
Volume to Capacity	0.03	0.31	0.39	0.34		
Queue Length 95th (m)	0.8	0.0	0.0	11.6		
Control Delay (s)	9.0	0.0	0.0	24.8		
Lane LOS	A			C		
Approach Delay (s)	0.5		0.0	24.8		
Approach LOS				C		
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			44.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	495	1	19	589	4	11
Future Volume (Veh/h)	495	1	19	589	4	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	538	1	21	640	4	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			539	1220	538	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			539	1220	538	
tC, single (s)			4.1	6.4	6.2	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			98	98	98	
cM capacity (veh/h)			1029	195	543	
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	539	661	16			
Volume Left	0	21	4			
Volume Right	1	0	12			
cSH	1700	1029	375			
Volume to Capacity	0.32	0.02	0.04			
Queue Length 95th (m)	0.0	0.5	1.1			
Control Delay (s)	0.0	0.5	15.0			
Lane LOS			A	C		
Approach Delay (s)	0.0	0.5	15.0			
Approach LOS			C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			56.3%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 11: Findlay Street & Franktown Road




















11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↩			↩	↩	↩
Traffic Volume (veh/h)	492	14	38	577	31	39
Future Volume (Veh/h)	492	14	38	577	31	39
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	535	15	41	627	34	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			550		1252	542
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			550		1252	542
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		81	92
cM capacity (veh/h)			1020		183	540
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	550	668	76			
Volume Left	0	41	34			
Volume Right	15	0	42			
cSH	1700	1020	288			
Volume to Capacity	0.32	0.04	0.26			
Queue Length 95th (m)	0.0	1.0	8.3			
Control Delay (s)	0.0	1.1	21.9			
Lane LOS		A	C			
Approach Delay (s)	0.0	1.1	21.9			
Approach LOS			C			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			72.3%	ICU Level of Service		C
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 14: Coleman Street & Park Avenue

















11-02-2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations													
Traffic Volume (veh/h)	16	189	6	24	319	42	14	5	23	4	3	12	
Future Volume (Veh/h)	16	189	6	24	319	42	14	5	23	4	3	12	
Sign Control		Free			Free			Stop				Stop	
Grade		0%			0%			0%				0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	17	205	7	26	347	46	15	5	25	4	3	13	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type		None			None								
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	393			212			676	668	370	669	688	208	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	393			212			676	668	370	669	688	208	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	99			98			96	99	96	99	99	98	
cM capacity (veh/h)	1166			1358			350	366	676	345	357	832	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1							
Volume Total	17	212	26	393	45	20							
Volume Left	17	0	26	0	15	4							
Volume Right	0	7	0	46	25	13							
cSH	1166	1700	1358	1700	481	561							
Volume to Capacity	0.01	0.12	0.02	0.23	0.09	0.04							
Queue Length 95th (m)	0.4	0.0	0.5	0.0	2.5	0.9							
Control Delay (s)	8.1	0.0	7.7	0.0	13.2	11.7							
Lane LOS	A		A		B	B							
Approach Delay (s)	0.6		0.5		13.2	11.7							
Approach LOS					B	B							
Intersection Summary													
Average Delay			1.6										
Intersection Capacity Utilization			30.6%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	6	340	4	4	370	9	20	1	9	17	2	17
Future Volume (Veh/h)	6	340	4	4	370	9	20	1	9	17	2	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	370	4	4	402	10	22	1	10	18	2	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	412			374			820	806	372	812	803	407
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	412			374			820	806	372	812	803	407
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			92	100	99	94	99	97
cM capacity (veh/h)	1147			1184			282	313	674	291	314	644
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	381	416	33	38								
Volume Left	7	4	22	18								
Volume Right	4	10	10	18								
cSH	1147	1184	344	395								
Volume to Capacity	0.01	0.00	0.10	0.10								
Queue Length 95th (m)	0.1	0.1	2.5	2.5								
Control Delay (s)	0.2	0.1	16.6	15.1								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.2	0.1	16.6	15.1								
Approach LOS			C	C								
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			32.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

6: Franktown Road & Plaza Entrance

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	13	366	377	20	11	11
Future Volume (Veh/h)	13	366	377	20	11	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	398	410	22	12	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	432				847	421
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	432				847	421
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	98
cM capacity (veh/h)	1128				328	632
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	14	398	432	24		
Volume Left	14	0	0	12		
Volume Right	0	0	22	12		
cSH	1128	1700	1700	432		
Volume to Capacity	0.01	0.23	0.25	0.06		
Queue Length 95th (m)	0.3	0.0	0.0	1.4		
Control Delay (s)	8.2	0.0	0.0	13.8		
Lane LOS	A			B		
Approach Delay (s)	0.3		0.0	13.8		
Approach LOS				B		
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			31.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	365	1	8	380	3	14
Future Volume (Veh/h)	365	1	8	380	3	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	397	1	9	413	3	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			398		828	398
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			398		828	398
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1161		338	652
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	398	422	18			
Volume Left	0	9	3			
Volume Right	1	0	15			
cSH	1700	1161	565			
Volume to Capacity	0.23	0.01	0.03			
Queue Length 95th (m)	0.0	0.2	0.8			
Control Delay (s)	0.0	0.3	11.6			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.3	11.6			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			36.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021






















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	341	36	52	379	18	35
Future Volume (Veh/h)	341	36	52	379	18	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	371	39	57	412	20	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			410			390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			410			390
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			95			94
cM capacity (veh/h)			1149			658
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	410	469	58			
Volume Left	0	57	20			
Volume Right	39	0	38			
cSH	1700	1149	455			
Volume to Capacity	0.24	0.05	0.13			
Queue Length 95th (m)	0.0	1.3	3.5			
Control Delay (s)	0.0	1.5	14.1			
Lane LOS			A	B		
Approach Delay (s)	0.0	1.5	14.1			
Approach LOS			B			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			56.3%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

















11-02-2021

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR								
Lane Configurations																				
Traffic Volume (veh/h)	11	165	6	9	170	8	13	6	16	12	10	31								
Future Volume (Veh/h)	11	165	6	9	170	8	13	6	16	12	10	31								
Sign Control		Free			Free			Stop				Stop								
Grade		0%			0%			0%				0%								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
Hourly flow rate (vph)	12	179	7	10	185	9	14	7	17	13	11	34								
Pedestrians																				
Lane Width (m)																				
Walking Speed (m/s)																				
Percent Blockage																				
Right turn flare (veh)																				
Median type	None					None														
Median storage (veh)																				
Upstream signal (m)																				
pX, platoon unblocked																				
vC, conflicting volume	194			186			452		420		190		432		420		182			
vC1, stage 1 conf vol																				
vC2, stage 2 conf vol																				
vCu, unblocked vol	194			186			452		420		190		432		420		182			
tC, single (s)	4.1			4.1			7.1		6.5		6.2		7.1		6.5		6.2			
tC, 2 stage (s)																				
tF (s)	2.2			2.2			3.5		4.0		3.3		3.5		4.0		3.3			
p0 queue free %	99			99			97		99		98		97		98		96			
cM capacity (veh/h)	1379			1388			483		517		852		512		516		860			
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1														
Volume Total	12	186	10	194	38	58														
Volume Left	12	0	10	0	14	13														
Volume Right	0	7	0	9	17	34														
cSH	1379	1700	1388	1700	608	672														
Volume to Capacity	0.01	0.11	0.01	0.11	0.06	0.09														
Queue Length 95th (m)	0.2	0.0	0.2	0.0	1.6	2.3														
Control Delay (s)	7.6	0.0	7.6	0.0	11.3	10.9														
Lane LOS	A		A		B		B													
Approach Delay (s)	0.5		0.4		11.3		10.9													
Approach LOS					B		B													
Intersection Summary																				
Average Delay				2.5																
Intersection Capacity Utilization				19.6%			ICU Level of Service		A											
Analysis Period (min)				15																

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	18	529	16	11	624	20	15	0	5	14	0	18
Future Volume (Veh/h)	18	529	16	11	624	20	15	0	5	14	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	575	17	12	678	22	16	0	5	15	0	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None					None						
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	700			592			1356	1348	584	1342	1345	689
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	700			592			1356	1348	584	1342	1345	689
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			86	100	99	88	100	96
cM capacity (veh/h)	897			984			117	146	512	125	146	446
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	612	712	21	35								
Volume Left	20	12	16	15								
Volume Right	17	22	5	20								
cSH	897	984	144	212								
Volume to Capacity	0.02	0.01	0.15	0.17								
Queue Length 95th (m)	0.5	0.3	4.0	4.6								
Control Delay (s)	0.6	0.3	34.3	25.3								
Lane LOS	A	A	D	D								
Approach Delay (s)	0.6	0.3	34.3	25.3								
Approach LOS			D	D								
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			48.6%	ICU Level of Service		A						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

6: Franktown Road & Plaza Entrance

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	27	531	629	52	44	41
Future Volume (Veh/h)	27	531	629	52	44	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	577	684	57	48	45
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	741				1348	712
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	741				1348	712
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				70	90
cM capacity (veh/h)	866				161	432
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	29	577	741	93		
Volume Left	29	0	0	48		
Volume Right	0	0	57	45		
cSH	866	1700	1700	231		
Volume to Capacity	0.03	0.34	0.44	0.40		
Queue Length 95th (m)	0.8	0.0	0.0	14.6		
Control Delay (s)	9.3	0.0	0.0	30.7		
Lane LOS	A			D		
Approach Delay (s)	0.4		0.0	30.7		
Approach LOS				D		
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			47.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	547	1	19	651	4	11
Future Volume (Veh/h)	547	1	19	651	4	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	595	1	21	708	4	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			596		1346	596
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			596		1346	596
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	98
cM capacity (veh/h)			980		163	504
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	596	729	16			
Volume Left	0	21	4			
Volume Right	1	0	12			
cSH	1700	980	331			
Volume to Capacity	0.35	0.02	0.05			
Queue Length 95th (m)	0.0	0.5	1.2			
Control Delay (s)	0.0	0.6	16.4			
Lane LOS		A	C			
Approach Delay (s)	0.0	0.6	16.4			
Approach LOS			C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			59.6%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021





















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	561	14	38	650	31	39
Future Volume (Veh/h)	561	14	38	650	31	39
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	610	15	41	707	34	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			625	1406		618
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			625	1406		618
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			96	77		91
cM capacity (veh/h)			956	147		490
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	625	748	76			
Volume Left	0	41	34			
Volume Right	15	0	42			
cSH	1700	956	239			
Volume to Capacity	0.37	0.04	0.32			
Queue Length 95th (m)	0.0	1.1	10.5			
Control Delay (s)	0.0	1.1	26.9			
Lane LOS			A	D		
Approach Delay (s)	0.0	1.1	26.9			
Approach LOS			D			
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			76.1%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

















11-02-2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations													
Traffic Volume (veh/h)	16	238	14	48	358	42	14	11	23	9	7	25	
Future Volume (Veh/h)	16	238	14	48	358	42	14	11	23	9	7	25	
Sign Control		Free			Free			Stop				Stop	
Grade		0%			0%			0%				0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	17	259	15	52	389	46	15	12	25	10	8	27	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type		None			None								
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	435			274			840	824	412	824	840	266	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	435			274			840	824	412	824	840	266	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	98			96			94	96	96	96	97	97	
cM capacity (veh/h)	1125			1289			258	291	640	260	285	772	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1							
Volume Total	17	274	52	435	52	45							
Volume Left	17	0	52	0	15	10							
Volume Right	0	15	0	46	25	27							
cSH	1125	1700	1289	1700	376	444							
Volume to Capacity	0.02	0.16	0.04	0.26	0.14	0.10							
Queue Length 95th (m)	0.4	0.0	1.0	0.0	3.8	2.7							
Control Delay (s)	8.3	0.0	7.9	0.0	16.1	14.0							
Lane LOS	A		A		C	B							
Approach Delay (s)	0.5		0.8		16.1	14.0							
Approach LOS					C	B							
Intersection Summary													
Average Delay			2.3										
Intersection Capacity Utilization			38.9%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	6	362	4	4	393	9	20	1	9	17	2	17
Future Volume (Veh/h)	6	362	4	4	393	9	20	1	9	17	2	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	393	4	4	427	10	22	1	10	18	2	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	437			397			868	854	395	860	851	432
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	437			397			868	854	395	860	851	432
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			92	100	98	93	99	97
cM capacity (veh/h)	1123			1162			262	293	654	269	294	624
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	404	441	33	38								
Volume Left	7	4	22	18								
Volume Right	4	10	10	18								
cSH	1123	1162	321	371								
Volume to Capacity	0.01	0.00	0.10	0.10								
Queue Length 95th (m)	0.2	0.1	2.7	2.7								
Control Delay (s)	0.2	0.1	17.5	15.8								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.2	0.1	17.5	15.8								
Approach LOS			C	C								
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			33.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

6: Franktown Road & Plaza Entrance

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	13	388	400	20	11	11
Future Volume (Veh/h)	13	388	400	20	11	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	422	435	22	12	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	457				896	446
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	457				896	446
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	98
cM capacity (veh/h)	1104				307	612
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	14	422	457	24		
Volume Left	14	0	0	12		
Volume Right	0	0	22	12		
cSH	1104	1700	1700	409		
Volume to Capacity	0.01	0.25	0.27	0.06		
Queue Length 95th (m)	0.3	0.0	0.0	1.5		
Control Delay (s)	8.3	0.0	0.0	14.4		
Lane LOS	A			B		
Approach Delay (s)	0.3		0.0	14.4		
Approach LOS				B		
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			32.3%	ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↳			↵	↵	
Traffic Volume (veh/h)	387	1	8	403	3	14
Future Volume (Veh/h)	387	1	8	403	3	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	421	1	9	438	3	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			422		878	422
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			422		878	422
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1137		316	632
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	422	447	18			
Volume Left	0	9	3			
Volume Right	1	0	15			
cSH	1700	1137	542			
Volume to Capacity	0.25	0.01	0.03			
Queue Length 95th (m)	0.0	0.2	0.8			
Control Delay (s)	0.0	0.3	11.9			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.3	11.9			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			37.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021





















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑			↑	↑	↑
Traffic Volume (veh/h)	363	36	52	402	18	35
Future Volume (Veh/h)	363	36	52	402	18	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	395	39	57	437	20	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			434		966	414
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			434		966	414
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		93	94
cM capacity (veh/h)			1126		268	638
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	434	494	58			
Volume Left	0	57	20			
Volume Right	39	0	38			
cSH	1700	1126	432			
Volume to Capacity	0.26	0.05	0.13			
Queue Length 95th (m)	0.0	1.3	3.7			
Control Delay (s)	0.0	1.5	14.6			
Lane LOS			A	B		
Approach Delay (s)	0.0	1.5	14.6			
Approach LOS			B			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			58.7%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

















11-02-2021

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR						
Lane Configurations																		
Traffic Volume (veh/h)	11	175	6	9	181	8	13	6	16	12	10	31						
Future Volume (Veh/h)	11	175	6	9	181	8	13	6	16	12	10	31						
Sign Control		Free			Free			Stop				Stop						
Grade		0%			0%			0%				0%						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92						
Hourly flow rate (vph)	12	190	7	10	197	9	14	7	17	13	11	34						
Pedestrians																		
Lane Width (m)																		
Walking Speed (m/s)																		
Percent Blockage																		
Right turn flare (veh)																		
Median type	None					None												
Median storage (veh)																		
Upstream signal (m)																		
pX, platoon unblocked																		
vC, conflicting volume	206		197				475		442		202		455		444		194	
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	206		197				475		442		202		455		444		194	
tC, single (s)	4.1		4.1				7.1		6.5		6.2		7.1		6.5		6.2	
tC, 2 stage (s)																		
tF (s)	2.2		2.2				3.5		4.0		3.3		3.5		4.0		3.3	
p0 queue free %	99		99				97		99		98		97		98		96	
cM capacity (veh/h)	1365		1376				466		501		839		494		501		848	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1												
Volume Total	12	197	10	206	38	58												
Volume Left	12	0	10	0	14	13												
Volume Right	0	7	0	9	17	34												
cSH	1365	1700	1376	1700	591	656												
Volume to Capacity	0.01	0.12	0.01	0.12	0.06	0.09												
Queue Length 95th (m)	0.2	0.0	0.2	0.0	1.6	2.3												
Control Delay (s)	7.7	0.0	7.6	0.0	11.5	11.0												
Lane LOS	A		A		B		B											
Approach Delay (s)	0.4		0.4		11.5		11.0											
Approach LOS					B		B											
Intersection Summary																		
Average Delay			2.4															
Intersection Capacity Utilization			20.2%		ICU Level of Service				A									
Analysis Period (min)			15															

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	18	562	16	11	663	20	15	0	5	14	0	18
Future Volume (Veh/h)	18	562	16	11	663	20	15	0	5	14	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	611	17	12	721	22	16	0	5	15	0	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	743			628			1436	1426	620	1420	1424	732
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	743			628			1436	1426	620	1420	1424	732
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			84	100	99	86	100	95
cM capacity (veh/h)	864			954			103	130	488	110	131	421
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	648	755	21	35								
Volume Left	20	12	16	15								
Volume Right	17	22	5	20								
cSH	864	954	127	190								
Volume to Capacity	0.02	0.01	0.17	0.18								
Queue Length 95th (m)	0.6	0.3	4.6	5.2								
Control Delay (s)	0.6	0.3	38.9	28.2								
Lane LOS	A	A	E	D								
Approach Delay (s)	0.6	0.3	38.9	28.2								
Approach LOS			E	D								
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			50.8%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

6: Franktown Road & Plaza Entrance

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	27	564	668	52	44	41
Future Volume (Veh/h)	27	564	668	52	44	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	613	726	57	48	45
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	783				1426	754
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	783				1426	754
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				67	89
cM capacity (veh/h)	835				144	409
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	29	613	783	93		
Volume Left	29	0	0	48		
Volume Right	0	0	57	45		
cSH	835	1700	1700	210		
Volume to Capacity	0.03	0.36	0.46	0.44		
Queue Length 95th (m)	0.9	0.0	0.0	16.7		
Control Delay (s)	9.5	0.0	0.0	35.1		
Lane LOS	A			E		
Approach Delay (s)	0.4		0.0	35.1		
Approach LOS				E		
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			49.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	580	1	19	690	4	11
Future Volume (Veh/h)	580	1	19	690	4	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	630	1	21	750	4	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			631		1422	630
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			631		1422	630
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	98
cM capacity (veh/h)			951		147	481
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	631	771	16			
Volume Left	0	21	4			
Volume Right	1	0	12			
cSH	1700	951	306			
Volume to Capacity	0.37	0.02	0.05			
Queue Length 95th (m)	0.0	0.5	1.3			
Control Delay (s)	0.0	0.6	17.4			
Lane LOS		A	C			
Approach Delay (s)	0.0	0.6	17.4			
Approach LOS			C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			61.6%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021






















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	→			←	→	→
Traffic Volume (veh/h)	594	14	38	689	31	39
Future Volume (Veh/h)	594	14	38	689	31	39
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	646	15	41	749	34	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			661	1484		654
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			661	1484		654
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			96	74		91
cM capacity (veh/h)			927	131		467
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	661	790	76			
Volume Left	0	41	34			
Volume Right	15	0	42			
cSH	1700	927	218			
Volume to Capacity	0.39	0.04	0.35			
Queue Length 95th (m)	0.0	1.1	11.9			
Control Delay (s)	0.0	1.1	30.1			
Lane LOS			A	D		
Approach Delay (s)	0.0	1.1	30.1			
Approach LOS			D			
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			78.1%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

















11-02-2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations													
Traffic Volume (veh/h)	16	252	14	48	379	42	14	11	23	9	7	25	
Future Volume (Veh/h)	16	252	14	48	379	42	14	11	23	9	7	25	
Sign Control		Free			Free			Stop				Stop	
Grade		0%			0%			0%				0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	17	274	15	52	412	46	15	12	25	10	8	27	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None					None							
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	458			289			878	862	435	862	878	282	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	458			289			878	862	435	862	878	282	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	98			96			94	96	96	96	97	96	
cM capacity (veh/h)	1103			1273			242	277	621	244	271	757	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1							
Volume Total	17	289	52	458	52	45							
Volume Left	17	0	52	0	15	10							
Volume Right	0	15	0	46	25	27							
cSH	1103	1700	1273	1700	357	424							
Volume to Capacity	0.02	0.17	0.04	0.27	0.15	0.11							
Queue Length 95th (m)	0.4	0.0	1.0	0.0	4.0	2.8							
Control Delay (s)	8.3	0.0	7.9	0.0	16.8	14.5							
Lane LOS	A		A		C	B							
Approach Delay (s)	0.5		0.8		16.8	14.5							
Approach LOS					C	B							
Intersection Summary													
Average Delay			2.3										
Intersection Capacity Utilization			40.0%		ICU Level of Service			A					
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	6	347	4	4	374	9	20	1	9	17	2	17
Future Volume (Veh/h)	6	347	4	4	374	9	20	1	9	17	2	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	377	4	4	407	10	22	1	10	18	2	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	417			381			832	818	379	824	815	412
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	417			381			832	818	379	824	815	412
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			92	100	99	94	99	97
cM capacity (veh/h)	1142			1177			277	308	668	285	309	640
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	388	421	33	38								
Volume Left	7	4	22	18								
Volume Right	4	10	10	18								
cSH	1142	1177	338	389								
Volume to Capacity	0.01	0.00	0.10	0.10								
Queue Length 95th (m)	0.1	0.1	2.6	2.6								
Control Delay (s)	0.2	0.1	16.8	15.3								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.2	0.1	16.8	15.3								
Approach LOS			C	C								
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			32.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑			↑	↑	
Traffic Volume (veh/h)	372	1	8	384	3	14
Future Volume (Veh/h)	372	1	8	384	3	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	404	1	9	417	3	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			405		840	404
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			405		840	404
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1154		333	646
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	405	426	18			
Volume Left	0	9	3			
Volume Right	1	0	15			
cSH	1700	1154	559			
Volume to Capacity	0.24	0.01	0.03			
Queue Length 95th (m)	0.0	0.2	0.8			
Control Delay (s)	0.0	0.3	11.7			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.3	11.7			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			36.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021






















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	345	36	52	386	18	35
Future Volume (Veh/h)	345	36	52	386	18	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	375	39	57	420	20	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			414		928	394
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			414		928	394
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		93	94
cM capacity (veh/h)			1145		282	655
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	414	477	58			
Volume Left	0	57	20			
Volume Right	39	0	38			
cSH	1700	1145	450			
Volume to Capacity	0.24	0.05	0.13			
Queue Length 95th (m)	0.0	1.3	3.5			
Control Delay (s)	0.0	1.5	14.2			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.5	14.2			
Approach LOS			B			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			56.9%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

11-02-2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations													
Traffic Volume (veh/h)	11	165	6	9	170	8	13	6	16	12	10	31	
Future Volume (Veh/h)	11	165	6	9	170	8	13	6	16	12	10	31	
Sign Control		Free			Free			Stop				Stop	
Grade		0%			0%			0%				0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	12	179	7	10	185	9	14	7	17	13	11	34	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type		None			None								
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	194			186			452	420	190	432	420	182	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	194			186			452	420	190	432	420	182	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	99			99			97	99	98	97	98	96	
cM capacity (veh/h)	1379			1388			483	517	852	512	516	860	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1							
Volume Total	12	186	10	194	38	58							
Volume Left	12	0	10	0	14	13							
Volume Right	0	7	0	9	17	34							
cSH	1379	1700	1388	1700	608	672							
Volume to Capacity	0.01	0.11	0.01	0.11	0.06	0.09							
Queue Length 95th (m)	0.2	0.0	0.2	0.0	1.6	2.3							
Control Delay (s)	7.6	0.0	7.6	0.0	11.3	10.9							
Lane LOS	A		A		B	B							
Approach Delay (s)	0.5		0.4		11.3	10.9							
Approach LOS					B	B							
Intersection Summary													
Average Delay			2.5										
Intersection Capacity Utilization			19.6%		ICU Level of Service		A						
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 17: Franktown Road & Site Access

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↗			
Traffic Volume (veh/h)	0	386	392	2	0	0
Future Volume (Veh/h)	0	386	392	2	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	420	426	2	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	428				847	427
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	428				847	427
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1131				332	628
Direction, Lane #						
	SE 1	NW 1				
Volume Total	420	428				
Volume Left	0	0				
Volume Right	0	2				
cSH	1700	1700				
Volume to Capacity	0.25	0.25				
Queue Length 95th (m)	0.0	0.0				
Control Delay (s)	0.0	0.0				
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			24.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 19: Franktown Road & Temporary Site Access/Fire Route

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	12	370	386	19	11	8
Future Volume (Veh/h)	12	370	386	19	11	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	402	420	21	12	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	441				858	430
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441				858	430
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	99
cM capacity (veh/h)	1119				323	625
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	13	402	441	21		
Volume Left	13	0	0	12		
Volume Right	0	0	21	9		
cSH	1119	1700	1700	408		
Volume to Capacity	0.01	0.24	0.26	0.05		
Queue Length 95th (m)	0.3	0.0	0.0	1.3		
Control Delay (s)	8.3	0.0	0.0	14.3		
Lane LOS	A			B		
Approach Delay (s)	0.3		0.0	14.3		
Approach LOS				B		
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			31.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

21: Franktown Road & Realigned Plaza Entrance

11-02-2021



















Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	9	378	387	7	4	7
Future Volume (Veh/h)	9	378	387	7	4	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	411	421	8	4	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	429				856	425
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	429				856	425
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	1130				325	629
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	10	411	429	12		
Volume Left	10	0	0	4		
Volume Right	0	0	8	8		
cSH	1130	1700	1700	480		
Volume to Capacity	0.01	0.24	0.25	0.03		
Queue Length 95th (m)	0.2	0.0	0.0	0.6		
Control Delay (s)	8.2	0.0	0.0	12.7		
Lane LOS	A			B		
Approach Delay (s)	0.2		0.0	12.7		
Approach LOS				B		
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			30.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	18	539	16	11	634	20	15	0	5	14	0	18
Future Volume (Veh/h)	18	539	16	11	634	20	15	0	5	14	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	586	17	12	689	22	16	0	5	15	0	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	711			603			1378	1370	594	1364	1367	700
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	711			603			1378	1370	594	1364	1367	700
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			86	100	99	88	100	95
cM capacity (veh/h)	888			975			113	141	505	120	142	439
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	623	723	21	35								
Volume Left	20	12	16	15								
Volume Right	17	22	5	20								
cSH	888	975	139	206								
Volume to Capacity	0.02	0.01	0.15	0.17								
Queue Length 95th (m)	0.6	0.3	4.1	4.8								
Control Delay (s)	0.6	0.3	35.5	26.1								
Lane LOS	A	A	E	D								
Approach Delay (s)	0.6	0.3	35.5	26.1								
Approach LOS			E	D								
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			49.2%	ICU Level of Service		A						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↳			↵	↵	
Traffic Volume (veh/h)	557	1	19	661	4	11
Future Volume (Veh/h)	557	1	19	661	4	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	605	1	21	718	4	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			606		1366	606
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			606		1366	606
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	98
cM capacity (veh/h)			972		159	497
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	606	739	16			
Volume Left	0	21	4			
Volume Right	1	0	12			
cSH	1700	972	324			
Volume to Capacity	0.36	0.02	0.05			
Queue Length 95th (m)	0.0	0.5	1.2			
Control Delay (s)	0.0	0.6	16.7			
Lane LOS		A	C			
Approach Delay (s)	0.0	0.6	16.7			
Approach LOS			C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			60.1%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021






















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑			↑	↑	↑
Traffic Volume (veh/h)	571	14	38	660	31	39
Future Volume (Veh/h)	571	14	38	660	31	39
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	621	15	41	717	34	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			636	1428		628
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			636	1428		628
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			96	76		91
cM capacity (veh/h)			947	142		483
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	636	758	76			
Volume Left	0	41	34			
Volume Right	15	0	42			
cSH	1700	947	233			
Volume to Capacity	0.37	0.04	0.33			
Queue Length 95th (m)	0.0	1.1	10.9			
Control Delay (s)	0.0	1.1	27.7			
Lane LOS			A	D		
Approach Delay (s)	0.0	1.1	27.7			
Approach LOS			D			
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			76.6%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

11-02-2021

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR		
Lane Configurations														
Traffic Volume (veh/h)	16	238	14	48	358	42	14	11	23	9	7	25		
Future Volume (Veh/h)	16	238	14	48	358	42	14	11	23	9	7	25		
Sign Control		Free			Free			Stop				Stop		
Grade		0%			0%			0%				0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	17	259	15	52	389	46	15	12	25	10	8	27		
Pedestrians														
Lane Width (m)														
Walking Speed (m/s)														
Percent Blockage														
Right turn flare (veh)														
Median type	None					None								
Median storage (veh)														
Upstream signal (m)														
pX, platoon unblocked														
vC, conflicting volume	435			274			840		824		412		824	
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	435			274			840		824		412		824	
tC, single (s)	4.1			4.1			7.1		6.5		6.2		7.1	
tC, 2 stage (s)														
tF (s)	2.2			2.2			3.5		4.0		3.3		3.5	
p0 queue free %	98			96			94		96		96		97	
cM capacity (veh/h)	1125			1289			258		291		640		260	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1								
Volume Total	17	274	52	435	52	45								
Volume Left	17	0	52	0	15	10								
Volume Right	0	15	0	46	25	27								
cSH	1125	1700	1289	1700	376	444								
Volume to Capacity	0.02	0.16	0.04	0.26	0.14	0.10								
Queue Length 95th (m)	0.4	0.0	1.0	0.0	3.8	2.7								
Control Delay (s)	8.3	0.0	7.9	0.0	16.1	14.0								
Lane LOS	A		A		C		B							
Approach Delay (s)	0.5		0.8		16.1		14.0							
Approach LOS					C		B							
Intersection Summary														
Average Delay			2.3											
Intersection Capacity Utilization			38.9%		ICU Level of Service				A					
Analysis Period (min)			15											

HCM Unsignalized Intersection Capacity Analysis
 17: Franktown Road & Site Access

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↗			
Traffic Volume (veh/h)	0	568	680	3	0	0
Future Volume (Veh/h)	0	568	680	3	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	617	739	3	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	742				1358	740
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	742				1358	740
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	865				164	416
Direction, Lane #	SE 1	NW 1				
Volume Total	617	742				
Volume Left	0	0				
Volume Right	0	3				
cSH	1700	1700				
Volume to Capacity	0.36	0.44				
Queue Length 95th (m)	0.0	0.0				
Control Delay (s)	0.0	0.0				
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			39.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 19: Franktown Road & Temporary Site Access/Fire Route

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	19	546	650	42	39	23
Future Volume (Veh/h)	19	546	650	42	39	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	593	707	46	42	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	753				1365	730
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	753				1365	730
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				73	94
cM capacity (veh/h)	857				158	422
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	21	593	753	67		
Volume Left	21	0	0	42		
Volume Right	0	0	46	25		
cSH	857	1700	1700	207		
Volume to Capacity	0.02	0.35	0.44	0.32		
Queue Length 95th (m)	0.6	0.0	0.0	10.7		
Control Delay (s)	9.3	0.0	0.0	30.6		
Lane LOS	A			D		
Approach Delay (s)	0.3		0.0	30.6		
Approach LOS				D		
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			47.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

21: Franktown Road & Realigned Plaza Entrance

11-02-2021



















Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	18	550	655	17	15	27
Future Volume (Veh/h)	18	550	655	17	15	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	598	712	18	16	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	730				1359	721
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730				1359	721
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				90	93
cM capacity (veh/h)	874				160	427
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	20	598	730	45		
Volume Left	20	0	0	16		
Volume Right	0	0	18	29		
cSH	874	1700	1700	268		
Volume to Capacity	0.02	0.35	0.43	0.17		
Queue Length 95th (m)	0.6	0.0	0.0	4.7		
Control Delay (s)	9.2	0.0	0.0	21.1		
Lane LOS	A			C		
Approach Delay (s)	0.3		0.0	21.1		
Approach LOS				C		
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			45.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis











3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	6	379	4	4	405	9	20	1	9	18	2	17
Future Volume (Veh/h)	6	379	4	4	405	9	20	1	9	18	2	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	412	4	4	440	10	22	1	10	20	2	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	450			416			900	886	414	892	883	445
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	450			416			900	886	414	892	883	445
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			91	100	98	92	99	97
cM capacity (veh/h)	1110			1143			249	281	638	256	282	613
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	423	454	33	40								
Volume Left	7	4	22	20								
Volume Right	4	10	10	18								
cSH	1110	1143	306	349								
Volume to Capacity	0.01	0.00	0.11	0.11								
Queue Length 95th (m)	0.2	0.1	2.9	3.1								
Control Delay (s)	0.2	0.1	18.2	16.6								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.2	0.1	18.2	16.6								
Approach LOS			C	C								
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			34.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: Franktown Road & Plaza Entrance

11-02-2021

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	13	401	418	20	11	11
Future Volume (Veh/h)	13	401	418	20	11	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	436	454	22	12	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	476				929	465
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	476				929	465
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	98
cM capacity (veh/h)	1086				293	597
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	14	436	476	24		
Volume Left	14	0	0	12		
Volume Right	0	0	22	12		
cSH	1086	1700	1700	393		
Volume to Capacity	0.01	0.26	0.28	0.06		
Queue Length 95th (m)	0.3	0.0	0.0	1.6		
Control Delay (s)	8.4	0.0	0.0	14.7		
Lane LOS	A			B		
Approach Delay (s)	0.3		0.0	14.7		
Approach LOS				B		
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			33.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	405	1	8	415	3	14
Future Volume (Veh/h)	405	1	8	415	3	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	440	1	9	451	3	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			441		910	440
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			441		910	440
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	98
cM capacity (veh/h)			1119		303	617
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	441	460	18			
Volume Left	0	9	3			
Volume Right	1	0	15			
cSH	1700	1119	526			
Volume to Capacity	0.26	0.01	0.03			
Queue Length 95th (m)	0.0	0.2	0.8			
Control Delay (s)	0.0	0.2	12.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.2	12.1			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			38.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021






















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	➡			➡	➡	
Traffic Volume (veh/h)	376	36	52	420	18	35
Future Volume (Veh/h)	376	36	52	420	18	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	409	39	57	457	20	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			448		1000	428
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			448		1000	428
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		92	94
cM capacity (veh/h)			1112		256	626
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	448	514	58			
Volume Left	0	57	20			
Volume Right	39	0	38			
cSH	1700	1112	418			
Volume to Capacity	0.26	0.05	0.14			
Queue Length 95th (m)	0.0	1.3	3.8			
Control Delay (s)	0.0	1.5	15.0			
Lane LOS		A	C			
Approach Delay (s)	0.0	1.5	15.0			
Approach LOS			C			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			60.3%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

11-02-2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations													
Traffic Volume (veh/h)	11	175	6	18	181	8	13	6	16	12	10	37	
Future Volume (Veh/h)	11	175	6	18	181	8	13	6	16	12	10	37	
Sign Control		Free			Free			Stop				Stop	
Grade		0%			0%			0%				0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	12	190	7	20	197	9	14	7	17	13	11	40	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type		None			None								
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	206			197			501	462	202	475	464	194	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	206			197			501	462	202	475	464	194	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	99			99			97	99	98	97	98	95	
cM capacity (veh/h)	1365			1376			442	485	839	476	484	848	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1							
Volume Total	12	197	20	206	38	64							
Volume Left	12	0	20	0	14	13							
Volume Right	0	7	0	9	17	40							
cSH	1365	1700	1376	1700	573	658							
Volume to Capacity	0.01	0.12	0.01	0.12	0.07	0.10							
Queue Length 95th (m)	0.2	0.0	0.4	0.0	1.7	2.6							
Control Delay (s)	7.7	0.0	7.7	0.0	11.7	11.1							
Lane LOS	A		A		B	B							
Approach Delay (s)	0.4		0.7		11.7	11.1							
Approach LOS					B	B							
Intersection Summary													
Average Delay			2.6										
Intersection Capacity Utilization			25.5%		ICU Level of Service				A				
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 17: Franktown Road & Site Access

11-02-2021



















Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	18	401	411	18	13	13
Future Volume (Veh/h)	18	401	411	18	13	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	436	447	20	14	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	467				933	457
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	467				933	457
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				95	98
cM capacity (veh/h)	1094				290	604
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	456	467	28			
Volume Left	20	0	14			
Volume Right	0	20	14			
cSH	1094	1700	392			
Volume to Capacity	0.02	0.27	0.07			
Queue Length 95th (m)	0.4	0.0	1.8			
Control Delay (s)	0.6	0.0	14.9			
Lane LOS	A		B			
Approach Delay (s)	0.6	0.0	14.9			
Approach LOS			B			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			45.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	18	581	16	11	688	21	15	0	5	15	0	18
Future Volume (Veh/h)	18	581	16	11	688	21	15	0	5	15	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	632	17	12	748	23	16	0	5	16	0	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	771			649			1484	1476	640	1469	1472	760
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	771			649			1484	1476	640	1469	1472	760
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			83	100	99	84	100	95
cM capacity (veh/h)	844			937			95	122	475	102	122	406
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	669	783	21	36								
Volume Left	20	12	16	16								
Volume Right	17	23	5	20								
cSH	844	937	118	174								
Volume to Capacity	0.02	0.01	0.18	0.21								
Queue Length 95th (m)	0.6	0.3	5.0	6.0								
Control Delay (s)	0.6	0.3	42.1	31.0								
Lane LOS	A	A	E	D								
Approach Delay (s)	0.6	0.3	42.1	31.0								
Approach LOS			E	D								
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			52.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

6: Franktown Road & Plaza Entrance

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	27	590	688	52	44	41
Future Volume (Veh/h)	27	590	688	52	44	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	641	748	57	48	45
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	805				1476	776
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	805				1476	776
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				64	89
cM capacity (veh/h)	819				134	397
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	29	641	805	93		
Volume Left	29	0	0	48		
Volume Right	0	0	57	45		
cSH	819	1700	1700	197		
Volume to Capacity	0.04	0.38	0.47	0.47		
Queue Length 95th (m)	0.9	0.0	0.0	18.2		
Control Delay (s)	9.6	0.0	0.0	38.5		
Lane LOS	A			E		
Approach Delay (s)	0.4		0.0	38.5		
Approach LOS				E		
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			51.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	600	1	19	716	4	11
Future Volume (Veh/h)	600	1	19	716	4	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	652	1	21	778	4	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			653		1472	652
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			653		1472	652
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	97
cM capacity (veh/h)			934		137	468
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	653	799	16			
Volume Left	0	21	4			
Volume Right	1	0	12			
cSH	1700	934	291			
Volume to Capacity	0.38	0.02	0.05			
Queue Length 95th (m)	0.0	0.6	1.4			
Control Delay (s)	0.0	0.6	18.1			
Lane LOS		A	C			
Approach Delay (s)	0.0	0.6	18.1			
Approach LOS			C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			63.0%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021





















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	620	14	38	709	31	39
Future Volume (Veh/h)	620	14	38	709	31	39
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	674	15	41	771	34	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			689		1534	682
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			689		1534	682
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		72	91
cM capacity (veh/h)			905		122	450
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	689	812	76			
Volume Left	0	41	34			
Volume Right	15	0	42			
cSH	1700	905	205			
Volume to Capacity	0.41	0.05	0.37			
Queue Length 95th (m)	0.0	1.1	12.9			
Control Delay (s)	0.0	1.2	32.6			
Lane LOS		A	D			
Approach Delay (s)	0.0	1.2	32.6			
Approach LOS			D			
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			79.1%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

11-02-2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	16	252	14	58	379	42	14	11	23	9	7	38
Future Volume (Veh/h)	16	252	14	58	379	42	14	11	23	9	7	38
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	274	15	63	412	46	15	12	25	10	8	41
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None					None						
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	458		289		914		884		435		884	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	458		289		914		884		435		884	
tC, single (s)	4.1		4.1		7.1		6.5		6.2		7.1	
tC, 2 stage (s)												
tF (s)	2.2		2.2		3.5		4.0		3.3		3.5	
p0 queue free %	98		95		93		95		96		96	
cM capacity (veh/h)	1103		1273		223		266		621		234	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1						
Volume Total	17	289	63	458	52	59						
Volume Left	17	0	63	0	15	10						
Volume Right	0	15	0	46	25	41						
cSH	1103	1700	1273	1700	341	463						
Volume to Capacity	0.02	0.17	0.05	0.27	0.15	0.13						
Queue Length 95th (m)	0.4	0.0	1.2	0.0	4.3	3.5						
Control Delay (s)	8.3	0.0	8.0	0.0	17.5	13.9						
Lane LOS	A		A		C		B					
Approach Delay (s)	0.5		1.0		17.5		13.9					
Approach LOS					C		B					
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			40.5%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 17: Franktown Road & Site Access

11-02-2021



















Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	20	591	709	20	26	26
Future Volume (Veh/h)	20	591	709	20	26	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	642	771	22	28	28
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	793				1468	782
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	793				1468	782
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				80	93
cM capacity (veh/h)	828				137	394
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	664	793	56			
Volume Left	22	0	28			
Volume Right	0	22	28			
cSH	828	1700	203			
Volume to Capacity	0.03	0.47	0.28			
Queue Length 95th (m)	0.7	0.0	8.6			
Control Delay (s)	0.7	0.0	29.3			
Lane LOS	A		D			
Approach Delay (s)	0.7	0.0	29.3			
Approach LOS			D			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			57.3%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	362	4	4	393	9	20	1	9	33	2	17
Future Volume (Veh/h)	13	362	4	4	393	9	20	1	9	33	2	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	393	4	4	427	10	22	1	10	36	2	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	437			397			882	868	395	874	865	432
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	437			397			882	868	395	874	865	432
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			91	100	98	86	99	97
cM capacity (veh/h)	1123			1162			255	286	654	262	287	624
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	411	441	33	56								
Volume Left	14	4	22	36								
Volume Right	4	10	10	18								
cSH	1123	1162	314	324								
Volume to Capacity	0.01	0.00	0.11	0.17								
Queue Length 95th (m)	0.3	0.1	2.8	4.9								
Control Delay (s)	0.4	0.1	17.8	18.4								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	0.1	17.8	18.4								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			37.6%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑			↑	↑	↑
Traffic Volume (veh/h)	403	1	8	403	3	14
Future Volume (Veh/h)	403	1	8	403	3	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	438	1	9	438	3	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			439	894		438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			439	894		438
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			99	99		98
cM capacity (veh/h)			1121	309		618
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	439	447	18			
Volume Left	0	9	3			
Volume Right	1	0	15			
cSH	1700	1121	530			
Volume to Capacity	0.26	0.01	0.03			
Queue Length 95th (m)	0.0	0.2	0.8			
Control Delay (s)	0.0	0.3	12.0			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.3	12.0			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			37.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021






















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	379	36	52	424	18	35
Future Volume (Veh/h)	379	36	52	424	18	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	412	39	57	461	20	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			451		1006	432
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			451		1006	432
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		92	94
cM capacity (veh/h)			1109		253	624
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	451	518	58			
Volume Left	0	57	20			
Volume Right	39	0	38			
cSH	1700	1109	415			
Volume to Capacity	0.27	0.05	0.14			
Queue Length 95th (m)	0.0	1.3	3.9			
Control Delay (s)	0.0	1.5	15.1			
Lane LOS		A	C			
Approach Delay (s)	0.0	1.5	15.1			
Approach LOS			C			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			60.7%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

11-02-2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations													
Traffic Volume (veh/h)	11	175	8	22	181	8	13	6	16	18	10	41	
Future Volume (Veh/h)	11	175	8	22	181	8	13	6	16	18	10	41	
Sign Control		Free			Free			Stop				Stop	
Grade		0%			0%			0%				0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	12	190	9	24	197	9	14	7	17	20	11	45	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None					None							
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	206			199			514	472	202	484	472	194	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	206			199			514	472	202	484	472	194	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	99			98			97	99	98	96	98	95	
cM capacity (veh/h)	1365			1373			429	477	839	468	477	847	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1							
Volume Total	12	199	24	206	38	76							
Volume Left	12	0	24	0	14	20							
Volume Right	0	9	0	9	17	45							
cSH	1365	1700	1373	1700	563	639							
Volume to Capacity	0.01	0.12	0.02	0.12	0.07	0.12							
Queue Length 95th (m)	0.2	0.0	0.4	0.0	1.7	3.2							
Control Delay (s)	7.7	0.0	7.7	0.0	11.9	11.4							
Lane LOS	A		A		B	B							
Approach Delay (s)	0.4		0.8		11.9	11.4							
Approach LOS					B	B							
Intersection Summary													
Average Delay			2.9										
Intersection Capacity Utilization			28.1%		ICU Level of Service				A				
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 17: Franktown Road & Site Access

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↵			
Traffic Volume (veh/h)	0	417	411	23	0	0
Future Volume (Veh/h)	0	417	411	23	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	453	447	25	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	472				912	460
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	472				912	460
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1090				304	602
Direction, Lane #	SE 1	NW 1				
Volume Total	453	472				
Volume Left	0	0				
Volume Right	0	25				
cSH	1700	1700				
Volume to Capacity	0.27	0.28				
Queue Length 95th (m)	0.0	0.0				
Control Delay (s)	0.0	0.0				
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			26.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 19: Franktown Road & Temporary Site Access/Fire Route

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0

Direction, Lane #	SE 1	SE 2	NW 1	SW 1
Volume Total (vph)	0	0	0	0
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00
Departure Headway (s)	4.5	4.5	4.0	3.9
Degree Utilization, x	0.00	0.00	0.00	0.00
Capacity (veh/h)	806	806	900	917
Control Delay (s)	6.3	6.3	7.0	6.9
Approach Delay (s)	0.0		0.0	0.0
Approach LOS	A		A	A

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

HCM Unsignalized Intersection Capacity Analysis

21: Franktown Road & Realigned Plaza Entrance

11-02-2021



















Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	13	404	422	20	11	11
Future Volume (Veh/h)	13	404	422	20	11	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	439	459	22	12	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	481				937	470
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	481				937	470
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	98
cM capacity (veh/h)	1082				290	594
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	14	439	481	24		
Volume Left	14	0	0	12		
Volume Right	0	0	22	12		
cSH	1082	1700	1700	390		
Volume to Capacity	0.01	0.26	0.28	0.06		
Queue Length 95th (m)	0.3	0.0	0.0	1.6		
Control Delay (s)	8.4	0.0	0.0	14.8		
Lane LOS	A			B		
Approach Delay (s)	0.3		0.0	14.8		
Approach LOS				B		
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			33.4%	ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

3: Franktown Road & Nelson Street

11-02-2021

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	26	562	16	11	663	20	15	0	5	46	0	18
Future Volume (Veh/h)	26	562	16	11	663	20	15	0	5	46	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	611	17	12	721	22	16	0	5	50	0	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	743			628			1452	1442	620	1436	1440	732
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	743			628			1452	1442	620	1436	1440	732
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			84	100	99	53	100	95
cM capacity (veh/h)	864			954			100	126	488	106	127	421
Direction, Lane #	SE 1	NW 1	NE 1	SW 1								
Volume Total	656	755	21	70								
Volume Left	28	12	16	50								
Volume Right	17	22	5	20								
cSH	864	954	123	135								
Volume to Capacity	0.03	0.01	0.17	0.52								
Queue Length 95th (m)	0.8	0.3	4.7	19.8								
Control Delay (s)	0.9	0.3	40.1	57.3								
Lane LOS	A	A	E	F								
Approach Delay (s)	0.9	0.3	40.1	57.3								
Approach LOS			E	F								
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			55.8%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9: Alexander Street & Franktown Road

11-02-2021



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	612	1	19	690	4	11
Future Volume (Veh/h)	612	1	19	690	4	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	665	1	21	750	4	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			666	1458		666
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			666	1458		666
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			98	97		97
cM capacity (veh/h)			923	139		460
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	666	771	16			
Volume Left	0	21	4			
Volume Right	1	0	12			
cSH	1700	923	292			
Volume to Capacity	0.39	0.02	0.05			
Queue Length 95th (m)	0.0	0.6	1.4			
Control Delay (s)	0.0	0.6	18.0			
Lane LOS			A	C		
Approach Delay (s)	0.0	0.6	18.0			
Approach LOS			C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			61.6%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Findlay Street & Franktown Road

11-02-2021






















Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	626	14	38	714	31	39
Future Volume (Veh/h)	626	14	38	714	31	39
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	680	15	41	776	34	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			695		1546	688
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			695		1546	688
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		72	91
cM capacity (veh/h)			901		120	447
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	695	817	76			
Volume Left	0	41	34			
Volume Right	15	0	42			
cSH	1700	901	202			
Volume to Capacity	0.41	0.05	0.38			
Queue Length 95th (m)	0.0	1.1	13.1			
Control Delay (s)	0.0	1.2	33.2			
Lane LOS		A	D			
Approach Delay (s)	0.0	1.2	33.2			
Approach LOS			D			
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			79.4%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

14: Coleman Street & Park Avenue

11-02-2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations													
Traffic Volume (veh/h)	16	252	17	63	379	42	14	11	23	22	7	44	
Future Volume (Veh/h)	16	252	17	63	379	42	14	11	23	22	7	44	
Sign Control		Free			Free			Stop				Stop	
Grade		0%			0%			0%				0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	17	274	18	68	412	46	15	12	25	24	8	48	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None					None							
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	458			292			931	897	435	896	911	283	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	458			292			931	897	435	896	911	283	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	98			95			93	95	96	90	97	94	
cM capacity (veh/h)	1103			1270			214	260	621	229	255	756	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1	NW 1							
Volume Total	17	292	68	458	52	80							
Volume Left	17	0	68	0	15	24							
Volume Right	0	18	0	46	25	48							
cSH	1103	1700	1270	1700	333	401							
Volume to Capacity	0.02	0.17	0.05	0.27	0.16	0.20							
Queue Length 95th (m)	0.4	0.0	1.4	0.0	4.4	5.9							
Control Delay (s)	8.3	0.0	8.0	0.0	17.8	16.2							
Lane LOS	A		A		C	C							
Approach Delay (s)	0.5		1.0		17.8	16.2							
Approach LOS					C	C							
Intersection Summary													
Average Delay			3.0										
Intersection Capacity Utilization			41.6%		ICU Level of Service				A				
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 17: Franktown Road & Site Access

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↵			
Traffic Volume (veh/h)	0	623	709	25	0	0
Future Volume (Veh/h)	0	623	709	25	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	677	771	27	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	798				1462	784
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	798				1462	784
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	824				142	393
Direction, Lane #	SE 1	NW 1				
Volume Total	677	798				
Volume Left	0	0				
Volume Right	0	27				
cSH	1700	1700				
Volume to Capacity	0.40	0.47				
Queue Length 95th (m)	0.0	0.0				
Control Delay (s)	0.0	0.0				
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			42.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 19: Franktown Road & Temporary Site Access/Fire Route

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0

Direction, Lane #	SE 1	SE 2	NW 1	SW 1
Volume Total (vph)	0	0	0	0
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00
Departure Headway (s)	4.5	4.5	4.0	3.9
Degree Utilization, x	0.00	0.00	0.00	0.00
Capacity (veh/h)	806	806	900	917
Control Delay (s)	6.3	6.3	7.0	6.9
Approach Delay (s)	0.0		0.0	0.0
Approach LOS	A		A	A

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

HCM Unsignalized Intersection Capacity Analysis

21: Franktown Road & Realigned Plaza Entrance

11-02-2021



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	27	596	693	52	44	41
Future Volume (Veh/h)	27	596	693	52	44	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	648	753	57	48	45
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	810				1488	782
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	810				1488	782
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				64	89
cM capacity (veh/h)	816				132	395
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	29	648	810	93		
Volume Left	29	0	0	48		
Volume Right	0	0	57	45		
cSH	816	1700	1700	195		
Volume to Capacity	0.04	0.38	0.48	0.48		
Queue Length 95th (m)	0.9	0.0	0.0	18.6		
Control Delay (s)	9.6	0.0	0.0	39.4		
Lane LOS	A			E		
Approach Delay (s)	0.4		0.0	39.4		
Approach LOS				E		
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			51.2%	ICU Level of Service	A	
Analysis Period (min)			15			