Brant Street and Ghent Avenue, Burlington, ON Transportation Impact Assessment

Paradigm Transportation Solutions Limited

May 2021
200403

ptsl.com

Project Summary

Project Number
200403

May 2021

Client
Molinaro Group
472 Brock Avenue, Unit 103
Burlington ON L7S 1N1

Client Contact
Vince Molinaro
President

Consultant Project Team
Stewart Elkins, B.E.S.
Scott Catton, C.E.T.
Andrew Evans, M.Sc.
Erica Bayley, P.Eng.

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road
Cambridge ON N1R 8J8
p: 519.896.3163
905.381.2229
416.479.9684
www.ptsl.com

Version 1.0.0

Brant Street and Ghent Avenue, Burlington, ON
Transportation Impact Assessment



Signing Licencee/Engineer, P.Eng.

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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct this Transportation Impact Assessment (TIA) for a mixed-use development located on the northwest, northeast, and southeast corners of the Brant Street and Ghent Avenue intersection in the City of Burlington.

This study determines the impacts of the development traffic on the surrounding road network and identifies the recommended improvements to accommodate the site generated traffic.

Development Concept

The subject site is located on the northwest, northeast and southeast corner of the Brant Street and Ghent Avenue intersection. The development concept includes multiple buildings ranging in height from 8 to 25 storeys. Approximately 881 units are proposed with approximately 1286 m^2 of ground floor retail space. Build-out is expected to occur in 3 phases with full build-out occurring by Year 2029.

Vehicle access is proposed by private driveways to Ghent Avenue. The construction of the Phase 1 site driveway is expected to result in the removal of 1-2 existing on-street parking spaces along Ghent Avenue.

Conclusions

Based on the investigations carried out, it is concluded that:

- **Existing Traffic Operations:** Capacity issues are identified at the Brant Street intersections with Fairview Street and Prospect Street/Grahams Lane.
- **Estimated Site Generated Traffic:** Under full build-out, the subject site is forecast to generate approximately:
  - Vehicle trips – 234, 297, and 314 external vehicle trips during the AM, PM, and Saturday peak hours, respectively.
  - Transit trips – 48, 66, and 69 external transit trips during the AM, PM, and Saturday peak hours, respectively. The transit trips are assumed to begin and end by using Active Transportation.

- Non-Auto Trips – 17, 22, and 24 external non-auto trips (walking/bicycle) trips during the AM, PM, and Saturday peak hours, respectively.

- **Background Traffic Operations:** The capacity constraints identified under existing conditions are expected to continue to occur with the expected growth in non-site generated traffic. Capacity issues are identified at the following intersections:
  - Brant Street and Fairview Street (Phase 1 Horizon);
  - Brant Street and Prospect Street/Grahams Lane (Phase 1 Horizon); and
  - Brant Street and Blairholm Avenue (Phase 1 Horizon).
- **Total Traffic Operations**: Site generated traffic results in new capacity deficiencies at the following intersections:
  - Brant Street and Fairview Street;
    - Westbound left-turn (PM peak hour); and
    - Northbound left-turn (AM and Saturday peak hours).

  No capacity issues are forecast to occur at the proposed site driveways to Ghent Avenue.
- **Remedial Measures:** The following remedial measures have been identified to address forecast critical movements:
  - Brant Street and Fairview Street:
    - Optimizing signal timings.
  - Brant Street and Prospect Street/Grahams Lane:
    - Repaint the westbound left-turn lane to provide an additional 25 metres of storage (45 metres total).
  - Brant Street and Ghent Avenue:
    - Repaint the southbound approach two-way centre left-turn lane to remove the taper.
  - Brant Street and Blairholm Avenue:
    - Repaint the westbound left-turn lane to provide an additional 5 metres of storage (15 metres total).

  No geometric improvements are recommended at the proposed site driveways to Ghent Avenue.

Recommendations

Based on the above conclusions, the following is recommended:

- The road authorities monitor the future traffic volumes along the Brant Street and Fairview Street corridors and optimize the signal timings accordingly.
- The road authorities consider modifying the following turn lanes to provide additional storage necessary to accommodate the forecast queue lengths:
  - Brant Street at Prospect Street – eastbound left-turn lane (45 metres of total storage);
  - Brant Street at Ghent Avenue – southbound left-turn lane (remove taper lane marking)
  - Brant Street at Blairholm Avenue – westbound left-turn lane (15 metres of total storage);

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1 Introduction

1.1 Overview

Molinaro Group has retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Assessment (TIA) for a mixed-use development located in the northwest, northeast, and southeast corners of the Brant Street and Ghent Avenue intersection in the City of Burlington.

Figure 1.1 illustrates the location of the subject site.

The scope of the study includes:

- Determine and assess the current study area traffic conditions;
- Forecast the additional traffic generated by the proposed development;
- Analyze the impacts of the additional traffic on the study area intersections for the following horizons:
  - Phase 1 (Lot A) build-out – Year 2027;
  - Phase 2 (Lot B) build-out – Year 2028;
  - Phase 3 (Lot C) full build-out – Year 2029; and
  - Five-year horizon post full build-out – Year 2034.
- Recommend any necessary remedial measures to mitigate the traffic impacts.

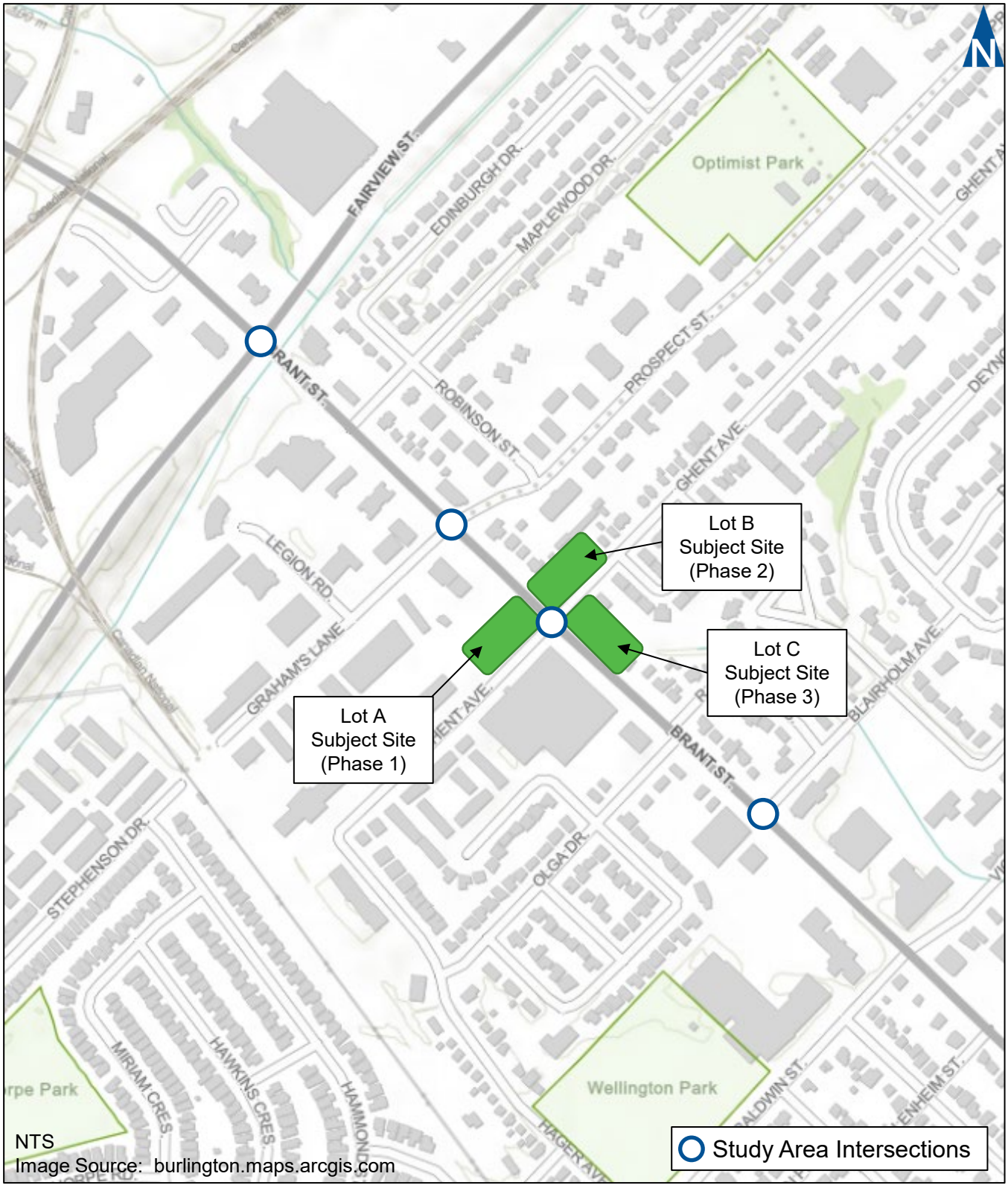
Appendix A contains the pre-study consultation material and responses from the Halton Region and the City of Burlington. The study follows Halton Region's Transportation Impact Study Guidelines[1]

1.2 Study Area

The study area intersections assessed in this study include:

- Brant Street and Fairview Street (signalized);
- Brant Street and Prospect Street/Grahams Lane (signalized);
- Brant Street and Ghent Avenue (signalized);
- Brant Street and Blairholm Avenue (signalized); and
- The proposed site driveways.

[1] Transportation Impact Study Guidelines, Halton Region, January 2015



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Location of Subject Site

2 Existing Conditions

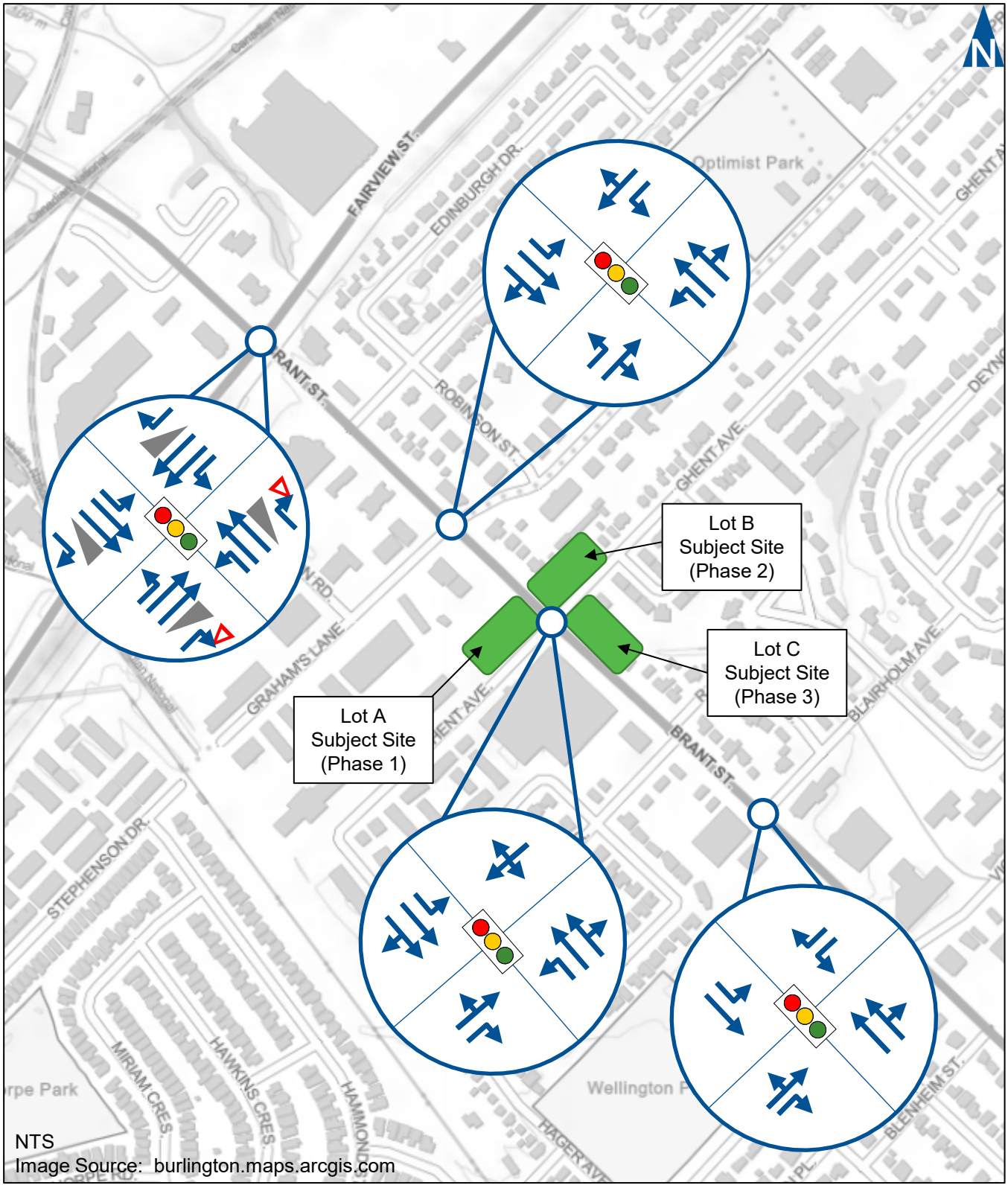
2.1 Roadway Characteristics

The roadways of interest within the study area include:

- **Brant Street** is a north-south multi-purpose arterial[2] roadway with an urban cross-section. North of Fairview Street the roadway has a 6-lane cross-section and a posted speed limit of 60 km/h. South of Fairview Street the roadway has a 4-lane cross-section and a posted speed limit of 50 km/h and is classified as a minor arterial. South of Ghent Avenue, Brant Street has two northbound lanes, one-southbound lane. The intersections with Fairview Street, Prospect Street/Grahams Lane, Ghent Avenue and Blairholm Avenue are signalized. Sidewalks are provided on both side of this roadway and on-street bicycle lanes are present in both directions.
- **Fairview Street** is an east-west multi-purpose arterial roadway with a posted speed limit of 60 km/h. It has a six-lane cross-section. Sidewalks are provided on both side of this roadway and on-street bicycle lanes are present in both directions.
- **Prospect Street/Grahams Lane** is an east-west collector roadway with a posted speed limit of 40 km/h. Prospect Street has a two-lane cross-section with an on-street bicycle lane on the north side of the roadway. The south side is marked with sharrow pavement markings. Graham Lane terminates as a cul-du-sac west of Brant Street. A sidewalk and sharrow pavement markings are provided on the north side of Graham Lane.
- **Ghent Avenue** is an east-west local roadway with a posted speed limit of 40 km/h. It has a two-lane cross-section with sidewalks provided on both sides of the roadway. No visible cycling infrastructure is noted. Paid on-street parking is provided along both sides of Ghent Avenue west of Brant Street.
- **Blairholm Avenue** is an east-west collector roadway with a posted speed limit of 40 km/h. It has a two-lane cross-section with sidewalks provided on both sides of the roadway. No visible cycling infrastructure is noted.

Figure 2.1 illustrates the existing lane configuration and traffic control at the study area intersections.

[2] City of Burlington Official Plan, Schedule L: Classification of Transportation Facilities South of No. 1 Side Road, Updated December 2019



NTS
Image Source: burlington.maps.arcgis.com

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Existing Lane Configuration & Traffic Control

2.2 Walking

Sidewalks are provided on both sides of all study area roadways expect Grahams Lane. All signalized intersections in the study area provide crosswalks, pedestrian pushbuttons. **Figure 2.2** illustrates the existing sidewalks within the study area.

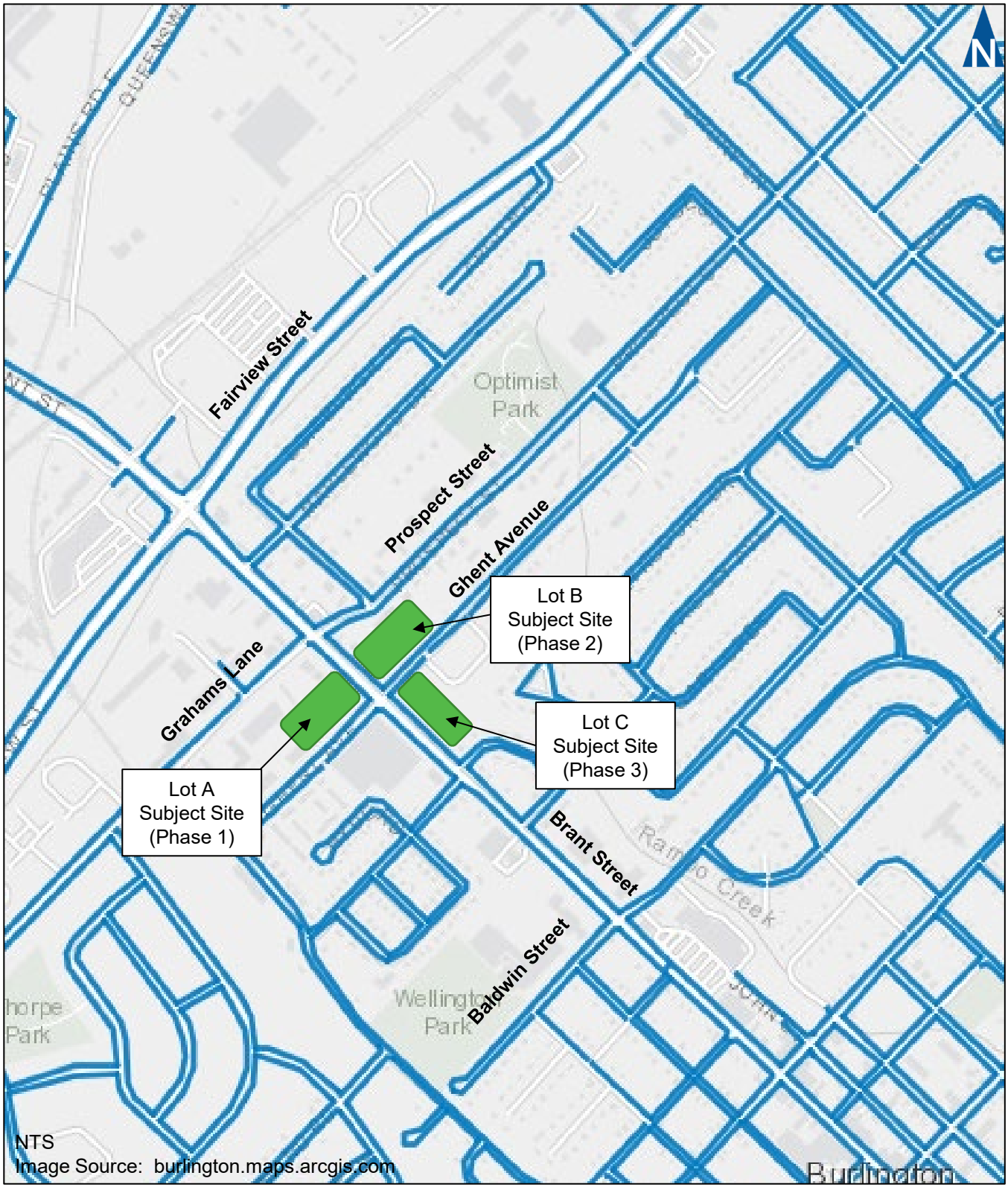
The subject site is noted to score a Walk Score[3] of 65 and is considered "Somewhat Walkable," which means that some errands can be accomplished on foot. Walk Score is an online tool that assigns a numerical walkability score between 0 and 100. Walk Score ranks communities nationwide based on how many businesses, parks, theatres, schools, and other common destinations are within walking distance.

2.3 Cycling

The City of Burlington's bicycle network provides a variety of cycling facilities within the immediate area. **Figure 2.3** illustrates the existing cycling network. The following cycling infrastructure is noted:

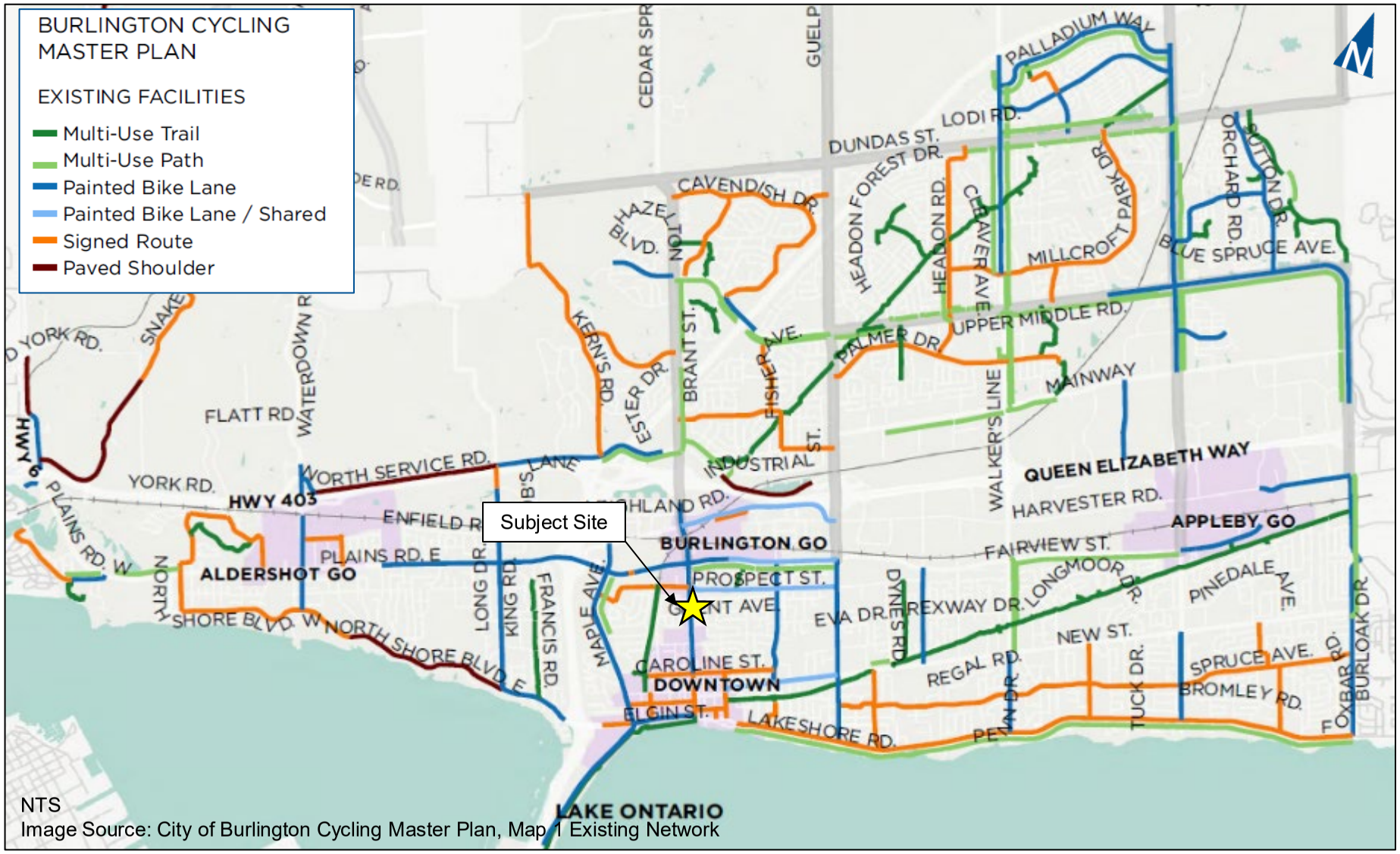
- Brant Street: On-street cycle lanes are provided in both directions through out the study area.
- Fairview Street: On-street cycle lanes are provided in both directions through out the study area.
- Prospect Street: An on-street cycle lane is provided on the north side of the street. A sharrow shared cycle route is provided on the south side of the street.
- Grahams Lane: A sharrow shared cycle route is provided on the north side of the street.

[3] https://www.walkscore.com/score/brant-street-and-ghent-avenue-burlington-ontario



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Existing Pedestrian Network



NTS
Image Source: City of Burlington Cycling Master Plan, Map 1 Existing Network

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Existing Cycle Network

2.4 Transit Service

Transit service in the area is provided by Burlington Transit and GO Transit and is centralized around the Burlington GO Station on Fairview Street, east of Brant Street. The GO station offers both GO Transit Bus and GO Transit train service and functions as a turnaround point for several Burlington Transit routes. The walking time to the Burlington GO is about 14 minutes (1.1 km). The cycling time to the Burlington GO is about 4 minutes.

The Burlington GO Rail station platforms are accessible from areas north and south of the tracks and are connected via underground walkways. There are bus loops on both sides of the CNR corridor used by Burlington Transit and GO Transit Parking and are designed with pick-up/drop-off areas.

GO Transit offers both rail and bus service from Burlington GO Station. GO Bus Route 18C and 18F (Lakeshore West) service the Burlington GO Station during the early morning and late-night hours before and after the GO Train service. The Lakeshore WEST GO train service offers frequent train travel from Burlington GO station between Toronto and Hamilton. GO Train service is provided 7 days a week with headways generally every 20 to 30 minutes.

The following describes the existing transit service presently provided by Burlington Transit along Brant Street south of Fairview Street:

- Route 2 (Brant) travels along Brant Street between the Downtown Transit terminal and the Highway 407 GO Carpool lot operates Monday to Friday (4:49 AM to 10:13 PM) with headways approximately every 20 minutes, Saturday (6:19 AM to 10:17 PM) with headways approximately every 30 to 60 minutes, and Sunday/Holidays (7:49 AM to 8:47 PM) with headways approximately every 30 to 60 minutes.

Figure 2.4 illustrates the existing transit network.

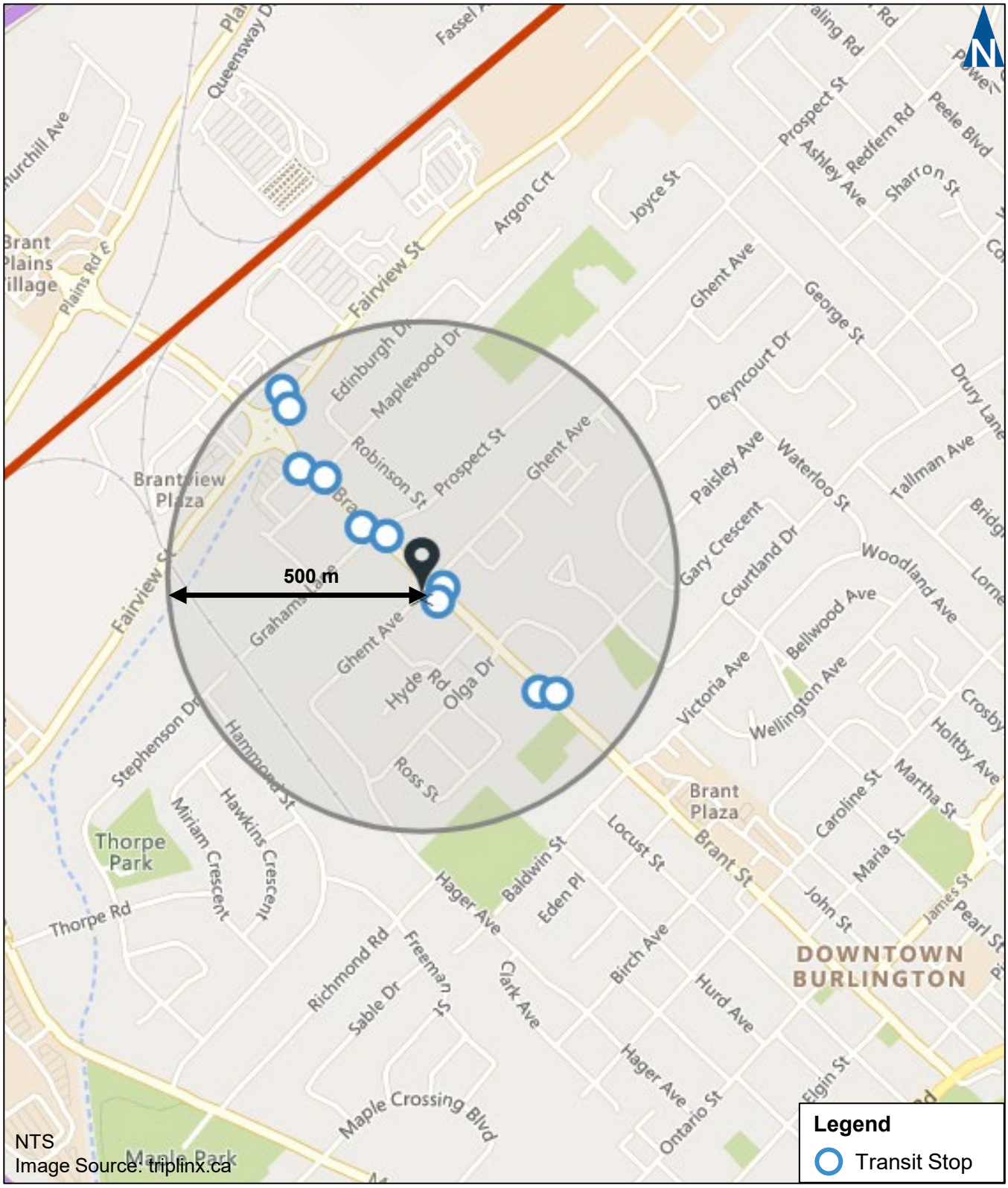
Figure 2.5 illustrates the existing transit stops within 500 m of the subject site[4]. The closest bus stops to the subject site are on the southwest and southeast corners of the Brant Street and Ghent Street intersections. Both stops have seating and weather protection.

[4] https://www.triplinx.ca/



Existing Transit Network

Figure 2.4



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Existing Transit Stops

2.5 Traffic Volumes

Table 2.1 summarizes the location and date of the existing turning movement count (TMC) data used in the analysis. The data was obtained from the Halton Region and City of Burlington. Paradigm collected the Saturday TMC data. **Appendix B** contains the existing count data.

TABLE 2.1: EXISTING TMC DATA

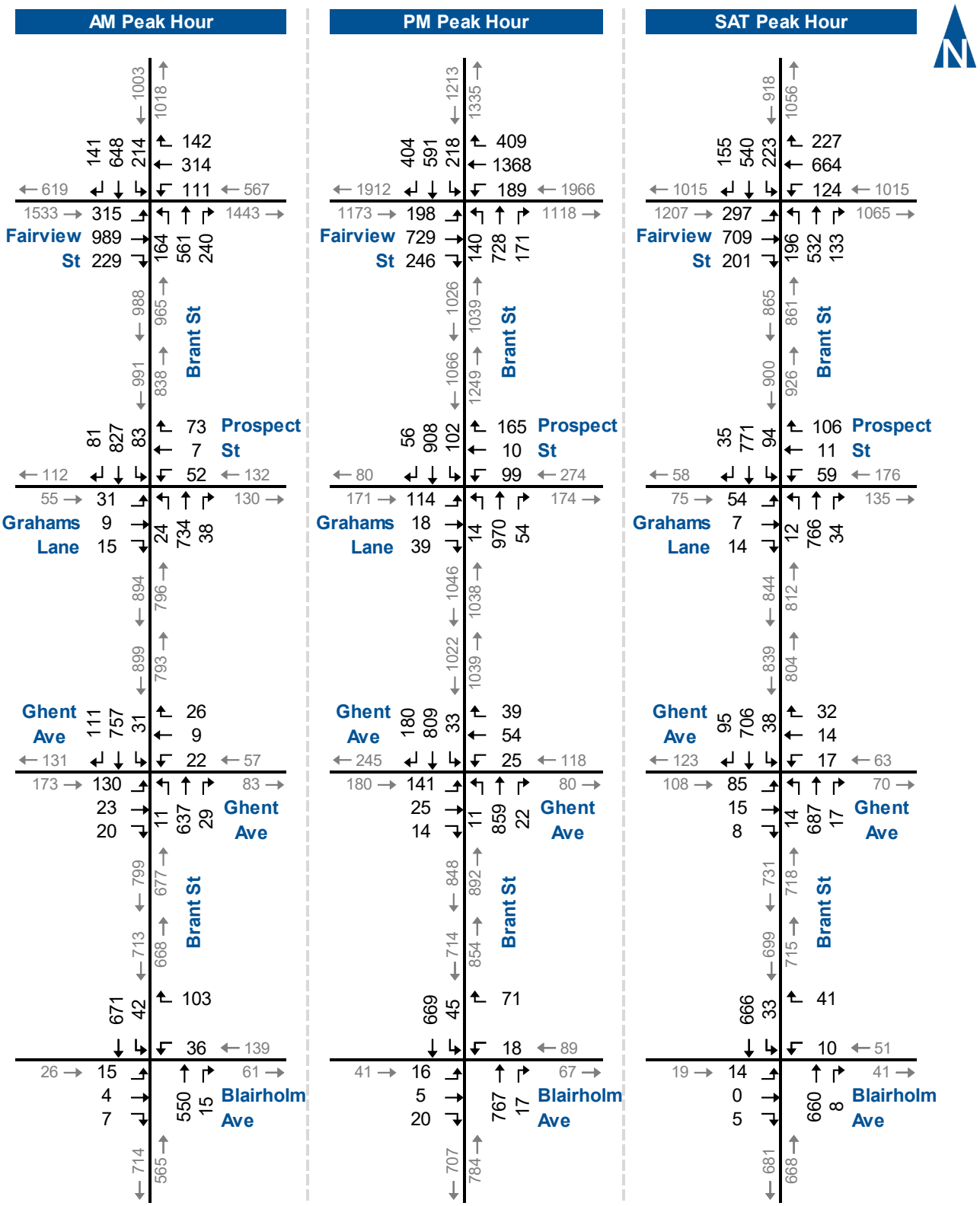
Intersection	Analysis Period	
	Weekday	Saturday
Brant Street at Fairview Street	May 2018	September 2020
Brant Street at Prospect Street/Grahams Lane	May 2019	September 2020
Brant Street at Ghent Avenue	May 2019	September 2020
Brant Street at Blairholm Avenue	May 2019	September 2020

To derive base year traffic volumes (Year 2021), the TMC data was factored to Year 2021 by using a 1% growth rate. The growth rate was determined in consultation with the City of Burlington and Halton Region.

Figure 2.6 illustrates the base year weekday AM, PM, and Saturday peak hour traffic volumes.

A potential quantum shift in travel demands and patterns may occur due to the COVID-19 global pandemic. Employers are beginning to shift away from traditional office-based environments to work-from-home models and with commercial/retail and service-based businesses adapting by adjusting business hours and/or switching to web-based e-commerce storefronts, resulting in travel demands and patterns potentially changing from the previous norm.

In a post-COVID condition, it is plausible that traffic volumes may never reach pre-COVID levels as a result of this quantum shift. With changes in travel demand, behaviour, and patterns, the forecasts as analyzed are conservative (i.e., err on the high side) and potentially under post-COVID conditions, traffic volumes may be lower.



Base Year Traffic Volumes

Brant Street & Ghent Avenue TIA
200403

Figure 2.6

2.6 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the efficiency of traffic flow at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles desiring to make a movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to the opposing traffic flows. The highest possible rating is LOS A, under which the average total delay is equal or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds at signalized intersections (50 seconds at unsignalized), the movement is considered to have a LOS F and remedial measures are usually implemented if they are feasible.

The operations of the study area intersections were evaluated under existing traffic volumes using Synchro 10 and HCM 2000 procedures. The intersection analysis considered the following measures of performance:

- The LOS for each turning movement. LOS is based on the average control delay per vehicle;
- The volume to capacity ratio for each intersection; and
- 95th percentile queue length (m).

Under the Region's TIS Guidelines, the following criteria indicate critical conditions and signify that mitigation measures may need to be considered:

- At signalized intersections,
  - Overall intersection operations, through movements, or shared through/turning movements increased to 0.85 or above.
  - V/C ratios for exclusive movements increased to 0.95 or above; or
  - Queues for an individual movement are projected to exceed turning lane storage.
- At unsignalized intersections,
  - LOS, based on average delay per vehicle, on individual movements exceeds LOS "D"; or
  - The estimated 95th percentile length for an individual movement exceeds the available queue storage.

Table 2.2 summarizes the results of the analysis for the intersection operations. The following critical movements are noted:

- Brant Street and Fairview Street:
  - Eastbound left-turn – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Westbound left-turn – PM peak hour, queue length exceeds storage.
  - Westbound through – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Northbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Northbound right-turn – AM and PM peak hour, queue length exceeds storage.
  - Southbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.

Appendix C contains the supporting detailed Synchro 10 reports.

TABLE 2.2A: BASE YEAR OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Brant St & Fairview St	TCS	LOS	C	C	C	**C**	C	C	C	**C**	D	C	C	**C**	C	C	C	**C**	**C**
			Delay	21	32	21	**28**	28	28	26	**27**	36	35	30	**34**	31	31	25	**30**	**30**
			V/C	0.67	0.82	0.16		0.56	0.33	0.10		0.73	0.66	0.29		0.74	0.65	0.10		**0.78**
			Q	73	144	16		27	46	9		44	81	34		56	88	14		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	84		3	-	-		-19	-	-14		-16	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	22	21	>	**22**	23	22	>	**22**	6	7	>	**7**	3	8	>	**7**	**9**
			V/C	0.16	0.05	>		0.25	0.08	>		0.10	0.42	>		0.17	0.49	>		**0.39**
			Q	12	8	>		18	13	>		6	48	>		6	58	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	18	-	>		2	-	>		9	-	>		14	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	13	11	**13**	<	12	>	**12**	6	7	>	**7**	6	8	>	**8**	**8**
			V/C	<	0.40	0.01		<	0.09	>		0.05	0.40	>		0.10	0.52	>		**0.47**
			Q	<	28	2		<	9	>		3	36	>		6	48	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	13		<	-	>		22	-	>		9	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	18	17	**18**	16		16	**16**		4	>	**4**	3	6		**5**	**6**
			V/C	<	0.08	0.01		0.16		0.07			0.27	>		0.09	0.60			**0.53**
			Q	<	7	0		10		10			18	>		4	64			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		0		-			-	>		6	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 2.2B: BASE YEAR OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Brant St & Fairview St	TCS	LOS	F	C	C	**D**	C	F	C	**E**	C	D	C	**D**	D	D	D	**D**	**D**
			Delay	113	32	26	**44**	26	86	26	**68**	30	47	33	**42**	42	36	35	**37**	**51**
			V/C	1.07	0.63	0.17		0.66	1.08	0.43		0.53	0.84	0.20		0.80	0.61	0.53		**0.97**
			Q	96	114	19		45	268	59		36	123	28		71	94	75		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	81		-15	-	-		-11	-	-8		-31	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	26	21	>	**24**	24	22	>	**22**	8	12	>	**12**	6	11	>	**11**	**13**
			V/C	0.53	0.08	>		0.35	0.14	>		0.08	0.59	>		0.29	0.55	>		**0.52**
			Q	39	13	>		33	19	>		4	79	>		8	72	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	-9	-	>		-13	-	>		11	-	>		12	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	14	12	**14**	<	13	>	**13**	6	8	>	**8**	7	9	>	**9**	**9**
			V/C	<	0.41	0.01		<	0.20	>		0.06	0.52	>		0.16	0.59	>		**0.52**
			Q	<	34	1		<	20	>		3	57	>		7	65	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	14		<	-	>		22	-	>		8	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	18	18	**18**	17		16	**16**		4	>	**4**	3	5		**5**	**5**
			V/C	<	0.10	0.01		0.08		0.05			0.37	>		0.13	0.59			**0.51**
			Q	<	7	3		6		9			24	>		5	58			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		4		-			-	>		5	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 2.2C: BASE YEAR OPERATIONS (SAT PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
SAT Peak Hour	Brant St & Fairview St	TCS	LOS	D	C	C	**C**	C	C	C	**C**	D	C	C	**C**	C	C	C	**C**	**C**
			Delay	38	25	20	**28**	24	34	26	**31**	38	34	28	**34**	31	29	25	**29**	**30**
			V/C	0.84	0.59	0.14		0.48	0.73	0.16		0.75	0.65	0.09		0.75	0.56	0.11		**0.80**
			Q	105	94	16		29	100	19		49	77	7		57	71	14		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	84		1	-	-		-24	-	13		-17	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	22	20	>	**21**	22	20	>	**21**	6	8	>	**8**	3	8	>	**8**	**9**
			V/C	0.27	0.04	>		0.27	0.11	>		0.05	0.45	>		0.19	0.45	>		**0.36**
			Q	18	7	>		19	15	>		4	53	>		7	53	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	12	-	>		1	-	>		11	-	>		13	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	13	12	**13**	<	12	>	**12**	4	5	>	**5**	4	6	>	**6**	**6**
			V/C	<	0.33	0.01		<	0.11	>		0.05	0.39	>		0.12	0.44	>		**0.41**
			Q	<	17	0		<	9	>		3	31	>		6	36	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	15		<	-	>		22	-	>		9	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	B	**C**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	20	20	**20**	18		18	**18**		3	>	**3**	2	4		**4**	**4**
			V/C	<	0.10	0.00		0.06		0.03			0.29	>		0.07	0.55			**0.50**
			Q	<	5	0		4		6			19	>		3	56			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		6		-			-	>		7	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement



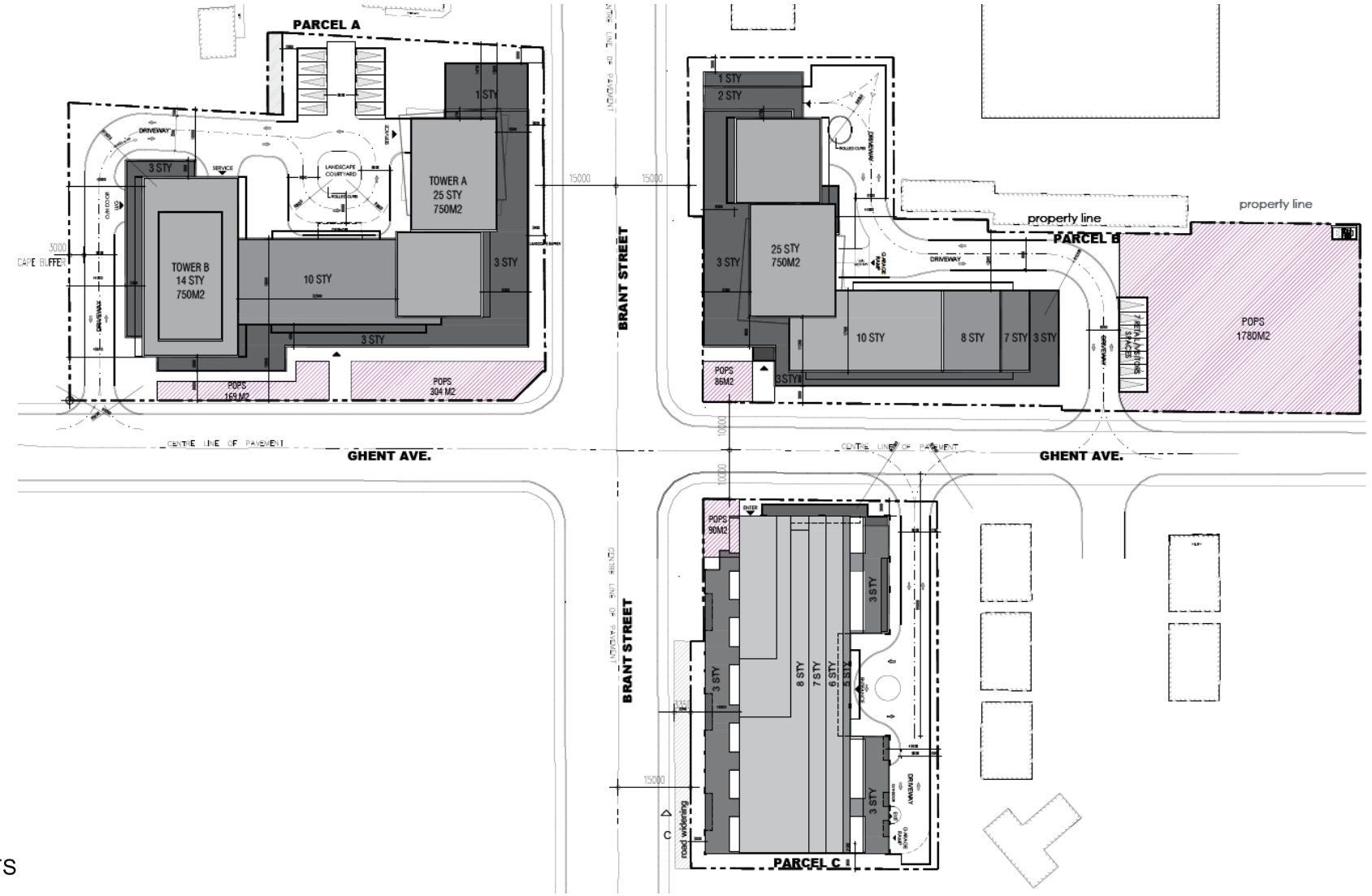
3 Development Concept

3.1 Development Description

The subject site is on the northwest, northeast and southeast corner of the Brant Street and Ghent Avenue intersection. The site is separated into three lots with each lot being built in a separate phase. The details of each lot are as follows:

- **Lot A (Phase 1)**, northwest corner:
  - A 25-storey and a 14-storey high-rise building containing approximately 425 residential units with approximately 794 m^2 (8,547 ft^2) ground floor retail;
  - Vehicle access proposed by a private driveway to Ghent Avenue located approximately 110 m west of Brant Street. The construction of the site driveway is expected to result in the removal of 1-2 existing on-street parking spaces along Ghent Avenue.
  - Build-out is anticipated to occur by Year 2027.
- **Lot B (Phase 2)**, northeast corner:
  - A 25-storey high-rise building containing approximately 328 residential units with approximately 492 m^2 (5,296 ft^2) ground floor retail;
  - Vehicle access proposed by a private driveway to Ghent Avenue located approximately 100 m east of Brant Street.
  - Build-out is anticipated to occur by Year 2028.
- **Lot C (Phase 3)**, southeast corner:
  - An 8-storey mid-rise building containing approximately 128 residential units;
  - Vehicle access proposed by a private driveway to Ghent Avenue located approximately 60 m east of Brant Street.
  - Build-out is anticipated to occur by Year 2029.

Figure 3.1 illustrates the full development concept plan. **Figure 3.2** illustrates the Lot A development concept plan. **Figure 3.3** illustrates the Lot B development concept plan. **Figure 3.4** illustrates the Lot C development concept plan.

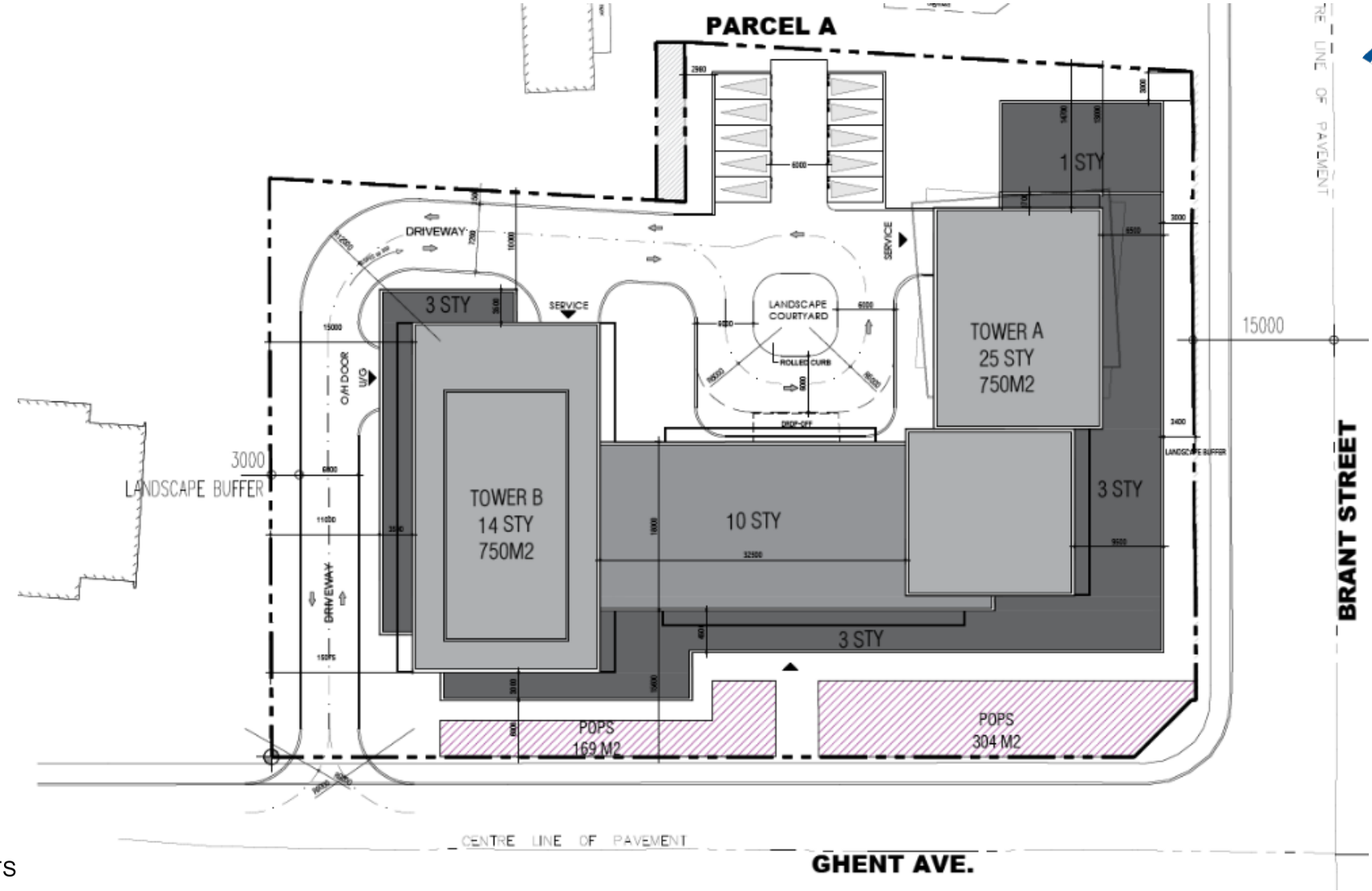


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Site Concept Plan – Overall

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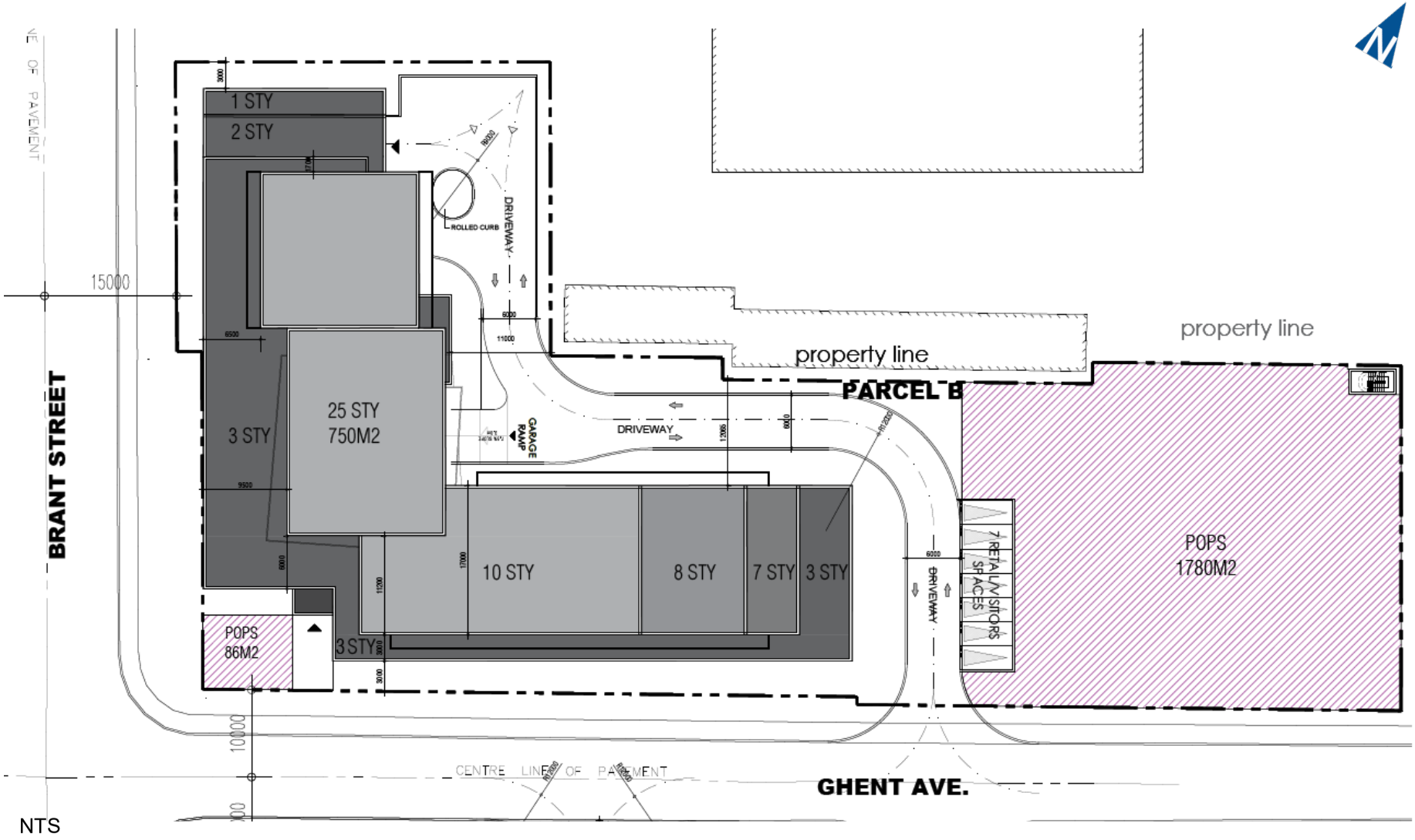
Figure 3.1



NTS

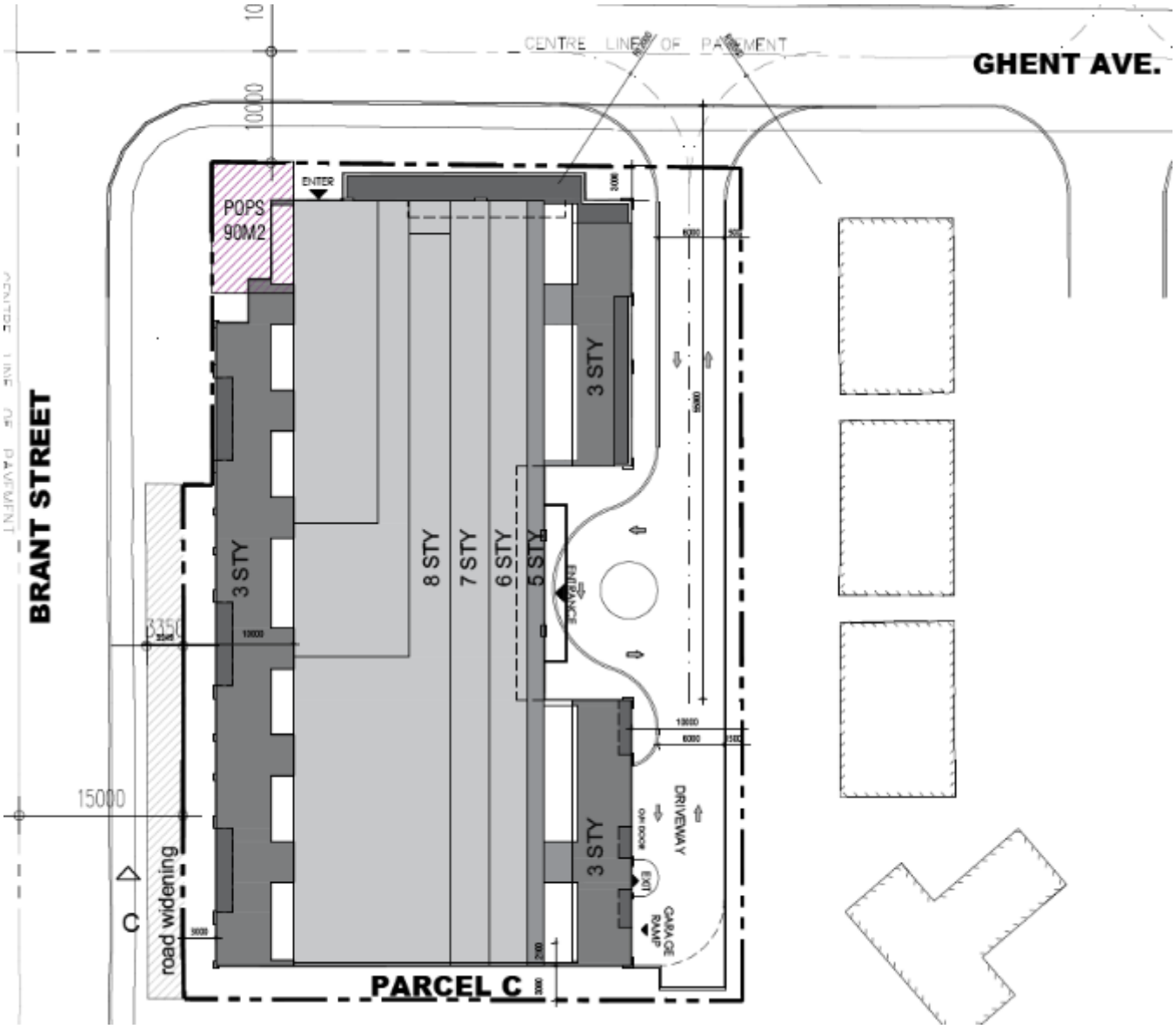
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Concept Plan – Lot A (Phase 1)



Concept Plan – Lot B (Phase 2)

Figure 3.3



NTS

Concept Plan – Lot C (Phase 3)

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Figure 3.4

3.2 Vehicle Circulation

Heavy vehicle circulation for the loading and waste collection area has been assessed using AutoTURN swept path analysis software. Four design vehicles were used in the analysis:

- Halton Front End Loading Garbage Truck;
- NCHRP Fire Pumper Truck;
- Transportation Association of Canada (TAC) Medium Single Unit (MSU); and
- TAC Passenger Vehicle (P).

Appendix D contains the swept path analysis. The design vehicles can maneuver through the site without impacting the proposed geometry.

3.3 Site Generated Traffic

The Institute of Transportation Engineers (ITE) Trip Generation[5] methods predict the site trip generation. The following land use codes were used to estimate the site's trip generation:

- LUC 221 Multifamily Housing, Mid-Rise;
- LUC 222 Multifamily Housing, High-Rise; and
- LUC 820 Shopping Center.

The highest generated trips by either using the average rate or the linear equation was used to estimate the trip generation to represent a conservative estimate. **Table 3.1** summarizes the estimated Phase 1 trip generation. **Table 3.2** summarizes the estimated Phae 2 trip generation. **Table 3.3** summarizes the estimated Phase 3 trip generation. The full build-out of the subject site is estimated to generate approximately 288 AM peak hour trips, 354 PM peak hour trips, and 378 Saturday peak hour trips. **Appendix E** contains the detailed site trip generation calculations.

The internal trip capture was estimated using the National Cooperative Highway Research Program (NCHRP) 8-51[6] Internal Trip Capture Estimation Tool included in **Appendix F**.

[5] Trip Generation Manual 10th Edition Institute of Transportation Engineers, Washington DC, September 2017

[6] NCHRP 8-51 Enhancing Internal Trip Capture Estimation for Mixed-Use Developments, 2010

Mode choice is expected to reduce the site's net generation to account for travel to/from the site via public transit. The site's modal split, 10% for Phase 1, 15% for Phase 2 and Phase 3 is consistent with the modal split target in the Region's Transportation Master Plan[7].

Pass-by traffic was considered for the commercial components of the subject site with distribution from the Brant Street and Ghent Avenue intersection. The pass-by rates were obtained from the ITE Trip Generation Handbook 3rd Edition[8].

The Internal Trip Capture Estimate tool estimates that the site will generate the following:

- Transit trips – approximately 48, 66, and 69 external transit trips during the AM, PM, and Saturday peak hours, respectively. The transit trips are assumed to begin and end using Active Transportation.
- Non-Auto Trips – approximately 17, 22, and 24 external non-motorized trips (walking/bicycle) trips during the AM, PM, and Saturday peak hours, respectively.

[7] The Road to Change, Halton Region Transportation Master Plan 2031, Dillon Consulting/GHD, October 2011

[8] Trip Generation Handbook 3rd Edition, Institute of Transportation Engineers, August 2014

TABLE 3.1: PHASE 1 ESTIMATED TRIP GENERATION

ITE Land Use	Units	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
222 - Multifamily Housing, High-Rise (Units)	425	32	100	**132**	93	60	**153**	86	70	**156**
820 - Shopping Center (/1,000ft^2 GFA)	8.55	5	3	**8**	16	17	**33**	20	18	**38**
Phase 1 Total Trip Generation		37	103	**140**	109	77	**186**	106	88	**194**
LUC 820 Pass-by PM Peak Hour	*34%*				*-6*	*-6*	*-12*			
LUC 820 Pass-by SAT Peak Hour	*26%*							*-5*	*-5*	*-10*
Internal Capture - AM Peak Hour	*2%*	*-1*	*-2*	*-3*						
Internal Capture - PM Peak Hour	*3%*				*-3*	*-2*	*-5*			
Internal Capture - SAT Peak Hour	*3%*							*-3*	*-3*	*-6*
Phase 1 Net Trip Generation		**36**	**101**	**137**	**100**	**69**	**169**	**98**	**80**	**178**

222: AM T = 0.28(X) + 12.86 / PM T = 0.34(X) + 8.56 / SAT T = 0.31(X) + 24.03

820: AM Avg Rate 0.94 / PM Avg Rate 3.81 / SAT Avg Rate 4.50

TABLE 3.2: PHASE 2 ESTIMATED TRIP GENERATION

ITE Land Use	Units	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
222 - Multifamily Housing, High-Rise (Units)	328	25	80	**105**	73	47	**120**	69	57	**126**
820 - Shopping Center (/1,000ft^2 GFA)	5.29	3	2	**5**	10	10	**20**	12	12	**24**
Phase 2 Total Trip Generation		28	82	**110**	83	57	**140**	81	69	**150**
LUC 820 Pass-by PM Peak Hour	*34%*				*-3*	*-3*	*-6*			
LUC 820 Pass-by SAT Peak Hour	*26%*							*-3*	*-3*	*-6*
Internal Capture - AM Peak Hour	*2%*	*-1*	*-2*	*-3*						
Internal Capture - PM Peak Hour	*4%*				*-3*	*-2*	*-5*			
Internal Capture - SAT Peak Hour	*3%*							*-2*	*-2*	*-4*
Phase 2 Net Trip Generation		**27**	**80**	**107**	**77**	**52**	**129**	**76**	**64**	**140**

220: AM Ln(T) = 0.95 Ln(X) - 0.51 / PM Ln(T) = 0.89 Ln(X) - 0.02 / SAT Avg Rate 0.70

222: AM T = 0.28(X) + 12.86 / PM T = 0.34(X) + 8.56 / SAT T = 0.31(X) + 24.03

820: AM Avg Rate 0.94 / PM Avg Rate 3.81 / SAT Avg Rate 4.50

TABLE 3.3: PHASE 3 ESTIMATED TRIP GENERATION

ITE Land Use	Units	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
221 - Multifamily Housing, Mid-Rise (Units)	128	11	33	**44**	34	22	**56**	29	31	**60**
Phase 3 Net Trip Generation		**11**	**33**	**44**	**34**	**22**	**56**	**29**	**31**	**60**

221: AM Ln(T) = 0.98 Ln(X) - 0.98 / PM Ln(T) = 0.96 Ln(X) - 0.63 / SAT T = 0.42(X) + 6.73

820: AM Avg Rate 0.94 / PM Avg Rate 3.81 / SAT Avg Rate 4.50

3.3 Trip Distribution and Assignment

The site generated trips were assigned to the road network based on the information provided in the 2016 Transportation Tomorrow Survey[9]. **Table 3.4** summarizes the estimated site trip distribution.

TABLE 3.4: ESTIMATED TRIP DISTRIBUTION

Origin/Destination	Percentage
North via Brant Street	38%
East via Fairview Street	12%
East via Prospect Street	9%
East via Ghent Avenue	12%
East via Blairholm Avenue	0%
South via Brant Street	18%
West via Fairview Street	11%
West via Grahams Lane	0%
West via Ghent Avenue	0%
Total	**100%**

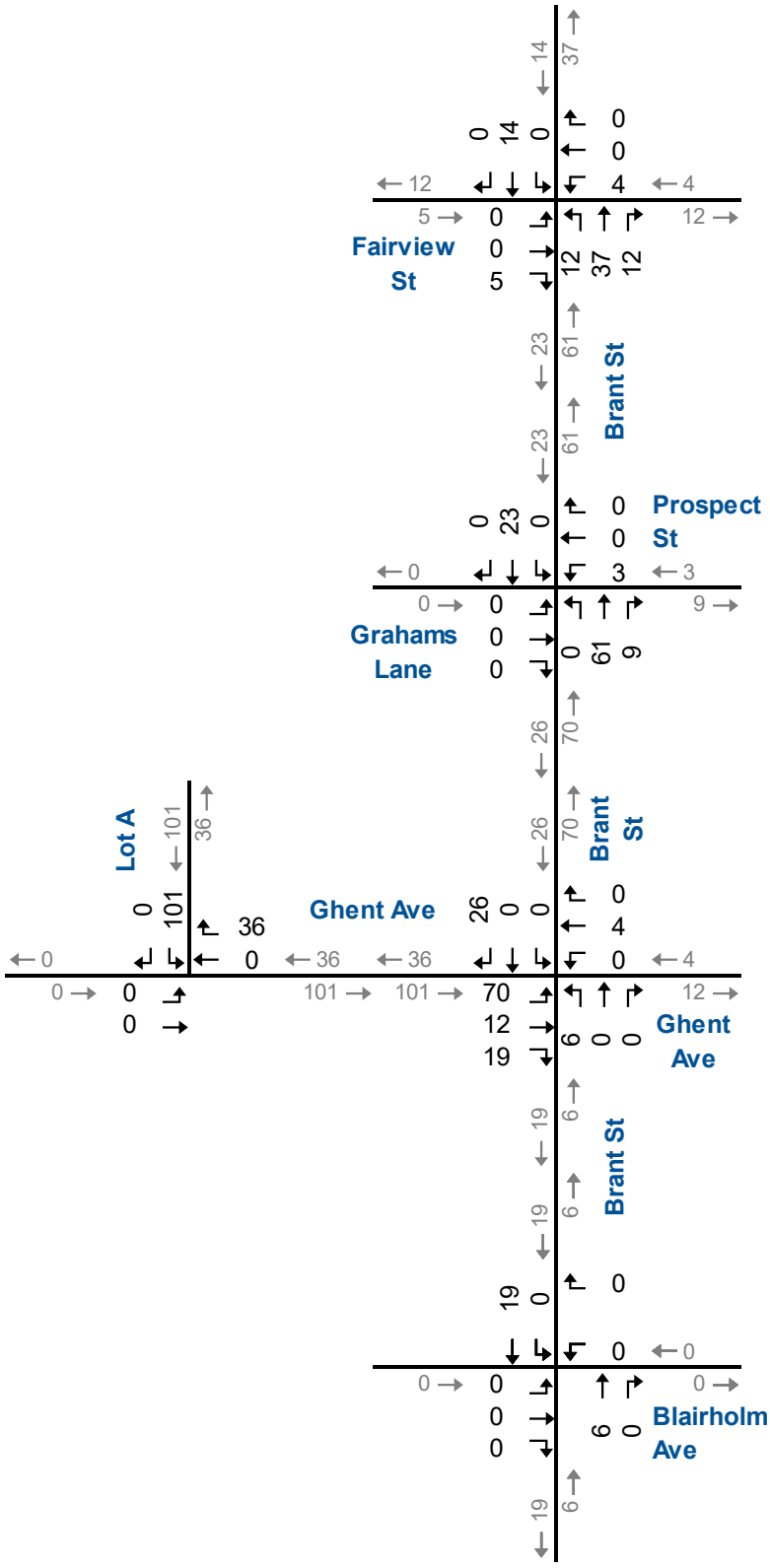
Figure 3.5A, Figure 3.5B and **Figure 3.5C** illustrates the Lot A (Phase 1) site generated traffic volumes for the AM, PM, and Saturday peak hours, respectively.

Figure 3.6A, Figure 3.6B and **Figure 3.6C** illustrates the Lot B (Phase 2) site generated traffic volumes for the AM, PM, and Saturday peak hours, respectively.

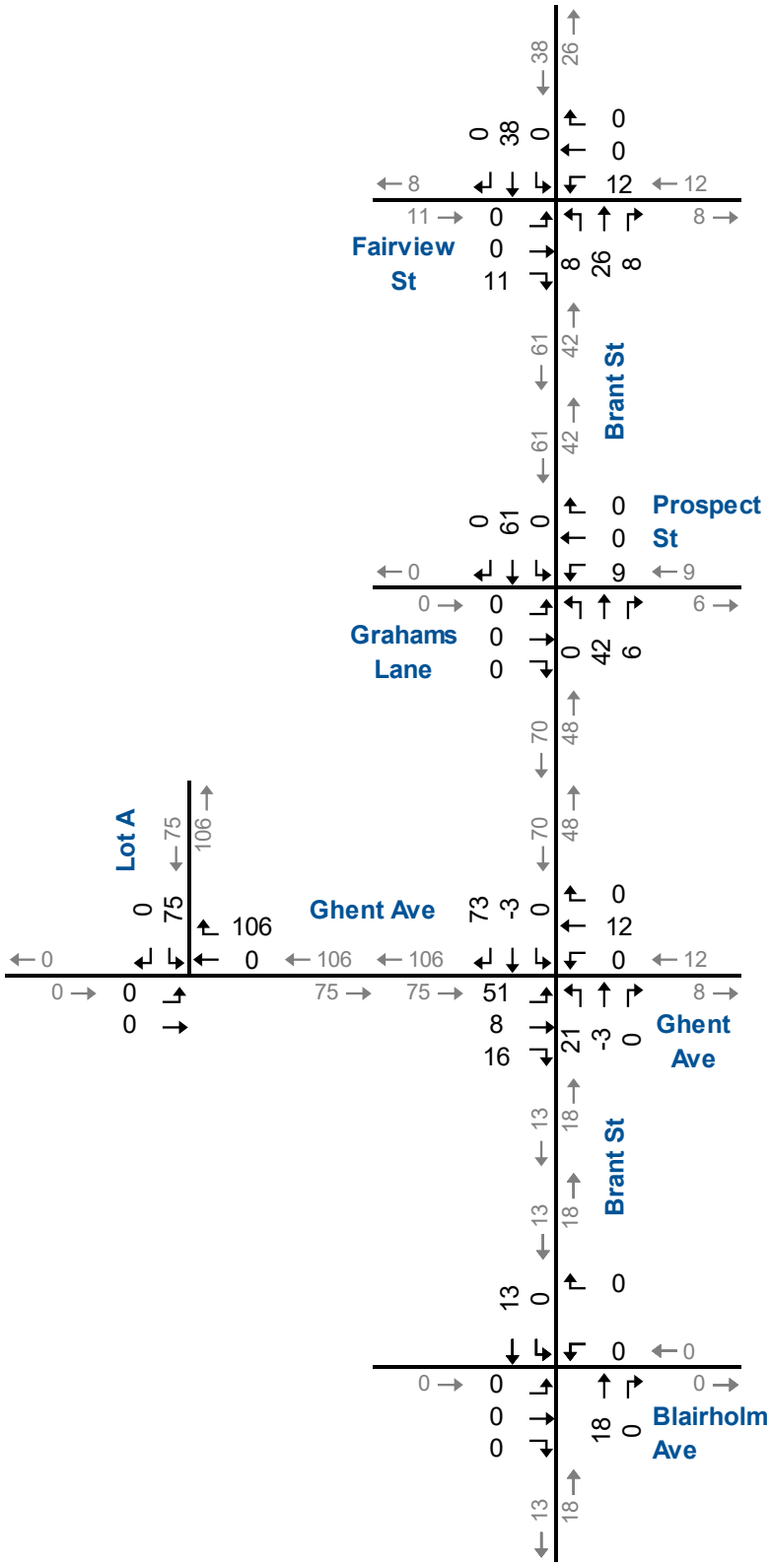
Figure 3.7A, Figure 3.7B and **Figure 3.7C** illustrates the Lot C (Phase 3) site generated traffic volumes for the AM, PM, and Saturday peak hours, respectively.

Figure 3.8A, Figure 3.8B and **Figure 3.8C** illustrates the full build-out site generated traffic volumes for the AM, PM, and Saturday peak hours, respectively.

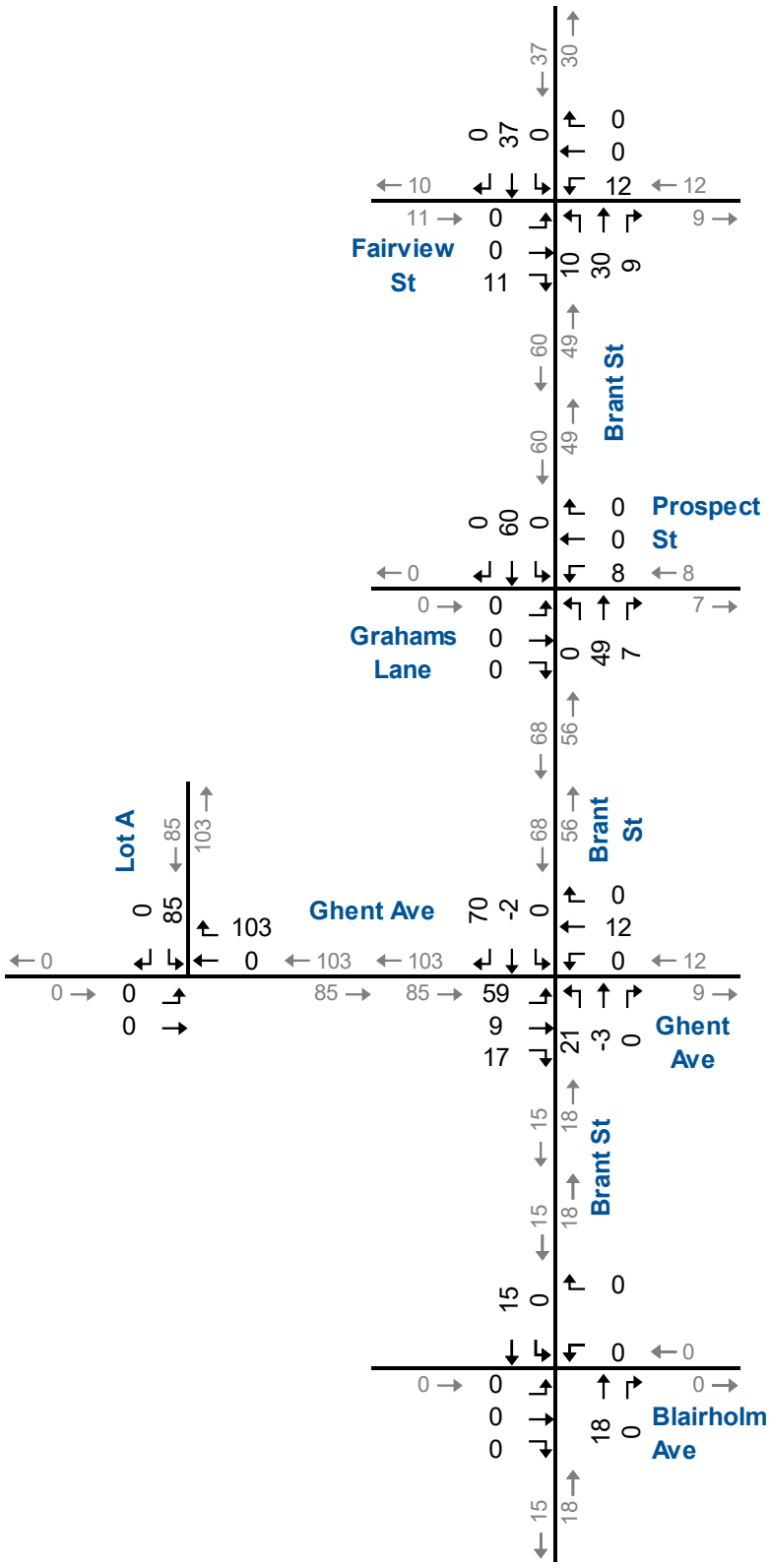
[9] Transportation Tomorrow Survey 2016, Traffic Zone 4059



Site Generated Traffic
Phase 1 – AM Peak Hour



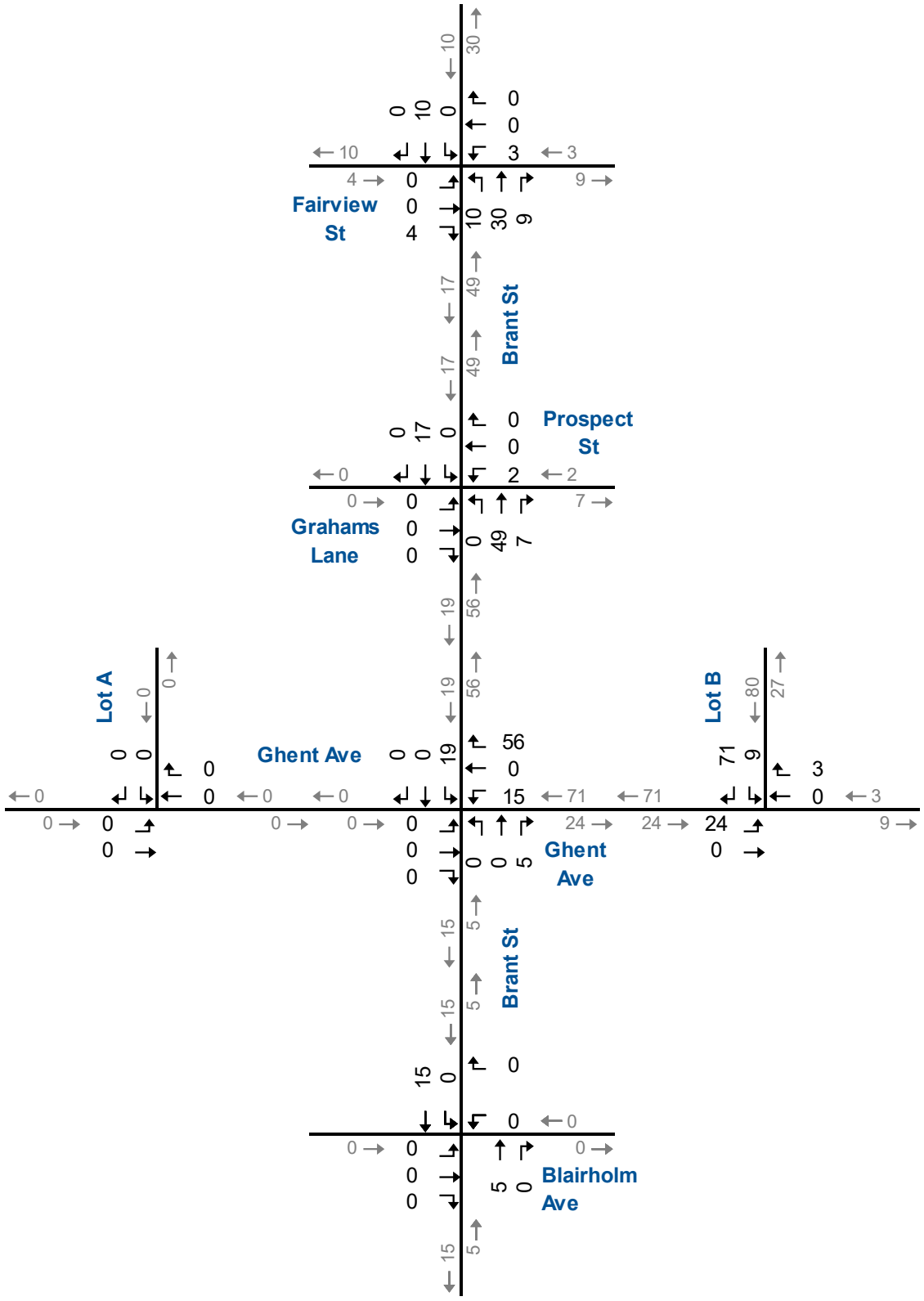
Site Generated Traffic
Phase 1 – PM Peak Hour



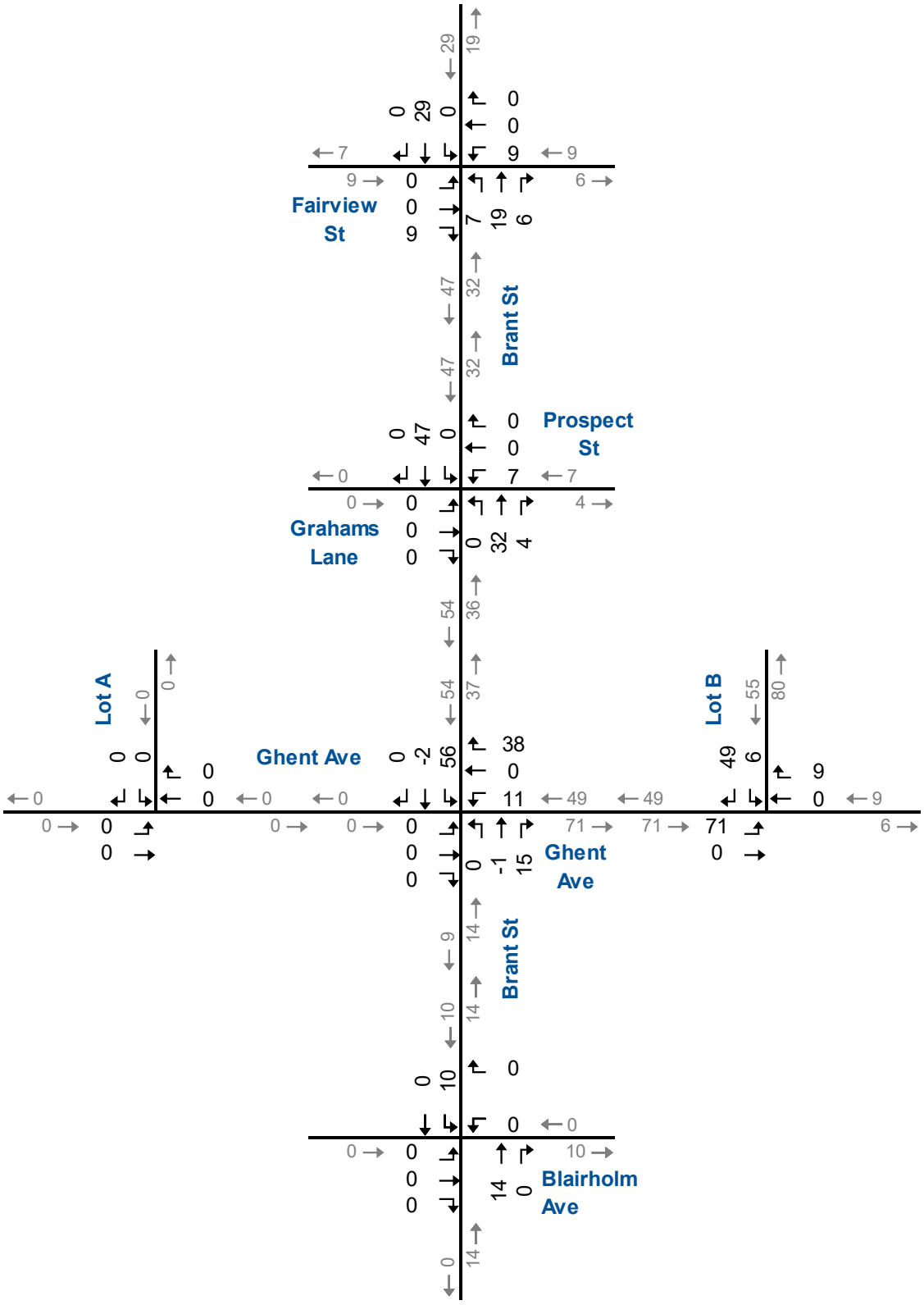
Site Generated Traffic
Phase 1 – Saturday Peak Hour

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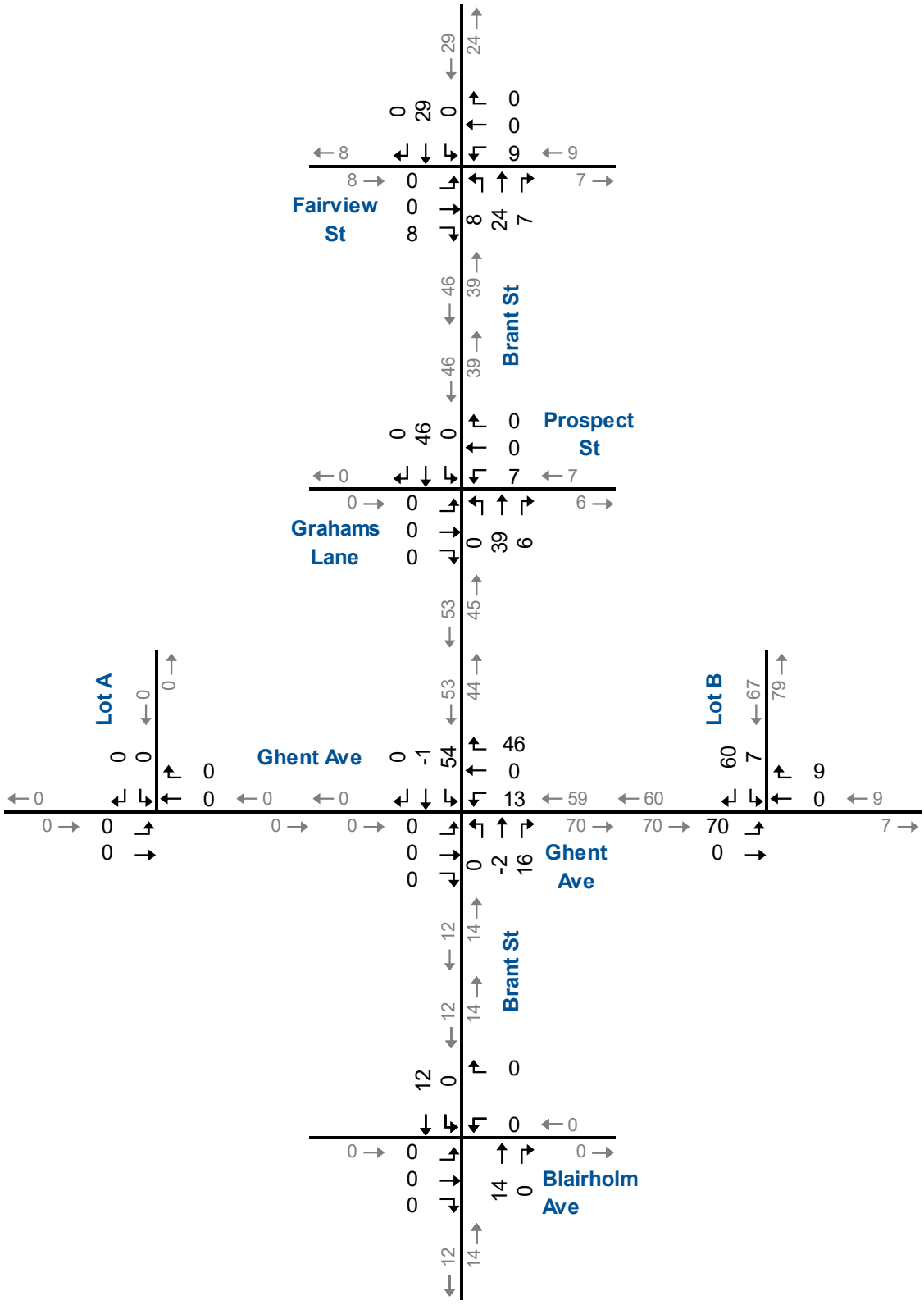
Figure 3.5C



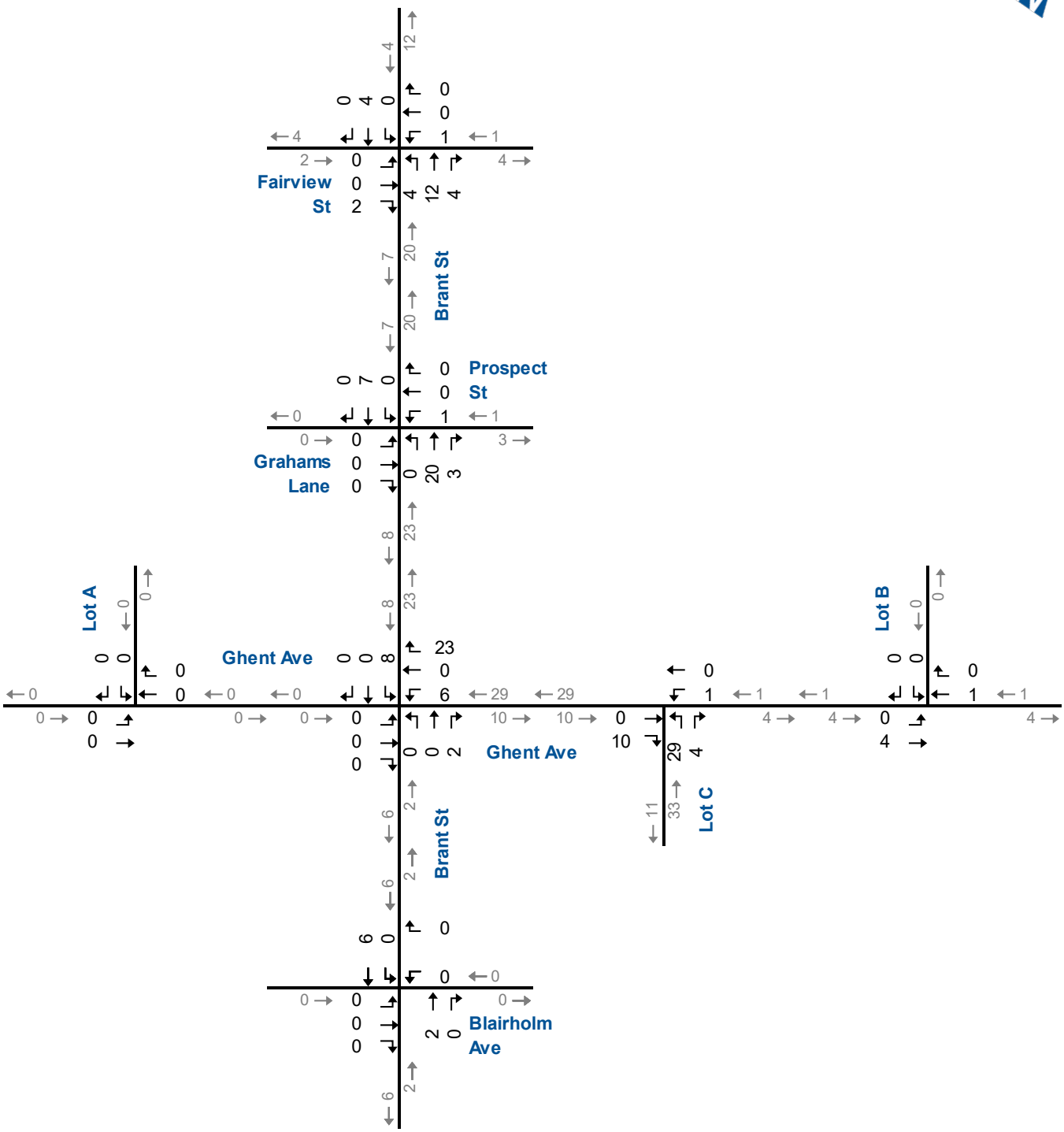
Site Generated Traffic
Phase 2 – AM Peak Hour



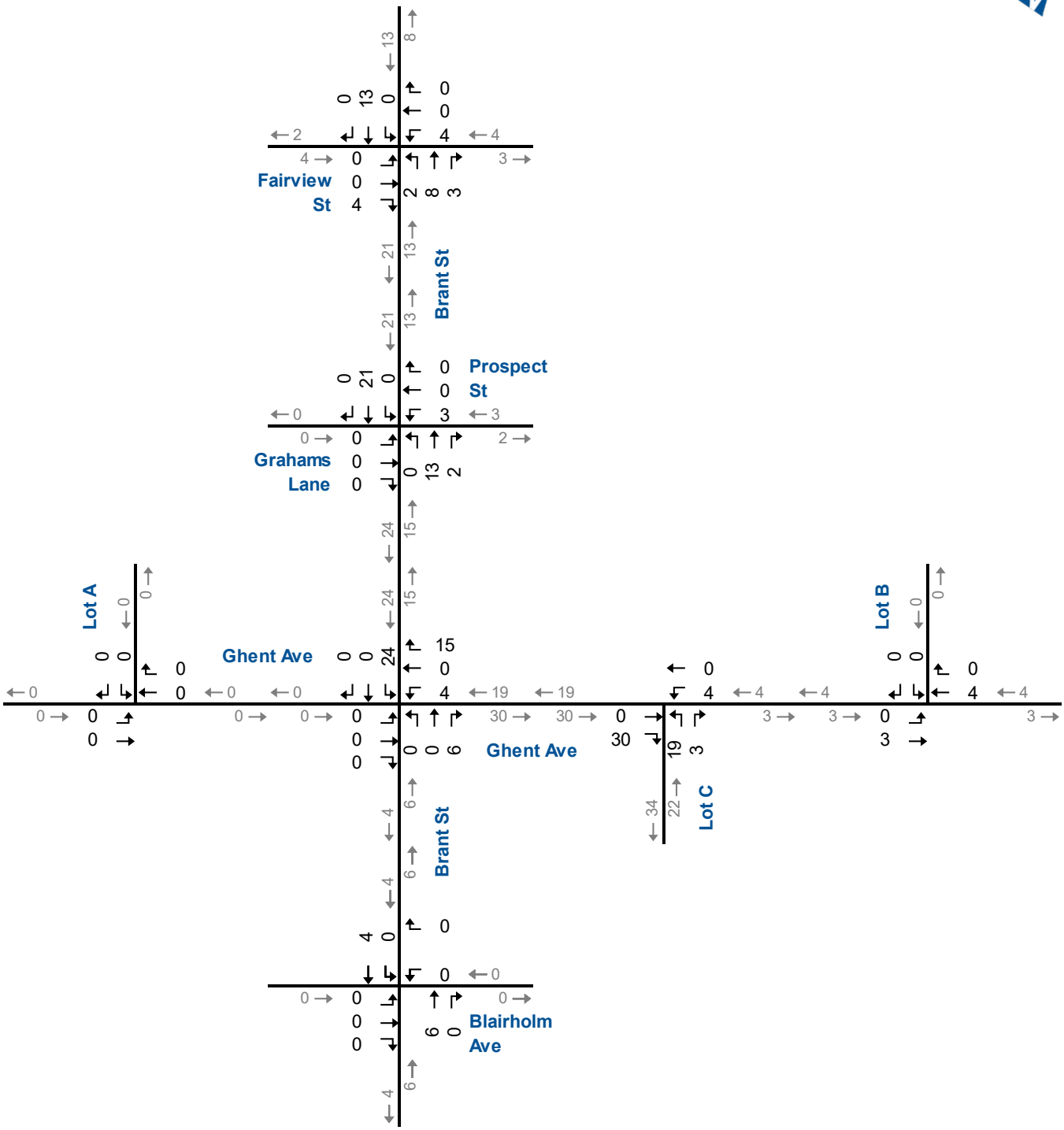
Site Generated Traffic
Phase 2 – PM Peak Hour



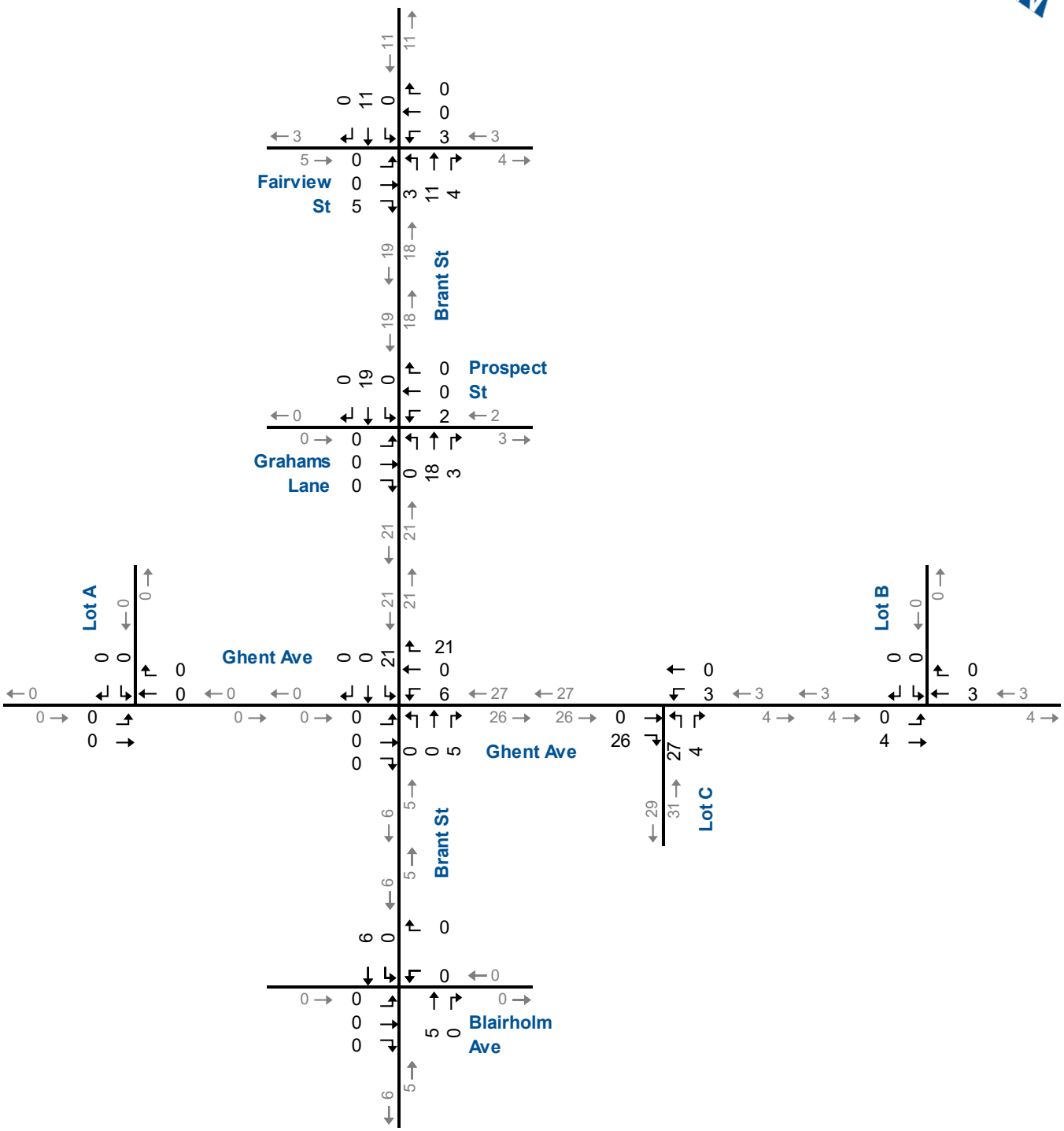
Site Generated Traffic
Phase 2 – Saturday Peak Hour



Site Generated Traffic
Phase 3 – AM Peak Hour



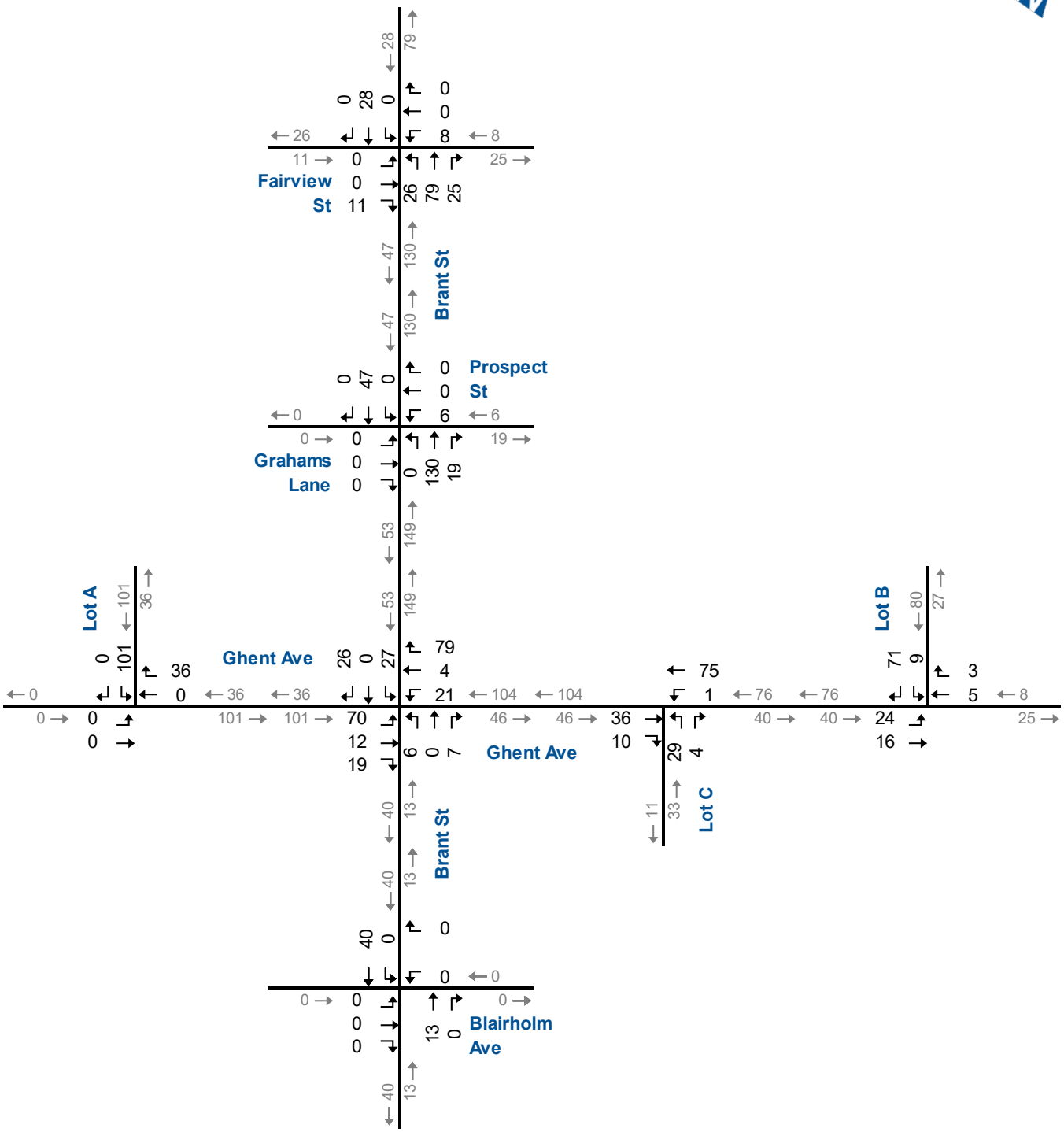
Site Generated Traffic
Phase 3 – PM Peak Hour



Site Generated Traffic
Phase 3 – Saturday Peak Hour

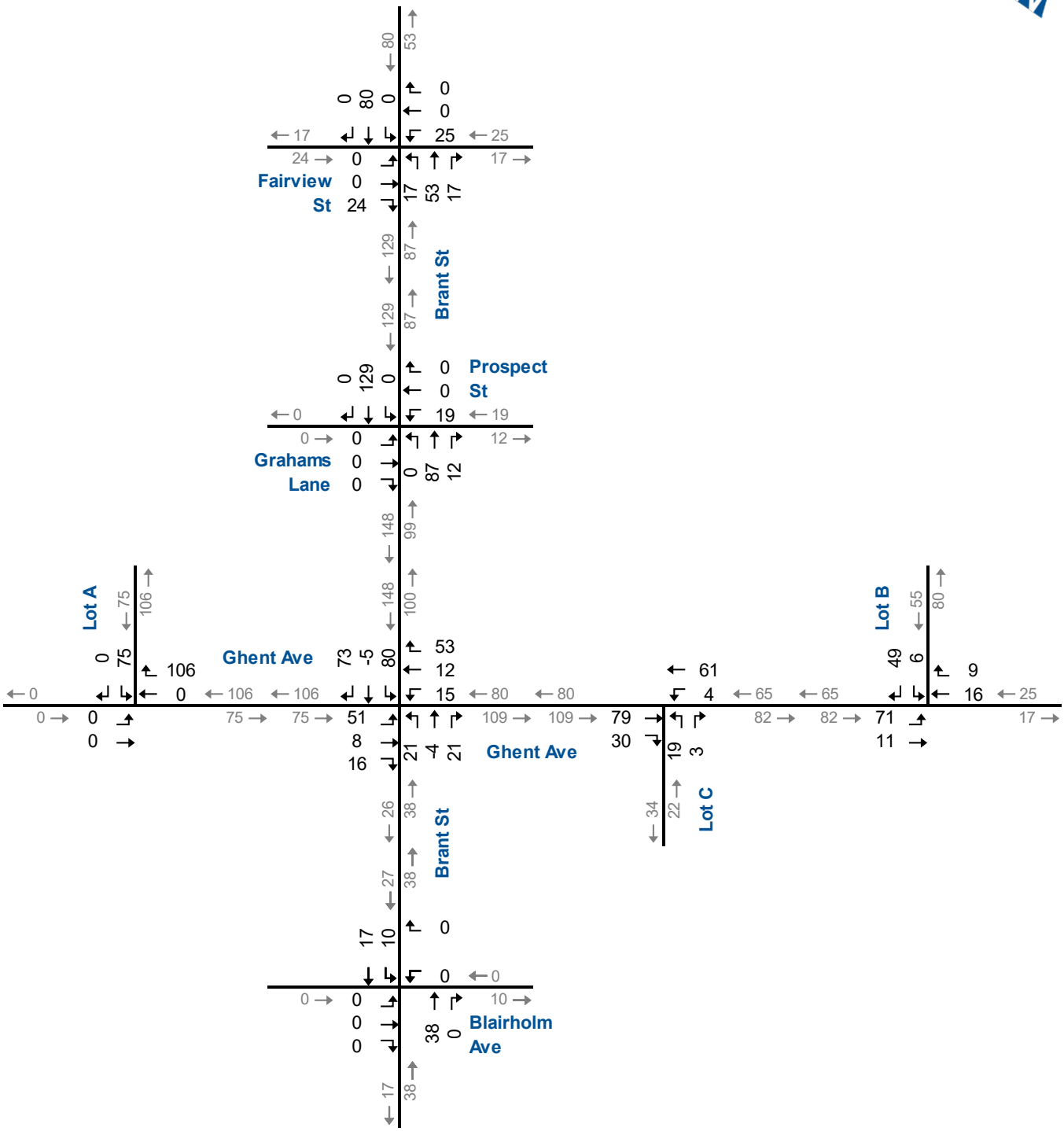
Brant Street & Ghent Avenue TIA
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Figure 3.7C

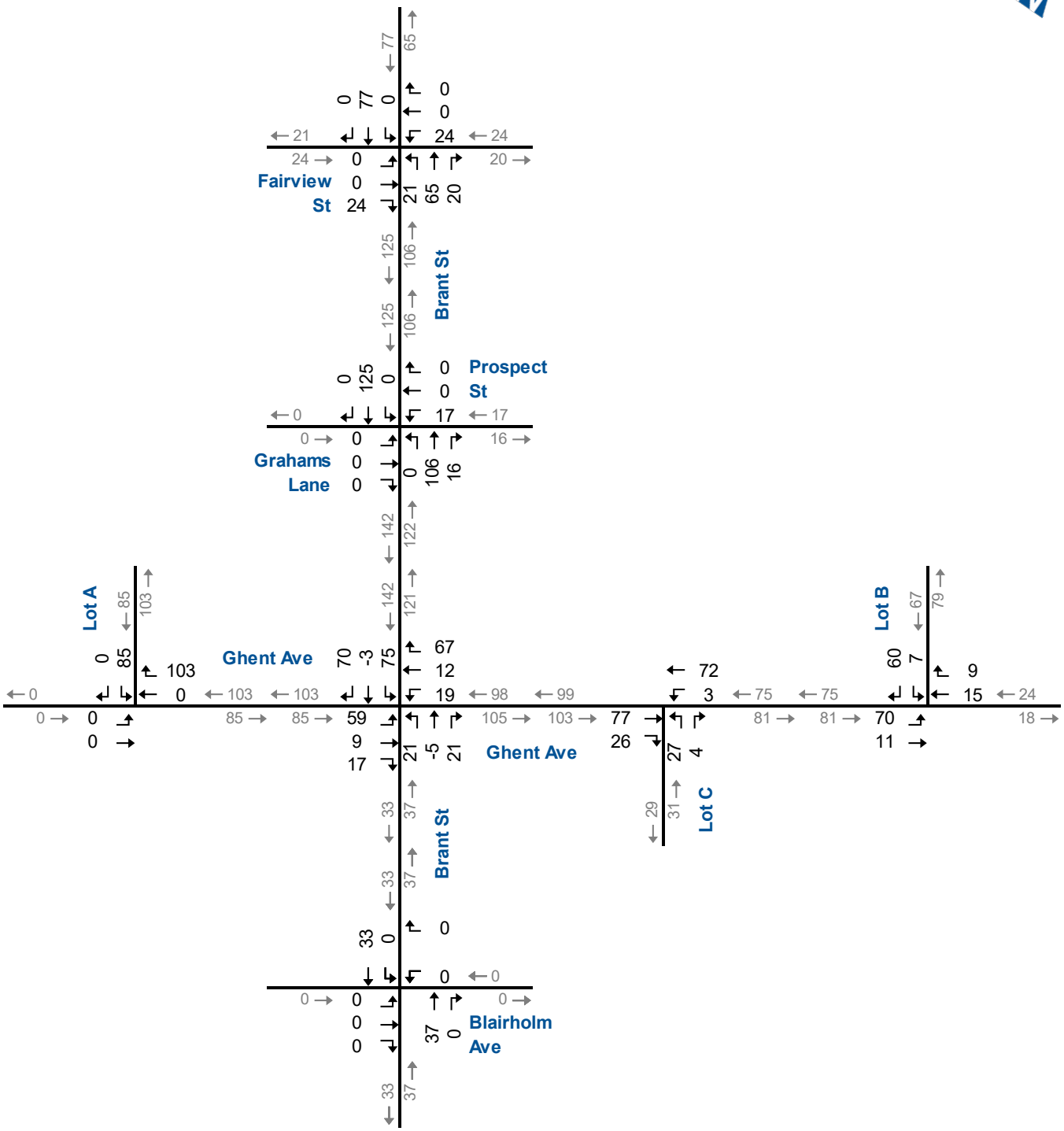


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Site Generated Traffic
Full Build-Out – AM Peak Hour



Site Generated Traffic
Full Build-Out – PM Peak Hour



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Site Generated Traffic
Full Build-Out – Saturday Peak Hour

4 Future Traffic Conditions

The assessment of the future traffic conditions contained in this section includes the traffic forecast as well as the level of service analysis.

4.1 Forecast Traffic Volumes

Three horizon years have been assessed to estimate the impact of the subject development and background roadway traffic:

- Build-out of Phase 1 – Year 2027;
- Build-out of Phase 2 – Year 2028;
- Full build-out – Year 2029; and
- Five-year from full build-out – Year 2034.

The likely future traffic volumes are estimated to consist of:

- Increased non-site traffic (generalized background traffic growth) estimated to be 1% percent per annum;
- Traffic generated by adjacent future developments including:
  - 2095 Prospect Street[10] – proposed residential infill development that will replace 8 existing townhouses with 50 new stacked townhouse apartments;
  - 1134-1146 Plains Road East[11] – proposed mixed use development consisting approximately 1,062 high-rise residential units, 1,018m^2 ground floor commercial, and 465 m^2 heritage office building; and
- Traffic generated by the subject site.

Appendix G contains the detailed traffic forecast for the adjacent development applications.

Figure 4.1 illustrates the forecast 2027 background traffic volumes.
Figure 4.2 illustrates the forecast 2028 background traffic volumes.
Figure 4.3 illustrates the forecast 2029 background traffic volumes.
Figure 4.4 illustrates the forecast 2034 background traffic volumes.

[10] Traffic and Parking Study 2095 Prospect Street, City of Burlington, GHD, December 2017

[11] 1134-1146 Plains Road East, Burlington, Transportation Impact Study, Paradigm Transportation Solutions Limited, May 2021 (200402)

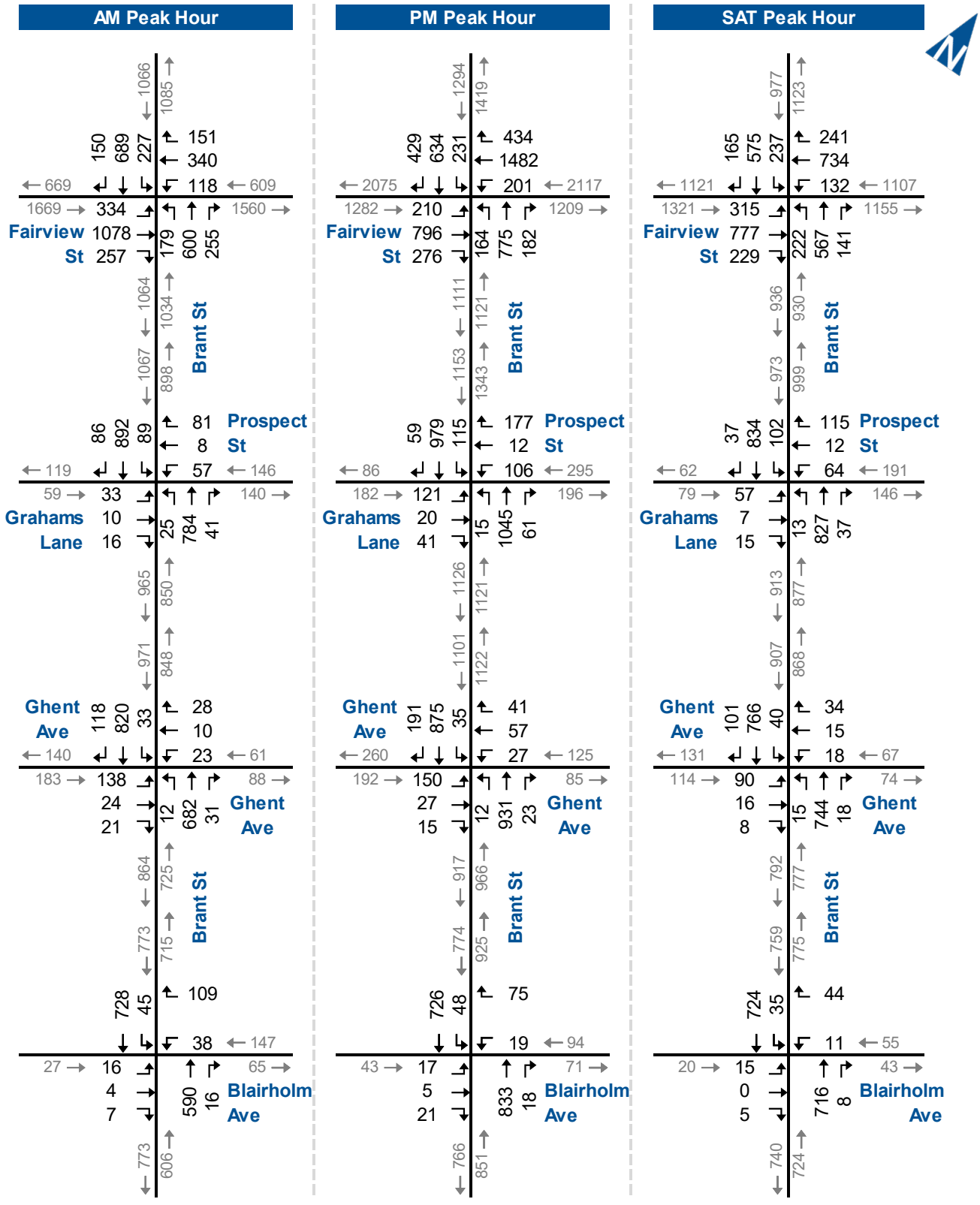


Figure 4.5A, **Figure 4.5B** and **Figure 4.5C** illustrates the forecast 2027 total traffic volumes for the AM, PM, and Saturday peak hours, respectively.

Figure 4.6A, **Figure 4.6B** and **Figure 4.6C** illustrates the forecast 2028 total traffic volumes for the AM, PM, and Saturday peak hours, respectively.

Figure 4.7A, **Figure 4.7B** and **Figure 4.7C** illustrates the forecast 2029 total traffic volumes for the AM, PM, and Saturday peak hours, respectively.

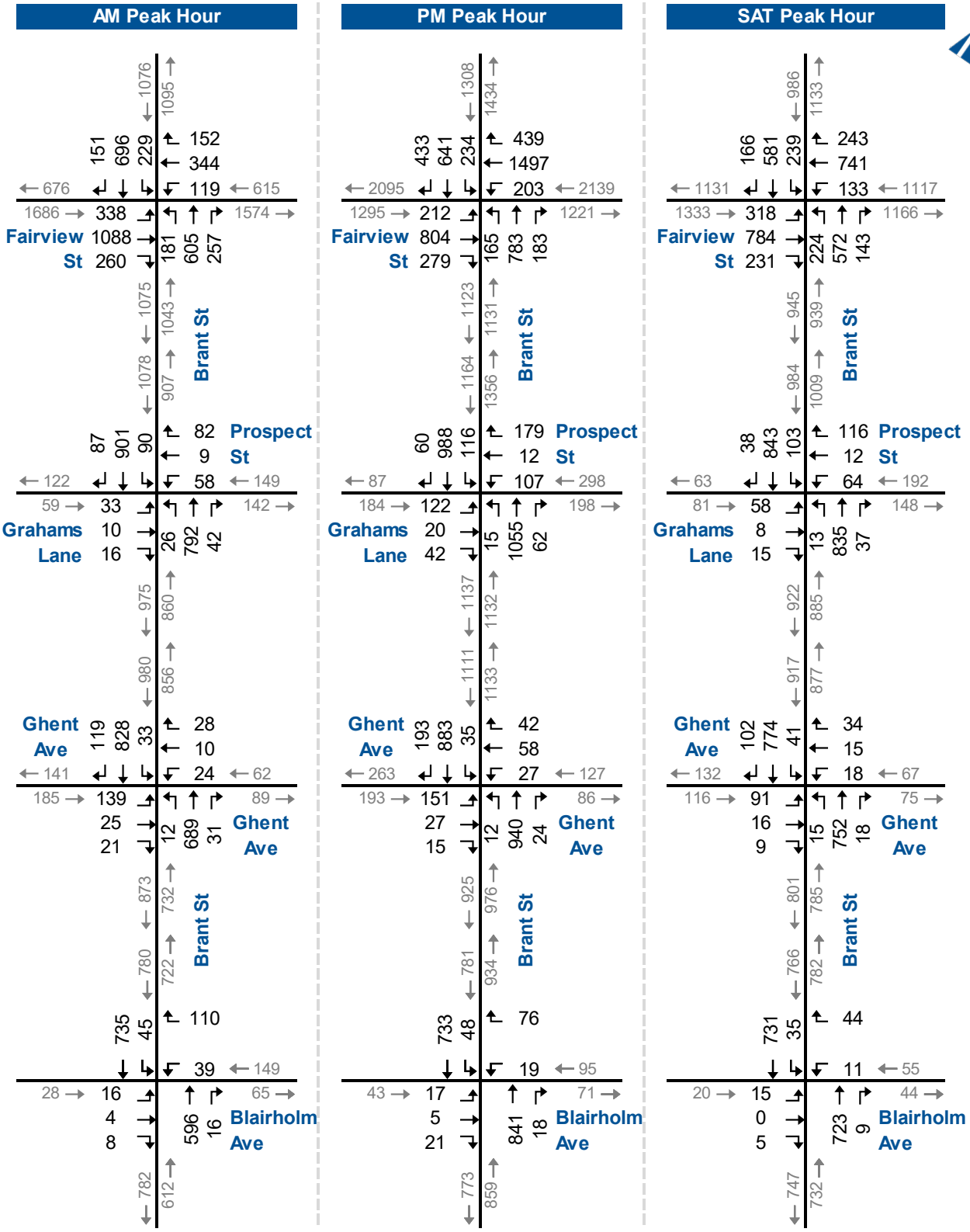
Figure 4.8A, **Figure 4.8B** and **Figure 4.8C** illustrates the forecast 2034 total traffic volumes for the AM, PM, and Saturday peak hours, respectively.



Background – Phase 1 Traffic Volumes

Brant Street & Ghent Avenue TIA
200403

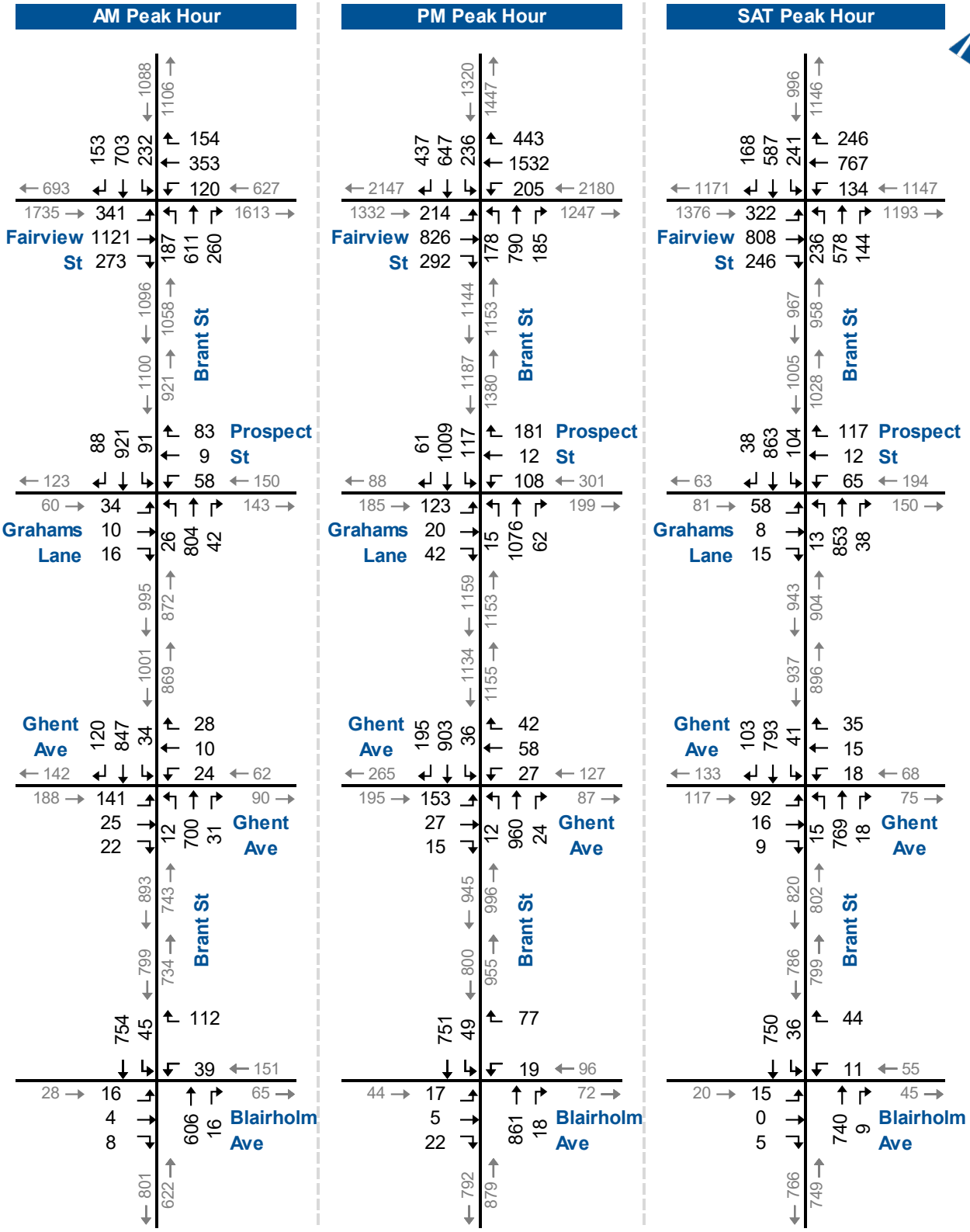
Figure 4.1



Background – Phase 2 Traffic Volumes

Brant Street & Ghent Avenue TIA
200403

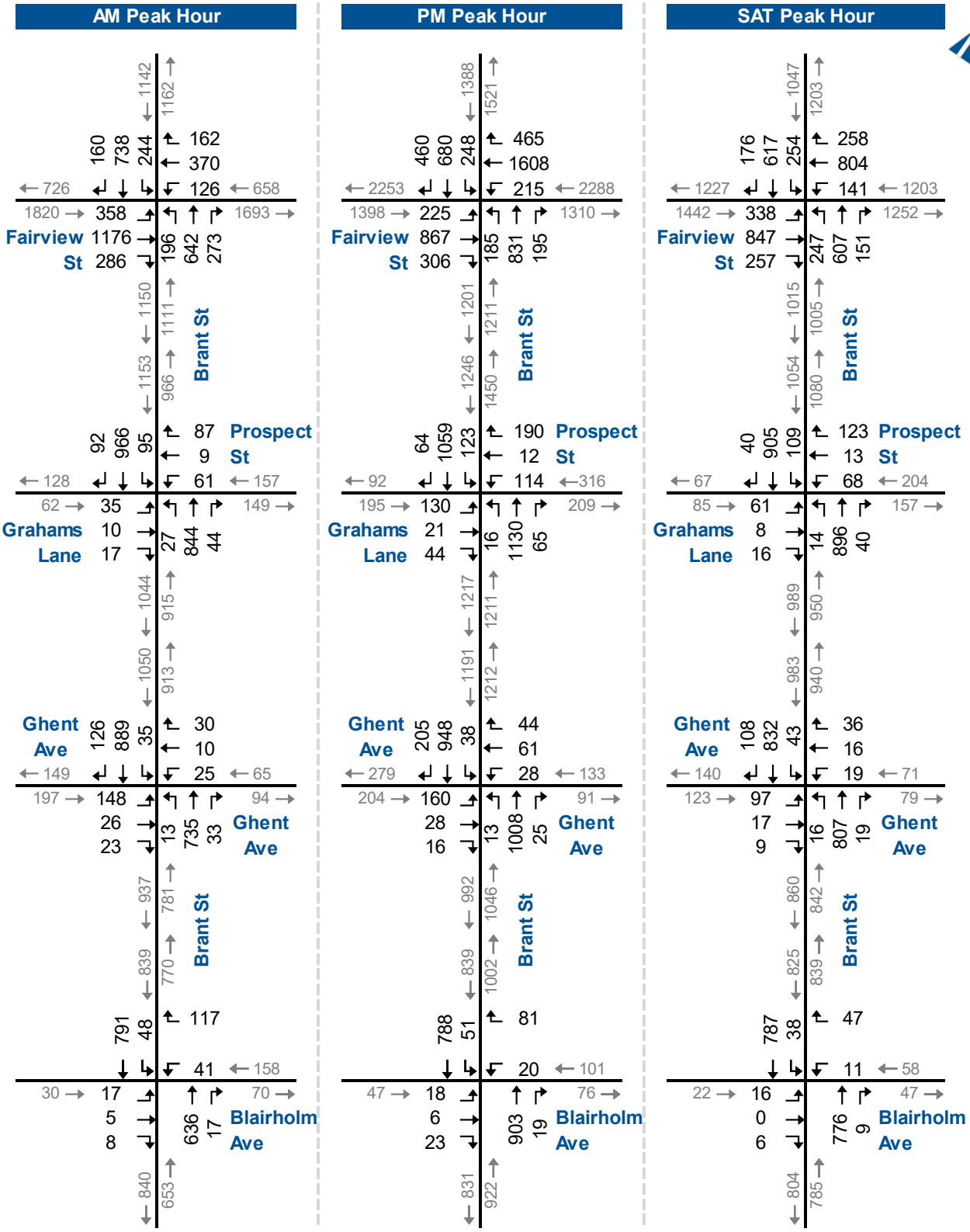
Figure 4.2



Background – Full Build-Out Traffic Volumes

Brant Street & Ghent Avenue TIA
200403

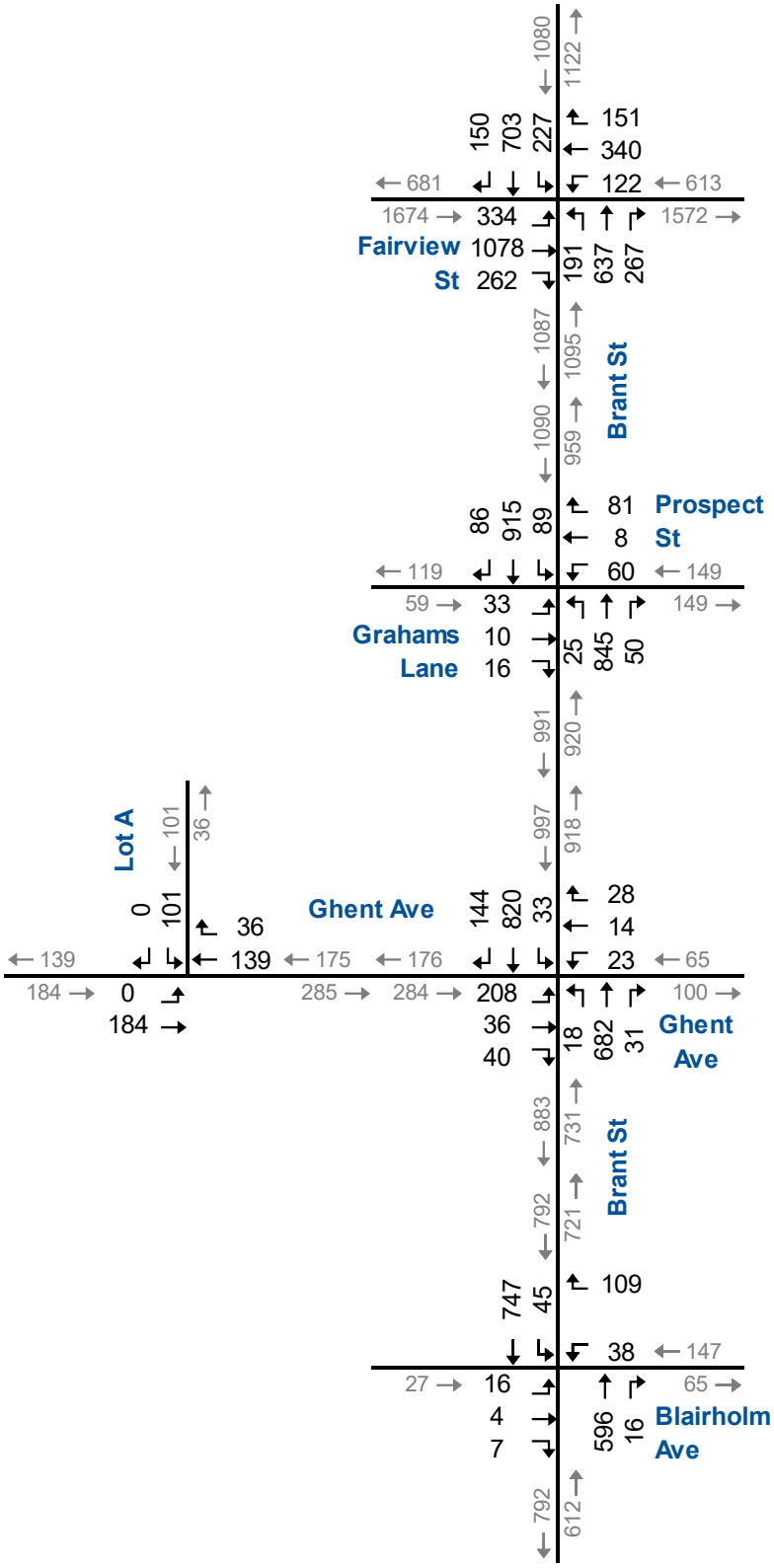
Figure 4.3



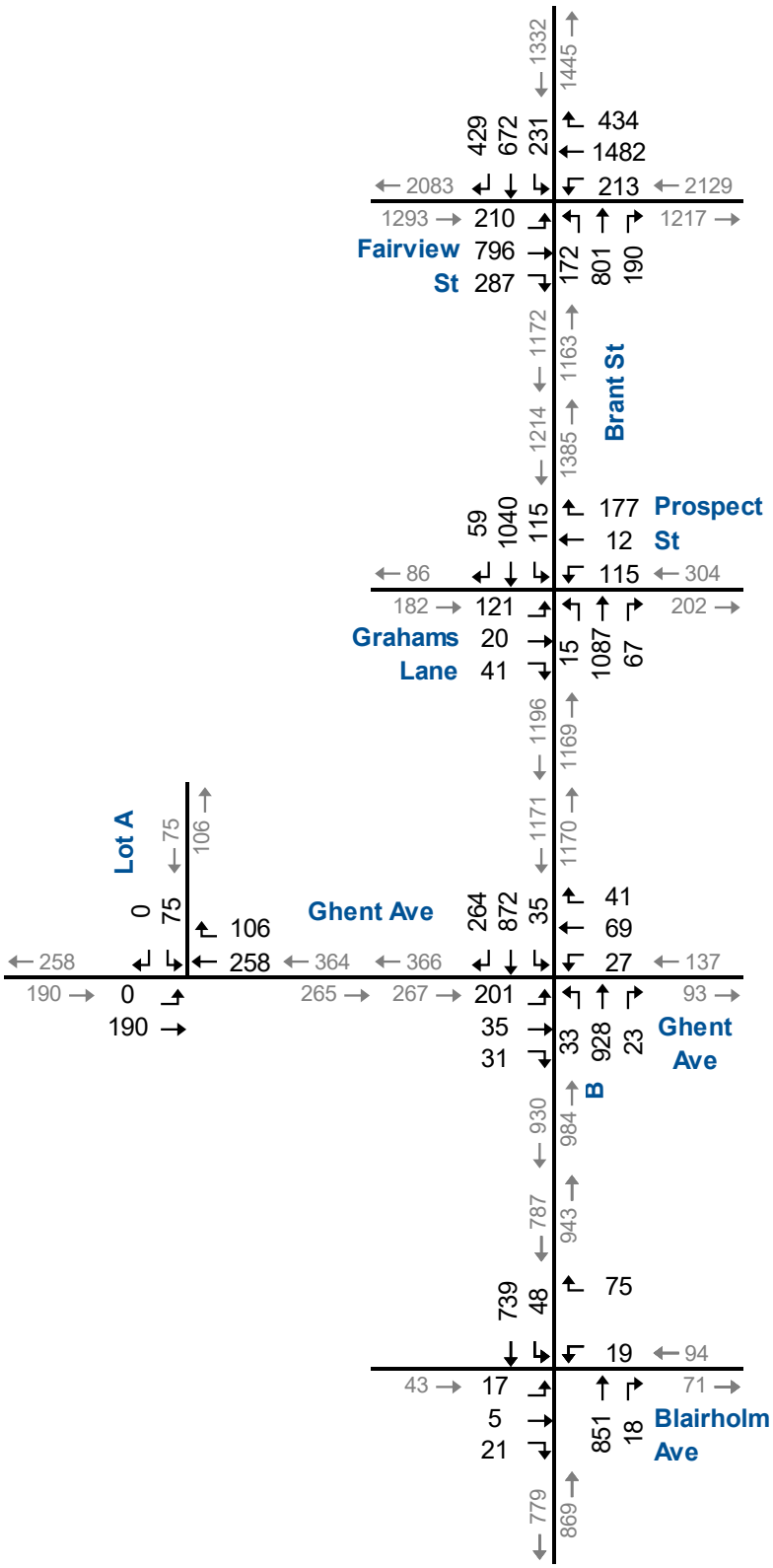
Background Five-Year Horizon Traffic Volumes

Brant Street & Ghent Avenue TIA
200403

Figure 4.4



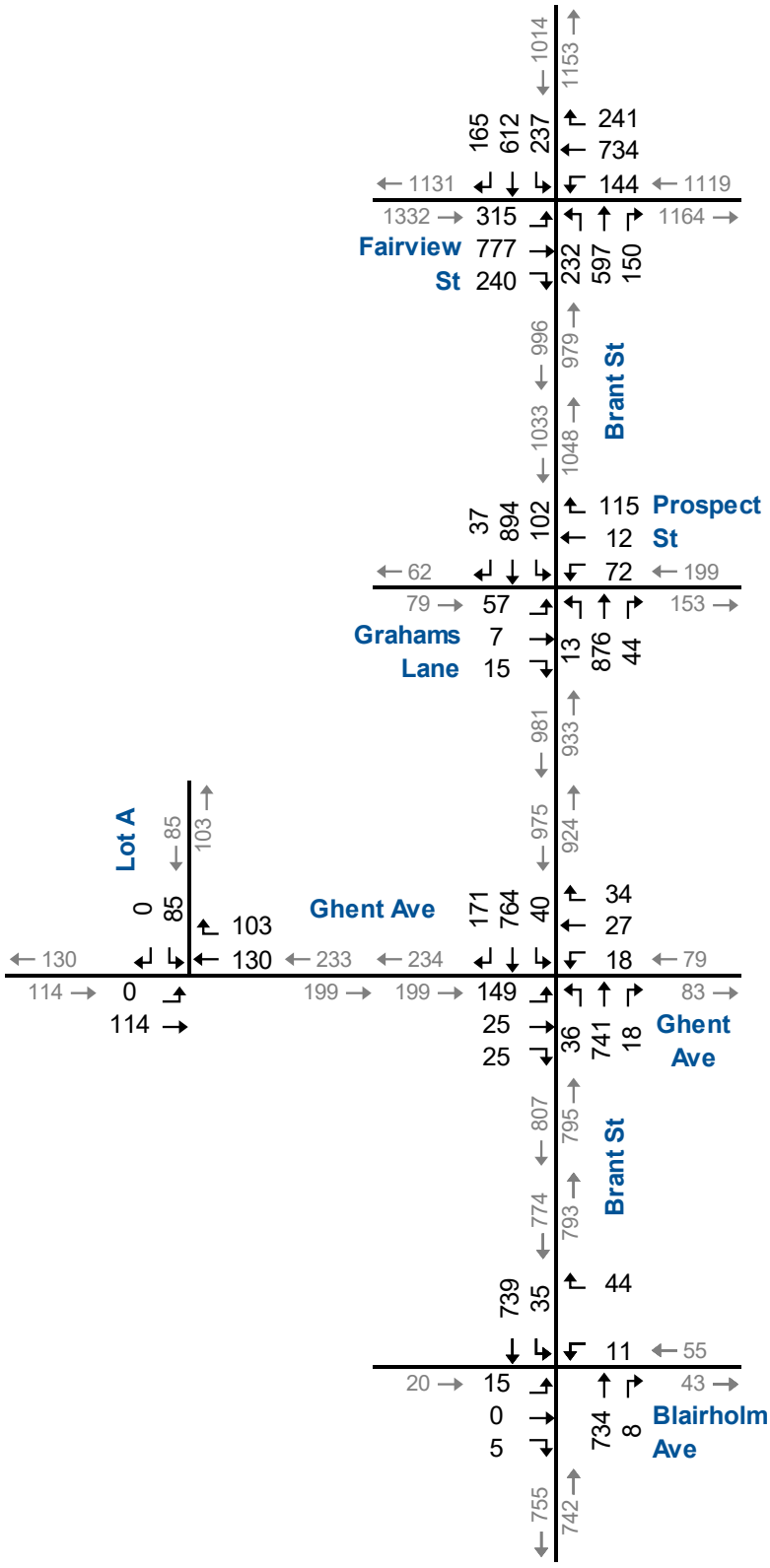
Total – Phase 1 Traffic Volumes (AM Peak Hour)



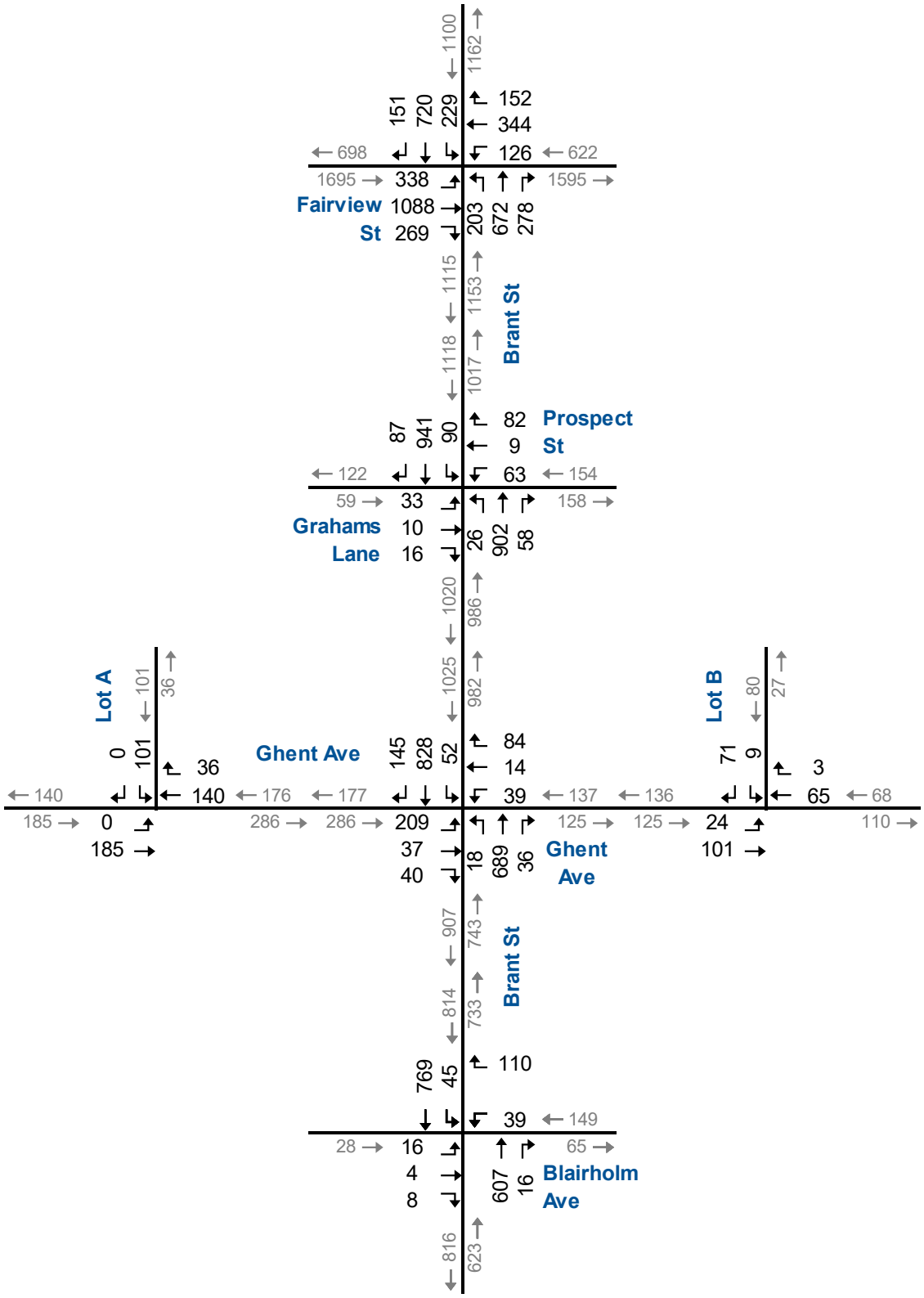
Total – Phase 1 Traffic Volumes (PM Peak Hour)

Brant Street & Ghent Avenue TIA
200403

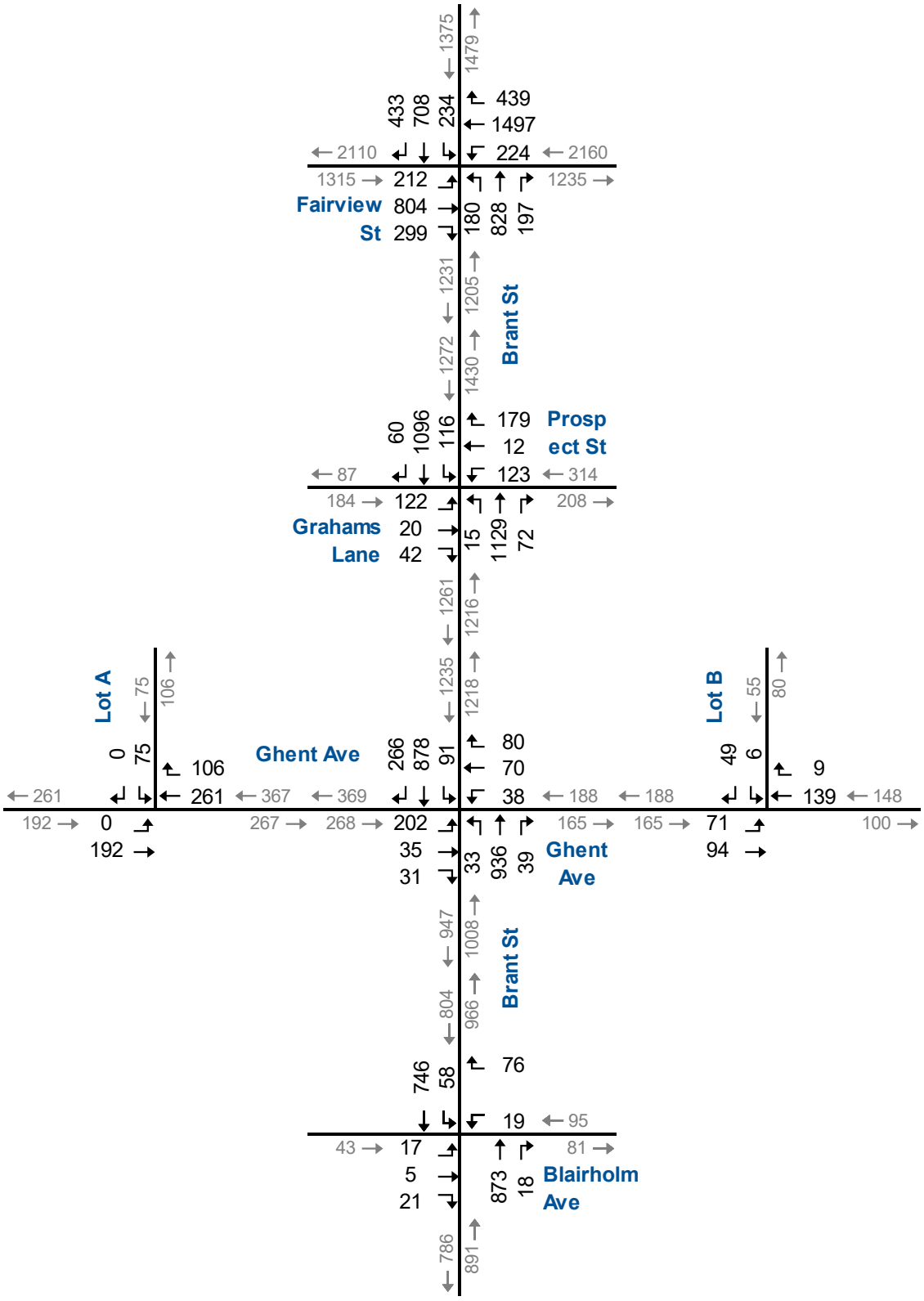
Figure 4.5B



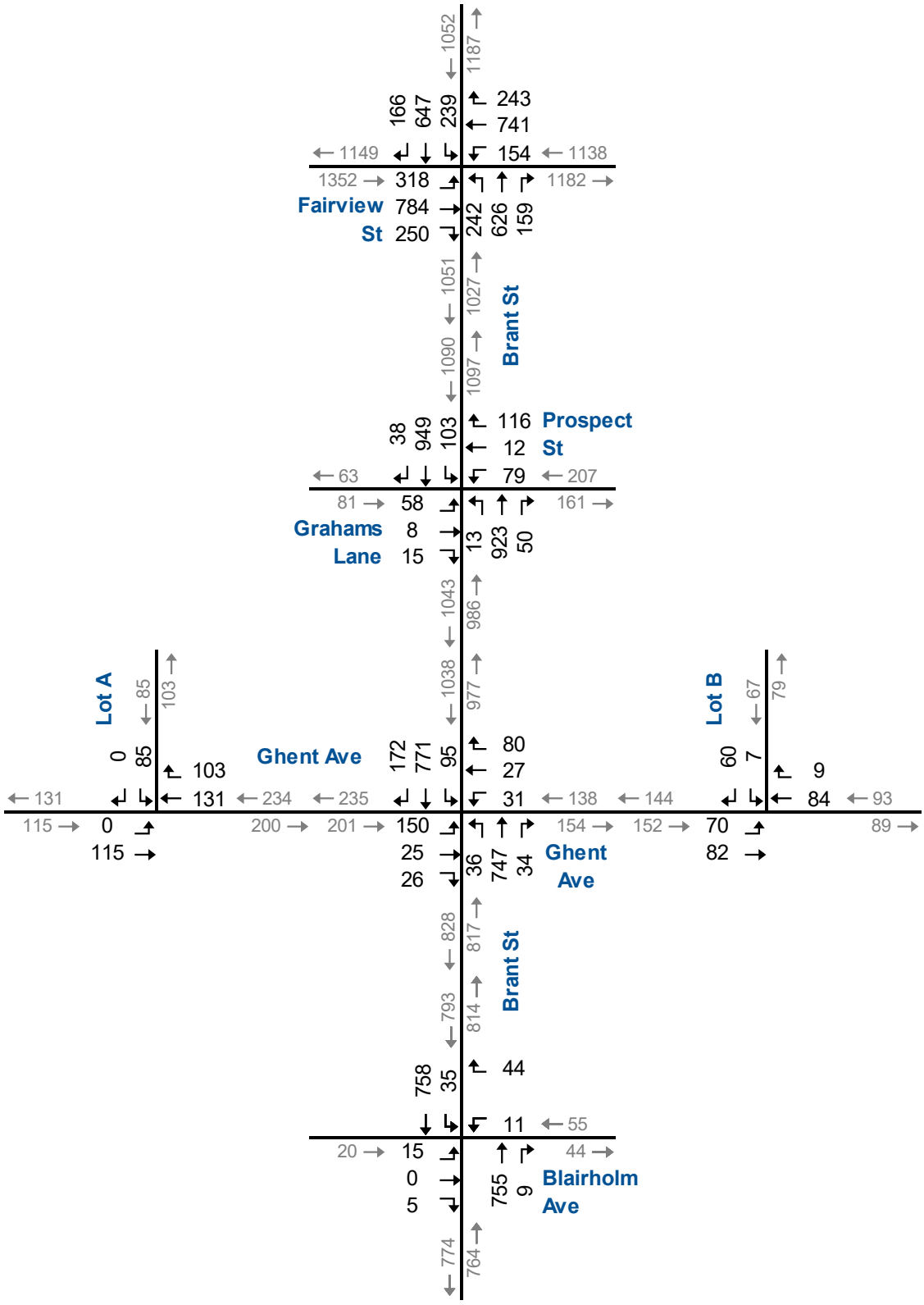
Total – Phase 1 Traffic Volumes (Saturday Peak Hour)



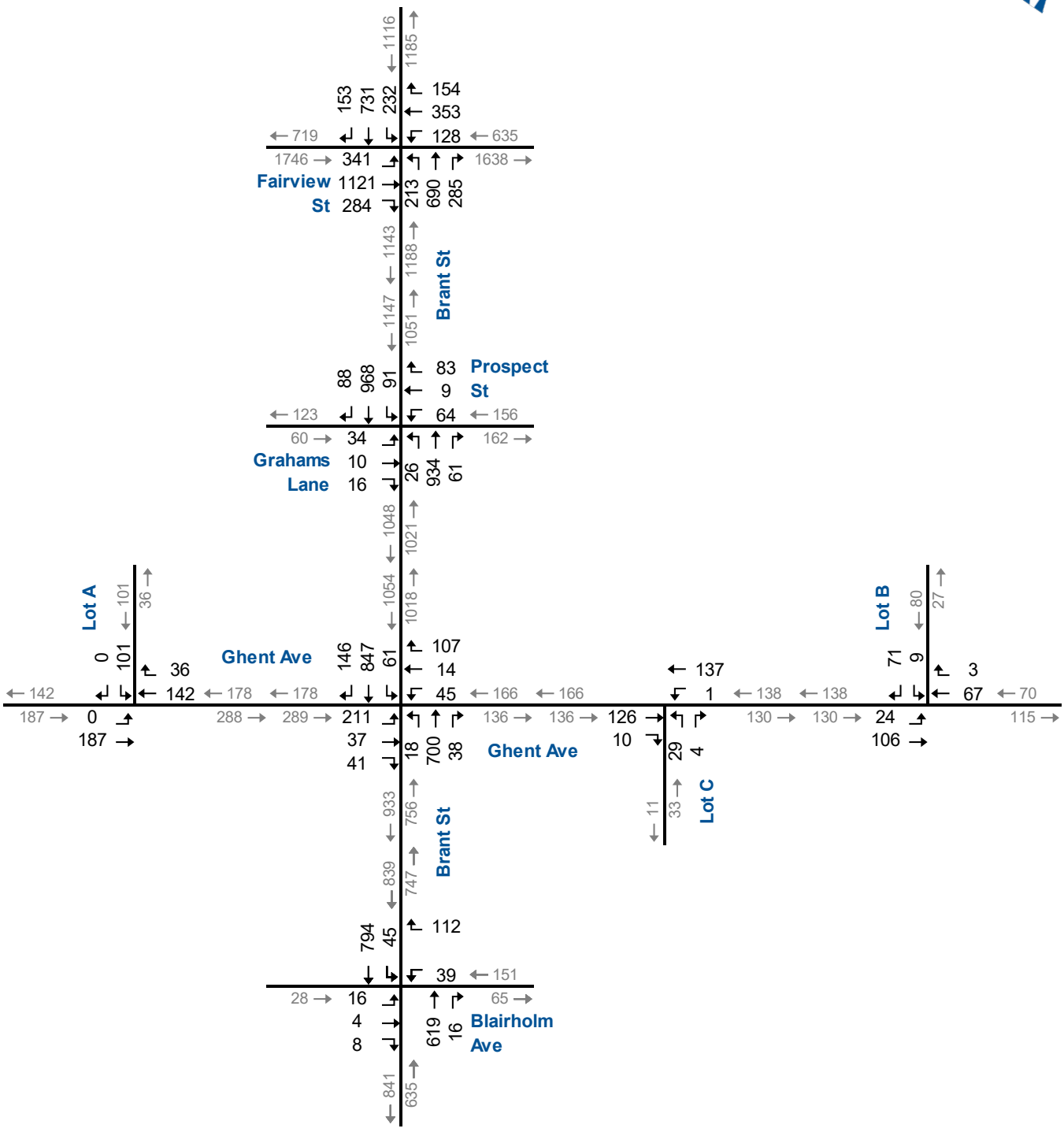
Total – Phase 2 Traffic Volumes (AM Peak Hour)



Total – Phase 2 Traffic Volumes (PM Peak Hour)



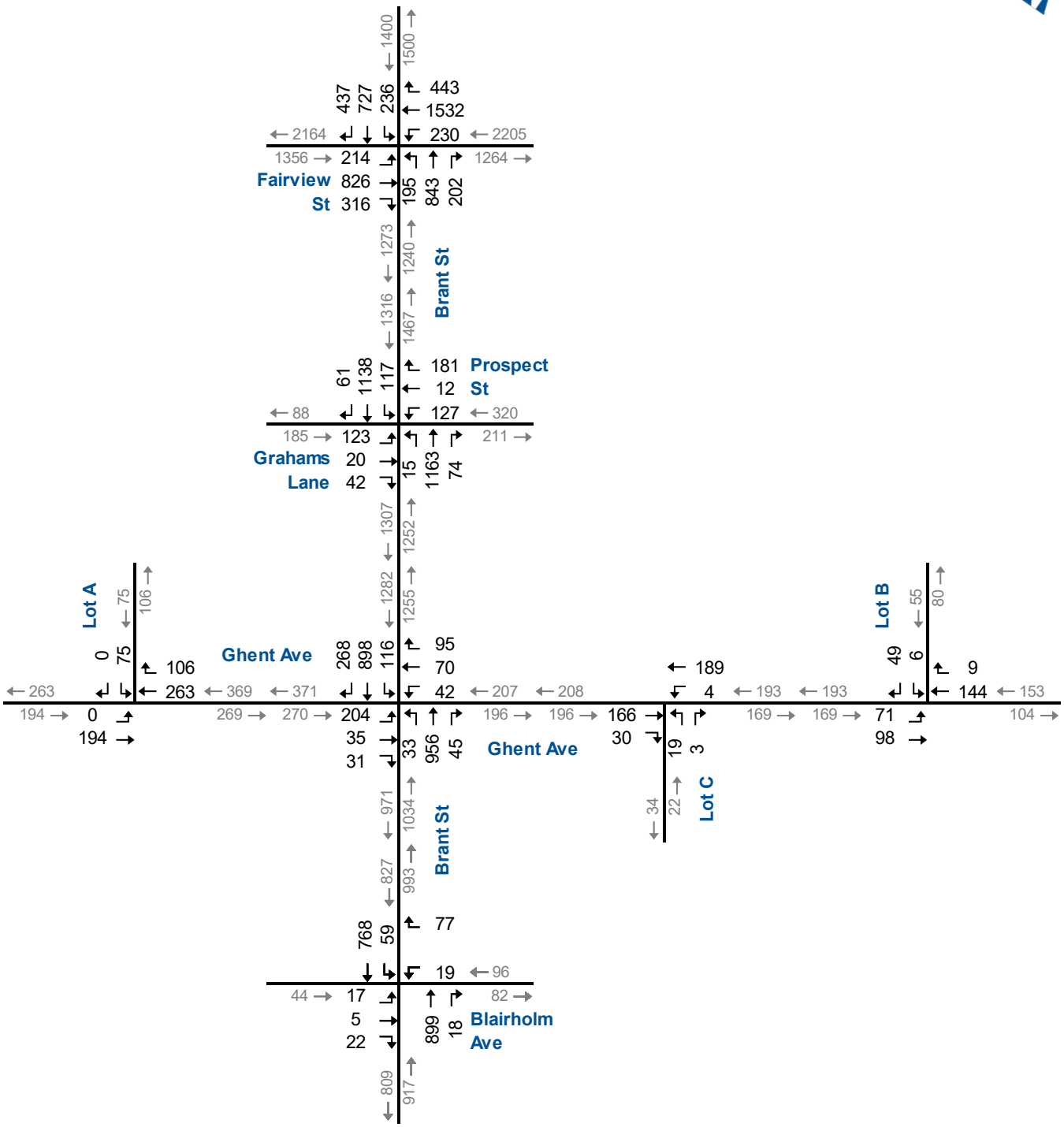
Total – Phase 2 Traffic Volumes (Saturday Peak Hour)



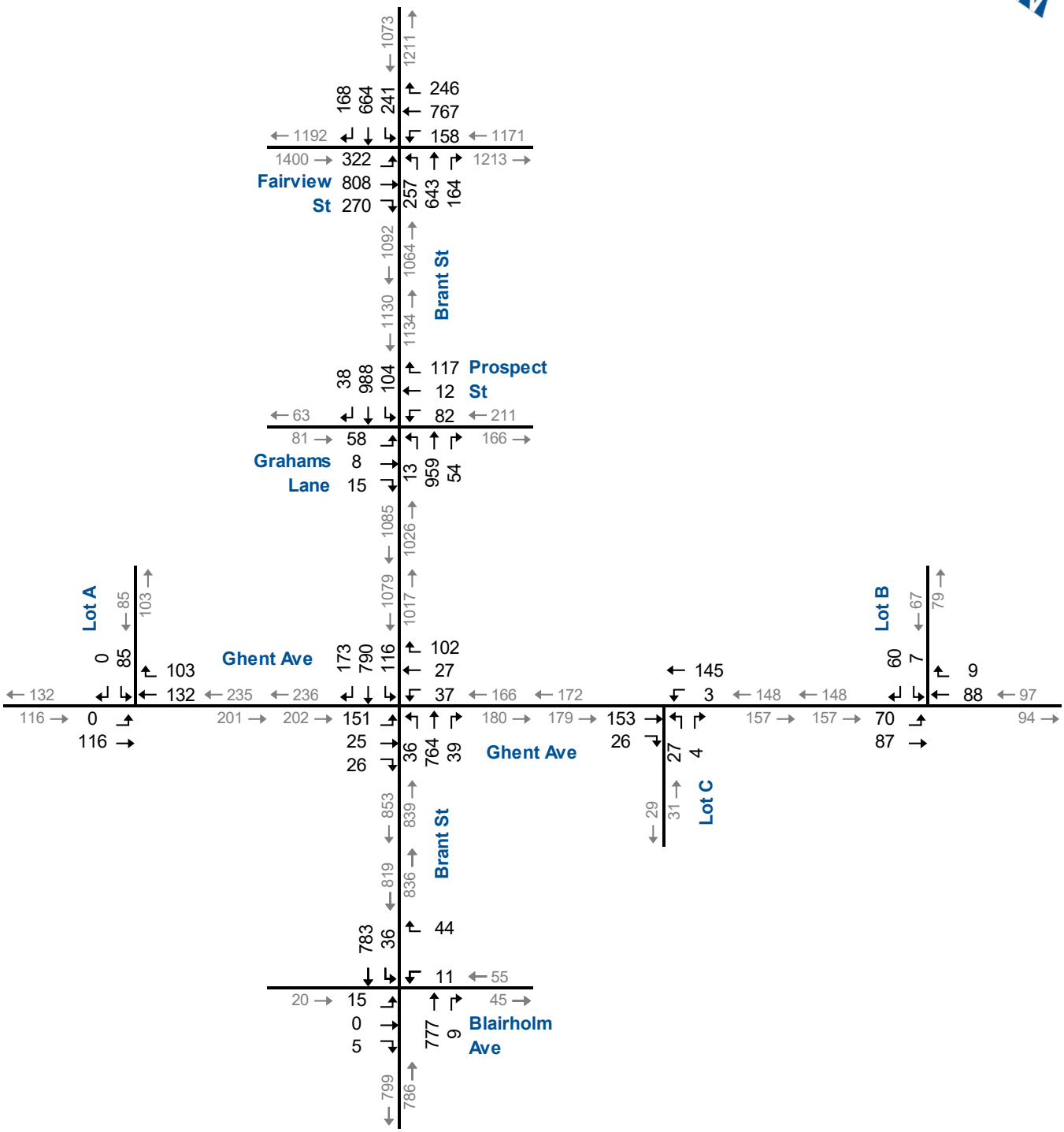
Total – Full Build-Out Traffic Volumes (AM Peak Hour)

Brant Street & Ghent Avenue TIA
200403

Figure 4.7A



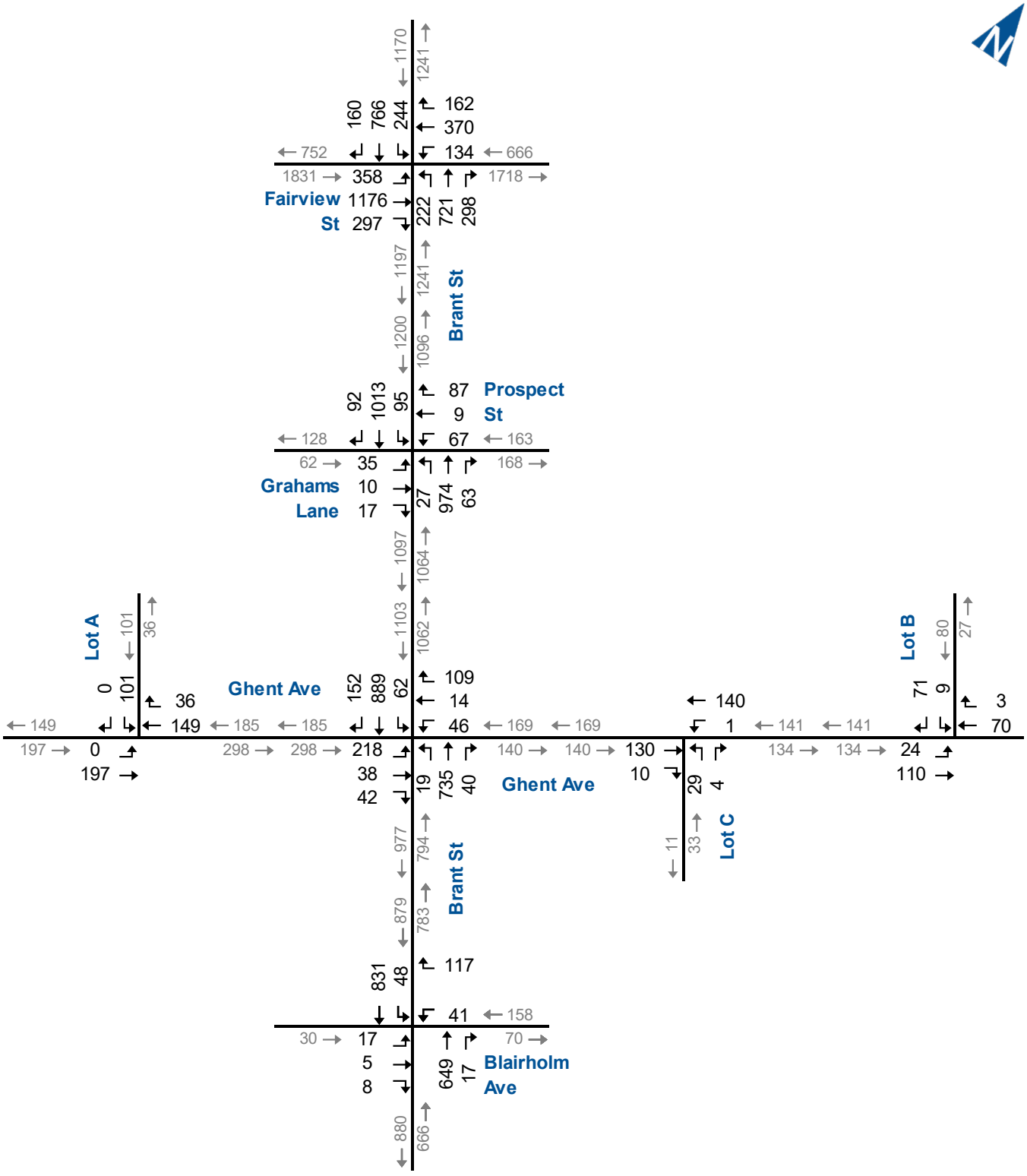
Total – Full Build-Out Traffic Volumes (PM Peak Hour)



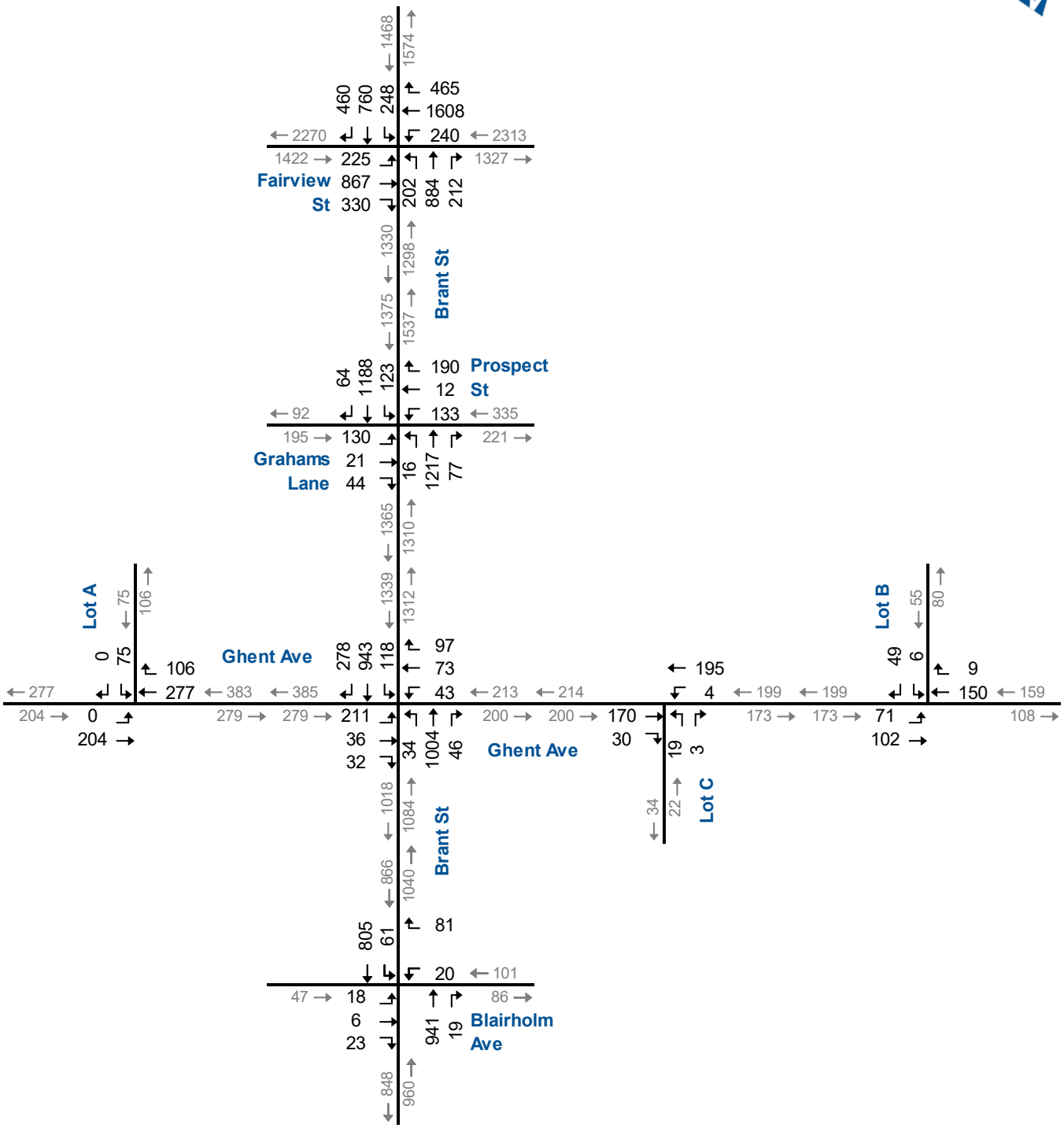
Total – Full Build-Out Traffic Volumes (Saturday Peak Hour)

Brant Street & Ghent Avenue TIA
200403

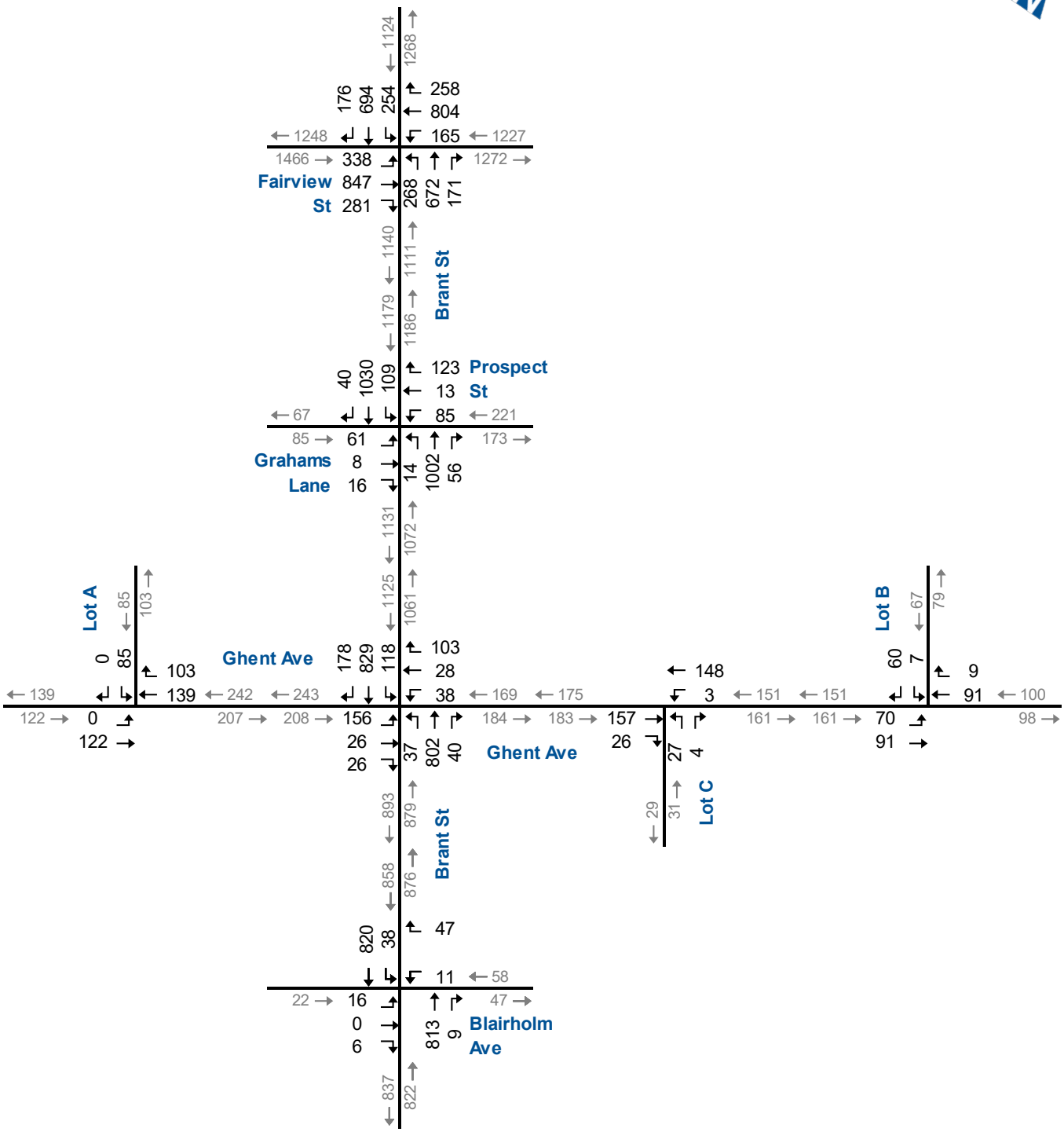
Figure 4.7C



Total – Five-Year Horizon Traffic Volumes (AM Peak Hour)



Total – Five-Year Horizon Traffic Volumes (PM Peak Hour)



Total – Five-Year Horizon Traffic Volumes (Saturday Peak Hour)

Brant Street & Ghent Avenue TIA
200403

Figure 4.8C

4.2 Forecast Traffic Operations

The study area intersection operations analyses for the future background and future total traffic forecast followed the same methodology used for existing conditions. No changes to existing signal timings and lane configurations are assumed.

4.2.1 Background Operations – Phase 1

Table 4.1A, Table 4.1B and Table 4.1C summarizes the level of service conditions for the AM, PM, and Saturday peak hours, respectively. The following critical movements are noted:

- Brant Street and Fairview Street:
  - Eastbound let-turn – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Westbound through – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Northbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Northbound right-turn – AM and PM peak hour, queue length exceeds storage.
  - Southbound left-turn – PM and Saturday peak hour, queue length exceeds storage.
- Brant Street and Prospect Street/Grahams Lane:
  - Eastbound left-turn – PM peak hour, queue length exceeds storage.
  - Westbound left-turn – PM and Saturday peak hour, queue length exceeds storage.
- Brant Street and Blairholm Avenue:
  - Westbound left-turn – AM peak hour, queue length exceeds storage.

Appendix H1 contains the detailed Synchro reports.

TABLE 4.1A: BACKGROUND OPERATIONS – PHASE 1 (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Brant St & Fairview St	TCS	LOS	C	D	C	**C**	C	C	C	**C**	D	D	C	**D**	D	C	C	**C**	**C**
			Delay	24	37	22	**32**	32	29	26	**29**	50	36	31	**37**	37	32	25	**32**	**33**
			V/C	0.73	0.88	0.19		0.62	0.35	0.10		0.84	0.70	0.32		0.80	0.67	0.10		**0.85**
			Q	78	174	20		33	49	11		53	87	39		70	94	14		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	80		-3	-	-		-28	-	-19		-30	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	23	22	>	**23**	24	23	>	**23**	6	7	>	**7**	3	8	>	**7**	**9**
			V/C	0.18	0.05	>		0.28	0.09	>		0.11	0.43	>		0.19	0.51	>		**0.41**
			Q	13	9	>		20	14	>		6	53	>		6	65	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	17	-	>		0	-	>		9	-	>		14	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	14	12	**14**	<	12	>	**12**	6	7	>	**7**	6	8	>	**8**	**8**
			V/C	<	0.42	0.01		<	0.10	>		0.06	0.41	>		0.11	0.54	>		**0.50**
			Q	<	31	2		<	10	>		3	41	>		7	56	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	13		<	-	>		22	-	>		8	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	19	18	**18**	17		17	**17**		4	>	**4**	3	6		**6**	**6**
			V/C	<	0.09	0.01		0.17		0.07			0.28	>		0.10	0.63			**0.56**
			Q	<	7	0		11		11			19	>		5	71			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		-1		-			-	>		5	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.1B: BACKGROUND OPERATIONS – PHASE 1 (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Brant St & Fairview St	TCS	LOS	F	D	C	**D**	C	F	C	**F**	C	D	C	**D**	D	D	D	**D**	**E**
			Delay	138	36	27	**50**	33	127	28	**98**	32	52	34	**46**	47	38	39	**40**	**64**
			V/C	1.15	0.71	0.19		0.75	1.18	0.48		0.62	0.89	0.23		0.83	0.67	0.63		**1.03**
			Q	103	127	20		58	302	70		42	141	32		82	104	95		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	80		-28	-	-		-17	-	-12		-42	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	32	23	>	**29**	26	24	>	**24**	8	12	>	**12**	7	12	>	**11**	**14**
			V/C	0.62	0.08	>		0.38	0.16	>		0.09	0.61	>		0.34	0.57	>		**0.56**
			Q	49	14	>		35	20	>		4	87	>		9	80	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	-19	-	>		-15	-	>		11	-	>		11	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	15	12	**15**	<	14	>	**14**	6	9	>	**9**	7	10	>	**10**	**10**
			V/C	<	0.45	0.01		<	0.22	>		0.08	0.55	>		0.18	0.62	>		**0.55**
			Q	<	39	1		<	23	>		4	65	>		8	75	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	14		<	-	>		21	-	>		7	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	19	19	**19**	18		17	**18**		4	>	**4**	3	5		**5**	**6**
			V/C	<	0.10	0.01		0.09		0.05			0.38	>		0.14	0.62			**0.54**
			Q	<	8	3		7		9			26	>		5	65			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		3		-			-	>		5	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.1C: BACKGROUND OPERATIONS – PHASE 1 (SAT PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Overall
SAT Peak Hour	Brant St & Fairview St	TCS	LOS	D	C	C	**C**	C	D	C	**C**	E	D	C	**D**	D	C	C	**C**	**C**
			Delay	52	27	21	**32**	27	38	27	**34**	59	36	29	**40**	38	30	25	**31**	**34**
			V/C	0.91	0.63	0.16		0.56	0.79	0.17		0.89	0.69	0.10		0.82	0.58	0.11		**0.87**
			Q	118	105	16		31	112	19		68	82	8		73	76	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	84		-1	-	-		-43	-	12		-33	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	23	21	>	**22**	23	22	>	**22**	6	8	>	**8**	4	8	>	**8**	**10**
			V/C	0.30	0.04	>		0.30	0.13	>		0.05	0.46	>		0.22	0.47	>		**0.38**
			Q	19	7	>		21	16	>		4	59	>		8	60	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	11	-	>		-1	-	>		11	-	>		12	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	14	12	**14**	<	13	>	**13**	4	6	>	**6**	5	6	>	**6**	**6**
			V/C	<	0.35	0.01		<	0.12	>		0.06	0.41	>		0.13	0.47	>		**0.43**
			Q	<	19	0		<	10	>		3	35	>		6	40	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	15		<	-	>		22	-	>		9	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	21	21	**21**	19		19	**19**		3	>	**3**	2	4		**4**	**4**
			V/C	<	0.11	0.00		0.07		0.03			0.31	>		0.08	0.58			**0.53**
			Q	<	6	0		5		7			20	>		3	61			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		5		-			-	>		7	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

4.2.2 Background Operations – Phase 2

Table 4.2A, Table 4.2B and Table 4.2C details the level of service conditions for the AM, PM, and Saturday peak hours, respectively. The following critical movements are noted:

- Brant Street and Fairview Street:
  - Eastbound left-turn – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Westbound through – PM peak hour, LOS F and v/c ratio exceeds storage.
  - Northbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Northbound right-turn – AM and PM peak hour, queue length exceeds storage.
  - Southbound left-turn – PM and Saturday peak hour, queue length exceeds storage.
  - Southbound right-turn – AM peak hour, queue length exceeds storage.
- Brant Street and Prospect Street/Grahams Lane:
  - Eastbound left-turn – PM peak hour, queue length exceeds storage.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Blairholm Avenue:
  - Westbound left-turn – AM peak hour, queue length exceeds storage.

Appendix H2 contains the detailed Synchro reports.

TABLE 4.2A: BACKGROUND OPERATIONS – PHASE 2 (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Brant St & Fairview St	TCS	LOS	C	D	C	**C**	C	C	C	**C**	D	D	C	**D**	D	C	C	**C**	**C**
			Delay	25	38	22	**33**	32	29	26	**29**	54	37	31	**38**	38	32	25	**33**	**34**
			V/C	0.74	0.89	0.20		0.63	0.36	0.10		0.86	0.70	0.33		0.81	0.68	0.10		**0.86**
			Q	79	177	20		33	50	11		56	88	39		72	95	14		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	80		-3	-	-		-31	-	-19		-32	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	24	23	>	**23**	24	23	>	**23**	6	7	>	**7**	3	8	>	**7**	**9**
			V/C	0.18	0.05	>		0.29	0.09	>		0.12	0.43	>		0.19	0.51	>		**0.42**
			Q	14	9	>		21	14	>		6	53	>		6	66	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	16	-	>		-1	-	>		9	-	>		14	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	14	12	**14**	<	12	>	**12**	6	7	>	**7**	6	8	>	**8**	**9**
			V/C	<	0.43	0.01		<	0.10	>		0.06	0.42	>		0.12	0.55	>		**0.50**
			Q	<	32	2		<	10	>		3	41	>		7	57	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	13		<	-	>		22	-	>		8	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	19	18	**19**	18		17	**17**		4	>	**4**	3	6		**6**	**6**
			V/C	<	0.09	0.01		0.18		0.08			0.28	>		0.10	0.63			**0.57**
			Q	<	7	0		12		12			20	>		5	72			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		-2		-			-	>		5	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.2B: BACKGROUND OPERATIONS – PHASE 2 (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Brant St & Fairview St	TCS	LOS	F	D	C	**D**	D	F	C	**F**	C	D	C	**D**	D	D	D	**D**	**E**
			Delay	144	36	28	**52**	36	134	28	**103**	32	52	34	**46**	47	38	39	**40**	**67**
			V/C	1.16	0.72	0.19		0.77	1.20	0.49		0.62	0.90	0.23		0.84	0.67	0.64		**1.04**
			Q	104	128	20		64	306	72		42	144	32		84	106	98		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	80		-34	-	-		-17	-	-12		-44	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	32	23	>	**29**	26	24	>	**24**	8	12	>	**12**	7	12	>	**11**	**14**
			V/C	0.63	0.08	>		0.38	0.16	>		0.09	0.62	>		0.35	0.58	>		**0.57**
			Q	50	14	>		35	20	>		4	89	>		10	81	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	-20	-	>		-15	-	>		11	-	>		10	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	15	12	**15**	<	14	>	**14**	7	9	>	**9**	7	10	>	**10**	**10**
			V/C	<	0.45	0.01		<	0.22	>		0.08	0.55	>		0.18	0.62	>		**0.56**
			Q	<	40	1		<	23	>		4	66	>		8	76	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	14		<	-	>		21	-	>		7	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	20	19	**19**	18		18	**18**		4	>	**4**	3	6		**5**	**6**
			V/C	<	0.10	0.01		0.09		0.05			0.38	>		0.14	0.62			**0.54**
			Q	<	8	3		7		10			26	>		5	66			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		3		-			-	>		5	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.2C: BACKGROUND OPERATIONS – PHASE 2 (SAT PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
SAT Peak Hour	Brant St & Fairview St	TCS	LOS	E	C	C	**C**	C	D	C	**C**	E	D	C	**D**	D	C	C	**C**	**C**
			Delay	57	27	21	**33**	28	38	27	**34**	63	36	29	**42**	40	30	25	**32**	**35**
			V/C	0.93	0.64	0.16		0.58	0.79	0.17		0.91	0.69	0.10		0.83	0.58	0.11		**0.89**
			Q	120	106	17		31	113	19		70	83	9		76	78	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	83		-1	-	-		-45	-	11		-36	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	23	21	>	**23**	23	22	>	**22**	6	8	>	**8**	4	8	>	**8**	**10**
			V/C	0.30	0.04	>		0.30	0.13	>		0.05	0.47	>		0.22	0.47	>		**0.39**
			Q	20	7	>		21	16	>		4	60	>		8	61	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	10	-	>		-1	-	>		11	-	>		12	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	14	12	**14**	<	13	>	**13**	4	6	>	**6**	5	6	>	**6**	**6**
			V/C	<	0.35	0.01		<	0.12	>		0.06	0.41	>		0.14	0.47	>		**0.43**
			Q	<	19	0		<	10	>		3	35	>		7	41	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	15		<	-	>		22	-	>		8	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	21	21	**21**	19		19	**19**		3	>	**3**	2	4		**4**	**4**
			V/C	<	0.11	0.00		0.07		0.03			0.31	>		0.08	0.58			**0.53**
			Q	<	6	0		5		7			20	>		3	62			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		5		-			-	>		7	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

4.2.3 Background Operations – Full Build-Out

Table 4.3A, Table 4.3B and Table 4.3C details the level of service conditions for the AM, PM, and Saturday peak hours, respectively. The following critical movements are noted:

- Brant Street and Fairview Street:
  - Eastbound left-turn – PM peak hour, LOS F and v/c ratio greater than 1.00. Saturday peak hour, LOS E and v/c ratio of 0.95.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Westbound through- PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Northbound left-turn – AM and PM peak hour, queue length exceeds storage. Saturday peak hour, LOS E, v/c ratio of 0.97, and queue length exceeds storage.
  - Northbound right-turn – AM and PM peak hour, queue length exceeds storage.
  - Southbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Prospect Street/Grahams Lane:
  - Eastbound left-turn – PM peak hour, queue length exceeds storage.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Blairholm Avenue:
  - Westbound left-turn – AM peak hour, queue length exceeds storage.

Appendix H3 contains the detailed Synchro reports.

TABLE 4.3A: BACKGROUND OPERATIONS – FULL BUILD-OUT (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Brant St & Fairview St	TCS	LOS	C	D	C	**C**	C	C	C	**C**	E	D	C	**D**	D	C	C	**C**	**C**
			Delay	26	40	22	**35**	33	29	27	**29**	63	37	31	**40**	40	33	25	**33**	**35**
			V/C	0.75	0.91	0.22		0.64	0.37	0.11		0.90	0.71	0.34		0.83	0.68	0.10		**0.88**
			Q	80	185	24		34	51	11		60	89	40		75	96	14		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	76		-4	-	-		-35	-	-20		-35	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	24	23	>	**23**	24	23	>	**24**	6	7	>	**7**	3	8	>	**8**	**9**
			V/C	0.18	0.05	>		0.29	0.09	>		0.12	0.44	>		0.19	0.52	>		**0.42**
			Q	14	9	>		21	14	>		6	54	>		6	67	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	16	-	>		-1	-	>		9	-	>		14	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	15	12	**14**	<	12	>	**12**	6	8	>	**8**	6	8	>	**8**	**9**
			V/C	<	0.43	0.02		<	0.10	>		0.06	0.42	>		0.12	0.55	>		**0.51**
			Q	<	32	2		<	10	>		3	42	>		7	59	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	13		<	-	>		22	-	>		8	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	19	18	**19**	18		17	**17**		3	>	**3**	3	6		**6**	**6**
			V/C	<	0.09	0.01		0.18		0.08			0.28	>		0.10	0.64			**0.57**
			Q	<	7	0		12		12			20	>		5	74			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		-2		-			-	>		5	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.3B: BACKGROUND OPERATIONS – FULL BUILD-OUT (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Brant St & Fairview St	TCS	LOS	F	D	C	**D**	D	F	C	**F**	C	D	C	**D**	D	D	D	**D**	**E**
			Delay	149	37	28	**53**	42	148	28	**113**	34	53	34	**47**	48	39	41	**41**	**71**
			V/C	1.18	0.75	0.20		0.80	1.23	0.50		0.67	0.90	0.23		0.84	0.69	0.67		**1.06**
			Q	107	133	20		69	317	74		46	146	33		85	107	107		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	80		-39	-	-		-21	-	-13		-45	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	33	23	>	**30**	26	24	>	**24**	8	12	>	**12**	7	12	>	**11**	**14**
			V/C	0.63	0.08	>		0.38	0.16	>		0.09	0.62	>		0.36	0.58	>		**0.58**
			Q	51	14	>		35	20	>		4	90	>		10	82	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	-21	-	>		-15	-	>		11	-	>		10	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**B**
			Delay	<	16	13	**15**	<	14	>	**14**	7	9	>	**9**	7	10	>	**10**	**10**
			V/C	<	0.45	0.01		<	0.22	>		0.08	0.56	>		0.19	0.63	>		**0.56**
			Q	<	41	1		<	24	>		4	68	>		9	78	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	14		<	-	>		21	-	>		6	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	20	19	**20**	18		18	**18**		4	>	**4**	3	6		**5**	**6**
			V/C	<	0.11	0.02		0.09		0.05			0.39	>		0.15	0.62			**0.55**
			Q	<	8	3		7		10			27	>		5	67			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		3		-			-	>		5	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.3C: BACKGROUND OPERATIONS – FULL BUILD-OUT (SAT PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
SAT Peak Hour	Brant St & Fairview St	TCS	LOS	E	C	C	**C**	C	D	C	**D**	E	D	C	**D**	D	C	C	**C**	**D**
			Delay	62	27	21	**34**	28	39	27	**35**	78	37	29	**46**	42	31	26	**32**	**37**
			V/C	0.95	0.65	0.17		0.60	0.82	0.17		0.97	0.69	0.10		0.84	0.59	0.12		**0.92**
			Q	123	110	17		31	118	20		78	84	9		77	78	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	83		-1	-	-		-53	-	11		-37	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	23	22	>	**23**	23	22	>	**22**	6	8	>	**8**	4	8	>	**8**	**10**
			V/C	0.31	0.04	>		0.30	0.13	>		0.05	0.47	>		0.23	0.47	>		**0.39**
			Q	20	8	>		22	16	>		4	61	>		8	62	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	10	-	>		-2	-	>		11	-	>		12	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	14	12	**14**	<	13	>	**13**	4	6	>	**6**	5	6	>	**6**	**6**
			V/C	<	0.35	0.01		<	0.12	>		0.06	0.42	>		0.14	0.48	>		**0.44**
			Q	<	19	0		<	10	>		3	36	>		7	42	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	15		<	-	>		22	-	>		8	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	22	21	**21**	20		19	**19**		3	>	**3**	2	4		**4**	**4**
			V/C	<	0.11	0.00		0.07		0.03			0.31	>		0.08	0.59			**0.54**
			Q	<	6	0		5		7			21	>		4	63			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		5		-			-	>		6	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

4.2.4 Background Operations – Five Year Horizon

Table 4.4A, Table 4.4B and Table 4.4C details the level of service conditions for the AM, PM, and Saturday peak hours, respectively. The following critical movements are noted:

- Brant Street and Fairview Street:
  - Eastbound left-turn, PM and Saturday peak hour, LOS F and v/c ratio greater than 1.00.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Westbound through – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Northbound left-turn – AM and Saturday peak hour, LOS F, v/c ratio of 0.99, and queue length exceeds storage. PM peak hour, queue length exceeds storage.
  - Northbound right-turn – AM and PM peak hour, queue length exceeds storage.
  - Southbound let-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Prospect Street/Grahams Lane:
  - Eastbound left-turn – PM peak hour, queue length exceeds storage.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Blairholm Avenue:
  - Westbound left-turn – AM peak hour, queue length exceeds storage.

Appendix H4 contains the detailed Synchro reports.

TABLE 4.4A: BACKGROUND OPERATIONS – FIVE-YEAR HORIZON (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Brant St & Fairview St	TCS	LOS	C	D	C	**D**	D	C	C	**C**	F	D	C	**D**	D	C	C	**D**	**D**
			Delay	29	47	23	**40**	37	30	27	**30**	88	38	32	**46**	52	34	25	**36**	**39**
			V/C	0.80	0.95	0.26		0.69	0.38	0.11		0.99	0.73	0.37		0.89	0.71	0.11		**0.93**
			Q	94	201	30		39	53	13		70	94	44		86	102	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	70		-9	-	-		-45	-	-24		-46	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	25	24	>	**24**	26	24	>	**25**	6	7	>	**7**	3	8	>	**8**	**9**
			V/C	0.19	0.05	>		0.31	0.10	>		0.13	0.45	>		0.21	0.53	>		**0.44**
			Q	14	9	>		22	15	>		6	59	>		7	73	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	16	-	>		-2	-	>		9	-	>		13	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	15	12	**15**	<	13	>	**13**	6	8	>	**8**	6	9	>	**9**	**9**
			V/C	<	0.45	0.02		<	0.10	>		0.07	0.44	>		0.13	0.57	>		**0.53**
			Q	<	36	2		<	11	>		4	47	>		7	66	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	13		<	-	>		21	-	>		8	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	20	19	**20**	19		18	**18**		3	>	**3**	3	6		**6**	**6**
			V/C	<	0.10	0.01		0.19		0.08			0.29	>		0.11	0.66			**0.60**
			Q	<	8	0		13		13			21	>		5	80			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		-3		-			-	>		5	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.4B: BACKGROUND OPERATIONS – FIVE-YEAR HORIZON (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Brant St & Fairview St	TCS	LOS	F	D	C	**E**	D	F	C	**F**	D	E	C	**D**	D	D	D	**D**	**F**
			Delay	175	40	28	**59**	51	178	30	**136**	36	59	34	**52**	54	40	44	**44**	**82**
			V/C	1.24	0.80	0.21		0.84	1.30	0.54		0.71	0.94	0.26		0.87	0.72	0.73		**1.12**
			Q	113	141	21		79	339	82		50	159	36		93	113	129		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	79		-49	-	-		-25	-	-16		-53	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	D	C	>	**C**	C	C	>	**C**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	39	24	>	**34**	27	25	>	**26**	8	13	>	**13**	8	12	>	**12**	**15**
			V/C	0.70	0.09	>		0.41	0.16	>		0.10	0.65	>		0.40	0.61	>		**0.62**
			Q	56	14	>		37	20	>		5	97	>		10	89	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	-26	-	>		-17	-	>		10	-	>		10	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	B	>	**B**	**B**
			Delay	<	16	13	**16**	<	14	>	**14**	7	10	>	**10**	8	11	>	**10**	**11**
			V/C	<	0.48	0.01		<	0.23	>		0.10	0.58	>		0.22	0.66	>		**0.59**
			Q	<	45	1		<	26	>		4	75	>		10	87	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	14		<	-	>		21	-	>		5	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	21	20	**20**	19		19	**19**		4	>	**4**	3	6		**6**	**6**
			V/C	<	0.13	0.02		0.10		0.06			0.40	>		0.16	0.65			**0.57**
			Q	<	9	3		8		11			28	>		5	72			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		2		-			-	>		5	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.4C: BACKGROUND OPERATIONS – FIVE-YEAR HORIZON (SAT PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
SAT Peak Hour	Brant St & Fairview St	TCS	LOS	F	C	C	**D**	C	D	C	**D**	F	D	C	**D**	D	C	C	**C**	**D**
			Delay	81	29	22	**40**	33	42	28	**38**	100	37	29	**52**	52	31	25	**35**	**41**
			V/C	1.01	0.69	0.18		0.67	0.86	0.21		1.04	0.71	0.10		0.90	0.60	0.12		**0.98**
			Q	132	117	18		36	134	24		87	89	11		88	83	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	82		-6	-	-		-62	-	9		-48	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**B**
			Delay	23	21	>	**22**	23	22	>	**22**	7	10	>	**10**	5	10	>	**9**	**11**
			V/C	0.28	0.04	>		0.27	0.13	>		0.07	0.51	>		0.26	0.51	>		**0.41**
			Q	22	8	>		24	18	>		4	68	>		9	68	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	8	-	>		-4	-	>		11	-	>		11	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	15	13	**14**	<	13	>	**13**	4	6	>	**6**	5	6	>	**6**	**7**
			V/C	<	0.37	0.01		<	0.12	>		0.07	0.43	>		0.15	0.50	>		**0.46**
			Q	<	21	0		<	11	>		3	40	>		7	46	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	15		<	-	>		22	-	>		8	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	C		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	22	22	**22**	20		20	**20**		3	>	**3**	2	4		**4**	**4**
			V/C	<	0.12	0.00		0.07		0.03			0.32	>		0.09	0.61			**0.56**
			Q	<	7	0		5		8			22	>		4	68			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		5		-			-	>		6	-			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

4.2.5 Total Operations – Phase 1

Table 4.5A, Table 4.5B and Table 4.5C details the level of service conditions for the AM, PM, and Saturday peak hours, respectively. The following critical movements are noted:

- Brant Street and Fairview Street:
  - Eastbound left-turn – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Westbound through – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Northbound left-turn – AM and PM peak hour, queue length exceeds storage. Saturday peak hour, LOS E, v/c ratio of 0.96, and queue length exceeds storage.
  - Northbound right-turn – AM and PM peak hour, queue length exceeds storage.
  - Southbound let-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Prospect Street/Grahams Lane:
  - Eastbound left-turn – PM peak hour, queue length exceeds storage.
  - Westbound left-turn - AM peak hour, queue length exceed storage.
- Brant Street and Blairholm Avenue:
  - Westbound left-turn – AM peak hour, queue length exceeds storage.

Appendix I1 contains the detailed Synchro reports.

The capacity issues experienced under the background traffic horizon are expected to continue to occur with or without the development of the subject site. Site traffic impacts are minimal with minor changes in delay at the study area intersections.

The proposed Lot A driveway with Ghent Avenue is forecast to operate with low levels of delay and v/c ratios during the AM, PM, and Saturday peak hours.

TABLE 4.5A: TOTAL OPERATIONS – PHASE 1 (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Brant St & Fairview St	TCS	LOS	C	D	C	**C**	C	C	C	**C**	E	D	C	**D**	D	C	C	**C**	**C**
			Delay	25	38	22	**33**	34	29	27	**30**	63	37	31	**40**	40	32	25	**33**	**34**
			V/C	0.74	0.89	0.20		0.65	0.36	0.10		0.90	0.72	0.35		0.83	0.67	0.10		**0.86**
			Q	78	174	22		36	49	11		62	94	42		75	96	14		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	78		-6	-	-		-37	-	-22		-35	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	24	23	>	**24**	25	23	>	**24**	6	8	>	**7**	3	8	>	**8**	**9**
			V/C	0.18	0.05	>		0.30	0.09	>		0.12	0.46	>		0.20	0.51	>		**0.42**
			Q	14	9	>		21	14	>		6	59	>		6	67	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	16	-	>		-1	-	>		9	-	>		14	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	B	>	**B**	**B**
			Delay	<	15	11	**15**	<	12	>	**12**	8	9	>	**9**	8	11	>	**11**	**11**
			V/C	<	0.55	0.03		<	0.09	>		0.12	0.44	>		0.13	0.60	>		**0.58**
			Q	<	54	5		<	12	>		6	52	>		8	76	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	10		<	-	>		19	-	>		7	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	19	19	**19**	18		17	**17**		3	>	**3**	3	6		**6**	**6**
			V/C	<	0.09	0.01		0.17		0.07			0.28	>		0.10	0.64			**0.57**
			Q	<	8	0		12		12			19	>		5	74			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		-2		-			-	>		5	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					12		>	**12**	**3**
			V/C	<	0.00				0.06	>						0.18		>		
			Q	<	0				0	>						5		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.5B: TOTAL OPERATIONS – PHASE 1(PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Brant St & Fairview St	TCS	LOS	F	D	C	**D**	D	F	C	**F**	C	D	C	**D**	D	D	D	**D**	**E**
			Delay	140	36	28	**51**	39	130	28	**100**	34	54	34	**48**	47	40	40	**41**	**66**
			V/C	1.15	0.73	0.20		0.79	1.19	0.48		0.67	0.91	0.25		0.83	0.71	0.65		**1.04**
			Q	103	127	20		70	302	70		44	150	34		82	112	99		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	80		-40	-	-		-19	-	-14		-42	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	34	24	>	**31**	27	24	>	**25**	8	12	>	**12**	7	12	>	**11**	**14**
			V/C	0.64	0.09	>		0.42	0.16	>		0.09	0.63	>		0.36	0.59	>		**0.58**
			Q	49	14	>		37	20	>		4	93	>		9	86	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	-19	-	>		-17	-	>		11	-	>		11	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	B	B	>	**B**	A	B	>	**B**	**B**
			Delay	<	17	13	**17**	<	14	>	**14**	10	11	>	**11**	9	13	>	**13**	**13**
			V/C	<	0.56	0.02		<	0.22	>		0.29	0.57	>		0.21	0.69	>		**0.63**
			Q	<	57	4		<	27	>		12	85	>		11	107	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	11		<	-	>		12	-	>		4	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	20	19	**20**	18		18	**18**		4	>	**4**	3	6		**5**	**6**
			V/C	<	0.11	0.01		0.09		0.05			0.39	>		0.14	0.62			**0.55**
			Q	<	8	3		7		10			27	>		5	67			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		3		-			-	>		5	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					14		>	**14**	**2**
			V/C	<	0.00				0.13	>						0.19		>		
			Q	<	0				0	>						5		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.5C: TOTAL OPERATIONS – PHASE 1 (SATURDAY PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
SAT Peak Hour	Brant St & Fairview St	TCS	LOS	E	C	C	**C**	C	D	C	**D**	E	D	C	**D**	D	C	C	**C**	**D**
			Delay	56	28	22	**33**	30	38	28	**35**	76	36	29	**45**	40	30	25	**32**	**36**
			V/C	0.93	0.64	0.16		0.63	0.80	0.17		0.96	0.70	0.10		0.83	0.60	0.11		**0.90**
			Q	118	105	17		33	112	19		78	87	10		76	82	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	83		-3	-	-		-53	-	10		-36	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**B**
			Delay	23	21	>	**22**	23	22	>	**22**	7	9	>	**9**	4	10	>	**9**	**11**
			V/C	0.26	0.03	>		0.28	0.12	>		0.06	0.51	>		0.24	0.51	>		**0.41**
			Q	20	7	>		24	17	>		4	65	>		8	66	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	10	-	>		-4	-	>		11	-	>		12	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	15	12	**14**	<	12	>	**12**	7	8	>	**8**	7	9	>	**8**	**9**
			V/C	<	0.46	0.02		<	0.12	>		0.19	0.45	>		0.15	0.55	>		**0.52**
			Q	<	34	3		<	13	>		8	46	>		8	58	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	12		<	-	>		17	-	>		7	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	22	21	**21**	20		19	**19**		3	>	**3**	2	4		**4**	**4**
			V/C	<	0.11	0.00		0.07		0.03			0.31	>		0.08	0.59			**0.54**
			Q	<	6	0		5		7			21	>		3	63			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		5		-			-	>		7	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					12		>	**12**	**2**
			V/C	<	0.00				0.10	>						0.15		>		
			Q	<	0				0	>						4		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.2.6 Total Operations – Phase 2

Table 4.6A, Table 4.6B and Table 4.6C details the level of service conditions for the AM, PM, and Saturday peak hours, respectively. The following critical movements are noted:

- Brant Street and Fairview Street:
  - Eastbound left-turn – PM peak hour, LOS F and v/c ratio greater than 1.00. Saturday peak hour, LOS E and v/c ratio of 0.95.
  - Westbound let-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Westbound through – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Northbound left-turn -AM peak hour, LOS E, v/c ratio of 0.97. and queue length exceeds storage. PM peak hour, queue length exceeds storage. Saturday peak hour, LOS F, v/c ratio greater than 1.00, and queue length exceeds storage.
  - Northbound right-turn – AM and PM peak hour, queue length exceeds storage.
  - Southbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Prospect Street/Grahams Lane:
  - Eastbound left-turn – PM peak hour, queue length exceeds storage.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Ghent Avenue:
  - Southbound left-turn – PM and Saturday peak hour, queue length exceeds storage.
- Brant Street and Blairholm Avenue:
  - Westbound left-turn – AM peak hour, queue length exceeds storage.

Appendix I2 contains the detailed Synchro reports.

The capacity issues experienced under the background traffic horizon are expected to continue to occur with or without the development of the subject site. Site traffic impacts are minimal with minor changes in delay at the study area intersections.



The proposed Lot A and Lot B driveways with Ghent Avenue are forecast to operate with low levels of delay and v/c ratios during the AM, PM, and Saturday peak hours.

TABLE 4.6A: TOTAL OPERATIONS – PHASE 2 (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Brant St & Fairview St	TCS	LOS	C	D	C	**C**	D	C	C	**C**	F	D	C	**D**	D	C	C	**C**	**D**
			Delay	27	40	23	**35**	36	30	28	**31**	81	38	31	**44**	43	32	25	**33**	**36**
			V/C	0.75	0.90	0.22		0.68	0.36	0.10		0.97	0.75	0.37		0.84	0.68	0.10		**0.89**
			Q	79	177	24		38	50	11		70	100	46		77	99	14		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	76		-8	-	-		-45	-	-26		-37	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	24	24	>	**24**	26	24	>	**25**	6	8	>	**8**	3	8	>	**8**	**9**
			V/C	0.18	0.05	>		0.32	0.09	>		0.12	0.49	>		0.21	0.52	>		**0.43**
			Q	14	9	>		22	14	>		6	66	>		7	71	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	16	-	>		-2	-	>		9	-	>		13	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	<	15	11	**15**	<	12	>	**12**	9	10	>	**10**	9	12	>	**12**	**12**
			V/C	<	0.55	0.03		<	0.16	>		0.12	0.46	>		0.22	0.62	>		**0.59**
			Q	<	57	6		<	18	>		6	60	>		14	87	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	9		<	-	>		19	-	>		1	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	20	19	**20**	18		18	**18**		3	>	**3**	3	6		**6**	**6**
			V/C	<	0.09	0.01		0.18		0.08			0.28	>		0.10	0.65			**0.59**
			Q	<	8	0		12		12			20	>		5	77			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		-2		-			-	>		5	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					12		>	**12**	**3**
			V/C	<	0.00				0.06	>						0.18		>		
			Q	<	0				0	>						5		>		
	Ghent Ave & Lot B	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	2		**2**		0	>	**0**					9		>	**9**	**3**
			V/C	<	0.02				0.04	>						0.09		>		
			Q	<	0				0	>						2		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.6B: TOTAL OPERATIONS – PHASE 2 (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Brant St & Fairview St	TCS	LOS	F	D	C	**D**	D	F	C	**F**	D	E	C	**D**	D	D	D	**D**	**E**
			Delay	144	37	28	**52**	47	136	28	**105**	38	58	34	**51**	48	41	41	**42**	**69**
			V/C	1.16	0.74	0.21		0.84	1.21	0.49		0.72	0.94	0.26		0.84	0.75	0.67		**1.06**
			Q	104	128	21		79	306	72		52	158	36		84	119	108		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	79		-49	-	-		-27	-	-16		-44	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	D	C	>	**C**	C	C	>	**C**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	37	25	>	**33**	28	25	>	**26**	8	12	>	**12**	8	12	>	**12**	**15**
			V/C	0.67	0.09	>		0.46	0.16	>		0.10	0.64	>		0.38	0.62	>		**0.60**
			Q	51	14	>		40	20	>		5	99	>		10	93	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	-21	-	>		-20	-	>		10	-	>		10	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	B	B	>	**B**	B	B	>	**B**	**B**
			Delay	<	20	14	**19**	<	15	>	**15**	11	12	>	**12**	15	13	>	**14**	**14**
			V/C	<	0.61	0.02		<	0.30	>		0.30	0.58	>		0.56	0.69	>		**0.66**
			Q	<	60	4		<	34	>		12	89	>		37	109	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	11		<	-	>		12	-	>		-21	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	20	20	**20**	18		18	**18**		4	>	**4**	3	6		**5**	**6**
			V/C	<	0.11	0.01		0.09		0.05			0.40	>		0.18	0.63			**0.55**
			Q	<	8	3		7		10			28	>		6	67			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		3		-			-	>		4	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					15		>	**15**	**2**
			V/C	<	0.00				0.13	>						0.19		>		
			Q	<	0				0	>						6		>		
	Ghent Ave & Lot B	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	4		**4**		0	>	**0**					10		>	**10**	**3**
			V/C	<	0.06				0.09	>						0.08		>		
			Q	<	1				0	>						2		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.6C: TOTAL OPERATIONS – PHASE 2 (SATURDAY PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
SAT Peak Hour	Brant St & Fairview St	TCS	LOS	E	C	C	**D**	C	D	C	**D**	F	D	C	**D**	D	C	C	**C**	**D**
			Delay	63	28	22	**35**	33	39	28	**36**	103	37	29	**51**	45	31	25	**33**	**39**
			V/C	0.95	0.65	0.17		0.68	0.80	0.17		1.05	0.72	0.11		0.86	0.62	0.11		**0.95**
			Q	121	106	18		38	113	20		88	92	13		82	87	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	82		-8	-	-		-63	-	7		-42	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**B**
			Delay	24	22	>	**24**	24	23	>	**23**	7	10	>	**9**	5	10	>	**9**	**11**
			V/C	0.27	0.04	>		0.32	0.12	>		0.07	0.52	>		0.26	0.53	>		**0.43**
			Q	21	8	>		27	17	>		4	71	>		8	72	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	9	-	>		-7	-	>		11	-	>		12	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	14	11	**14**	<	12	>	**12**	8	8	>	**8**	9	9	>	**9**	**10**
			V/C	<	0.43	0.02		<	0.18	>		0.20	0.47	>		0.40	0.58	>		**0.52**
			Q	<	38	3		<	18	>		9	53	>		21	65	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	11		<	-	>		16	-	>		-6	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	22	21	**22**	20		20	**20**		3	>	**3**	2	4		**4**	**4**
			V/C	<	0.11	0.00		0.07		0.03			0.32	>		0.08	0.60			**0.55**
			Q	<	6	0		5		8			21	>		3	66			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		5		-			-	>		7	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					12		>	**12**	**2**
			V/C	<	0.00				0.10	>						0.15		>		
			Q	<	0				0	>						4		>		
	Ghent Ave & Lot B	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	4		**4**		0	>	**0**					9		>	**9**	**4**
			V/C	<	0.05				0.06	>						0.08		>		
			Q	<	1				0	>						2		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.2.7 Total Operations – Full Build-Out

Table 4.7A, Table 4.7B and Table 4.7C details the level of service conditions for the AM, PM, and Saturday peak hours, respectively. The following critical movements are noted:

- Brant Street and Fairview Street:
  - Eastbound left-turn – PM peak hour, LOS F and v/c ratio grater than 1.00. Saturday peak hour, LOS E and v/c ratio of 0.97.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Westbound through – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Northbound left-turn – AM and Saturday peak hour, LOS F, v/c ratio greater than 1.00, and queue length exceeds storage. PM peak hour, queue length exceeds storage.
  - Northbound through – PM peak hour, LOS E and v/c ratio of 0.96.
  - Northbound right-turn – AM and PM peak hour, queue length exceeds storage.
  - Southbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Prospect Street/Grahams Lane:
  - Eastbound left-turn – PM peak hour, queue length exceeds storage.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Ghent Avenue:
  - Southbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Blairholm Avenue:
  - Westbound left-turn – AM peak hour, queue length exceeds storage.

Appendix I3 contains the detailed Synchro reports.

The capacity issues experienced under the background traffic horizon are expected to continue to occur with or without the development of the subject site. Site traffic impacts are minimal with minor changes in delay at the study area intersections.

The proposed Lot A, Lot B and Lot C driveways with Ghent Avenue are forecast to operate with low levels of delay and v/c ratios during the AM, PM, and Saturday peak hours.

TABLE 4.7A: TOTAL OPERATIONS – FULL BUILD-OUT (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Brant St & Fairview St	TCS	LOS	C	D	C	**D**	D	C	C	**C**	F	D	C	**D**	D	C	C	**C**	**D**
			Delay	27	43	23	**37**	38	30	28	**31**	103	39	32	**49**	47	33	25	**35**	**38**
			V/C	0.77	0.92	0.25		0.69	0.37	0.11		1.04	0.77	0.39		0.86	0.68	0.11		**0.93**
			Q	81	185	29		40	51	11		78	103	48		80	101	14		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	71		-10	-	-		-53	-	-28		-40	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	25	24	>	**25**	26	24	>	**25**	6	8	>	**8**	4	8	>	**8**	**9**
			V/C	0.18	0.05	>		0.33	0.10	>		0.12	0.50	>		0.22	0.53	>		**0.44**
			Q	14	9	>		23	14	>		6	69	>		7	73	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	16	-	>		-3	-	>		9	-	>		13	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	<	17	12	**16**	<	12	>	**12**	9	11	>	**10**	10	12	>	**12**	**12**
			V/C	<	0.58	0.03		<	0.19	>		0.13	0.47	>		0.26	0.63	>		**0.61**
			Q	<	60	6		<	20	>		6	62	>		16	90	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	9		<	-	>		19	-	>		-1	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	B	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	20	20	**20**	19		18	**18**		3	>	**3**	3	6		**6**	**6**
			V/C	<	0.09	0.01		0.19		0.08			0.28	>		0.10	0.66			**0.60**
			Q	<	8	0		13		12			20	>		5	80			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		-3		-			-	>		5	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					12		>	**12**	**3**
			V/C	<	0.00				0.06	>						0.18		>		
			Q	<	0				0	>						5		>		
	Ghent Ave & Lot B	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	2		**2**		0	>	**0**					9		>	**9**	**3**
			V/C	<	0.02				0.04	>						0.09		>		
			Q	<	0				0	>						2		>		
	Lot C & Ghent Ave	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					**A**
			Delay		0	>	**0**	<	0		**0**	10		>	**10**					**1**
			V/C		0.09	>		<	0.00			0.05		>						
			Q		0	>		<	0			1		>						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.7B: TOTAL OPERATIONS – FULL BUILD-OUT (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Brant St & Fairview St	TCS	LOS	F	D	C	**D**	E	F	C	**F**	D	E	C	**D**	D	D	D	**D**	**E**
			Delay	152	39	29	**54**	56	149	29	**115**	40	62	34	**54**	49	43	43	**44**	**74**
			V/C	1.18	0.77	0.22		0.87	1.24	0.50		0.76	0.96	0.28		0.84	0.78	0.70		**1.08**
			Q	106	133	21		88	317	74		58	162	38		85	123	118		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	79		-58	-	-		-33	-	-18		-45	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	D	C	>	**C**	C	C	>	**C**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	37	25	>	**33**	28	25	>	**26**	8	13	>	**12**	8	12	>	**12**	**15**
			V/C	0.68	0.09	>		0.47	0.16	>		0.11	0.65	>		0.39	0.63	>		**0.62**
			Q	52	14	>		41	20	>		5	103	>		10	98	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	-22	-	>		-21	-	>		10	-	>		10	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	C	B	**C**	<	B	>	**B**	B	B	>	**B**	C	B	>	**B**	**B**
			Delay	<	25	15	**23**	<	18	>	**18**	11	12	>	**12**	24	13	>	**14**	**15**
			V/C	<	0.68	0.02		<	0.34	>		0.28	0.58	>		0.70	0.68	>		**0.69**
			Q	<	63	4		<	37	>		12	92	>		51	112	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	11		<	-	>		12	-	>		-35	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	B	**B**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	20	20	**20**	18		18	**18**		4	>	**4**	3	6		**5**	**6**
			V/C	<	0.11	0.02		0.10		0.05			0.40	>		0.18	0.63			**0.56**
			Q	<	8	3		7		10			28	>		6	69			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		3		-			-	>		4	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					15		>	**15**	**2**
			V/C	<	0.00				0.13	>						0.19		>		
			Q	<	0				0	>						6		>		
	Ghent Ave & Lot B	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	4		**4**		0	>	**0**					10		>	**10**	**3**
			V/C	<	0.06				0.10	>						0.08		>		
			Q	<	1				0	>						2		>		
	Lot C & Ghent Ave	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					**A**
			Delay		0	>	**0**	<	0		**0**	11		>	**11**					**1**
			V/C		0.13	>		<	0.00			0.04		>						
			Q		0	>		<	0			1		>						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.7C: TOTAL OPERATIONS – FULL BUILD-OUT (SATURDAY PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
SAT Peak Hour	Brant St & Fairview St	TCS	LOS	E	C	C	**D**	D	D	C	**D**	F	D	C	**E**	D	C	C	**C**	**D**
			Delay	68	29	23	**37**	36	41	28	**38**	136	38	29	**60**	48	31	25	**34**	**42**
			V/C	0.97	0.67	0.22		0.72	0.83	0.18		1.15	0.74	0.11		0.87	0.64	0.12		**0.99**
			Q	123	110	23		42	118	21		92	95	14		84	90	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	77		-12	-	-		-67	-	6		-44	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**B**
			Delay	24	23	>	**24**	25	23	>	**24**	7	10	>	**10**	5	10	>	**9**	**11**
			V/C	0.28	0.04	>		0.33	0.12	>		0.07	0.54	>		0.26	0.54	>		**0.45**
			Q	21	8	>		28	17	>		4	74	>		8	76	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	9	-	>		-8	-	>		11	-	>		12	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	B	A	>	**A**	**A**
			Delay	<	15	12	**14**	<	13	>	**13**	8	9	>	**9**	10	10	>	**10**	**10**
			V/C	<	0.46	0.02		<	0.21	>		0.21	0.48	>		0.50	0.58	>		**0.53**
			Q	<	43	3		<	22	>		9	56	>		28	69	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	11		<	-	>		15	-	>		-14	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	C		C	**C**		A	>	**A**	A	A		**A**	**A**
			Delay	<	22	22	**22**	20		20	**20**		3	>	**3**	2	4		**4**	**4**
			V/C	<	0.12	0.00		0.07		0.03			0.32	>		0.09	0.61			**0.56**
			Q	<	6	0		5		8			22	>		4	67			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		5		-			-	>		6	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					12		>	**12**	**2**
			V/C	<	0.00				0.10	>						0.15		>		
			Q	<	0				0	>						4		>		
	Ghent Ave & Lot B	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	4		**4**		0	>	**0**					9		>	**9**	**4**
			V/C	<	0.05				0.06	>						0.08		>		
			Q	<	1				0	>						2		>		
	Lot C & Ghent Ave	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					**A**
			Delay		0	>	**0**	<	0		**0**	11		>	**11**					**1**
			V/C		0.12	>		<	0.00			0.05		>						
			Q		0	>		<	0			1		>						

MOE - Measure of Effectiveness
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V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.2.8 Total Operations – Five-Year Horizon

Table 4.8A, Table 4.8B and Table 4.8C details the level of service conditions for the AM, PM, and Saturday peak hours, respectively. The following critical movements are noted:

- Brant Street and Fairview Street:
  - Eastbound left-turn – PM and Saturday peak hour, LOS F and v/c ratio greater than 1.00.
  - Eastbound through – AM peak hour, LOS D and v/c ratio of 0.98.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
  - Westbound through – PM peak hour, LOS F and v/c ratio greater than 1.00.
  - Northbound left-turn – AM and Saturday peak hour, LOS F, v/c ratio greater than 1.00, and queue length exceeds storage. PM peak hour, queue length exceeds storage.
  - Northbound through – PM peak hour, LOS E and v/c ratio greater than 1.00.
  - Northbound right-turn – AM, PM peak hour, queue length exceeds storage.
  - Southbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Prospect Street/Grahams Lane:
  - Eastbound left-turn – PM peak hour, queue length exceeds storage.
  - Westbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Ghent Avenue:
  - Southbound left-turn – AM, PM, and Saturday peak hour, queue length exceeds storage.
- Brant Street and Blairholm Avenue:
  - Westbound left-turn – AM peak hour, queue length exceeds storage.

Appendix I4 contains the detailed Synchro reports.

The capacity issues experienced under the background traffic horizon are expected to continue to occur with or without the development of the subject site. Site traffic impacts are minimal with minor changes in delay at the study area intersections.

The proposed Lot A, Lot B and Lot C driveways with Ghent Avenue are forecast to operate with low levels of delay and v/c ratios during the AM, PM, and Saturday peak hours.

TABLE 4.8A: TOTAL OPEATIONS – FIVE-YEAR HORIZON (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Brant St & Fairview St	TCS	LOS	C	D	C	**D**	D	C	C	**C**	F	D	C	**D**	D	C	C	**D**	**D**
			Delay	32	52	24	**44**	42	31	28	**32**	130	40	32	**54**	54	33	25	**37**	**43**
			V/C	0.82	0.97	0.29		0.74	0.39	0.11		1.12	0.79	0.42		0.90	0.71	0.11		**0.99**
			Q	95	201	34		45	53	13		89	108	52		88	107	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	66		-15	-	-		-64	-	-32		-48	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	26	25	>	**26**	27	26	>	**26**	6	8	>	**8**	4	8	>	**8**	**9**
			V/C	0.19	0.05	>		0.35	0.10	>		0.14	0.51	>		0.24	0.54	>		**0.46**
			Q	14	9	>		23	15	>		7	74	>		7	79	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	16	-	>		-3	-	>		8	-	>		13	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	B	>	**B**	B	B	>	**B**	**B**
			Delay	<	17	12	**17**	<	13	>	**13**	9	11	>	**11**	10	13	>	**13**	**13**
			V/C	<	0.60	0.03		<	0.20	>		0.15	0.49	>		0.28	0.66	>		**0.63**
			Q	<	64	6		<	21	>		7	66	>		16	96	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	9		<	-	>		18	-	>		-1	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	21	21	**21**	20		19	**19**		3	>	**3**	3	6		**6**	**6**
			V/C	<	0.11	0.01		0.20		0.08			0.29	>		0.11	0.68			**0.62**
			Q	<	9	0		14		13			21	>		5	87			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		-4		-			-	>		5	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					12		>	**12**	**3**
			V/C	<	0.00				0.06	>						0.19		>		
			Q	<	0				0	>						6		>		
	Ghent Ave & Lot B	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	1		**1**		0	>	**0**					9		>	**9**	**3**
			V/C	<	0.02				0.05	>						0.09		>		
			Q	<	0				0	>						2		>		
	Lot C & Ghent Ave	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					**A**
			Delay		0	>	**0**	<	0		**0**	10		>	**10**					**1**
			V/C		0.09	>		<	0.00			0.05		>						
			Q		0	>		<	0			1		>						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.8B: TOTAL OPEATIONS – FIVE-YEAR HORIZON (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Brant St & Fairview St	TCS	LOS	F	D	C	**E**	E	F	C	**F**	D	E	C	**E**	D	D	D	**D**	**F**
			Delay	176	41	29	**60**	60	178	30	**136**	41	74	35	**62**	54	45	47	**47**	**84**
			V/C	1.24	0.82	0.23		0.90	1.30	0.54		0.77	1.01	0.30		0.87	0.82	0.77		**1.13**
			Q	112	141	22		95	339	82		61	175	42		93	137	134		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	78		-65	-	-		-36	-	-22		-53	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	D	C	>	**D**	C	C	>	**C**	A	B	>	**B**	A	B	>	**B**	**B**
			Delay	50	26	>	**42**	30	27	>	**28**	9	14	>	**14**	9	14	>	**13**	**17**
			V/C	0.78	0.09	>		0.50	0.17	>		0.13	0.70	>		0.40	0.67	>		**0.66**
			Q	58	15	>		43	20	>		5	111	>		13	105	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	25	-	>		-23	-	>		10	-	>		7	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	C	B	**C**	<	B	>	**B**	B	B	>	**B**	C	B	>	**B**	**B**
			Delay	<	32	17	**30**	<	20	>	**20**	11	12	>	**12**	27	14	>	**15**	**16**
			V/C	<	0.75	0.02		<	0.36	>		0.30	0.58	>		0.72	0.68	>		**0.73**
			Q	<	66	4		<	39	>		13	99	>		54	121	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	10		<	-	>		11	-	>		-38	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	B		B	**B**		A	>	**A**	A	A		**A**	**A**
			Delay	<	21	20	**21**	19		19	**19**		4	>	**4**	3	6		**6**	**6**
			V/C	<	0.13	0.02		0.10		0.06			0.42	>		0.20	0.66			**0.58**
			Q	<	10	3		8		11			30	>		6	75			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		2		-			-	>		4	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					C		>	**C**	**A**
			Delay	<	0		**0**		0	>	**0**					15		>	**15**	**2**
			V/C	<	0.00				0.13	>						0.20		>		
			Q	<	0				0	>						6		>		
	Ghent Ave & Lot B	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	4		**4**		0	>	**0**					10		>	**10**	**3**
			V/C	<	0.06				0.10	>						0.08		>		
			Q	<	1				0	>						2		>		
	Lot C & Ghent Ave	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					**A**
			Delay		0	>	**0**	<	0		**0**	11		>	**11**					**1**
			V/C		0.13	>		<	0.00			0.04		>						
			Q		0	>		<	0			1		>						

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LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.8C: TOTAL OPEATIONS – FIVE-YEAR HORIZON (SATURDAY PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
SAT Peak Hour	Brant St & Fairview St	TCS	LOS	F	C	C	**D**	D	D	C	**D**	F	D	C	**E**	E	C	C	**D**	**D**
			Delay	88	30	23	**42**	46	44	29	**41**	168	39	29	**69**	56	32	25	**36**	**46**
			V/C	1.04	0.70	0.25		0.81	0.87	0.22		1.23	0.76	0.12		0.91	0.65	0.12		**1.06**
			Q	133	117	29		53	134	26		102	100	16		92	95	15		
			Stor.	-	-	100		30	-	-		25	-	20		40	-	-		
			Avail.	-	-	71		-23	-	-		-77	-	4		-52	-	-		
	Brant St & Grahams Ln/Prospect St	TCS	LOS	C	C	>	**C**	C	C	>	**C**	A	A	>	**A**	A	A	>	**A**	**B**
			Delay	26	24	>	**25**	26	24	>	**25**	7	10	>	**10**	5	10	>	**9**	**11**
			V/C	0.30	0.04	>		0.34	0.13	>		0.08	0.55	>		0.29	0.56	>		**0.46**
			Q	22	8	>		28	18	>		4	80	>		9	81	>		
			Stor.	30	-	>		20	-	>		15	-	>		20	-	>		
			Avail.	8	-	>		-8	-	>		11	-	>		11	-	>		
	Brant St & Ghent Ave	TCS	LOS	<	B	B	**B**	<	B	>	**B**	A	A	>	**A**	B	B	>	**B**	**B**
			Delay	<	16	12	**15**	<	13	>	**13**	8	9	>	**9**	12	10	>	**10**	**11**
			V/C	<	0.48	0.02		<	0.21	>		0.23	0.50	>		0.54	0.60	>		**0.55**
			Q	<	44	3		<	23	>		10	63	>		33	79	>		
			Stor.	<	-	15		<	-	>		25	-	>		15	-	>		
			Avail.	<	-	11		<	-	>		14	-	>		-17	-	>		
	Brant St & Blairholm Ave	TCS	LOS	<	C	C	**C**	C		C	**C**		A	>	**A**	A	A		**A**	**A**
			Delay	<	23	22	**23**	21		21	**21**		3	>	**3**	2	4		**4**	**4**
			V/C	<	0.13	0.00		0.08		0.03			0.33	>		0.09	0.63			**0.58**
			Q	<	7	0		6		8			23	>		4	72			
			Stor.	<	-	-		10	-	-			-	>		10	-			
			Avail.	<	-	-		4		-			-	>		6	-			
	Ghent Ave & Lot A	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	<	0		**0**		0	>	**0**					12		>	**12**	**2**
			V/C	<	0.00				0.10	>						0.15		>		
			Q	<	0				0	>						4		>		
	Ghent Ave & Lot B	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	4		**4**		0	>	**0**					9		>	**9**	**4**
			V/C	<	0.05				0.06	>						0.08		>		
			Q	<	1				0	>						2		>		
	Lot C & Ghent Ave	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					**A**
			Delay		0	>	**0**	<	0		**0**	11		>	**11**					**1**
			V/C		0.12	>		<	0.00			0.05		>						
			Q		0	>		<	0			1		>						

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LOS - Level of Service
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< / > - Shared with through movement

5 Remedial Measures

5.1 Brant Street and Fairview Street

The intersection of Brant Street and Fairview Street is experiencing capacity constraints under existing conditions. The capacity constraints are expected to continue to occur with the expected growth in non-site generated traffic.

The addition of the site generated traffic predominantly impacts the following movements with increases to delay and capacity:

- Westbound left-turn (PM peak hour); and
- Northbound left-turn (AM and Saturday peak hours).

To mitigate the increases to the delay and capacity, optimizing the signal timings to provide additional green time for these movements should be considered.

It is recommended that the road authority monitor and adjust signal timings along the Brant Street and Fairview Street corridors as traffic volumes increase.

5.2 Brant Street and Prospect Street/Grahams Lane

The operation analysis suggests queuing issues may occur for the eastbound and westbound left-turn movements. The queue issues are forecast to occur under background traffic conditions.

To accommodate the 95th percentile queue length for the eastbound left-turn movement, approximately 30 metres of additional storage is needed. An adjustment to the existing pavement marking would resolve this issue. As Grahams Lane is a cul-du-sac the need to repaint the eastbound left-turn lane may not be necessary as it is a low volume approach.

To accommodate the 95th percentile queue length for the westbound left-turn movement, approximately 25 metres of additional storage is needed. An adjustment to the existing pavement marking would resolve this issue. It is recommended to repaint Prospect Street between Brant Street and Robinson Street to provide a 45-metre eastbound-left-turn lane.

It is recommended that the road authority monitor and adjust signal timings along the Brant Street corridors as traffic volumes increase.

5.3 Brant Street and Ghent Avenue

The operation analysis suggests queuing issues may occur for the southbound left-turn movement under total traffic conditions.

To accommodate the 95th percentile queue length for the southbound left-turn movement, approximately 40 metres of additional storage is needed. An adjustment to the existing pavement marking would resolve this issue. It is recommended to repaint the two-way centre left-turn lane across the sites frontage to remove the taper.

It is recommended that the road authority monitor and adjust signal timings along the Brant Street corridors as traffic volumes increase.

5.4 Brant Street and Blairholm Avenue

The operation analysis suggests queuing issues may occur for the westbound left-turn movements. The queue issues are forecast to occur under background traffic conditions.

To accommodate the 96th percentile queue length for the westbound left-turn lane, approximately 5 metres of additional storage is needed. It is recommended to repaint the westbound left-turn lane to provide 15 metres of storage.

The road authorities should monitor the future traffic volumes at this intersection and optimize the signal timings where possible.

5.5 Auxiliary Lanes

The Ministry of Transportation's Design Supplement for the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads[12] provides guidance on the assessment and/or need for auxiliary left-turn lanes at intersections.

The site driveway intersections to Ghent Avenue has been reviewed using these procedures to determine if the future traffic volumes warrant the need for a left-turn lane at the site driveway.

At the Lot B Driveway and Ghent Avenue, the left-turn volumes are greater than 5% of the advancing volume, but the advancing and opposing volumes are generally too low to warrant left turn lanes. At the Lot C Driveway and Ghent Avenue, the forecast truing traffic volumes are less than 5% of the advancing volume. A left-turn lane at

[12] MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads, Appendix 9 for Chapter 9 Intersections, June 2017.

the three site driveways to Ghent Avenue are not warranted. No change in the existing lane configuration is recommended.

Appendix J contains the left-turn lane warrant nomographs.

6 Conclusions and Recommendations

6.1 Conclusions

Based on the investigations carried out, it is concluded that:

- **Existing Traffic Operations:** Capacity issues are identified at the Brant Street intersections with Fairview Street and Prospect Street/Grahams Lane.
- **Estimated Site Generated Traffic:** Under full build-out, the subject site is forecast to generate approximately:
  - Vehicle trips – 234, 297, and 314 external vehicle trips during the AM, PM, and Saturday peak hours, respectively.
  - Transit trips – 48, 66, and 69 external transit trips during the AM, PM, and Saturday peak hours, respectively. The transit trips are assumed to begin and end by using Active Transportation.
  - Non-Auto Trips – 17, 22, and 24 external non-auto trips (walking/bicycle) trips during the AM, PM, and Saturday peak hours, respectively.
- **Background Traffic Operations:** The capacity constraints identified under existing conditions are expected to continue to occur with the expected growth in non-site generated traffic. Capacity issues are identified at the following intersections:
  - Brant Street and Fairview Street (Phase 1 Horizon);
  - Brant Street and Prospect Street/Grahams Lane (Phase 1 Horizon); and
  - Brant Street and Blairholm Avenue (Phase 1 Horizon).
- **Total Traffic Operations**: Site generated traffic results in new capacity deficiencies at the following intersections:
  - Brant Street and Fairview Street;
    - Westbound left-turn (PM peak hour); and
    - Northbound left-turn (AM and Saturday peak hours).

  No capacity issues are forecast to occur at the proposed site driveways to Ghent Avenue.
- **Remedial Measures:** The following remedial measures have been identified to address forecast critical movements:
  - Brant Street and Fairview Street:

    - Optimizing signal timings.
- Brant Street and Prospect Street/Grahams Lane:
    - Repaint the westbound left-turn lane to provide an additional 25 metres of storage (45 metres total).
- Brant Street and Ghent Avenue:
    - Repaint the southbound approach two-way centre left-turn lane to remove the taper.
- Brant Street and Blairholm Avenue:
    - Repaint the westbound left-turn lane to provide an additional 5 metres of storage (15 metres total).

No geometric improvements are recommended at the proposed site driveways to Ghent Avenue.

6.2 Recommendations

Based on the above conclusions, the following is recommended:

- The road authorities monitor the future traffic volumes along the Brant Street and Fairview Street corridors and optimize the signal timings accordingly.
- The road authorities consider modifying the following turn lanes to provide additional storage necessary to accommodate the forecast queue lengths:
    - Brant Street at Prospect Street – eastbound left-turn lane (45 metres of total storage);
    - Brant Street at Ghent Avenue – southbound left-turn lane (remove taper lane marking)
    - Brant Street at Blairholm Avenue – westbound left-turn lane (15 metres of total storage);

Appendix A

Pre-Study Consultation

From: Pasquini, Alexsandria
To: Andrew Evans; Lucas, Steve; Ozimkovic , Danijel; Scattolon, Walter; Huycke, Adam
Cc: Chris Day
Subject: RE: (200403) Brant St and Ghent Ave, Burlington TIS UPDATED Scope of Work
Date: August 27, 2020 4:29:19 PM
Attachments: image001.png

Hello Andrew,

The provided TIS scope of work has been updated to our satisfaction regarding the analysis periods, analysis years, phasing, growth rate and mode splits.

Thank you.
Alex

From: Andrew Evans [mailto:aevans@ptsl.com]
Sent: Thursday, August 27, 2020 2:52 PM
To: Lucas, Steve <Steve.Lucas@burlington.ca>; Ozimkovic , Danijel <Danijel.Ozimkovic@burlington.ca>; Pasquini, Alexsandria <Alex.Pasquini@halton.ca>; Scattolon, Walter <Walter.Scattolon@halton.ca>; Huycke, Adam <Adam.Huycke@halton.ca>
Cc: Chris Day <cday@ptsl.com>
Subject: RE: (200403) Brant St and Ghent Ave, Burlington TIS UPDATED Scope of Work

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Greetings,

We have received comments back from both Halton Region and City of Burlington to our proposed scope of work for the proposed mixed-used development located at three corners of the Brant Street and Ghent Avenue intersection in the City of Burlington.

As requested by Halton Region, please find below our revised and updated scope of work for your final approval.

Study area to include:

- Brant Street at Fairview Street (signalized);
- Brant Street at Prospect Street/Grahams Lane (signalized);
- Brant Street at Ghent Avenue (signalized);
- Brant Street at Blairholm Avenue (signalized); and
- Up to five site driveways.

Study Peak Hours:

- Weekday AM, PM and Saturday Peak hours

Analysis Years:

- Existing plus four(4) horizon years

- Existing (2020)
- Phase 1 (2024 buildout)
- Phase 2 (2026 buildout)
- Phase 3 (2028 buildout)
- Ten-Years from date of TIS (2030)

Background Growth Rates

- A background growth rate of 1.0% per annum on Brant Street (Regional road 18) from Fairview Street north (provided by Halton Region)
- A background growth rate of 1.0% per annum on all City Roads (provided by City of Burlington)

Background Development Traffic

- 2087-2103 Prospect Street (provided by City)

Site Generated Traffic:

- Institute of Transportation Engineers trip generation rates from ITE Trip Generation Manual (10th Edition)
- ITE Internal capture for ground floor retail
- Halton's Transportation Master Plan (2011) transit mode split:
  - 10% for Phase 1 (2024 horizon year)
  - 15% for Phase 2 & Phase 3 (2026 /2028 horizon year)
- Active Transportation:
  - 5% for all phases
- Transportation Demand Management (TDM):
  - 3% for all phases
- Site generated trips to be distributed and assigned to the study area intersection based on existing traffic patterns and Transportation Tomorrow Survey data

In addition to the TIS, Paradigm will also undertake an Access and Circulation Review to ensure compliance of the proposed development with City/Regional requirements and guidelines

- An AutoTURN assessment of vehicle access and egress, clearance and swept path manoeuvres within the site based on a suitable design vehicle (e.g. fire truck, garbage truck)
- Determine sight distance requirements for the proposed access locations
- Review of the concept plans to assess the design and operation of the proposed access and internal roadways and laneways.

Thank you and regards,

Andrew Evans, M.Sc.
Transportation Planner

Paradigm Transportation Solutions Limited
p: 905.381.2229 x **305**
m: 519.497.3239

Since 1998, our unique "work at home" business model has enabled us to harness technology, offer high quality service and strong communication with our clients and now allows us to carry on our work for you during COVID-19.

Let's stay safe and look out for each other. We will get through this together.

From: Lucas, Steve <Steve.Lucas@burlington.ca>
Sent: August 27, 2020 10:29 AM
To: Andrew Evans <aevans@ptsl.com>; Ozimkovic , Danijel <Danijel.Ozimkovic@burlington.ca>
Subject: Re: (200403) Brant St and Ghent Ave, Burlington TIS Scope of Work

Hello Andrew,

Our comments are in Red in the email chain below!

Have a great week,

-Steve

From: Pasquini, Alexsandria <Alex.Pasquini@halton.ca>
Sent: August 14, 2020 4:14 PM
To: Andrew Evans <aevans@ptsl.com>
Cc: Krusto, Matt <Matt.Krusto@halton.ca>; Scattolon, Walter <Walter.Scattolon@halton.ca>; Danijel.Ozimkovic@burlington.ca; Lucas, Steve <Steve.Lucas@burlington.ca>; Huycke, Adam <Adam.Huycke@halton.ca>; Chris Day <cday@ptsl.com>; Scattolon, Walter <Walter.Scattolon@halton.ca>
Subject: RE: (200403) Brant St and Ghent Ave, Burlington TIS Scope of Work

Hello Andrew,

We have reviewed the **TIS Scope of Work** provided below from **Paradigm**, for a **3 Phase development at Brant Street and Ghent Avenue**.

Background:

The provided scope of work is for a TIS for a mixed-use development located on the northwest,

northeast, and southeast corner of Brant Street and Ghent Avenue in the City of Burlington.

This section of Brant Street is a Local Road. The nearest Regional intersection is north of the site at Fairview Street and Brant Street, with the north leg being a Regional road.

The property owners are proposing to develop the three (3) corners in three (3) phases for a total of 1,016 residential units, 7 townhouses, and 1,822m2 of ground floor retail as follows:

- Phase 1 (*2024* buildout) – Northwest Corner : 589 residential units and 420m2 of ground floor retail.
- Phase 2 (*2026* buildout) – Northeast Corner : 316 residential units plus 7 townhouses and 405m2 of ground floor retail.
- Phase 3 (*2028* buildout) – Southeast Corner : 108 residential units and 997m2 of ground floor retail.

Comments:

Transportation Planning has the following comments on the Scope of Work:

Study Peak Hours:

Provide analysis for the following:

- Weekday AM, PM and Saturday peak hours.

Analysis Years:

As opposed to a single analysis period (2030 as proposed), the following analysis years are required:

- Existing (2020)
- Phase 1 (2024 buildout)
- Phase 2 (2026 buildout)
- Phase 3 (2028 buildout)
- Year 2030

Future Regional Roadway Improvements and Timing:

The timing from the Capital Implementation Plan for the following works must be considered across the various Phase and analysis periods that may be affected:

- Start of Construction 2027 – Brant Street (Regional Road 18) – Reconstruction from Fairview Street to QEW
- Start of Construction 2027 – Brant Street (Regional Road 18) – Widening from 4 to 6 lanes from North Service Road to Dundas Street (Regional Road 5)

- There are no planned city capital work for local streets in this projects scope.

Background Development Traffic:

The City of Burlington will provide and confirm area development details, as well as the details related to City roads – Fairview Street and Brant Street (south of Fairview Street).

- Please see the following URL's for relevant development applications:
  - https://www.burlington.ca/en/services-for-you/children-s-financial-group-inc----2087-and-2103-prospect-st-.asp

Background Growth Rates:

- A Background Growth Rate of 1% per annum is recommended for Brant Street (Regional Road 18) with extents from Fairview Street north to Dundas Street (Regional Road 5).
- Growth rates for City roads must be verified with the City of Burlington.

- Burlington staff support the proposed rate of 1%.

Transportation Modes:

- Halton's Transportation Master Plan (2011) utilizes a transit mode split of 10% for 2021, 15% for 2026 and 20% for 2031.
- Assumption of travel via other modes (Active Transportation i.e.: walk, cycle) should utilize a total 5% mode split for 2031.
- Transportation Demand Management (TDM) assumptions of 3% for 2031 would be acceptable.

Traffic Data Requests:

To inquire on available traffic data for Regional roads or intersections, please submit a

request to: trafficdatarequests@halton.ca

- Please contact Florin Patrau for availability of TMC's : florin.patrau@burlington.ca

TIS Report:

Please ensure the Recommendation Section is completed to clearly outline any proposed/recommended road improvements directly and indirectly related to the development impacts, based on the TIS analysis and findings.

This includes consideration for potential modifications to the Signalized Intersection of Brant Street and Fairview Street.

CITY OF BURLINGTON – MOBILITY HUBS STUDY:

This development is in close proximity to the study boundaries for the Burlington Mobility Hubs Study.

(Nearest boundary intersection is Prospect Street @ Brant Street, one block north of Ghent Street).

o Before concluding the TIS report, ensure that the City is satisfied with the development's potential for impacts in relation to the Mobility Hub Study and objectives.

o Review the City's Mobility Hub Study and discuss further with City Planning and City Mobility Hub staff (if necessary) - https://www.burlington.ca/en/services-for-you/mobility-hubs.asp

The balance of the Scope of Work is acceptable.

We kindly ask that the above noted comments, in addition to any comments provided by the City of Burlington, be incorporated into an updated Scope of Work that is to be submitted to the City and Region for further review and approval.

Thank you,

Alex

Alexsandria Pasquini
Intermediate Planner
Planning Services
Legislative & Planning Services
Halton Region
905-825-6000, ext. 7185 | 1-866-442-5866

Halton Region logo

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From: Andrew Evans <aevans@ptsl.com>
Sent: Wednesday, August 12, 2020 1:55 PM
To: Krusto, Matt <Matt.Krusto@halton.ca>; Scattolon, Walter <Walter.Scattolon@halton.ca>; Danijel.Ozimkovic@burlington.ca; steve.lucas@burlington.ca
Cc: Chris Day <cday@ptsl.com>
Subject: (200403) Brant St and Ghent Ave, Burlington TIS Scope of Work

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Greetings,

Paradigm was retained to undertake a TIS for a mixed-use development located at three corners of the Brant Street and Ghent Avenue intersection in the City of Burlington.

The subject site is located on the northwest, northeast, and southeast corner of Brant Street and Ghent Avenue. The property owners are proposing to develop the three corners in three phases for a total of 1,016 residential units, 7 townhouses, and 1,822m2 of ground floor retail as follows:

- Phase 1 (2024) – Northwest Corner
    - 589 residential units and 420m2 of ground floor retail
    - Vehicle access currently proposed via one all-moves access to Ghent Avenue and one right-in/right-out only access to Brant Street
- Phase 2 (2026) – Northeast Corner
    - 316 residential units plus 7 townhouses and 405m2 of ground floor retail
    - Vehicle access currently proposed via one all-moves access to Ghent Avenue and one all-moves access to Brant Street
- Phase 3 (2028) – Southeast Corner
    - 108 residential units and 997m2 of ground floor retail
    - Vehicle access currently proposed via one all-moves access to Ghent Avenue.

We have preliminary comments from the City of Burlington (Transportation Services) that have advised that “With regards to Phase 1 & 2, consider eliminating each of the proposed accesses to Brant Street and having one primary access from Ghent Avenue each.” Paradigm will conduct a sensitivity analysis to see if the site generated traffic can be adequately accommodated from Ghent Avenue all-moves access only for Phase 1 & 2.

We would like to prepare our study based on the following scope:

- Study area to include:
    - Brant Street at Fairview Street (signalized);
    - Brant Street at Prospect Street/Grahams Lane (signalized);
    - Brant Street at Ghent Avenue (signalized);
    - Brant Street at Blairholm Avenue (signalized); and
    - Up to five site driveways.
- Traffic forecasts and analysis will be completed for one planning horizon, ten years from the date of the TIS (Year 2030)
- Two analysis periods – weekday AM and PM peak hours;
- The study will follow the Halton Region Transportation Impact Study Guidelines (January 2015);

- Background growth rate (to be provided by City/Region)
- Institute of Transportation Engineers trip generation rates from ITE Trip Generation Manual (10th Edition)
- ITE Internal capture for ground floor retail
- Site generated trips to be distributed and assigned to the study area intersection based on existing traffic patterns and Transportation Tomorrow Survey data

In addition to the TIS, Paradigm will also undertake an Access and Circulation Review to ensure compliance of the proposed development with City/Regional requirements and guidelines

- An AutoTURN assessment of vehicle access and egress, clearance and swept path manoeuvres within the site based on a suitable design vehicle (e.g. fire truck, garbage truck)
- Determine sight distance requirements for the proposed access locations
- Review of the concept plans to assess the design and operation of the proposed access and internal roadways and laneways.

Please confirm that the above assumptions are appropriate and if there are any network improvements or background developments you would like us to include in our study.

Thank you and regards.

Andrew Evans, M.Sc.
Transportation Planner

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road Cambridge ON N1R 8J8
p: 905.381.2229 x **305**
m: 519.497.3239
e: aevans@ptsl.com
w: www.ptsl.com

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Appendix B

Traffic Data

Brant St @ Fairview St

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

Municipality: Halton Region
Site #: 1020550100
Intersection: Fairview St & Brant St
TFR File #: 4
Count date: 2-May-2018

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Fairview St runs W/E

North Leg Total:	1965			
North Entering:	975			
North Peds:	6			
Peds Cross:	⋈			
Heavys	20	11	3	34
Trucks	7	9	0	16
Cars	110	610	205	925
Totals	137	630	208	
Heavys	39			
Trucks	11			
Cars	940			
Totals	990			
East Leg Total:	1954			
East Entering:	551			
East Peds:	21			
Peds Cross:	⧖			

Brant St

Heavys	Trucks	Cars	Totals
32	12	558	602

	Cars	Trucks	Heavys	Totals
	129	4	5	138
	290	4	11	305
	103	4	1	108
	522	12	17	

Fairview St

N
W E
S

Heavys	Trucks	Cars	Totals
17	5	284	306
6	15	941	962
3	4	216	223
26	24	1441	

Fairview St

Cars	Trucks	Heavys	Totals
1376	18	9	1403

Brant St

Peds Cross:	⧖			
West Peds:	22			
West Entering:	1491			
West Leg Total:	2093			
Cars	929			
Trucks	17			
Heavys	15			
Totals	961			
Cars	158	527	230	915
Trucks	1	2	3	6
Heavys	1	17	0	18
Totals	160	546	233	
Peds Cross:	⋈			
South Peds:	1			
South Entering:	939			
South Leg Total:	1900			

Comments

Brant St @ Fairview St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:15:00
To: 13:15:00

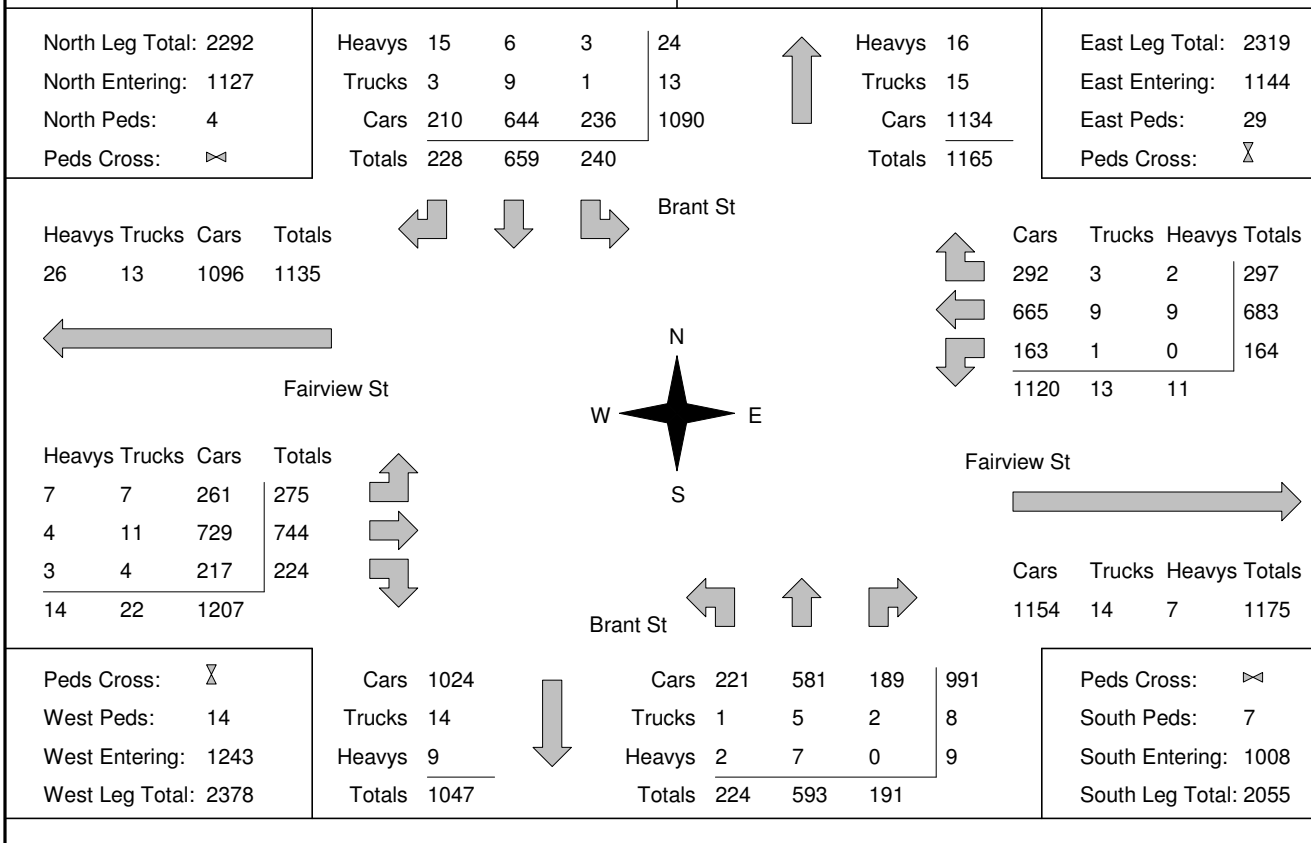
Municipality: Halton Region
Site #: 1020550100
Intersection: Fairview St & Brant St
TFR File #: 4
Count date: 2-May-2018

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Fairview St runs W/E



Comments

Brant St @ Fairview St

Afternoon Peak Diagram

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

One Hour Peak
From: 16:30:00
To: 17:30:00

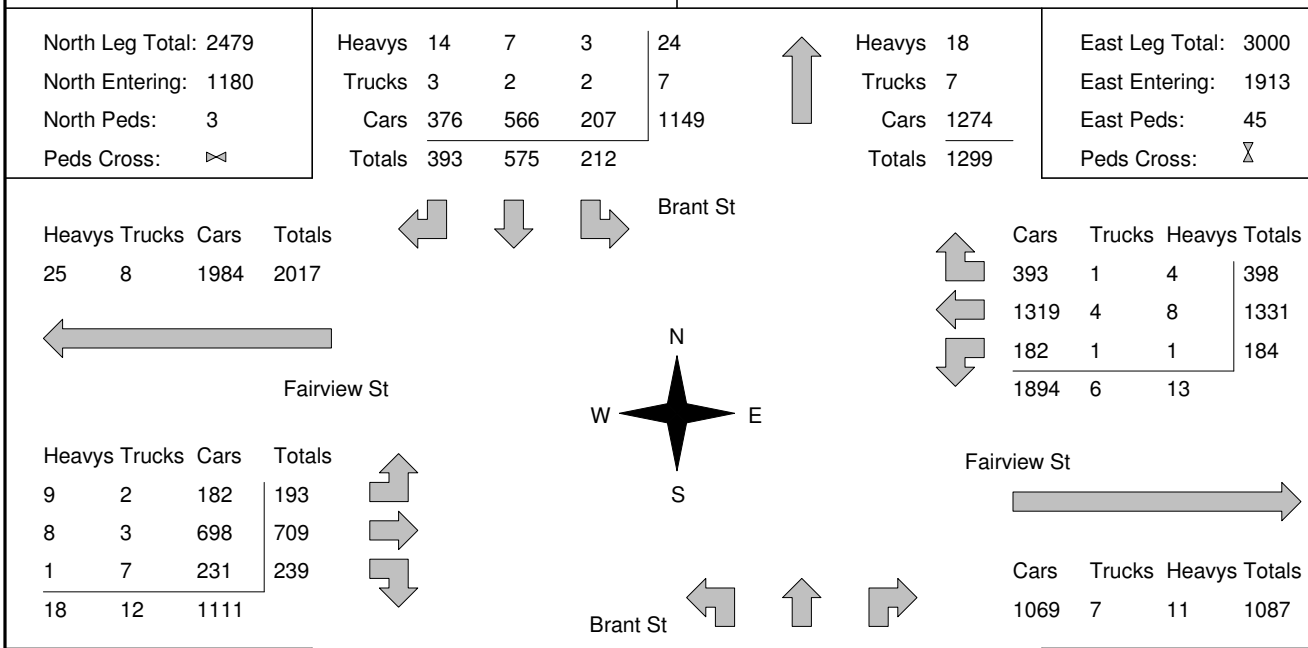
Municipality: Halton Region
Site #: 1020550100
Intersection: Fairview St & Brant St
TFR File #: 4
Count date: 2-May-2018

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Fairview St runs W/E



Comments

Brant St @ Fairview St

Total Count Diagram

Municipality: Halton Region
Site #: 1020550100
Intersection: Fairview St & Brant St
TFR File #: 4
Count date: 2-May-2018

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Fairview St runs W/E

North Leg Total:	17273			
North Entering:	8005			
North Peds:	38			
Peds Cross:	⋈			
Heavys	105	65	24	194
Trucks	42	49	14	105
Cars	1777	4336	1593	7706
Totals	1924	4450	1631	
Heavys	184			
Trucks	92			
Cars	8992			
Totals	9268			
East Leg Total:	18335			
East Entering:	9409			
East Peds:	245			
Peds Cross:	⧖			

Brant St

Heavys	Trucks	Cars	Totals
194	101	9311	9606

Cars	Trucks	Heavys	Totals
2154	22	27	2203
5849	48	72	5969
1215	16	6	1237
9218	86	105	

Fairview St

N
W E
S

Heavys	Trucks	Cars	Totals
88	31	1998	2117
60	52	5627	5739
17	31	1593	1641
165	114	9218	

Fairview St

Cars	Trucks	Heavys	Totals
8754	83	89	8926

Brant St

Peds Cross:	⧖			
West Peds:	143			
West Entering:	9497			
West Leg Total:	19103			
Cars	7144			
Trucks	96			
Heavys	88			
Totals	7328			
Cars	1685	4840	1534	8059
Trucks	11	39	17	67
Heavys	17	69	5	91
Totals	1713	4948	1556	
Peds Cross:	⋈			
South Peds:	49			
South Entering:	8217			
South Leg Total:	15545			

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Mid-day Peak Diagram

Specified Period
From: 10:00:00
To: 14:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

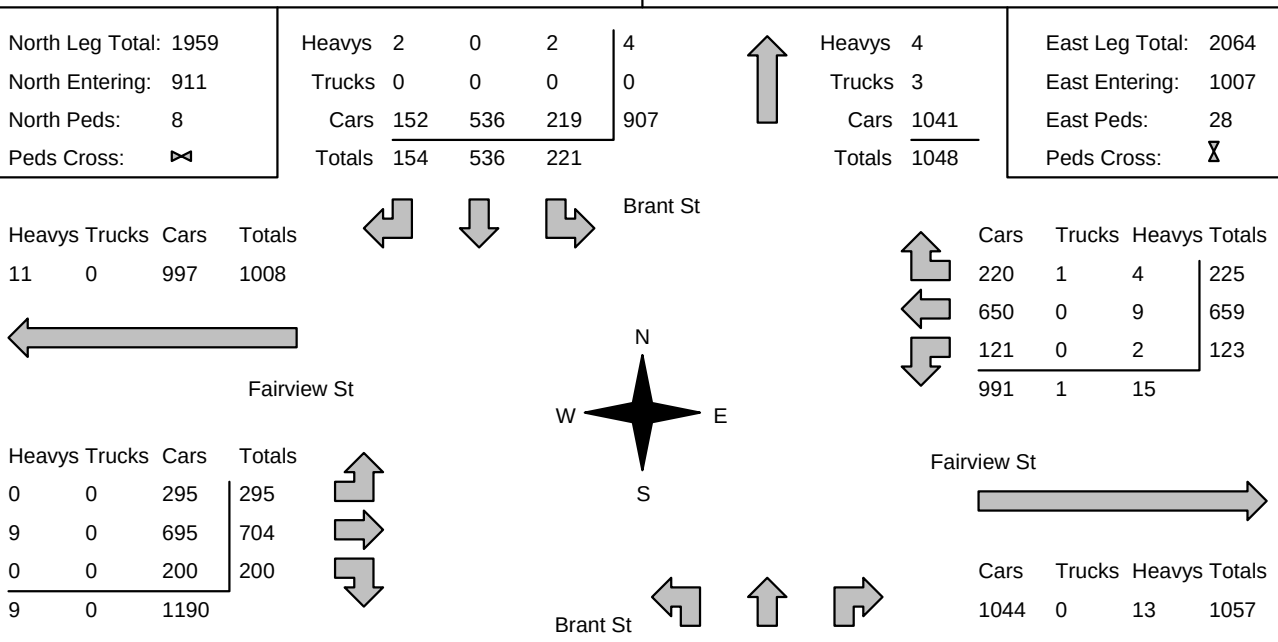
Municipality: Burlington
Site #: 2006800001
Intersection: Fairview St & Brant St
TFR File #: 1
Count date: 19-Sep-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Fairview St runs W/E



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

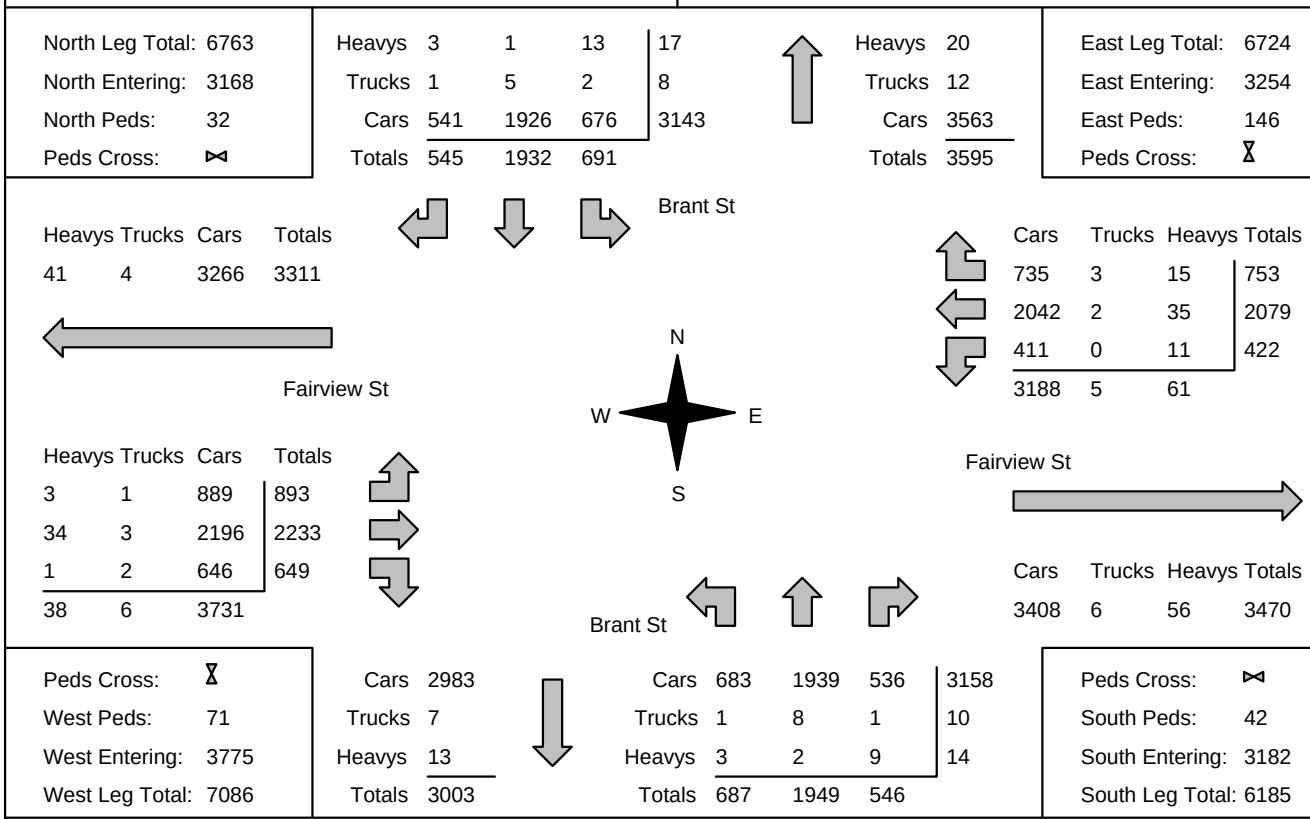
Municipality: Burlington
Site #: 2006800001
Intersection: Fairview St & Brant St
TFR File #: 1
Count date: 19-Sep-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Fairview St runs W/E



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Fairview St & Brant St | **Count Date:** 19-Sep-20 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*128*	*392*	*91*	*611*	*7*
12:00:00	*153*	*504*	*127*	*784*	*10*
13:00:00	*189*	*526*	*165*	*880*	*9*
14:00:00	*221*	*510*	*162*	*893*	*6*
Totals:	691	1932	545	3168	32

North/South Total Approaches: *6350*

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*153*	*404*	*134*	*691*	*13*
12:00:00	*167*	*509*	*150*	*826*	*5*
13:00:00	*181*	*511*	*130*	*822*	*20*
14:00:00	*186*	*525*	*132*	*843*	*4*
S Totals:	687	1949	546	3182	42

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*70*	*329*	*150*	*549*	*39*
12:00:00	*106*	*482*	*157*	*745*	*38*
13:00:00	*129*	*618*	*218*	*965*	*44*
14:00:00	*117*	*650*	*228*	*995*	*25*
Totals:	422	2079	753	3254	146

East/West Total Approaches: *7029*

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*158*	*361*	*117*	*636*	*19*
12:00:00	*198*	*476*	*167*	*841*	*17*
13:00:00	*259*	*701*	*154*	*1114*	*23*
14:00:00	*278*	*695*	*211*	*1184*	*12*
W Totals:	893	2233	649	3775	71

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*10:00*	*11:00*	*12:00*	*13:00*	*14:00*	*0:00*	*0:00*	*0:00*
Crossing Values:	*0*	*743*	*884*	*963*	*969*	*0*	*0*	*0*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	23	23	95	95	18	18	0	0	1	1	0	0	0	0	0	0	0	0	2	2
10:30:00	54	31	187	92	30	12	0	0	2	1	0	0	1	1	0	0	0	0	2	0
10:45:00	84	30	280	93	57	27	0	0	4	2	0	0	2	1	0	0	0	0	6	4
11:00:00	124	40	388	108	91	34	1	1	4	0	0	0	3	1	0	0	0	0	7	1
11:15:00	152	28	507	119	120	29	1	0	5	1	0	0	3	0	0	0	0	0	8	1
11:30:00	182	30	621	114	155	35	1	0	5	0	0	0	4	1	0	0	0	0	12	4
11:45:00	229	47	749	128	194	39	1	0	5	0	1	1	5	1	0	0	1	1	16	4
12:00:00	273	44	891	142	216	22	1	0	5	0	1	0	7	2	0	0	1	0	17	1
12:15:00	314	41	1003	112	256	40	1	0	5	0	1	0	7	0	0	0	1	0	23	6
12:30:00	350	36	1143	140	304	48	1	0	5	0	1	0	8	1	1	1	1	0	24	1
12:45:00	413	63	1259	116	341	37	1	0	5	0	1	0	9	1	1	0	1	0	24	0
13:00:00	459	46	1416	157	381	40	1	0	5	0	1	0	10	1	1	0	1	0	26	2
13:15:00	528	69	1548	132	414	33	1	0	5	0	1	0	10	0	1	0	1	0	27	1
13:30:00	583	55	1661	113	454	40	1	0	5	0	1	0	11	1	1	0	3	2	29	2
13:45:00	632	49	1795	134	493	39	1	0	5	0	1	0	11	0	1	0	3	0	32	3
14:00:00	676	44	1926	131	541	48	2	1	5	0	1	0	13	2	1	0	3	0	32	0
14:15:00	676	0	1926	0	541	0	2	0	5	0	1	0	13	0	1	0	3	0	32	0
14:15:15	676	0	1926	0	541	0	2	0	5	0	1	0	13	0	1	0	3	0	32	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	18	18	58	58	35	35	0	0	0	0	1	1	1	1	1	1	0	0	9	9
10:30:00	30	12	137	79	68	33	0	0	0	0	1	0	1	0	2	1	1	1	16	7
10:45:00	46	16	224	87	103	35	0	0	0	0	1	0	3	2	5	3	2	1	26	10
11:00:00	66	20	322	98	146	43	0	0	0	0	1	0	4	1	7	2	3	1	39	13
11:15:00	94	28	435	113	180	34	0	0	0	0	1	0	5	1	10	3	4	1	43	4
11:30:00	123	29	535	100	214	34	0	0	0	0	1	0	5	0	12	2	5	1	45	2
11:45:00	142	19	649	114	258	44	0	0	1	1	1	0	6	1	15	3	6	1	68	23
12:00:00	169	27	792	143	299	41	0	0	1	0	1	0	7	1	18	3	7	1	77	9
12:15:00	201	32	939	147	347	48	0	0	2	1	1	0	7	0	21	3	8	1	86	9
12:30:00	237	36	1084	145	402	55	0	0	2	0	2	1	7	0	22	1	9	1	92	6
12:45:00	264	27	1231	147	457	55	0	0	2	0	2	0	8	1	25	3	10	1	111	19
13:00:00	296	32	1400	169	512	55	0	0	2	0	2	0	9	1	27	2	11	1	121	10
13:15:00	329	33	1564	164	572	60	0	0	2	0	2	0	9	0	29	2	12	1	125	4
13:30:00	359	30	1710	146	630	58	0	0	2	0	2	0	9	0	31	2	13	1	129	4
13:45:00	385	26	1881	171	677	47	0	0	2	0	3	1	10	1	34	3	14	1	139	10
14:00:00	411	26	2042	161	735	58	0	0	2	0	3	0	11	1	35	1	15	1	146	7
14:15:00	411	0	2042	0	735	0	0	0	2	0	3	0	11	0	35	0	15	0	146	0
14:15:15	411	0	2042	0	735	0	0	0	2	0	3	0	11	0	35	0	15	0	146	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	37	37	95	95	29	29	0	0	1	1	0	0	1	1	0	0	0	0	1	1
10:30:00	72	35	185	90	53	24	0	0	2	1	0	0	1	0	1	1	1	1	10	9
10:45:00	104	32	292	107	91	38	0	0	3	1	0	0	2	1	1	0	1	0	12	2
11:00:00	151	47	399	107	131	40	0	0	4	1	0	0	2	0	1	0	3	2	13	1
11:15:00	186	35	518	119	170	39	0	0	4	0	0	0	3	1	1	0	3	0	13	0
11:30:00	232	46	643	125	209	39	1	1	4	0	1	1	3	0	1	0	4	1	17	4
11:45:00	273	41	765	122	249	40	1	0	5	1	1	0	3	0	2	1	4	0	18	1
12:00:00	316	43	905	140	278	29	1	0	6	1	1	0	3	0	2	0	5	1	18	0
12:15:00	357	41	1036	131	306	28	1	0	6	0	1	0	3	0	2	0	5	0	23	5
12:30:00	408	51	1152	116	342	36	1	0	6	0	1	0	3	0	2	0	6	1	27	4
12:45:00	448	40	1284	132	369	27	1	0	6	0	1	0	3	0	2	0	6	0	34	7
13:00:00	497	49	1415	131	406	37	1	0	7	1	1	0	3	0	2	0	7	1	38	4
13:15:00	554	57	1551	136	437	31	1	0	7	0	1	0	3	0	2	0	7	0	38	0
13:30:00	591	37	1694	143	466	29	1	0	8	1	1	0	3	0	2	0	8	1	40	2
13:45:00	643	52	1810	116	499	33	1	0	8	0	1	0	3	0	2	0	8	0	42	2
14:00:00	683	40	1939	129	536	37	1	0	8	0	1	0	3	0	2	0	9	1	42	0
14:15:00	683	0	1939	0	536	0	1	0	8	0	1	0	3	0	2	0	9	0	42	0
14:15:15	683	0	1939	0	536	0	1	0	8	0	1	0	3	0	2	0	9	0	42	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	34	34	78	78	27	27	0	0	0	0	0	0	0	0	2	2	0	0	4	4
10:30:00	69	35	163	85	55	28	0	0	0	0	0	0	1	1	4	2	0	0	5	1
10:45:00	116	47	266	103	90	35	0	0	0	0	0	0	1	0	5	1	0	0	14	9
11:00:00	157	41	354	88	117	27	0	0	0	0	0	0	1	0	7	2	0	0	19	5
11:15:00	193	36	465	111	152	35	0	0	0	0	0	0	1	0	10	3	0	0	22	3
11:30:00	242	49	564	99	201	49	0	0	1	1	0	0	1	0	12	2	0	0	30	8
11:45:00	297	55	689	125	238	37	0	0	2	1	0	0	1	0	14	2	0	0	30	0
12:00:00	354	57	819	130	283	45	0	0	2	0	1	1	2	1	16	2	0	0	36	6
12:15:00	402	48	960	141	315	32	0	0	2	0	2	1	2	0	19	3	0	0	45	9
12:30:00	476	74	1155	195	345	30	0	0	2	0	2	0	2	0	21	2	0	0	49	4
12:45:00	530	54	1327	172	390	45	1	1	2	0	2	0	3	1	23	2	0	0	52	3
13:00:00	611	81	1511	184	436	46	1	0	2	0	2	0	3	0	25	2	0	0	59	7
13:15:00	688	77	1668	157	482	46	1	0	2	0	2	0	3	0	28	3	0	0	62	3
13:30:00	759	71	1846	178	538	56	1	0	2	0	2	0	3	0	30	2	0	0	64	2
13:45:00	825	66	2022	176	590	52	1	0	2	0	2	0	3	0	32	2	0	0	65	1
14:00:00	889	64	2196	174	646	56	1	0	3	1	2	0	3	0	34	2	1	1	71	6
14:15:00	889	0	2196	0	646	0	1	0	3	0	2	0	3	0	34	0	1	0	71	0
14:15:15	889	0	2196	0	646	0	1	0	3	0	2	0	3	0	34	0	1	0	71	0

200275-Brant St & Prospect St

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

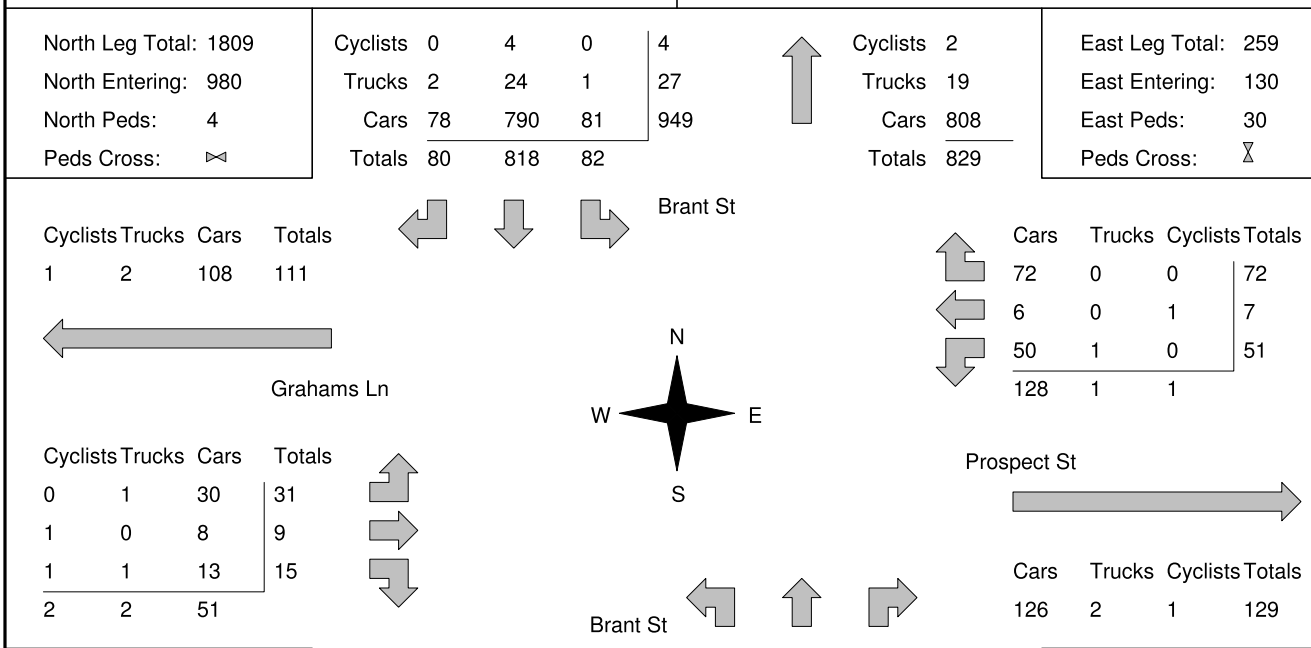
Municipality: Burlington
Site #: 0000200275
Intersection: Brant St & Prospect St
TFR File #: 1
Count date: 14-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Nick

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

200275-Brant St & Prospect St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Burlington
Site #: 0000200275
Intersection: Brant St & Prospect St
TFR File #: 1
Count date: 14-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Nick

**** Signalized Intersection ****

Major Road: Brant St runs N/S

North Leg Total: 2134
North Entering: 989
North Peds: 7
Peds Cross: ⋈

Cyclists	1	4	0	5
Trucks	2	18	3	23
Cars	66	829	66	961
Totals	69	851	69	

Cyclists	3
Trucks	39
Cars	1103
Totals	1145

East Leg Total: 302
East Entering: 186
East Peds: 26
Peds Cross: ⧖

Brant St

Cyclists	Trucks	Cars	Totals
1	5	101	107

Cars	Trucks	Cyclists	Totals
106	2	0	108
16	0	0	16
62	0	0	62
184	2	0	

Grahams Ln

N
W E
S

Cyclists	Trucks	Cars	Totals
0	3	95	98
1	0	12	13
0	2	23	25
1	5	130	

Prospect St

Cars	Trucks	Cyclists	Totals
112	3	1	116

Brant St

Peds Cross: ⧖
West Peds: 22
West Entering: 136
West Leg Total: 243

Cars	914			
Trucks	20			
Cyclists	4			
Totals	938			

Cars	19	902	34	955
Trucks	3	34	0	37
Cyclists	0	3	0	3
Totals	22	939	34	

Peds Cross: ⋈
South Peds: 6
South Entering: 995
South Leg Total: 1933

Comments

200275-Brant St & Prospect St

Afternoon Peak Diagram

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

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Burlington
Site #: 0000200275
Intersection: Brant St & Prospect St
TFR File #: 1
Count date: 14-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Nick

**** Signalized Intersection ****

Major Road: Brant St runs N/S

North Leg Total: 2289
North Entering: 1054
North Peds: 9
Peds Cross: ⋈

Cyclists	0	5	0	5
Trucks	2	6	2	10
Cars	53	887	99	1039
Totals	55	898	101	

Cyclists	6
Trucks	22
Cars	1207
Totals	1235

East Leg Total: 443
East Entering: 271
East Peds: 31
Peds Cross: ⧖

Brant St

Cyclists	Trucks	Cars	Totals
0	4	75	79

Cars	Trucks	Cyclists	Totals
153	9	1	163
10	0	0	10
98	0	0	98
261	9	1	

Grahams Ln

N
W E
S

Cyclists	Trucks	Cars	Totals
0	4	109	113
0	0	18	18
0	0	39	39
0	4	166	

Prospect St

Cars	Trucks	Cyclists	Totals
169	2	1	172

Brant St

Peds Cross: ⧖
West Peds: 20
West Entering: 170
West Leg Total: 249

Cars	1024
Trucks	6
Cyclists	5
Totals	1035

Cars	12	945	52	1009
Trucks	2	9	0	11
Cyclists	0	5	1	6
Totals	14	959	53	

Peds Cross: ⋈
South Peds: 13
South Entering: 1026
South Leg Total: 2061

Comments

200275-Brant St & Prospect St

Total Count Diagram

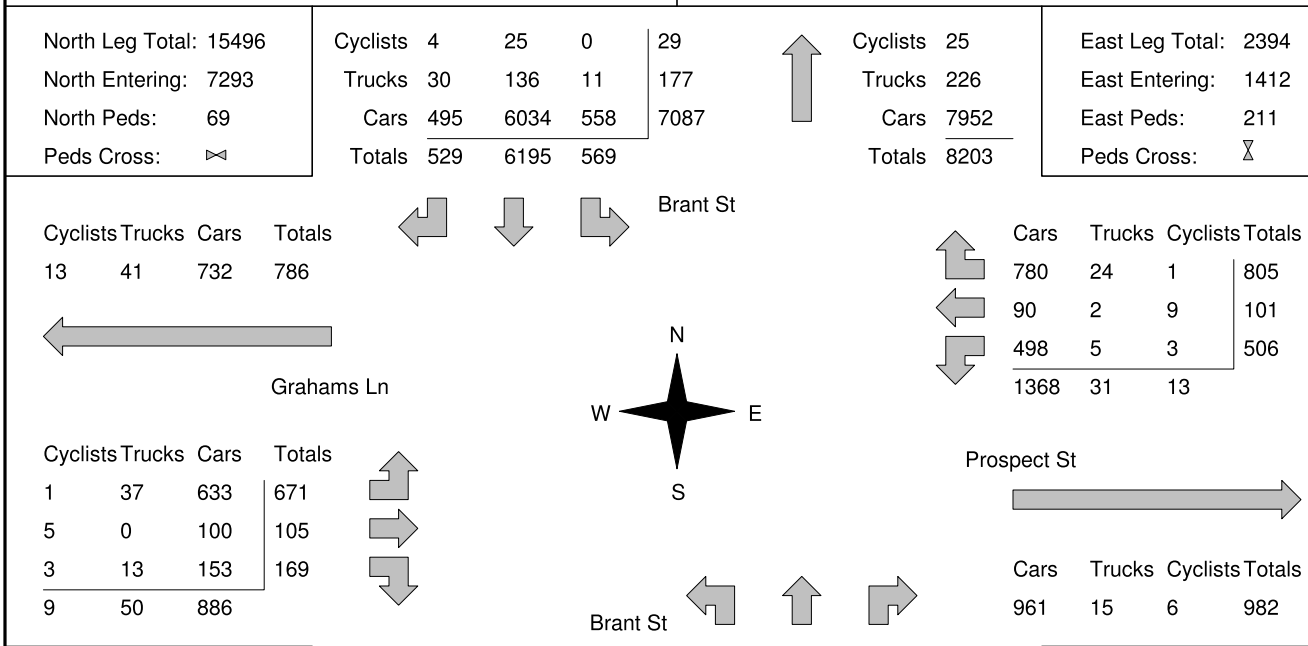
Municipality: Burlington
Site #: 0000200275
Intersection: Brant St & Prospect St
TFR File #: 1
Count date: 14-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Nick

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

200275-Brant St & Prospect St
Traffic Count Summary

Intersection: Brant St & Prospect St | **Count Date:** 14-May-2019 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	44	433	72	549	6	1235
9:00:00	82	818	80	980	4	1768
11:00:00	0	0	0	0	0	0
12:00:00	57	776	66	899	5	1801
13:00:00	57	851	76	984	9	1954
14:00:00	69	851	69	989	7	1984
15:00:00	0	0	0	0	0	0
16:00:00	74	796	72	942	14	1923
17:00:00	92	869	54	1015	9	2014
18:00:00	94	801	40	935	15	1805
Totals:	569	6195	529	7293	69	14484

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	22	649	15	686	2
9:00:00	24	726	38	788	7
11:00:00	0	0	0	0	0
12:00:00	13	851	38	902	6
13:00:00	25	902	43	970	8
14:00:00	22	939	34	995	6
15:00:00	0	0	0	0	0
16:00:00	20	911	50	981	18
17:00:00	19	933	47	999	19
18:00:00	11	816	43	870	15
Totals:	156	6727	308	7191	81

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	30	1	84	115	14	165
9:00:00	51	7	72	130	30	185
11:00:00	0	0	0	0	0	0
12:00:00	53	8	72	133	21	243
13:00:00	56	22	91	169	22	307
14:00:00	62	16	108	186	26	322
15:00:00	0	0	0	0	0	0
16:00:00	76	19	110	205	35	350
17:00:00	93	15	166	274	38	419
18:00:00	85	13	102	200	25	366
Totals:	506	101	805	1412	211	2357

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	40	1	9	50	16
9:00:00	31	9	15	55	19
11:00:00	0	0	0	0	0
12:00:00	83	14	13	110	11
13:00:00	102	15	21	138	10
14:00:00	98	13	25	136	22
15:00:00	0	0	0	0	0
16:00:00	106	16	23	145	28
17:00:00	105	16	24	145	22
18:00:00	106	21	39	166	18
Totals:	671	105	169	945	146

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	79	102	161	197	189	233	242	242

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Mid-day Peak Diagram

Specified Period
From: 10:00:00
To: 14:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

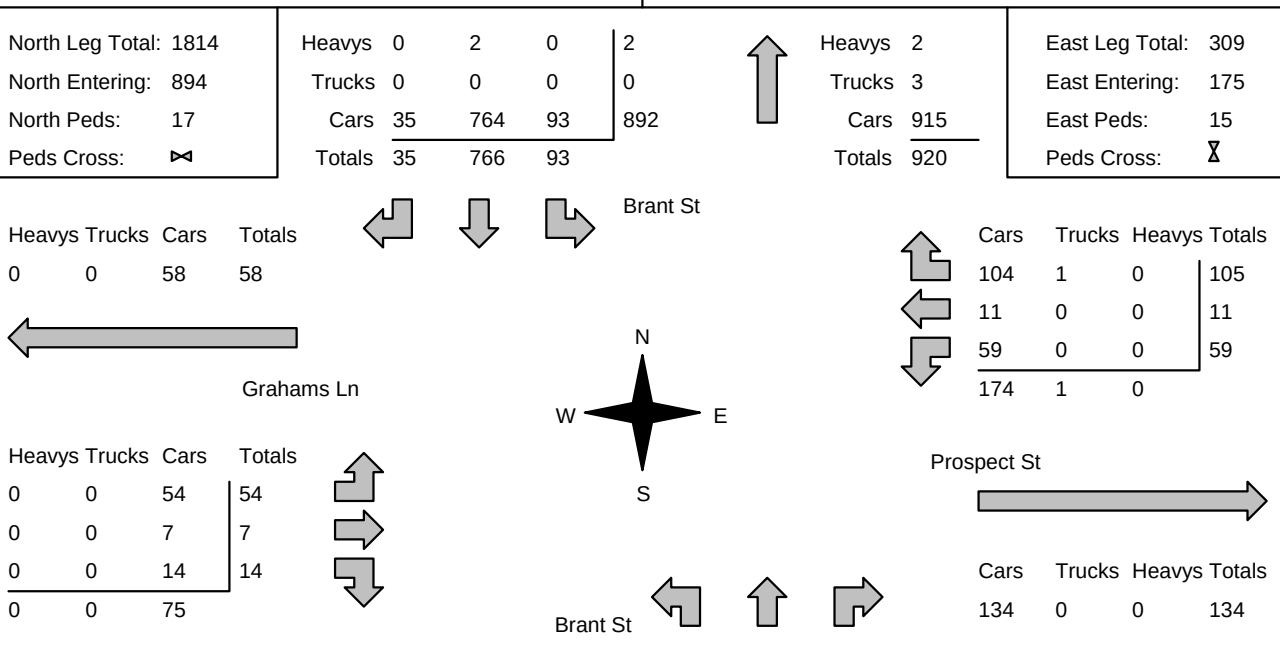
Municipality: Burlington
Site #: 2006800002
Intersection: Brant St & Prospect St
TFR File #: 1
Count date: 19-Sep-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

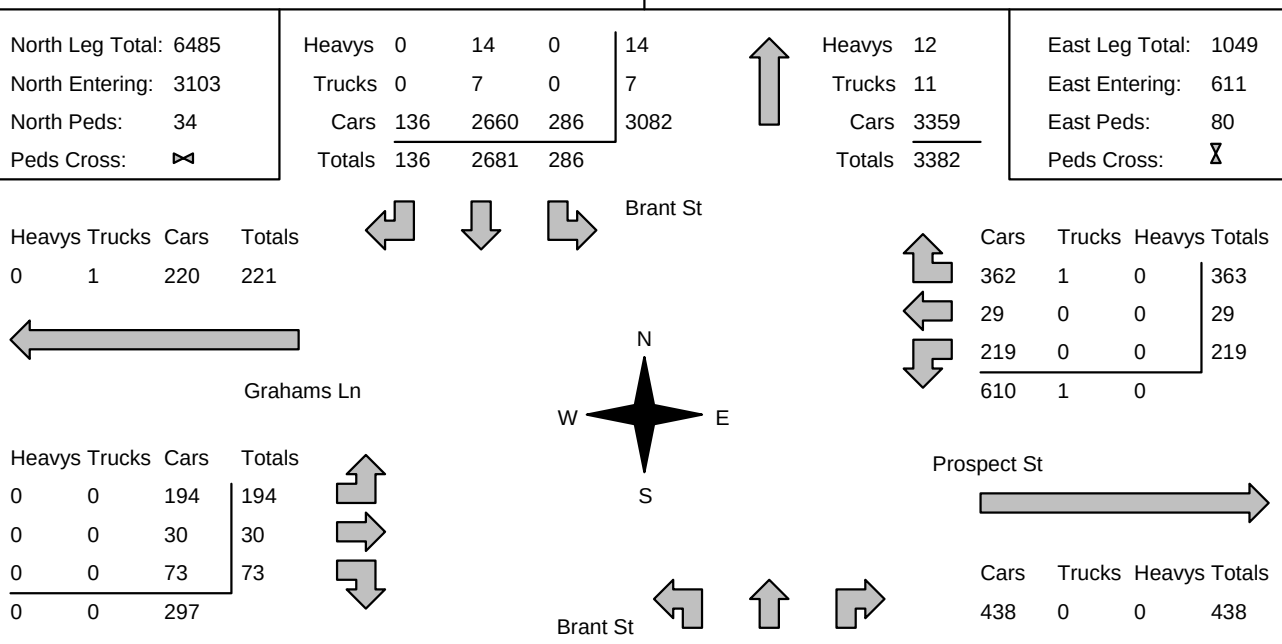
Municipality: Burlington
Site #: 2006800002
Intersection: Brant St & Prospect St
TFR File #: 1
Count date: 19-Sep-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Brant St & Prospect St | **Count Date:** 19-Sep-20 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches
	Left	Thru	Right	Grand Total		
10:00:00	*0*	*0*	*0*	*0*	*0*	*0*
11:00:00	*43*	*516*	*37*	*596*	*5*	*1258*
12:00:00	*72*	*707*	*33*	*812*	*3*	*1591*
13:00:00	*91*	*702*	*40*	*833*	*12*	*1605*
14:00:00	*80*	*756*	*26*	*862*	*14*	*1652*
Totals:	286	2681	136	3103	34	6106

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*21*	*605*	*36*	*662*	*5*
12:00:00	*12*	*735*	*32*	*779*	*6*
13:00:00	*13*	*740*	*19*	*772*	*10*
14:00:00	*10*	*745*	*35*	*790*	*14*
S Totals:	56	2825	122	3003	35

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches
	Left	Thru	Right	Grand Total		
10:00:00	*0*	*0*	*0*	*0*	*0*	*0*
11:00:00	*45*	*9*	*79*	*133*	*21*	*227*
12:00:00	*58*	*6*	*83*	*147*	*20*	*221*
13:00:00	*65*	*5*	*105*	*175*	*21*	*233*
14:00:00	*51*	*9*	*96*	*156*	*18*	*227*
Totals:	219	29	363	611	80	908

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*56*	*9*	*29*	*94*	*12*
12:00:00	*48*	*10*	*16*	*74*	*22*
13:00:00	*38*	*6*	*14*	*58*	*14*
14:00:00	*52*	*5*	*14*	*71*	*8*
W Totals:	194	30	73	297	56

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*10:00*	*11:00*	*12:00*	*13:00*	*14:00*	*0:00*	*0:00*	*0:00*
Crossing Values:	*0*	*120*	*125*	*131*	*140*	*0*	*0*	*0*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800002

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	8	8	129	129	10	10	0	0	1	1	0	0	0	0	1	1	0	0	2	2
10:30:00	20	12	238	109	18	8	0	0	1	0	0	0	0	0	3	2	0	0	4	2
10:45:00	30	10	368	130	30	12	0	0	3	2	0	0	0	0	5	2	0	0	4	0
11:00:00	43	13	505	137	37	7	0	0	5	2	0	0	0	0	6	1	0	0	5	1
11:15:00	54	11	678	173	49	12	0	0	6	1	0	0	0	0	7	1	0	0	5	0
11:30:00	67	13	857	179	54	5	0	0	6	0	0	0	0	0	7	0	0	0	8	3
11:45:00	86	19	1010	153	62	8	0	0	6	0	0	0	0	0	8	1	0	0	8	0
12:00:00	115	29	1209	199	70	8	0	0	6	0	0	0	0	0	8	0	0	0	8	0
12:15:00	141	26	1364	155	78	8	0	0	7	1	0	0	0	0	9	1	0	0	15	7
12:30:00	162	21	1534	170	88	10	0	0	7	0	0	0	0	0	9	0	0	0	15	0
12:45:00	181	19	1699	165	94	6	0	0	7	0	0	0	0	0	11	2	0	0	16	1
13:00:00	206	25	1907	208	110	16	0	0	7	0	0	0	0	0	11	0	0	0	20	4
13:15:00	230	24	2100	193	117	7	0	0	7	0	0	0	0	0	12	1	0	0	22	2
13:30:00	259	29	2274	174	124	7	0	0	7	0	0	0	0	0	12	0	0	0	26	4
13:45:00	274	15	2463	189	129	5	0	0	7	0	0	0	0	0	13	1	0	0	33	7
14:00:00	286	12	2660	197	136	7	0	0	7	0	0	0	0	0	14	1	0	0	34	1
14:15:00	286	0	2660	0	136	0	0	0	7	0	0	0	0	0	14	0	0	0	34	0
14:15:15	286	0	2660	0	136	0	0	0	7	0	0	0	0	0	14	0	0	0	34	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800002

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	3	3	1	1	22	22	0	0	0	0	0	0	0	0	0	0	0	0	6	6
10:30:00	21	18	4	3	37	15	0	0	0	0	0	0	0	0	0	0	0	0	9	3
10:45:00	38	17	6	2	54	17	0	0	0	0	0	0	0	0	0	0	0	0	10	1
11:00:00	45	7	9	3	79	25	0	0	0	0	0	0	0	0	0	0	0	0	21	11
11:15:00	60	15	12	3	96	17	0	0	0	0	0	0	0	0	0	0	0	0	24	3
11:30:00	70	10	13	1	115	19	0	0	0	0	0	0	0	0	0	0	0	0	35	11
11:45:00	87	17	14	1	136	21	0	0	0	0	0	0	0	0	0	0	0	0	36	1
12:00:00	103	16	15	1	162	26	0	0	0	0	0	0	0	0	0	0	0	0	41	5
12:15:00	116	13	17	2	185	23	0	0	0	0	0	0	0	0	0	0	0	0	42	1
12:30:00	130	14	17	0	219	34	0	0	0	0	0	0	0	0	0	0	0	0	48	6
12:45:00	145	15	18	1	241	22	0	0	0	0	0	0	0	0	0	0	0	0	61	13
13:00:00	168	23	20	2	266	25	0	0	0	0	1	1	0	0	0	0	0	0	62	1
13:15:00	177	9	23	3	295	29	0	0	0	0	1	0	0	0	0	0	0	0	68	6
13:30:00	187	10	27	4	319	24	0	0	0	0	1	0	0	0	0	0	0	0	72	4
13:45:00	204	17	29	2	345	26	0	0	0	0	1	0	0	0	0	0	0	0	76	4
14:00:00	219	15	29	0	362	17	0	0	0	0	1	0	0	0	0	0	0	0	80	4
14:15:00	219	0	29	0	362	0	0	0	0	0	1	0	0	0	0	0	0	0	80	0
14:15:15	219	0	29	0	362	0	0	0	0	0	1	0	0	0	0	0	0	0	80	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800002

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	3	3	134	134	3	3	0	0	1	1	0	0	0	0	1	1	0	0	2	2
10:30:00	7	4	271	137	13	10	0	0	2	1	0	0	0	0	3	2	0	0	3	1
10:45:00	15	8	435	164	23	10	0	0	3	1	0	0	0	0	4	1	0	0	5	2
11:00:00	21	6	596	161	36	13	0	0	4	1	0	0	0	0	5	1	0	0	5	0
11:15:00	24	3	765	169	40	4	0	0	4	0	0	0	0	0	5	0	0	0	6	1
11:30:00	26	2	954	189	52	12	0	0	6	2	0	0	0	0	6	1	0	0	10	4
11:45:00	28	2	1134	180	60	8	0	0	7	1	0	0	0	0	7	1	0	0	11	1
12:00:00	33	5	1325	191	68	8	0	0	8	1	0	0	0	0	7	0	0	0	11	0
12:15:00	33	0	1511	186	74	6	1	1	8	0	0	0	0	0	8	1	0	0	17	6
12:30:00	36	3	1697	186	78	4	1	0	8	0	0	0	0	0	9	1	0	0	19	2
12:45:00	40	4	1875	178	81	3	1	0	8	0	0	0	0	0	9	0	0	0	19	0
13:00:00	45	5	2061	186	87	6	1	0	9	1	0	0	0	0	10	1	0	0	21	2
13:15:00	49	4	2259	198	93	6	1	0	9	0	0	0	0	0	10	0	0	0	26	5
13:30:00	50	1	2445	186	105	12	1	0	10	1	0	0	0	0	11	1	0	0	27	1
13:45:00	52	2	2632	187	115	10	1	0	10	0	0	0	0	0	11	0	0	0	28	1
14:00:00	55	3	2803	171	122	7	1	0	10	0	0	0	0	0	12	1	0	0	35	7
14:15:00	55	0	2803	0	122	0	1	0	10	0	0	0	0	0	12	0	0	0	35	0
14:15:15	55	0	2803	0	122	0	1	0	10	0	0	0	0	0	12	0	0	0	35	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800002

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	16	16	1	1	6	6	0	0	0	0	0	0	0	0	0	0	0	0	3	3
10:30:00	23	7	2	1	18	12	0	0	0	0	0	0	0	0	0	0	0	0	7	4
10:45:00	41	18	6	4	25	7	0	0	0	0	0	0	0	0	0	0	0	0	8	1
11:00:00	56	15	9	3	29	4	0	0	0	0	0	0	0	0	0	0	0	0	12	4
11:15:00	70	14	13	4	35	6	0	0	0	0	0	0	0	0	0	0	0	0	19	7
11:30:00	84	14	15	2	39	4	0	0	0	0	0	0	0	0	0	0	0	0	25	6
11:45:00	91	7	16	1	43	4	0	0	0	0	0	0	0	0	0	0	0	0	28	3
12:00:00	104	13	19	3	45	2	0	0	0	0	0	0	0	0	0	0	0	0	34	6
12:15:00	110	6	19	0	51	6	0	0	0	0	0	0	0	0	0	0	0	0	38	4
12:30:00	116	6	22	3	54	3	0	0	0	0	0	0	0	0	0	0	0	0	42	4
12:45:00	127	11	22	0	55	1	0	0	0	0	0	0	0	0	0	0	0	0	46	4
13:00:00	142	15	25	3	59	4	0	0	0	0	0	0	0	0	0	0	0	0	48	2
13:15:00	155	13	26	1	64	5	0	0	0	0	0	0	0	0	0	0	0	0	49	1
13:30:00	171	16	28	2	65	1	0	0	0	0	0	0	0	0	0	0	0	0	50	1
13:45:00	181	10	29	1	69	4	0	0	0	0	0	0	0	0	0	0	0	0	55	5
14:00:00	194	13	30	1	73	4	0	0	0	0	0	0	0	0	0	0	0	0	56	1
14:15:00	194	0	30	0	73	0	0	0	0	0	0	0	0	0	0	0	0	0	56	0
14:15:15	194	0	30	0	73	0	0	0	0	0	0	0	0	0	0	0	0	0	56	0

200274-Brant St & Ghent Ave

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

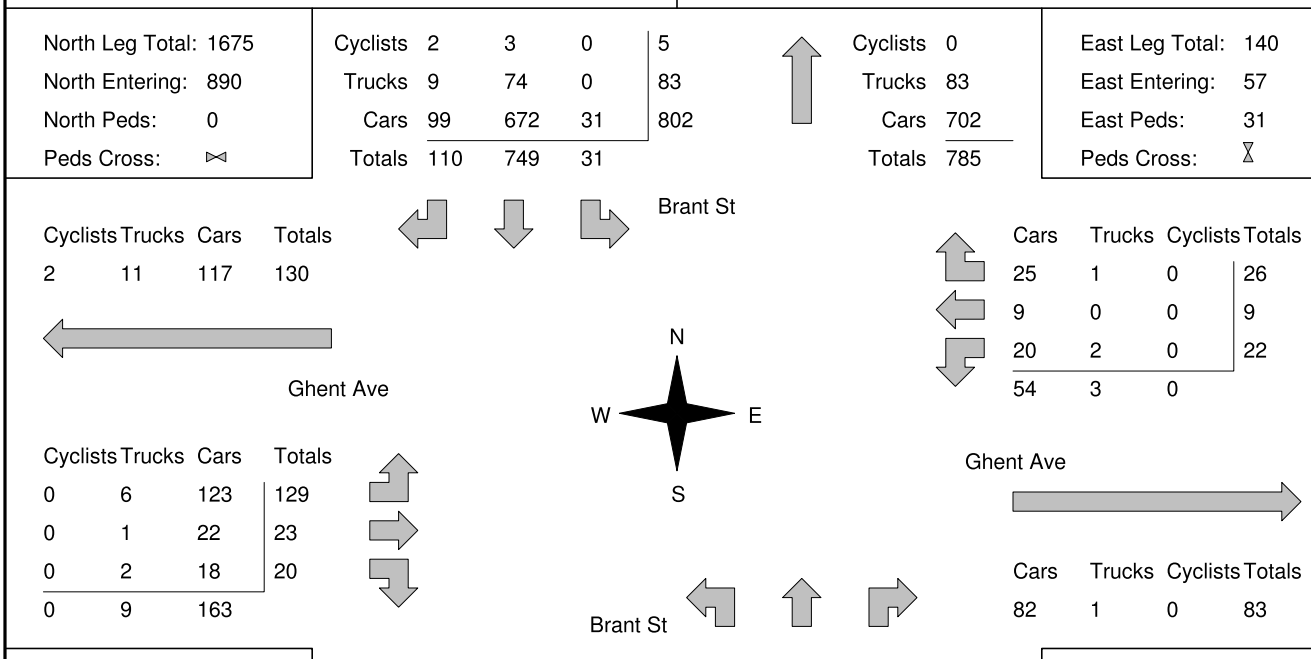
Municipality: Burlington
Site #: 0000200274
Intersection: Brant St & Ghent Ave
TFR File #: 1
Count date: 14-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Tanya

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

200274-Brant St & Ghent Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

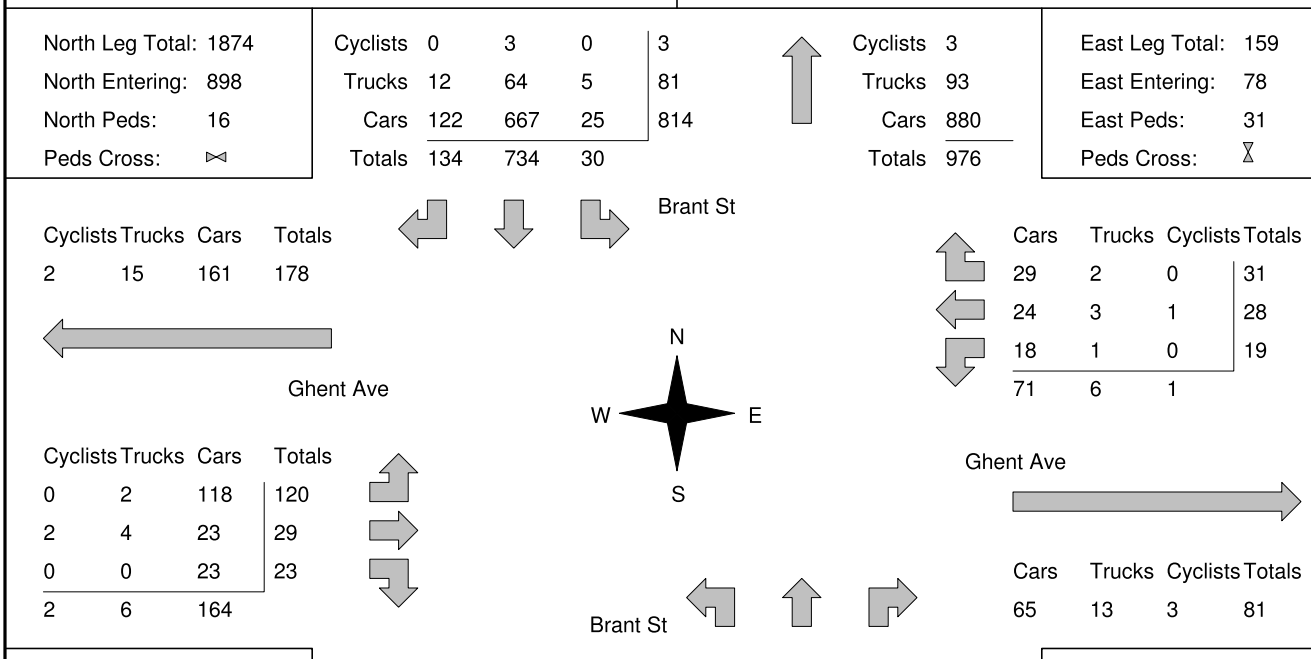
Municipality: Burlington
Site #: 0000200274
Intersection: Brant St & Ghent Ave
TFR File #: 1
Count date: 14-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Tanya

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

200274-Brant St & Ghent Ave

Afternoon Peak Diagram

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

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Burlington
Site #: 0000200274
Intersection: Brant St & Ghent Ave
TFR File #: 1
Count date: 14-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Tanya

**** Signalized Intersection ****

Major Road: Brant St runs N/S

North Leg Total: 2039
North Entering: 1011
North Peds: 3
Peds Cross: ⋈

Cyclists	1	4	0	5
Trucks	10	47	3	60
Cars	167	749	30	946
Totals	178	800	33	

Cyclists	5
Trucks	59
Cars	964
Totals	1028

East Leg Total: 197
East Entering: 117
East Peds: 15
Peds Cross: ⧖

Cyclists	Trucks	Cars	Totals
1	11	230	242

Brant St

Cars	Trucks	Cyclists	Totals
38	1	0	39
52	1	0	53
25	0	0	25
115	2	0	

Ghent Ave

N
W E
S

Cyclists	Trucks	Cars	Totals
1	7	131	139
0	1	24	25
0	1	13	14
1	9	168	

Ghent Ave

Cars	Trucks	Cyclists	Totals
76	4	0	80

Brant St

Peds Cross: ⧖
West Peds: 20
West Entering: 178
West Leg Total: 420

Cars	787
Trucks	48
Cyclists	4
Totals	839

Cars	11	795	22	828
Trucks	0	51	0	51
Cyclists	0	4	0	4
Totals	11	850	22	

Peds Cross: ⋈
South Peds: 10
South Entering: 883
South Leg Total: 1722

Comments

200274-Brant St & Ghent Ave

Total Count Diagram

Municipality: Burlington
Site #: 0000200274
Intersection: Brant St & Ghent Ave
TFR File #: 1
Count date: 14-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Tanya

**** Signalized Intersection ****

Major Road: Brant St runs N/S

North Leg Total:	13864			
North Entering:	6757			
North Peds:	45			
Peds Cross:	⋈			
Cyclists	4	30	0	34
Trucks	73	473	24	570
Cars	944	4999	210	6153
Totals	1021	5502	234	
Cyclists	23			
Trucks	593			
Cars	6491			
Totals	7107			
East Leg Total:	1224			
East Entering:	653			
East Peds:	213			
Peds Cross:	⧖			

Brant St

Cyclists	Trucks	Cars	Totals
6	84	1266	1356

Cars	Trucks	Cyclists	Totals
261	18	3	282
204	6	1	211
151	9	0	160
616	33	4	

Ghent Ave

N
W E
S

Cyclists	Trucks	Cars	Totals
1	53	919	973
3	9	153	165
0	11	155	166
4	73	1227	

Ghent Ave

Cars	Trucks	Cyclists	Totals
521	44	6	571

Brant St

Peds Cross:	⧖			
West Peds:	142			
West Entering:	1304			
West Leg Total:	2660			
Cars	5305			
Trucks	493			
Cyclists	30			
Totals	5828			
Cars	118	5311	158	5587
Trucks	5	522	11	538
Cyclists	1	19	3	23
Totals	124	5852	172	
Peds Cross:	⋈			
South Peds:	97			
South Entering:	6148			
South Leg Total:	11976			

Comments

200274-Brant St & Ghent Ave
Traffic Count Summary

Intersection: Brant St & Ghent Ave | **Count Date:** 14-May-2019 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	11	405	61	477	3	971
9:00:00	31	749	110	890	0	1560
11:00:00	0	0	0	0	0	0
12:00:00	28	668	97	793	0	1555
13:00:00	32	750	105	887	10	1744
14:00:00	30	734	134	898	16	1761
15:00:00	0	0	0	0	0	0
16:00:00	34	708	148	890	7	1743
17:00:00	34	775	152	961	4	1825
18:00:00	34	713	214	961	5	1746
Totals:	234	5502	1021	6757	45	12905

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	5	478	11	494	12
9:00:00	11	630	29	670	5
11:00:00	0	0	0	0	0
12:00:00	21	713	28	762	13
13:00:00	21	812	24	857	12
14:00:00	16	825	22	863	6
15:00:00	0	0	0	0	0
16:00:00	16	820	17	853	21
17:00:00	9	840	15	864	15
18:00:00	25	734	26	785	13
Totals:	124	5852	172	6148	97

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	8	6	41	55	20	249
9:00:00	22	9	26	57	31	229
11:00:00	0	0	0	0	0	0
12:00:00	20	23	35	78	20	236
13:00:00	14	24	34	72	29	216
14:00:00	19	28	31	78	31	250
15:00:00	0	0	0	0	0	0
16:00:00	24	23	39	86	38	232
17:00:00	22	49	39	110	26	272
18:00:00	31	49	37	117	18	273
Totals:	160	211	282	653	213	1957

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	165	18	11	194	12
9:00:00	129	23	20	172	15
11:00:00	0	0	0	0	0
12:00:00	109	23	26	158	7
13:00:00	105	13	26	144	15
14:00:00	120	29	23	172	28
15:00:00	0	0	0	0	0
16:00:00	108	17	21	146	18
17:00:00	127	18	17	162	22
18:00:00	110	24	22	156	25
Totals:	973	165	166	1304	142

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	206	179	165	165	190	183	217	208

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Mid-day Peak Diagram

Specified Period
From: 10:00:00
To: 14:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

Municipality: Burlington
Site #: 2006800003
Intersection: Brant St & Ghent Ave
TFR File #: 1
Count date: 19-Sep-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Brant St runs N/S

North Leg Total: 1631
North Entering: 833
North Peds: 6
Peds Cross: ⋈

Heavys	0	2	0	2
Trucks	0	0	0	0
Cars	94	699	38	831
Totals	94	701	38	

Heavys	2
Trucks	2
Cars	794
Totals	798

East Leg Total: 133
East Entering: 63
East Peds: 37
Peds Cross: ⧖

Brant St

Heavys	Trucks	Cars	Totals
0	0	122	122

Ghent Ave

Cars	Trucks	Heavys	Totals
32	0	0	32
14	0	0	14
17	0	0	17
63	0	0	

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	84	84
0	0	15	15
0	0	8	8
0	0	107	

Ghent Ave

Cars	Trucks	Heavys	Totals
70	0	0	70

Brant St

Peds Cross: ⧖
West Peds: 20
West Entering: 107
West Leg Total: 229

Cars	724
Trucks	0
Heavys	2
Totals	726

Cars	14	678	17	709
Trucks	0	2	0	2
Heavys	0	2	0	2
Totals	14	682	17	

Peds Cross: ⋈
South Peds: 8
South Entering: 713
South Leg Total: 1439

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

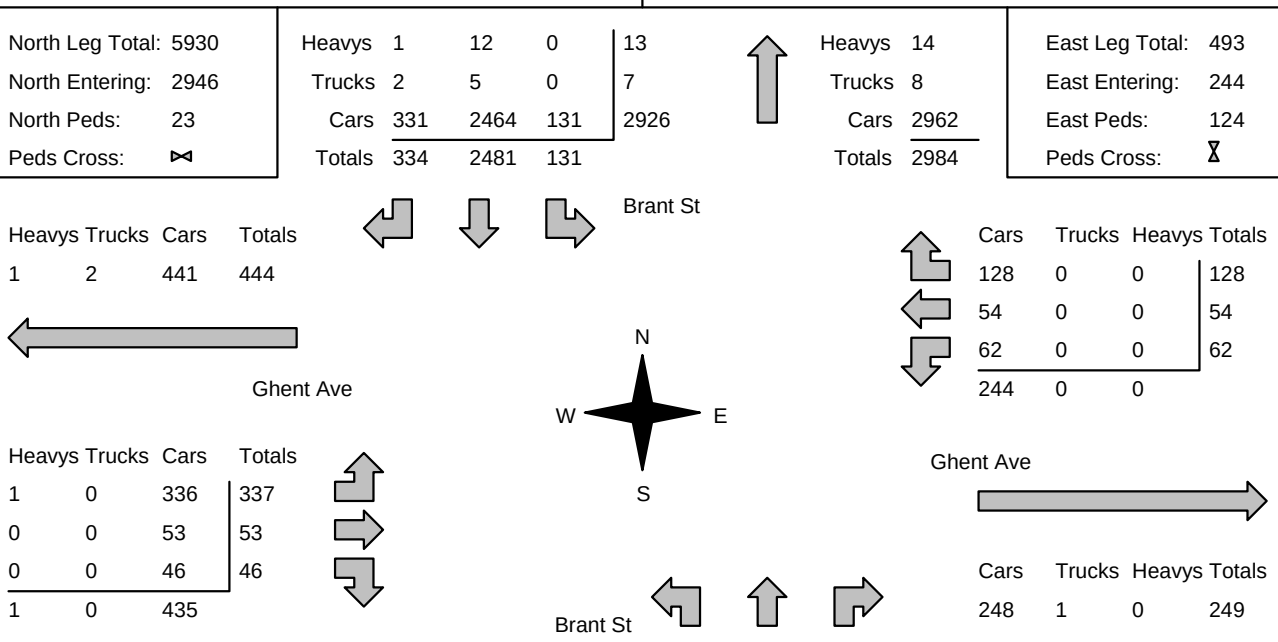
Municipality: Burlington
Site #: 2006800003
Intersection: Brant St & Ghent Ave
TFR File #: 1
Count date: 19-Sep-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Brant St & Ghent Ave | **Count Date:** 19-Sep-20 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*19*	*494*	*70*	*583*	*5*
12:00:00	*30*	*652*	*87*	*769*	*4*
13:00:00	*44*	*652*	*84*	*780*	*7*
14:00:00	*38*	*683*	*93*	*814*	*7*
Totals:	131	2481	334	2946	23

North/South Total Approaches: *5586*

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*13*	*544*	*10*	*567*	*8*
12:00:00	*16*	*657*	*20*	*693*	*6*
13:00:00	*15*	*640*	*18*	*673*	*6*
14:00:00	*12*	*678*	*17*	*707*	*8*
S Totals:	56	2519	65	2640	28

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*14*	*8*	*22*	*44*	*27*
12:00:00	*15*	*13*	*42*	*70*	*33*
13:00:00	*17*	*15*	*36*	*68*	*25*
14:00:00	*16*	*18*	*28*	*62*	*39*
Totals:	62	54	128	244	124

East/West Total Approaches: *680*

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*95*	*15*	*12*	*122*	*13*
12:00:00	*79*	*10*	*12*	*101*	*20*
13:00:00	*83*	*13*	*13*	*109*	*19*
14:00:00	*80*	*15*	*9*	*104*	*22*
W Totals:	337	53	46	436	74

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*10:00*	*11:00*	*12:00*	*13:00*	*14:00*	*0:00*	*0:00*	*0:00*
Crossing Values:	*0*	*137*	*117*	*128*	*129*	*0*	*0*	*0*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800003

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	7	7	123	123	7	7	0	0	1	1	0	0	0	0	1	1	0	0	0	0
10:30:00	14	7	233	110	29	22	0	0	1	0	0	0	0	0	3	2	0	0	2	2
10:45:00	15	1	366	133	47	18	0	0	2	1	1	1	0	0	5	2	0	0	3	1
11:00:00	19	4	485	119	68	21	0	0	4	2	1	0	0	0	5	0	1	1	5	2
11:15:00	23	4	646	161	86	18	0	0	4	0	2	1	0	0	6	1	1	0	7	2
11:30:00	30	7	806	160	114	28	0	0	4	0	2	0	0	0	6	0	1	0	8	1
11:45:00	40	10	959	153	131	17	0	0	4	0	2	0	0	0	7	1	1	0	8	0
12:00:00	49	9	1135	176	154	23	0	0	4	0	2	0	0	0	7	0	1	0	9	1
12:15:00	58	9	1282	147	173	19	0	0	5	1	2	0	0	0	7	0	1	0	9	0
12:30:00	72	14	1436	154	195	22	0	0	5	0	2	0	0	0	7	0	1	0	11	2
12:45:00	82	10	1589	153	212	17	0	0	5	0	2	0	0	0	9	2	1	0	14	3
13:00:00	93	11	1784	195	238	26	0	0	5	0	2	0	0	0	9	0	1	0	16	2
13:15:00	101	8	1964	180	259	21	0	0	5	0	2	0	0	0	10	1	1	0	17	1
13:30:00	109	8	2115	151	283	24	0	0	5	0	2	0	0	0	10	0	1	0	18	1
13:45:00	120	11	2288	173	306	23	0	0	5	0	2	0	0	0	11	1	1	0	20	2
14:00:00	131	11	2464	176	331	25	0	0	5	0	2	0	0	0	12	1	1	0	23	3
14:15:00	131	0	2464	0	331	0	0	0	5	0	2	0	0	0	12	0	1	0	23	0
14:15:15	131	0	2464	0	331	0	0	0	5	0	2	0	0	0	12	0	1	0	23	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800003

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	1	1	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	8	8
10:30:00	4	3	1	1	11	5	0	0	0	0	0	0	0	0	0	0	0	0	11	3
10:45:00	10	6	6	5	17	6	0	0	0	0	0	0	0	0	0	0	0	0	16	5
11:00:00	14	4	8	2	22	5	0	0	0	0	0	0	0	0	0	0	0	0	27	11
11:15:00	18	4	11	3	30	8	0	0	0	0	0	0	0	0	0	0	0	0	37	10
11:30:00	20	2	14	3	41	11	0	0	0	0	0	0	0	0	0	0	0	0	50	13
11:45:00	26	6	17	3	53	12	0	0	0	0	0	0	0	0	0	0	0	0	55	5
12:00:00	29	3	21	4	64	11	0	0	0	0	0	0	0	0	0	0	0	0	60	5
12:15:00	32	3	23	2	76	12	0	0	0	0	0	0	0	0	0	0	0	0	68	8
12:30:00	36	4	29	6	84	8	0	0	0	0	0	0	0	0	0	0	0	0	74	6
12:45:00	42	6	33	4	90	6	0	0	0	0	0	0	0	0	0	0	0	0	78	4
13:00:00	46	4	36	3	100	10	0	0	0	0	0	0	0	0	0	0	0	0	85	7
13:15:00	52	6	40	4	107	7	0	0	0	0	0	0	0	0	0	0	0	0	93	8
13:30:00	54	2	45	5	118	11	0	0	0	0	0	0	0	0	0	0	0	0	105	12
13:45:00	59	5	47	2	122	4	0	0	0	0	0	0	0	0	0	0	0	0	115	10
14:00:00	62	3	54	7	128	6	0	0	0	0	0	0	0	0	0	0	0	0	124	9
14:15:00	62	0	54	0	128	0	0	0	0	0	0	0	0	0	0	0	0	0	124	0
14:15:15	62	0	54	0	128	0	0	0	0	0	0	0	0	0	0	0	0	0	124	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800003

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	4	4	112	112	1	1	0	0	0	0	0	0	0	0	2	2	0	0	0	0
10:30:00	5	1	239	127	4	3	0	0	1	1	0	0	0	0	4	2	0	0	0	0
10:45:00	10	5	385	146	6	2	0	0	1	0	0	0	0	0	5	1	0	0	3	3
11:00:00	13	3	536	151	10	4	0	0	2	1	0	0	0	0	6	1	0	0	8	5
11:15:00	17	4	688	152	14	4	0	0	2	0	0	0	0	0	6	0	0	0	11	3
11:30:00	24	7	856	168	21	7	0	0	4	2	0	0	0	0	8	2	0	0	12	1
11:45:00	27	3	1013	157	23	2	0	0	4	0	1	1	0	0	9	1	0	0	13	1
12:00:00	29	2	1187	174	29	6	0	0	5	1	1	0	0	0	9	0	0	0	14	1
12:15:00	34	5	1345	158	34	5	0	0	6	1	1	0	0	0	9	0	0	0	15	1
12:30:00	38	4	1507	162	39	5	0	0	6	0	1	0	0	0	10	1	0	0	17	2
12:45:00	40	2	1663	156	43	4	0	0	6	0	1	0	0	0	10	0	0	0	19	2
13:00:00	44	4	1823	160	47	4	0	0	7	1	1	0	0	0	11	1	0	0	20	1
13:15:00	47	3	2004	181	50	3	0	0	7	0	1	0	0	0	11	0	0	0	24	4
13:30:00	49	2	2169	165	54	4	0	0	8	1	1	0	0	0	12	1	0	0	26	2
13:45:00	54	5	2341	172	60	6	0	0	8	0	1	0	0	0	12	0	0	0	27	1
14:00:00	56	2	2498	157	64	4	0	0	8	0	1	0	0	0	13	1	0	0	28	1
14:15:00	56	0	2498	0	64	0	0	0	8	0	1	0	0	0	13	0	0	0	28	0
14:15:15	56	0	2498	0	64	0	0	0	8	0	1	0	0	0	13	0	0	0	28	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800003

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	21	21	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	3	3
10:30:00	47	26	9	5	5	1	0	0	0	0	0	0	0	0	0	0	0	0	5	2
10:45:00	73	26	12	3	6	1	0	0	0	0	0	0	0	0	0	0	0	0	9	4
11:00:00	95	22	15	3	12	6	0	0	0	0	0	0	0	0	0	0	0	0	13	4
11:15:00	110	15	18	3	15	3	0	0	0	0	0	0	1	1	0	0	0	0	21	8
11:30:00	127	17	20	2	18	3	0	0	0	0	0	0	1	0	0	0	0	0	25	4
11:45:00	149	22	21	1	19	1	0	0	0	0	0	0	1	0	0	0	0	0	28	3
12:00:00	173	24	25	4	24	5	0	0	0	0	0	0	1	0	0	0	0	0	33	5
12:15:00	193	20	29	4	27	3	0	0	0	0	0	0	1	0	0	0	0	0	37	4
12:30:00	211	18	33	4	32	5	0	0	0	0	0	0	1	0	0	0	0	0	41	4
12:45:00	233	22	35	2	35	3	0	0	0	0	0	0	1	0	0	0	0	0	47	6
13:00:00	256	23	38	3	37	2	0	0	0	0	0	0	1	0	0	0	0	0	52	5
13:15:00	276	20	43	5	39	2	0	0	0	0	0	0	1	0	0	0	0	0	56	4
13:30:00	296	20	46	3	42	3	0	0	0	0	0	0	1	0	0	0	0	0	63	7
13:45:00	317	21	50	4	43	1	0	0	0	0	0	0	1	0	0	0	0	0	67	4
14:00:00	336	19	53	3	46	3	0	0	0	0	0	0	1	0	0	0	0	0	74	7
14:15:00	336	0	53	0	46	0	0	0	0	0	0	0	1	0	0	0	0	0	74	0
14:15:15	336	0	53	0	46	0	0	0	0	0	0	0	1	0	0	0	0	0	74	0

200225-Brant St & Blairholm Ave

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

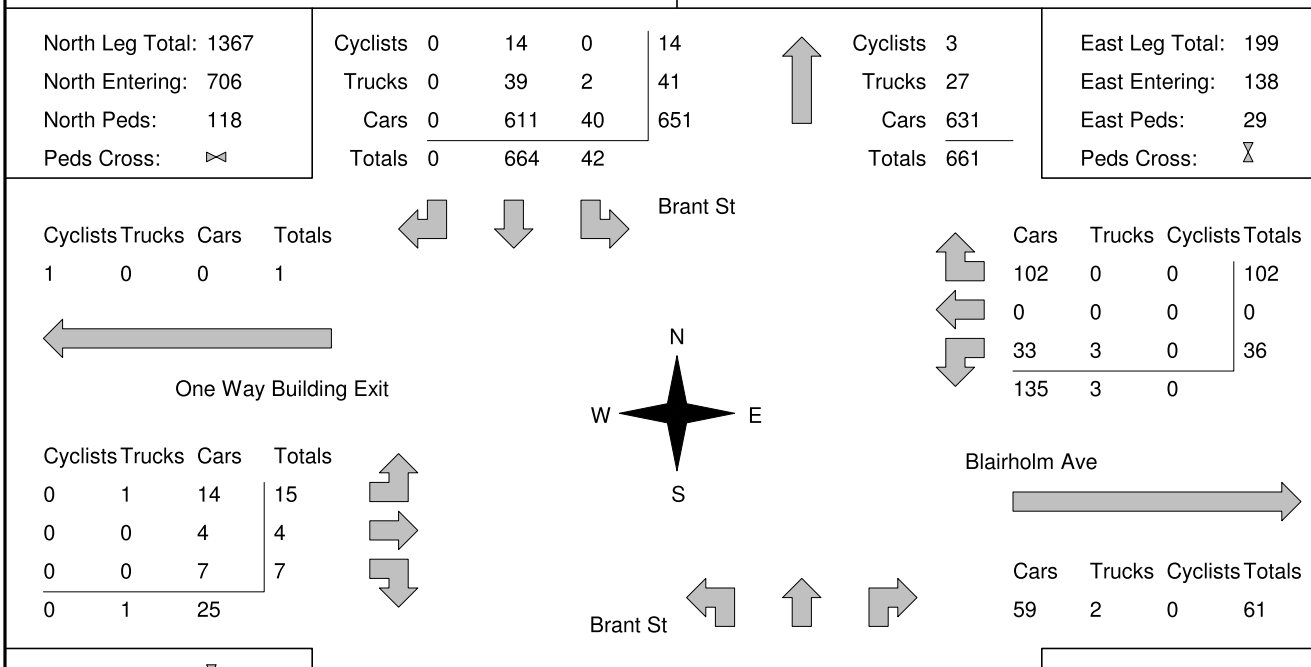
Municipality: Burlington
Site #: 0000200225
Intersection: Brant St & Blairholm Ave
TFR File #: 1
Count date: 15-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Mike

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

200225-Brant St & Blairholm Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

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

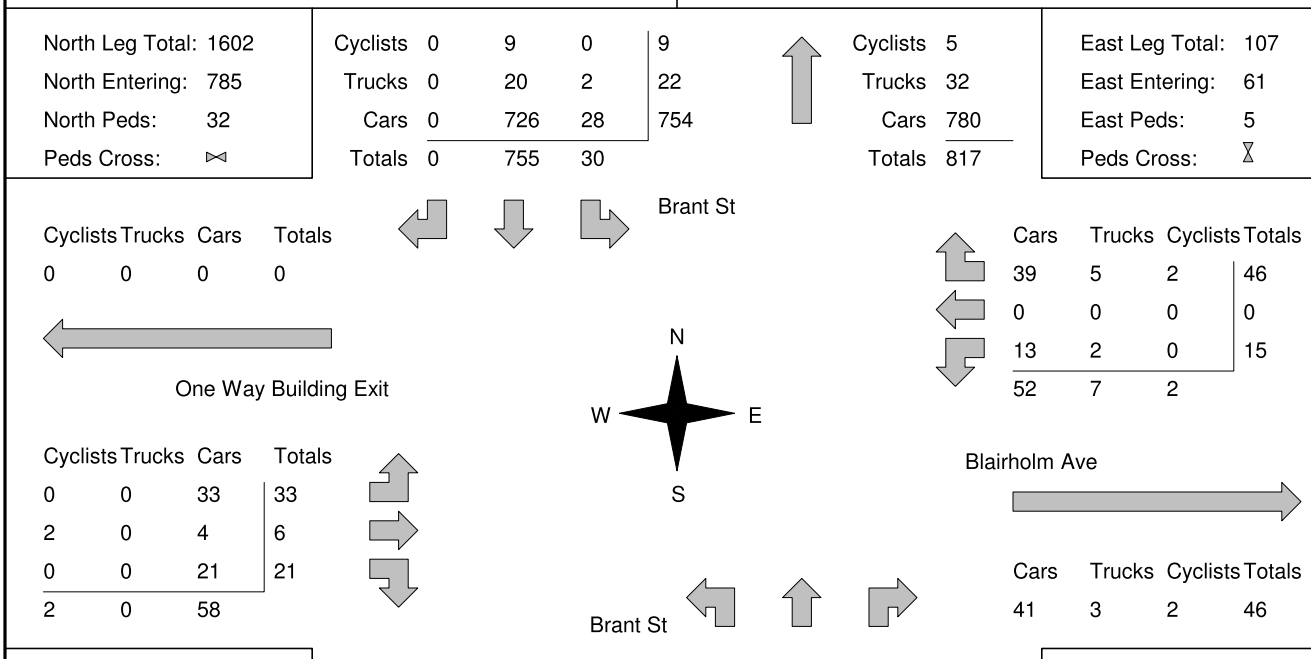
Municipality: Burlington
Site #: 0000200225
Intersection: Brant St & Blairholm Ave
TFR File #: 1
Count date: 15-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Mike

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

200225-Brant St & Blairholm Ave

Afternoon Peak Diagram

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

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Burlington
Site #: 0000200225
Intersection: Brant St & Blairholm Ave
TFR File #: 1
Count date: 15-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Mike

**** Signalized Intersection ****

Major Road: Brant St runs N/S

North Leg Total: 1552
North Entering: 707
North Peds: 14
Peds Cross: ⋈

Cyclists	0	8	0	8
Trucks	0	17	0	17
Cars	0	637	45	682
Totals	0	662	45	

Cyclists	6
Trucks	24
Cars	815
Totals	845

East Leg Total: 155
East Entering: 88
East Peds: 0
Peds Cross: ⧖

Brant St

Cyclists	Trucks	Cars	Totals
0	0	0	0

One Way Building Exit

Cars	Trucks	Cyclists	Totals
67	3	0	70
0	0	0	0
17	1	0	18
84	4	0	

N
W E
S

Cyclists	Trucks	Cars	Totals
0	1	15	16
0	0	5	5
0	0	20	20
0	1	40	

Blairholm Ave

Cars	Trucks	Cyclists	Totals
67	0	0	67

Brant St

Peds Cross: ⧖
West Peds: 13
West Entering: 41
West Leg Total: 41

Cars	674
Trucks	18
Cyclists	8
Totals	700

Cars	0	733	17	750
Trucks	0	20	0	20
Cyclists	0	6	0	6
Totals	0	759	17	

Peds Cross: ⋈
South Peds: 16
South Entering: 776
South Leg Total: 1476

Comments

200225-Brant St & Blairholm Ave

Total Count Diagram

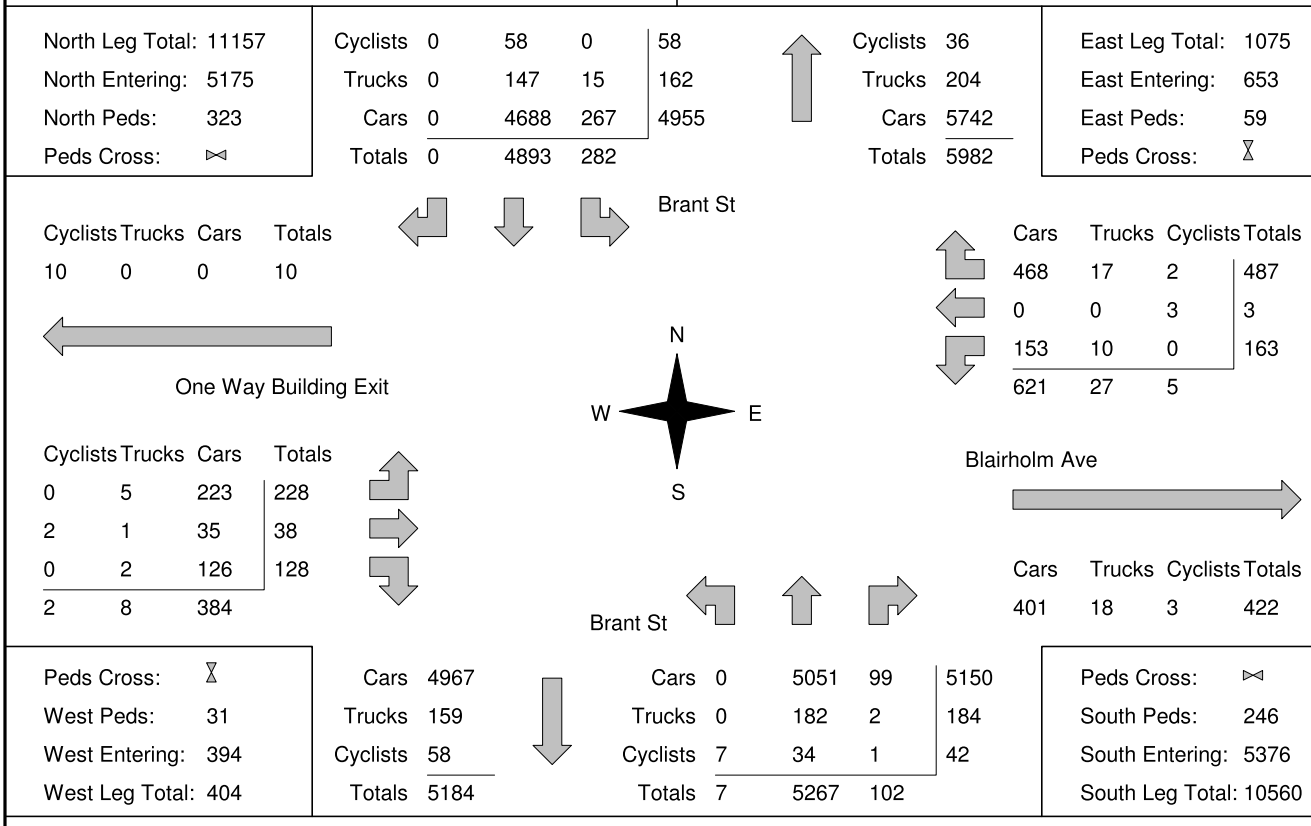
Municipality: Burlington
Site #: 0000200225
Intersection: Brant St & Blairholm Ave
TFR File #: 1
Count date: 15-May-2019

Weather conditions:
Sunny

Person(s) who counted:
Mike

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

200225-Brant St & Blairholm Ave
Traffic Count Summary

Intersection: Brant St & Blairholm Ave | **Count Date:** 15-May-2019 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	24	363	0	387	29	771
9:00:00	42	664	0	706	118	1266
11:00:00	0	0	0	0	0	0
12:00:00	33	580	0	613	49	1307
13:00:00	30	755	0	785	32	1533
14:00:00	35	605	0	640	30	1402
15:00:00	0	0	0	0	0	0
16:00:00	37	603	0	640	29	1366
17:00:00	42	646	0	688	22	1440
18:00:00	39	677	0	716	14	1466
Totals:	282	4893	0	5175	323	10551

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	372	12	384	10
9:00:00	1	544	15	560	18
11:00:00	0	0	0	0	0
12:00:00	4	675	15	694	21
13:00:00	0	738	10	748	35
14:00:00	2	752	8	762	33
15:00:00	0	0	0	0	0
16:00:00	0	714	12	726	101
17:00:00	0	740	12	752	21
18:00:00	0	732	18	750	7
Totals:	7	5267	102	5376	246

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	9	1	55	65	8	70
9:00:00	36	0	102	138	29	164
11:00:00	0	0	0	0	0	0
12:00:00	13	0	44	57	3	130
13:00:00	15	0	46	61	5	121
14:00:00	11	2	56	69	3	136
15:00:00	0	0	0	0	0	0
16:00:00	44	0	69	113	8	185
17:00:00	18	0	63	81	3	139
18:00:00	17	0	52	69	0	102
Totals:	163	3	487	653	59	1047

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	5	0	0	5	0
9:00:00	15	4	7	26	0
11:00:00	0	0	0	0	0
12:00:00	44	10	19	73	0
13:00:00	33	6	21	60	6
14:00:00	42	5	20	67	0
15:00:00	0	0	0	0	0
16:00:00	44	6	22	72	9
17:00:00	29	4	25	58	5
18:00:00	16	3	14	33	11
Totals:	228	38	128	394	31

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	54	191	137	121	121	224	94	57

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Mid-day Peak Diagram

Specified Period
From: 10:00:00
To: 14:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

Municipality: Burlington
Site #: 2006800004
Intersection: Brant St & Blairholm Ave
TFR File #: 1
Count date: 19-Sep-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

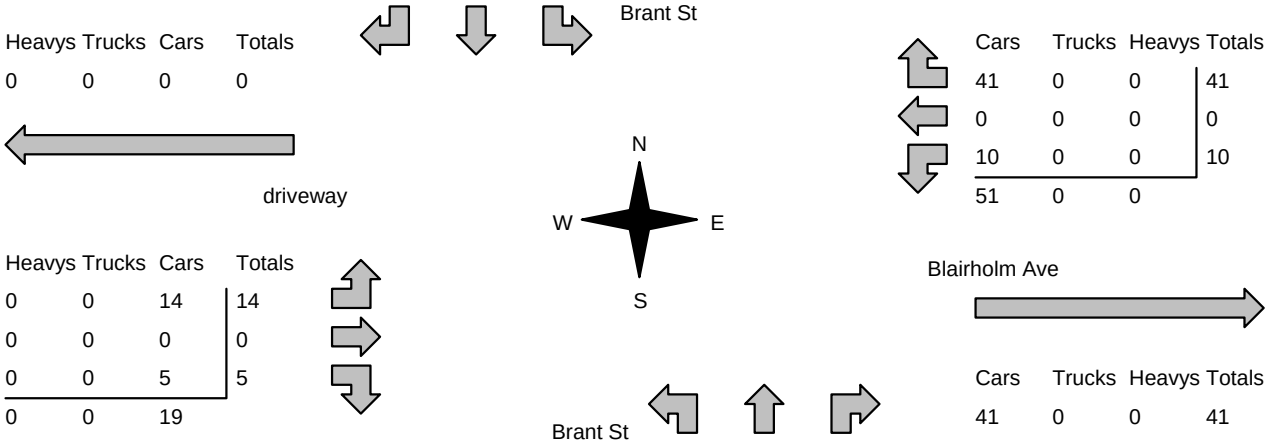
Major Road: Brant St runs N/S

North Leg Total: 1404
North Entering: 694
North Peds: 5
Peds Cross: ⋈

Heavys	0	2	0	2
Trucks	0	2	0	2
Cars	0	657	33	690
Totals	0	661	33	

Heavys	3
Trucks	2
Cars	705
Totals	710

East Leg Total: 92
East Entering: 51
East Peds: 27
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 27
West Entering: 19
West Leg Total: 19

Cars	672
Trucks	2
Heavys	2
Totals	676

Cars	0	650	8	658
Trucks	0	2	0	2
Heavys	0	3	0	3
Totals	0	655	8	

Peds Cross: ⋈
South Peds: 5
South Entering: 663
South Leg Total: 1339

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

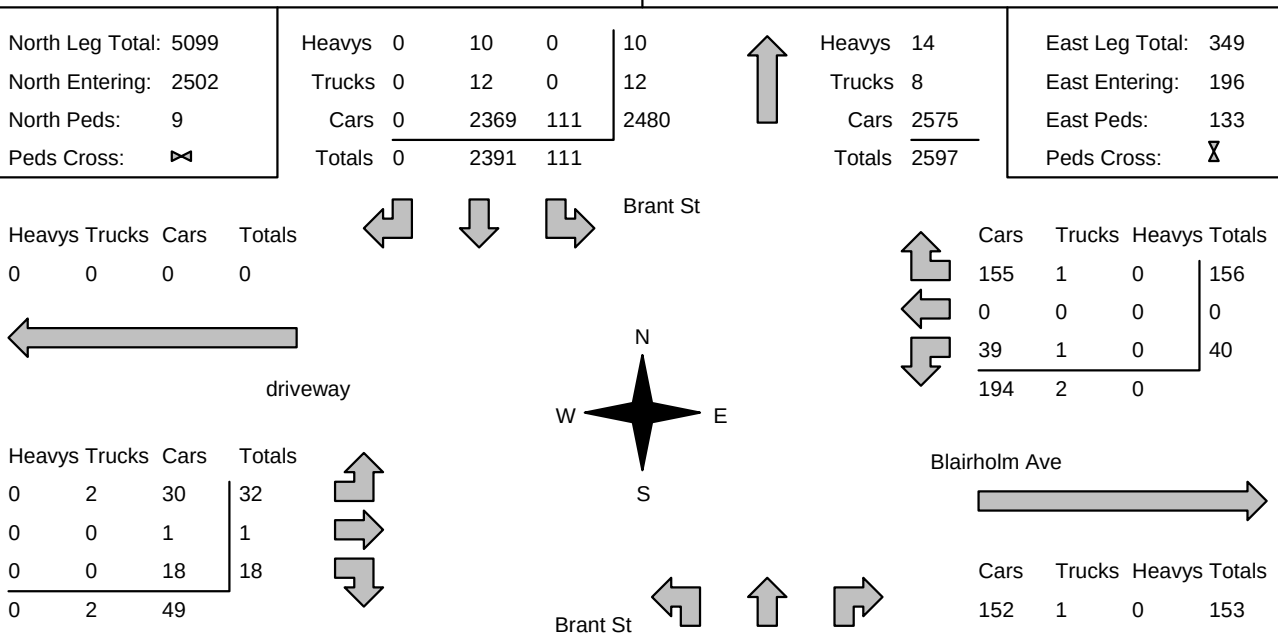
Municipality: Burlington
Site #: 2006800004
Intersection: Brant St & Blairholm Ave
TFR File #: 1
Count date: 19-Sep-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Brant St runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Brant St & Blairholm Ave | **Count Date:** 19-Sep-20 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches
	Left	Thru	Right	Grand Total		
10:00:00	*0*	*0*	*0*	*0*	*0*	*0*
11:00:00	*18*	*484*	*0*	*502*	*0*	*1039*
12:00:00	*29*	*644*	*0*	*673*	*0*	*1300*
13:00:00	*31*	*615*	*0*	*646*	*3*	*1268*
14:00:00	*33*	*648*	*0*	*681*	*6*	*1345*
Totals:	111	2391	0	2502	9	4952

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*0*	*522*	*15*	*537*	*7*
12:00:00	*0*	*623*	*4*	*627*	*7*
13:00:00	*0*	*608*	*14*	*622*	*8*
14:00:00	*0*	*656*	*8*	*664*	*2*
S Totals:	0	2409	41	2450	24

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches
	Left	Thru	Right	Grand Total		
10:00:00	*0*	*0*	*0*	*0*	*0*	*0*
11:00:00	*9*	*0*	*36*	*45*	*37*	*55*
12:00:00	*7*	*0*	*36*	*43*	*33*	*55*
13:00:00	*15*	*0*	*43*	*58*	*39*	*77*
14:00:00	*9*	*0*	*41*	*50*	*24*	*60*
Totals:	40	0	156	196	133	247

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
10:00:00	*0*	*0*	*0*	*0*	*0*
11:00:00	*4*	*0*	*6*	*10*	*29*
12:00:00	*8*	*0*	*4*	*12*	*17*
13:00:00	*12*	*1*	*6*	*19*	*25*
14:00:00	*8*	*0*	*2*	*10*	*29*
W Totals:	32	1	18	51	100

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*10:00*	*11:00*	*12:00*	*13:00*	*14:00*	*0:00*	*0:00*	*0:00*
Crossing Values:	*0*	*20*	*22*	*39*	*25*	*0*	*0*	*0*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800004

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	3	3	114	114	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
10:30:00	3	0	236	122	0	0	0	0	2	1	0	0	0	0	1	1	0	0	0	0
10:45:00	11	8	356	120	0	0	0	0	4	2	0	0	0	0	3	2	0	0	0	0
11:00:00	18	7	474	118	0	0	0	0	6	2	0	0	0	0	4	1	0	0	0	0
11:15:00	25	7	630	156	0	0	0	0	6	0	0	0	0	0	4	0	0	0	0	0
11:30:00	34	9	791	161	0	0	0	0	6	0	0	0	0	0	4	0	0	0	0	0
11:45:00	40	6	945	154	0	0	0	0	7	1	0	0	0	0	5	1	0	0	0	0
12:00:00	47	7	1115	170	0	0	0	0	7	0	0	0	0	0	6	1	0	0	0	0
12:15:00	57	10	1250	135	0	0	0	0	9	2	0	0	0	0	6	0	0	0	2	2
12:30:00	62	5	1398	148	0	0	0	0	10	1	0	0	0	0	6	0	0	0	2	0
12:45:00	68	6	1548	150	0	0	0	0	10	0	0	0	0	0	8	2	0	0	2	0
13:00:00	78	10	1725	177	0	0	0	0	10	0	0	0	0	0	8	0	0	0	3	1
13:15:00	86	8	1906	181	0	0	0	0	10	0	0	0	0	0	9	1	0	0	5	2
13:30:00	90	4	2042	136	0	0	0	0	10	0	0	0	0	0	9	0	0	0	7	2
13:45:00	101	11	2205	163	0	0	0	0	12	2	0	0	0	0	10	1	0	0	7	0
14:00:00	111	10	2369	164	0	0	0	0	12	0	0	0	0	0	10	0	0	0	9	2
14:15:00	111	0	2369	0	0	0	0	0	12	0	0	0	0	0	10	0	0	0	9	0
14:15:15	111	0	2369	0	0	0	0	0	12	0	0	0	0	0	10	0	0	0	9	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800004

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	2	2	0	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	7	7
10:30:00	3	1	0	0	18	9	1	1	0	0	0	0	0	0	0	0	0	0	14	7
10:45:00	5	2	0	0	28	10	1	0	0	0	0	0	0	0	0	0	0	0	18	4
11:00:00	8	3	0	0	36	8	1	0	0	0	0	0	0	0	0	0	0	0	37	19
11:15:00	9	1	0	0	45	9	1	0	0	0	1	1	0	0	0	0	0	0	45	8
11:30:00	11	2	0	0	53	8	1	0	0	0	1	0	0	0	0	0	0	0	56	11
11:45:00	13	2	0	0	62	9	1	0	0	0	1	0	0	0	0	0	0	0	62	6
12:00:00	15	2	0	0	71	9	1	0	0	0	1	0	0	0	0	0	0	0	70	8
12:15:00	16	1	0	0	79	8	1	0	0	0	1	0	0	0	0	0	0	0	73	3
12:30:00	21	5	0	0	94	15	1	0	0	0	1	0	0	0	0	0	0	0	81	8
12:45:00	26	5	0	0	105	11	1	0	0	0	1	0	0	0	0	0	0	0	100	19
13:00:00	30	4	0	0	114	9	1	0	0	0	1	0	0	0	0	0	0	0	109	9
13:15:00	32	2	0	0	127	13	1	0	0	0	1	0	0	0	0	0	0	0	117	8
13:30:00	35	3	0	0	139	12	1	0	0	0	1	0	0	0	0	0	0	0	123	6
13:45:00	36	1	0	0	146	7	1	0	0	0	1	0	0	0	0	0	0	0	127	4
14:00:00	39	3	0	0	155	9	1	0	0	0	1	0	0	0	0	0	0	0	133	6
14:15:00	39	0	0	0	155	0	1	0	0	0	1	0	0	0	0	0	0	0	133	0
14:15:15	39	0	0	0	155	0	1	0	0	0	1	0	0	0	0	0	0	0	133	0



Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800004

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	110	110	5	5	0	0	0	0	0	0	0	0	0	0	0	0	3	3
10:30:00	0	0	231	121	7	2	0	0	0	0	0	0	0	0	3	3	0	0	3	0
10:45:00	0	0	370	139	14	7	0	0	0	0	0	0	0	0	3	0	0	0	7	4
11:00:00	0	0	517	147	14	0	0	0	0	0	1	1	0	0	5	2	0	0	7	0
11:15:00	0	0	671	154	16	2	0	0	1	1	1	0	0	0	5	0	0	0	11	4
11:30:00	0	0	821	150	17	1	0	0	2	1	1	0	0	0	7	2	0	0	12	1
11:45:00	0	0	976	155	18	1	0	0	3	1	1	0	0	0	8	1	0	0	14	2
12:00:00	0	0	1133	157	18	0	0	0	3	0	1	0	0	0	9	1	0	0	14	0
12:15:00	0	0	1292	159	23	5	0	0	3	0	1	0	0	0	9	0	0	0	16	2
12:30:00	0	0	1440	148	27	4	0	0	3	0	1	0	0	0	10	1	0	0	17	1
12:45:00	0	0	1582	142	30	3	0	0	3	0	1	0	0	0	10	0	0	0	19	2
13:00:00	0	0	1738	156	32	2	0	0	4	1	1	0	0	0	11	1	0	0	22	3
13:15:00	0	0	1909	171	34	2	0	0	5	1	1	0	0	0	11	0	0	0	23	1
13:30:00	0	0	2063	154	35	1	0	0	5	0	1	0	0	0	13	2	0	0	24	1
13:45:00	0	0	2232	169	38	3	0	0	5	0	1	0	0	0	13	0	0	0	24	0
14:00:00	0	0	2390	158	40	2	0	0	5	0	1	0	0	0	14	1	0	0	24	0
14:15:00	0	0	2390	0	40	0	0	0	5	0	1	0	0	0	14	0	0	0	24	0
14:15:15	0	0	2390	0	40	0	0	0	5	0	1	0	0	0	14	0	0	0	24	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 19-Sep-20 Site #: 2006800004

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
10:30:00	1	1	0	0	3	3	1	1	0	0	0	0	0	0	0	0	0	0	12	5
10:45:00	1	0	0	0	6	3	1	0	0	0	0	0	0	0	0	0	0	0	21	9
11:00:00	3	2	0	0	6	0	1	0	0	0	0	0	0	0	0	0	0	0	29	8
11:15:00	5	2	0	0	6	0	1	0	0	0	0	0	0	0	0	0	0	0	30	1
11:30:00	7	2	0	0	7	1	1	0	0	0	0	0	0	0	0	0	0	0	40	10
11:45:00	9	2	0	0	8	1	1	0	0	0	0	0	0	0	0	0	0	0	43	3
12:00:00	10	1	0	0	10	2	2	1	0	0	0	0	0	0	0	0	0	0	46	3
12:15:00	11	1	0	0	10	0	2	0	0	0	0	0	0	0	0	0	0	0	55	9
12:30:00	14	3	0	0	11	1	2	0	0	0	0	0	0	0	0	0	0	0	63	8
12:45:00	16	2	1	1	13	2	2	0	0	0	0	0	0	0	0	0	0	0	67	4
13:00:00	22	6	1	0	16	3	2	0	0	0	0	0	0	0	0	0	0	0	71	4
13:15:00	25	3	1	0	16	0	2	0	0	0	0	0	0	0	0	0	0	0	76	5
13:30:00	25	0	1	0	17	1	2	0	0	0	0	0	0	0	0	0	0	0	82	6
13:45:00	30	5	1	0	18	1	2	0	0	0	0	0	0	0	0	0	0	0	94	12
14:00:00	30	0	1	0	18	0	2	0	0	0	0	0	0	0	0	0	0	0	100	6
14:15:00	30	0	1	0	18	0	2	0	0	0	0	0	0	0	0	0	0	0	100	0
14:15:15	30	0	1	0	18	0	2	0	0	0	0	0	0	0	0	0	0	0	100	0

Intersection Name:	TS ID:	Line No:	Model:	IP address:	Controller Make:
Brant St @ Fairview St	151	1	ACS/3	172.22.66.2	Econolite

Type of Operation: 8 Phase Semi-Actuated

*-Start from Main Menu

No	Date			Description	Prepared by
	Y	M	D		MA
1	2016	12	6	Timing Changed(optimization) Amber & Allred changed as per OTM Book 12	

PHASE DESCRIPTION

Ph1	SBLT- Brant Street	Ph5	NBLT- Brant Street
Ph2	NB- Brant Street	Ph6	SB- Brant Street
Ph3	WBLT-Fairview Street	Ph7	EBLT-Fairview Street
Ph4	EB-Fairview Street	Ph8	WB-Fairview Street

PHASE IN USE/EXCLUSIVE PED (MM) *- 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use	X	X	X	X	X	X	X	X
Exclusive PED								

CONTROLLER TIMING DATA - VEHICLE TIMING * - 2 - 1

Timing Plan: 1

	Phase: 1	2	3	4	5	6	7	8
Minimum Green	7	8	7	8	7	8	7	8
Walk		7		7		7		7
Ped. Clearance		17		17		17		17
Pedestrian Carry Over								
Vehicle Extension	3	3	3	3	3	3	3	3
MAX 1	15	40	15	35	15	40	15	35
MAX 2	15	40	15	35	15	40	15	35
Yellow Change	3	3.3	3	3.7	3	3.3	3	3.7
Red Clearance	1	3.2	1	2.7	1	3.2	1	2.7
Phase Minimum:	12	31.5	12	31.4	12	31.5	12	31.4

PHASE DATA - VEHICLE AND PEDESTRIAN RECALLS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector								
Vehicle Recall								
Pedestrian Recall		X				X		
MAX Recall		X				X		
Min Recall								

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN *** - 3 - 2, - 3 - 3**

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec)							
					1	2	3	4	5	6	7	8
1	110	107	1	1	18	36	12	44	12	42	21	35
2	110	70	1	2	19	34	12	45	19	34	17	40
3	120	89	1	3	22	36	20	42	22	36	13	49
4	100	0	1	4	15	36	15	34	15	36	15	34
5	120	0	1	5	17	37	19	47	17	37	14	52
10	0	0	1	10	0	0	0	0	0	0	0	0

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, -5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	1	06:00	1	1
1	1	2	09:00	2	1
1	1	3	15:15	3	1
1	1	5	17:15	5	1
1	1	3	17:30	3	1
1	1	5	18:00	5	1
1	1	3	18:15	3	1
1	1	2	19:00	2	1
1	1	10	21:30	254	1
2	2	4	07:00	4	1
2	2	1	08:30	1	1
2	2	4	17:30	4	1
2	2	10	23:00	254	1
3	3	4	07:30	4	1
3	3	1	12:00	1	1
3	3	4	17:30	4	1
3	3	10	22:00	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

Special Programming:

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOW	WOM/ Year	Day Plan
New Year's Day	1	Fixed	1	1	0	3
Family Day	2	Float	2	2	3	3
Good Friday	3	Float	4	6	1	3
Victoria Day	4	Float	5	2	3	3
Canada Day	5	Fixed	7	1	0	3
Civic Day	6	Float	8	2	1	3
Labour Day	7	Float	9	2	1	3
Thanksgiving	8	Float	10	2	2	3
Christmas Day	9	Fixed	12	25	0	3

Sum of 1&2		Sum of 3&4		Calculated	
				Total 1-4	Total 5-8
				Actual	Actual
1&2	5&6	3&4	7&8		
54	54	56	56	110	110
53	53	57	57	110	110
58	58	62	62	120	120
51	51	49	49	100	100
54	54	66	66	120	120
0	0	0	0	0	0
0	0	0	0	0	0

Intersection Name:	TS ID:	Group NO:	IP address:
Brant St @ Blairholm Street	143		172.22.63.2
Controller Make:	**Model:**	**Firmware Rev. No:**	
Econolite	ACS/3		

Type of Operation 8 Phase Semi-Actuated

Revision

NO	Date Y	Date M	Date D	Description	Prepared by:
1	2014	11	17	Implement timings in Centracs	MA

*- Start From Main Menu

PHASE DESCRIPTION

Ph1		Ph5	
Ph2	NB - Brant St.	PH6	SB - Brant St.
Ph3		Ph7	
Ph4	EB - Duplicate Phase	Ph8	WB - Blairholm Street

CONFIGURATION (PHASE SEQ): PHASE IN USE /EXCLUSIVE PED (MM) * - 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use :		X		X		X		X
Exclusive PED :								

CONTROLLER: CONTROLLER TIMING DATA - VEHICLE TIMINGS (4 available) * - 2 - 1

Timing Plan: 1

Phase:	1	2	3	4	5	6	7	8
Minimum Green :		8		8		8		8
Conditional Service Min. Green :								
Walk :		25		10		25		10
Ped. Clearance :		8		10		8		10
Pedestrians Carry Over :								
Vehicle Extension :		3		3		3		3
MAX 1 :		35		20		35		20
MAX 2 :		35		20		35		20
Yellow Change :		4		4		4		4
Red Clearance :		3		2		3		2

CONTROLLER: PHASE RECALL OPTIONS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector :								
Vehicle Recall :		X				X		
Pedestrian Recall :		X				X		
MAX Recall :								
Soft Recall :								

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN * - 3 - 2, - 3 - 3

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec) 1	2	3	4	5	6	7	8
1	90	55	1	1		57		33		57		33
2	100	75	1	2		67		33		67		33
3	90	73	1	3		57		33		57		33
4	85	28	1	4		52		33		52		33
10	0	0	1	10		0		0		0		0

Intersection Name:	TS ID:	Group NO:	IP address:
Brant St @ Blairholm Street	143		172.22.63.2
Controller Make:	**Model:**	**Firmware Rev. No:**	
Econolite	ACS/3		

CP # 1, 2,3,4& 10	Phase:	1	2	3	4	5	6	7	8
Coord Phase	:		X				X		
Vehicle Recall	:								
Pedestrian Recall *(3-3, 5-2)	:		X				X		
Recall to MAX Time	:								
Phase Omit	:								
Special Function Outputs	:								

Coordinator Pattern #	Prefer.	Phase 1	2	3	4	5	6	7	8
	1								
	2								

X - select "." deselect

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, - 5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	1	07:30	1	1
1	1	10	09:00	254	1
1	1	1	09:15	1	1
1	1	2	09:30	2	1
1	1	3	15:30	3	1
1	1	4	19:00	4	1
1	1	10	22:00	254	1
2	2	4	07:30	4	1
2	2	1	09:30	1	1
2	2	4	16:00	4	1
2	2	10	23:00	254	1
3	3	4	08:30	4	1
3	3	1	10:30	1	1
3	3	4	17:00	4	1
3	3	10	20:30	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOM	WOM/ Year	Day Plan
New Year's Day	1	Fixed	01	1	0	3
Family Day	2	Float	2	2	3	3
Good Friday	3	Float	04	6	1	3
Victoria Day	4	Float	05	2	3	3
Canada Day	5	Fixed	07	1	0	3
Civic Day	6	Float	08	2	1	3
Labour Day	7	Float	09	2	1	3
Thanksgiving	8	Float	10	2	2	3
Christmas Day	9	Fixed	12	25	0	3

Intersection Name:	TS ID:	Group NO:	IP address:
Brant St @ Ghent Ave	142		172.22.64.2

Controller Make:	Model:	Firmware Rev. No:	
Econolite	ACS/3		

Type of Operation 8 Phase Semi-Actuated

Revision

NO	Date Y	Date M	Date D	Description	Prepared by:
2	2014	12	4	Changed offsets Pattern 2	BP

*- Start From Main Menu

PHASE DESCRIPTION

Ph1		Ph5	
Ph2	NB - Brant St.	PH6	SB - Brant St.
Ph3		Ph7	
Ph4	EB / WB- Ghent Ave	Ph8	

CONFIGURATION (PHASE SEQ): PHASE IN USE /EXCLUSIVE PED (MM) * - 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use :		X		X		X		
Exclusive PED :								

CONTROLLER: CONTROLLER TIMING DATA - VEHICLE TIMINGS (4 available) * - 2 - 1

Timing Plan: 1

Phase:	1	2	3	4	5	6	7	8
Minimum Green :		8		8		8		
Conditional Service Min. Green :								
Walk :		16		15		16		
Ped. Clearance :		10		16		10		
Pedestrians Carry Over :								
Vehicle Extension :		3		3		3		
MAX 1 :		35		25		35		
MAX 2 :		35		25		35		
Yellow Change :		4		4		4		
Red Clearance :		3		3		3		

CONTROLLER: PHASE RECALL OPTIONS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector :								
Vehicle Recall :		X				X		
Pedestrian Recall :		X				X		
MAX Recall :								
Soft Recall :								

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN * - 3 - 2, - 3 - 3

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec) 1	2	3	4	5	6	7	8
1	90	63	1	1		49		41		49		
2	100	85	1	2		49		51		49		
3	90	88	1	3		49		41		49		
4	85	12	1	4		44		41		44		
10	0	0	1	10		0		0		0		

Intersection Name:	TS ID:	Group NO:	IP address:
Brant St @ Ghent Ave	142		172.22.64.2
Controller Make:	**Model:**	**Firmware Rev. No:**	
Econolite	ACS/3		

CP # 1, 2,3,4& 10	Phase:	1	2	3	4	5	6	7	8
Coord Phase	:		X				X		
Vehicle Recall	:								
Pedestrian Recall *(3-3, 5-2)	:		X				X		
Recall to MAX Time	:								
Phase Omit	:								
Special Function Outputs	:								

Coordinator Pattern #	Prefer.	Phase 1	2	3	4	5	6	7	8
	1								
	2								

X - select "." deselect

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, - 5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	1	07:30	1	1
1	1	2	09:30	2	1
1	1	3	15:30	3	1
1	1	4	19:00	4	1
1	1	10	22:00	254	1
2	2	4	07:30	4	1
2	2	1	09:30	1	1
2	2	4	16:00	4	1
2	2	10	23:00	254	1
3	3	4	08:30	4	1
3	3	1	10:30	1	1
3	3	4	17:00	4	1
3	3	10	20:30	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOM	WOM/ Year	Day Plan
New Year's Day	1	Fixed	01	1	0	3
Family Day	2	Float	2	2	3	3
Good Friday	3	Float	04	6	1	3
Victoria Day	4	Float	05	2	3	3
Canada Day	5	Fixed	07	1	0	3
Civic Day	6	Float	08	2	1	3
Labour Day	7	Float	09	2	1	3
Thanksgiving	8	Float	10	2	2	3
Christmas Day	9	Fixed	12	25	0	3

Intersection Name:	TS ID:	Group NO:	IP address:
Brant St @ Prospect Street	141		172.22.65.2

Controller Make:	Model:	Firmware Rev. No:	
Econolite	ACS/3		

Type of Operation 4 Phase Semi-Actuated

Revision

NO	Date Y	Date M	Date D	Description	Prepared by:
1	2014	11	17	Implement timings in Centracs	MA

*- Start From Main Menu

PHASE DESCRIPTION

Ph1	SB LT - Brant St.	Ph5	
Ph2	NB/SB - Brant St.	PH6	
Ph3		Ph7	
Ph4	EB/WB - Prospect Street	Ph8	

CONFIGURATION (PHASE SEQ): PHASE IN USE /EXCLUSIVE PED (MM) * - 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use :	X	X		X				
Exclusive PED :								

CONTROLLER: CONTROLLER TIMING DATA - VEHICLE TIMINGS (4 available) * - 2 - 1

Timing Plan: 1

Phase:	1	2	3	4	5	6	7	8
Minimum Green :	6	8		8				
Conditional Service Min. Green :								
Walk :		23		12				
Ped. Clearance :		11		13				
Pedestrians Carry Over :								
Vehicle Extension :	3	3		3				
MAX 1 :	10	35		25				
MAX 2 :	10	35		25				
Yellow Change :	3	4		4				
Red Clearance :		3		3				

CONTROLLER: PHASE RECALL OPTIONS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector :								
Vehicle Recall :		X						
Pedestrian Recall :		X						
MAX Recall :								
Soft Recall :								

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN * - 3 - 2, - 3 - 3

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec) 1	2	3	4	5	6	7	8
1	90	43	1	1	12	55		23				
2	100	88	1	2	11	66		23				
3	90	85	1	3	12	55		23				
4	85	0	1	4	12	50		23				
10	0	0	1	10	0	0		0				

Intersection Name:		TS ID:	Group NO:	IP address:
Brant St @ Prospect Street		141		172.22.65.2
Controller Make:	**Model:**		**Firmware Rev. No:**	
Econolite	ACS/3			

CP # 1, 2,3,4& 10	Phase:	1	2	3	4	5	6	7	8
Coord Phase	:		X						
Vehicle Recall	:								
Pedestrian Recall *(3-3, 5-2)	:		X						
Recall to MAX Time	:								
Phase Omit	:								
Special Function Outputs	:								

Coordinator Pattern #	Prefer.	Phase 1	2	3	4	5	6	7	8
	1								
	2								

X - select "." deselect

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, - 5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	1	07:30	1	1
1	1	2	09:30	2	1
1	1	3	15:30	3	1
1	1	4	19:00	4	1
1	1	10	22:00	254	1
2	2	4	07:30	4	1
2	2	1	09:30	1	1
2	2	4	16:00	4	1
2	2	10	23:00	254	1
3	3	4	08:30	4	1
3	3	1	10:30	1	1
3	3	4	17:00	4	1
3	3	10	20:30	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOM	WOM/ Year	Day Plan
New Year's Day	1	Fixed	01	1	0	3
Family Day	2	Float	2	2	3	3
Good Friday	3	Float	04	6	1	3
Victoria Day	4	Float	05	2	3	3
Canada Day	5	Fixed	07	1	0	3
Civic Day	6	Float	08	2	1	3
Labour Day	7	Float	09	2	1	3
Thanksgiving	8	Float	10	2	2	3
Christmas Day	9	Fixed	12	25	0	3

Appendix C

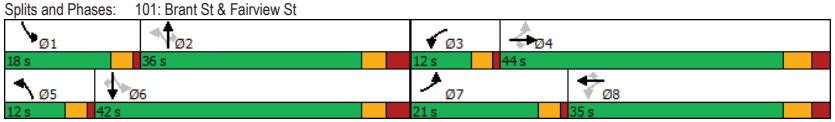
Base Year Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	989	229	111	314	142	164	561	240	214	648	141
Future Volume (vph)	315	989	229	111	314	142	164	561	240	214	648	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.408			0.150			0.232			0.175		
Satd. Flow (perm)	760	3539	1583	279	3539	1583	432	3539	1583	326	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			249			193			192			153
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	342	1075	249	121	341	154	178	610	261	233	704	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	1075	249	121	341	154	178	610	261	233	704	153
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	48.6	36.7	36.7	36.9	29.0	29.0	33.9	25.7	25.7	41.8	30.3	30.3
Actuated g/C Ratio	0.49	0.37	0.37	0.37	0.29	0.29	0.34	0.26	0.26	0.42	0.31	0.31
v/c Ratio	0.65	0.82	0.34	0.55	0.33	0.26	0.70	0.67	0.47	0.72	0.65	0.26
Control Delay	23.4	35.3	4.4	26.7	29.8	3.1	36.0	37.3	12.4	33.1	33.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	35.3	4.4	26.7	29.8	3.1	36.0	37.3	12.4	33.1	33.1	5.4
LOS	C	D	A	C	C	A	D	D	B	C	C	A
Approach Delay		28.2			22.5			30.9			29.2	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 99.3			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 28.3		Intersection LOS: C	
Intersection Capacity Utilization 74.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Base Year (2021)
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	342	1075	249	121	341	154	178	610	261	233	704	153
v/c Ratio	0.65	0.82	0.34	0.55	0.33	0.26	0.70	0.67	0.47	0.72	0.65	0.26
Control Delay	23.4	35.3	4.4	26.7	29.8	3.1	36.0	37.3	12.4	33.1	33.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	35.3	4.4	26.7	29.8	3.1	36.0	37.3	12.4	33.1	33.1	5.4
Queue Length 50th (m)	43.6	105.1	0.0	13.4	29.6	0.0	23.8	62.1	11.5	32.2	67.7	0.0
Queue Length 95th (m)	72.8	144.0	16.5	27.1	45.6	8.6	#44.1	81.2	34.3	#55.6	87.5	13.9
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	548	1448	794	226	1122	633	256	1158	647	346	1375	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.74	0.31	0.54	0.30	0.24	0.70	0.53	0.40	0.67	0.51	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Base Year (2021)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	989	229	111	314	142	164	561	240	214	648	141
Future Volume (vph)	315	989	229	111	314	142	164	561	240	214	648	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.41	1.00	1.00	0.15	1.00	1.00	0.23	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	760	3539	1583	280	3539	1583	431	3539	1583	325	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	1075	249	121	341	154	178	610	261	233	704	153
RTOR Reduction (vph)	0	0	157	0	0	109	0	0	142	0	0	106
Lane Group Flow (vph)	342	1075	92	121	341	45	178	610	119	233	704	47
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	46.2	34.3	34.3	34.5	26.6	26.6	31.3	23.2	23.2	39.9	27.8	27.8
Effective Green, g (s)	46.2	36.7	36.7	34.5	29.0	29.0	31.3	25.7	25.7	39.9	30.3	30.3
Actuated g/C Ratio	0.47	0.37	0.37	0.35	0.29	0.29	0.32	0.26	0.26	0.40	0.31	0.31
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	513	1311	586	216	1036	463	245	918	410	316	1083	484
v/s Ratio Prot	c0.10	c0.30		0.04	0.10		0.06	0.17		c0.09	0.20	
v/s Ratio Perm	0.21		0.06	0.15		0.03	0.17		0.08	c0.20		0.03
v/c Ratio	0.67	0.82	0.16	0.56	0.33	0.10	0.73	0.66	0.29	0.74	0.65	0.10
Uniform Delay, d1	17.9	28.2	20.8	24.3	27.4	25.5	26.3	32.8	29.3	22.1	29.8	24.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	4.1	0.1	3.3	0.2	0.1	10.2	1.8	0.4	8.7	1.4	0.1
Delay (s)	21.2	32.3	20.9	27.6	27.6	25.6	36.5	34.6	29.7	30.8	31.2	24.7
Level of Service	C	C	C	C	C	C	D	C	C	C	C	C
Approach Delay (s)		28.3			27.1			33.7			30.2	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	74.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	15	52	7	73	24	734	38	83	827	81
Future Volume (vph)	31	9	15	52	7	73	24	734	38	83	827	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.908			0.864			0.993			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1691	0	1770	1609	0	1770	3514	0	1770	3493	0
Flt Permitted	0.701			0.740			0.236			0.294		
Satd. Flow (perm)	1306	1691	0	1378	1609	0	440	3514	0	548	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			79			9			19	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	10	16	57	8	79	26	798	41	90	899	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	26	0	57	87	0	26	839	0	90	987	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	12.8	12.8		12.8	12.8		36.0	36.0		46.0	36.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.62	0.62		0.79	0.62	
v/c Ratio	0.12	0.07		0.19	0.21		0.10	0.38		0.14	0.45	
Control Delay	24.7	15.9		25.4	9.5		8.8	8.9		2.8	9.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.7	15.9		25.4	9.5		8.8	8.9		2.8	9.4	
LOS	C	B		C	A		A	A		A	A	
Approach Delay		20.9			15.8			8.9			8.9	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 58			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 9.7		Intersection LOS: A	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Base Year (2021)
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	26	57	87	26	839	90	987
v/c Ratio	0.12	0.07	0.19	0.21	0.10	0.38	0.14	0.45
Control Delay	24.7	15.9	25.4	9.5	8.8	8.9	2.8	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	15.9	25.4	9.5	8.8	8.9	2.8	9.4
Queue Length 50th (m)	3.2	0.9	5.5	0.7	1.4	28.3	1.9	35.1
Queue Length 95th (m)	12.2	7.9	17.9	12.6	5.6	47.7	5.8	58.3
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	461	608	487	620	374	2994	707	2977
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.04	0.12	0.14	0.07	0.28	0.13	0.33

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Base Year (2021)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	15	52	7	73	24	734	38	83	827	81
Future Volume (vph)	31	9	15	52	7	73	24	734	38	83	827	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1691		1770	1609		1770	3513		1770	3492	
Flt Permitted	0.70	1.00		0.74	1.00		0.24	1.00		0.29	1.00	
Satd. Flow (perm)	1305	1691		1379	1609		440	3513		547	3492	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	10	16	57	8	79	26	798	41	90	899	88
RTOR Reduction (vph)	0	13	0	0	66	0	0	4	0	0	8	0
Lane Group Flow (vph)	34	13	0	57	21	0	26	835	0	90	979	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	6.8	6.8		6.8	6.8		31.4	31.4		36.3	31.4	
Effective Green, g (s)	9.8	9.8		9.8	9.8		34.4	34.4		42.3	34.4	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.57	0.57		0.70	0.57	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	275		224	262		251	2010		545	1998	
v/s Ratio Prot		0.01			0.01			0.24		c0.02	c0.28	
v/s Ratio Perm	0.03			c0.04			0.06			0.09		
v/c Ratio	0.16	0.05		0.25	0.08		0.10	0.42		0.17	0.49	
Uniform Delay, d1	21.6	21.2		22.0	21.3		5.8	7.2		3.0	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.6	0.1		0.2	0.1		0.1	0.2	
Delay (s)	22.0	21.3		22.6	21.5		6.0	7.3		3.1	7.8	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		21.7			21.9			7.3			7.4	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	60.1	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	51.7%	ICU Level of Service	A	
Analysis Period (min)	15			

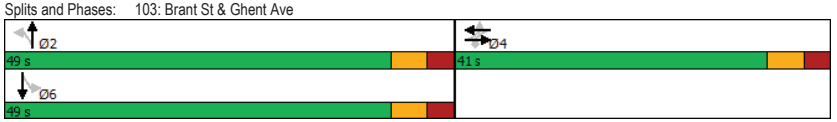
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	23	20	22	9	26	11	637	29	31	757	111
Future Volume (vph)	130	23	20	22	9	26	11	637	29	31	757	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.939			0.993			0.981	
Flt Protected		0.959			0.981		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1716	0	1770	3514	0	1770	3472	0
Flt Permitted		0.715			0.853		0.244			0.343		
Satd. Flow (perm)	0	1332	1583	0	1492	0	455	3514	0	639	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		28			7			26	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	141	25	22	24	10	28	12	692	32	34	823	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	166	22	0	62	0	12	724	0	34	944	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		15.1	15.1		15.1		24.7	24.7		24.7	24.7	
Actuated g/C Ratio		0.31	0.31		0.31		0.51	0.51		0.51	0.51	
v/c Ratio		0.40	0.04		0.13		0.05	0.40		0.10	0.52	
Control Delay		16.0	2.1		8.6		7.7	8.3		8.1	9.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		16.0	2.1		8.6		7.7	8.3		8.1	9.3	
LOS		B	A		A		A	A		A	A	
Approach Delay		14.4			8.6			8.3			9.2	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 48			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 9.3		Intersection LOS: A	
Intersection Capacity Utilization 47.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	166	22	62	12	724	34	944
v/c Ratio	0.40	0.04	0.13	0.05	0.40	0.10	0.52
Control Delay	16.0	2.1	8.6	7.7	8.3	8.1	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	2.1	8.6	7.7	8.3	8.1	9.3
Queue Length 50th (m)	9.9	0.0	1.8	0.5	17.3	1.3	24.0
Queue Length 95th (m)	27.5	1.9	9.2	2.9	35.7	6.0	48.5
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	1048	1256	1180	425	3281	597	3243
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.02	0.05	0.03	0.22	0.06	0.29

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	23	20	22	9	26	11	637	29	31	757	111
Future Volume (vph)	130	23	20	22	9	26	11	637	29	31	757	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.98	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1716		1770	3516		1770	3471	
Flt Permitted		0.71	1.00		0.85		0.24	1.00		0.34	1.00	
Satd. Flow (perm)		1332	1583		1492		455	3516		640	3471	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	25	22	24	10	28	12	692	32	34	823	121
RTOR Reduction (vph)	0	0	15	0	19	0	0	3	0	0	13	0
Lane Group Flow (vph)	0	166	7	0	43	0	12	721	0	34	931	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		12.0	12.0		12.0		21.7	21.7		21.7	21.7	
Effective Green, g (s)		15.0	15.0		15.0		24.7	24.7		24.7	24.7	
Actuated g/C Ratio		0.31	0.31		0.31		0.52	0.52		0.52	0.52	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		418	497		469		235	1820		331	1797	
v/s Ratio Prot								0.20			c0.27	
v/s Ratio Perm		c0.12	0.00		0.03		0.03			0.05		
v/c Ratio		0.40	0.01		0.09		0.05	0.40		0.10	0.52	
Uniform Delay, d1		12.8	11.3		11.5		5.7	7.0		5.9	7.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6	0.0		0.1		0.1	0.1		0.1	0.3	
Delay (s)		13.4	11.3		11.6		5.8	7.1		6.0	7.8	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		13.2			11.6			7.1			7.8	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.47			
Actuated Cycle Length (s)	47.7	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	47.8%	ICU Level of Service	A	
Analysis Period (min)	15			

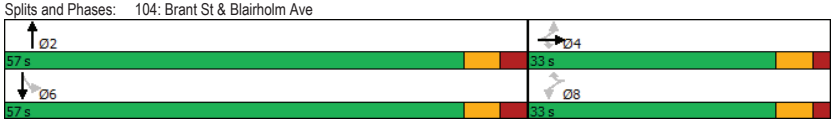
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	4	7	36	0	103	0	550	15	42	671	0
Future Volume (vph)	15	4	7	36	0	103	0	550	15	42	671	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.996				
Flt Protected		0.962		0.950						0.950		
Satd. Flow (prot)	0	1792	1583	1770	0	1583	0	3525	0	1770	1863	0
Flt Permitted		0.962		0.744						0.419		
Satd. Flow (perm)	0	1792	1583	1386	0	1583	0	3525	0	780	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			112		5				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		34.6			305.8			317.1			241.2	
Travel Time (s)		2.5			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	4	8	39	0	112	0	598	16	46	729	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	8	39	0	112	0	614	0	46	729	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.6	8.6	10.7		10.7		31.5		31.5	31.5	
Actuated g/C Ratio		0.19	0.19	0.24		0.24		0.70		0.70	0.70	
v/c Ratio		0.06	0.02	0.12		0.24		0.25		0.09	0.56	
Control Delay		18.2	0.1	17.3		6.2		4.2		4.3	7.5	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		18.2	0.1	17.3		6.2		4.2		4.3	7.5	
LOS		B	A	B		A		A		A	A	
Approach Delay		13.0			9.1			4.2			7.3	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 45.3			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 6.4		Intersection LOS: A	
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	20	8	39	112	614	46	729
v/c Ratio	0.06	0.02	0.12	0.24	0.25	0.09	0.56
Control Delay	18.2	0.1	17.3	6.2	4.2	4.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	0.1	17.3	6.2	4.2	4.3	7.5
Queue Length 50th (m)	1.3	0.0	2.4	0.0	10.3	1.3	32.0
Queue Length 95th (m)	6.7	0.0	10.2	10.5	18.0	4.5	63.8
Internal Link Dist (m)	10.6				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1110	999	922	1091	3477	769	1837
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.04	0.10	0.18	0.06	0.40

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	4	7	36	0	103	0	550	15	42	671	0
Future Volume (vph)	15	4	7	36	0	103	0	550	15	42	671	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1791	1583	1770		1583		3525		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.42	1.00	
Satd. Flow (perm)		1791	1583	1386		1583		3525		781	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	4	8	39	0	112	0	598	16	46	729	0
RTOR Reduction (vph)	0	0	7	0	0	92	0	2	0	0	0	0
Lane Group Flow (vph)	0	20	1	39	0	20	0	612	0	46	729	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.3	6.3	6.3		6.3		27.2		27.2	27.2	
Effective Green, g (s)		6.3	6.3	8.3		8.3		30.2		30.2	30.2	
Actuated g/C Ratio		0.14	0.14	0.18		0.18		0.65		0.65	0.65	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		242	214	247		282		2289		507	1209	
v/s Ratio Prot								0.17			c0.39	
v/s Ratio Perm		0.01	0.00	c0.03		0.01				0.06		
v/c Ratio		0.08	0.01	0.16		0.07		0.27		0.09	0.60	
Uniform Delay, d1		17.6	17.4	16.1		15.9		3.5		3.0	4.7	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.1	0.0	0.3		0.1		0.1		0.1	0.9	
Delay (s)		17.7	17.4	16.4		16.0		3.5		3.1	5.6	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		17.6			16.1			3.5			5.4	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.53			
Actuated Cycle Length (s)	46.5	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	57.0%	ICU Level of Service	B	
Analysis Period (min)	15			

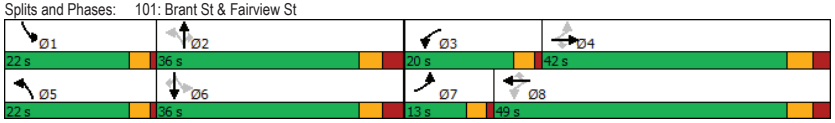
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	729	246	189	1368	409	140	728	171	218	591	404
Future Volume (vph)	198	729	246	189	1368	409	140	728	171	218	591	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.103			0.168			0.244			0.125		
Satd. Flow (perm)	192	3539	1583	313	3539	1583	455	3539	1583	233	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			267			300			140			274
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	215	792	267	205	1487	445	152	791	186	237	642	439
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	792	267	205	1487	445	152	791	186	237	642	439
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	13.0	42.0	42.0	20.0	49.0	49.0	22.0	36.0	36.0	22.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	16.7%	40.8%	40.8%	18.3%	30.0%	30.0%	18.3%	30.0%	30.0%
Maximum Green (s)	9.0	35.6	35.6	16.0	42.6	42.6	18.0	29.5	29.5	18.0	29.5	29.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.3	41.3	41.3	56.8	45.1	45.1	42.5	30.8	30.8	49.4	34.4	34.4
Actuated g/C Ratio	0.43	0.36	0.36	0.49	0.39	0.39	0.37	0.27	0.27	0.43	0.30	0.30
v/c Ratio	1.05	0.63	0.36	0.65	1.08	0.56	0.51	0.84	0.36	0.79	0.61	0.66
Control Delay	105.6	35.1	5.1	27.7	85.2	11.9	27.0	50.0	12.4	45.1	38.4	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	35.1	5.1	27.7	85.2	11.9	27.0	50.0	12.4	45.1	38.4	18.5
LOS	F	D	A	C	F	B	C	D	B	D	D	B
Approach Delay		40.7			64.4			40.7			33.0	
Approach LOS		D			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.2			
Natural Cycle: 135			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 47.6		Intersection LOS: D	
Intersection Capacity Utilization 94.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Base Year (2021)
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	215	792	267	205	1487	445	152	791	186	237	642	439
v/c Ratio	1.05	0.63	0.36	0.65	1.08	0.56	0.51	0.84	0.36	0.79	0.61	0.66
Control Delay	105.6	35.1	5.1	27.7	85.2	11.9	27.0	50.0	12.4	45.1	38.4	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	35.1	5.1	27.7	85.2	11.9	27.0	50.0	12.4	45.1	38.4	18.5
Queue Length 50th (m)	~40.7	85.0	0.0	27.8	~216.3	24.4	22.2	95.2	8.4	36.9	69.4	33.3
Queue Length 95th (m)	#95.8	114.1	19.2	45.2	#268.0	59.1	36.5	122.8	28.3	#71.1	93.8	74.6
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	205	1256	734	357	1372	797	392	976	537	338	1063	667
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.63	0.36	0.57	1.08	0.56	0.39	0.81	0.35	0.70	0.60	0.66

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Base Year (2021)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	729	246	189	1368	409	140	728	171	218	591	404
Future Volume (vph)	198	729	246	189	1368	409	140	728	171	218	591	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.10	1.00	1.00	0.17	1.00	1.00	0.24	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	192	3539	1583	312	3539	1583	455	3539	1583	234	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	215	792	267	205	1487	445	152	791	186	237	642	439
RTOR Reduction (vph)	0	0	172	0	0	184	0	0	103	0	0	193
Lane Group Flow (vph)	215	792	95	205	1487	261	152	791	83	237	642	246
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	47.9	38.9	38.9	55.5	42.7	42.7	40.1	28.4	28.4	47.1	31.9	31.9
Effective Green, g (s)	47.9	41.3	41.3	55.5	45.1	45.1	40.1	30.9	30.9	47.1	34.4	34.4
Actuated g/C Ratio	0.41	0.36	0.36	0.48	0.39	0.39	0.35	0.27	0.27	0.41	0.30	0.30
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	201	1257	562	309	1373	614	289	941	420	295	1047	468
v/s Ratio Prot	c0.08	0.22		c0.07	c0.42		0.05	c0.22		c0.10	0.18	
v/s Ratio Perm	0.36		0.06	0.24		0.17	0.13		0.05	0.22		0.16
v/c Ratio	1.07	0.63	0.17	0.66	1.08	0.43	0.53	0.84	0.20	0.80	0.61	0.53
Uniform Delay, d1	29.7	31.1	25.7	21.1	35.6	26.1	28.0	40.3	33.1	27.5	35.2	34.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	83.2	1.0	0.1	5.3	50.1	0.5	1.7	6.9	0.2	14.6	1.1	1.1
Delay (s)	112.9	32.1	25.8	26.3	85.7	26.5	29.7	47.2	33.3	42.1	36.3	35.2
Level of Service	F	C	C	C	F	C	C	D	C	D	D	D
Approach Delay (s)		44.4			67.7			42.5			36.9	
Approach LOS		D			E			D			D	

Intersection Summary

HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	116.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	18	39	99	10	165	14	970	54	102	908	56
Future Volume (vph)	114	18	39	99	10	165	14	970	54	102	908	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.898			0.859			0.992			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1673	0	1770	1600	0	1770	3511	0	1770	3507	0
Flt Permitted	0.544			0.717			0.198			0.177		
Satd. Flow (perm)	1013	1673	0	1336	1600	0	369	3511	0	330	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			179			10			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	20	42	108	11	179	15	1054	59	111	987	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	62	0	108	190	0	15	1113	0	111	1048	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	16.9	16.9		16.9	16.9		38.5	38.5		50.4	38.5	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.54	0.54		0.70	0.54	
v/c Ratio	0.52	0.15		0.34	0.37		0.08	0.59		0.25	0.55	
Control Delay	37.3	14.0		30.6	8.2		10.0	13.0		4.7	12.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1		0.0	0.0	
Total Delay	37.3	14.0		30.6	8.2		10.0	13.1		4.7	12.5	
LOS	D	B		C	A		A	B		A	B	
Approach Delay		29.6			16.3			13.0			11.8	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 71.5			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	124	62	108	190	15	1113	111	1048
v/c Ratio	0.52	0.15	0.34	0.37	0.08	0.59	0.25	0.55
Control Delay	37.3	14.0	30.6	8.2	10.0	13.0	4.7	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	37.3	14.0	30.6	8.2	10.0	13.1	4.7	12.5
Queue Length 50th (m)	16.0	2.3	13.3	1.3	1.1	58.6	4.5	53.6
Queue Length 95th (m)	#39.4	13.3	32.7	18.9	4.2	78.8	8.5	72.3
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	288	507	381	584	267	2548	491	2546
Starvation Cap Reductn	0	0	0	0	0	333	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.12	0.28	0.33	0.06	0.50	0.23	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	18	39	99	10	165	14	970	54	102	908	56
Future Volume (vph)	114	18	39	99	10	165	14	970	54	102	908	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1673		1770	1600		1770	3511		1770	3508	
Flt Permitted	0.54	1.00		0.72	1.00		0.20	1.00		0.18	1.00	
Satd. Flow (perm)	1013	1673		1335	1600		369	3511		329	3508	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	20	42	108	11	179	15	1054	59	111	987	61
RTOR Reduction (vph)	0	32	0	0	137	0	0	5	0	0	5	0
Lane Group Flow (vph)	124	30	0	108	53	0	15	1108	0	111	1043	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	13.6	13.6		13.6	13.6		35.3	35.3		40.6	35.3	
Effective Green, g (s)	16.6	16.6		16.6	16.6		38.3	38.3		46.6	38.3	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.54	0.54		0.65	0.54	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	236	390		311	373		198	1888		383	1887	
v/s Ratio Prot		0.02			0.03			c0.32		c0.03	0.30	
v/s Ratio Perm	c0.12			0.08			0.04			0.16		
v/c Ratio	0.53	0.08		0.35	0.14		0.08	0.59		0.29	0.55	
Uniform Delay, d1	23.9	21.3		22.8	21.6		7.9	11.1		5.8	10.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.1		0.7	0.2		0.2	0.5		0.4	0.4	
Delay (s)	26.0	21.4		23.5	21.8		8.1	11.6		6.2	11.2	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		24.4			22.4			11.5			10.7	
Approach LOS		C			C			B			B	

Intersection Summary				
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	64.9%	ICU Level of Service	C	
Analysis Period (min)	15			

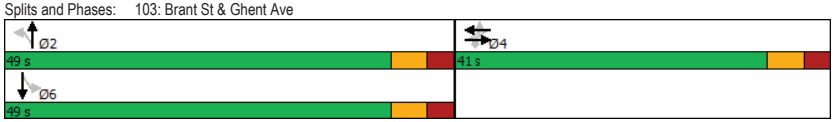
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	25	14	25	54	39	11	859	22	33	809	180
Future Volume (vph)	141	25	14	25	54	39	11	859	22	33	809	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.956			0.996			0.973	
Flt Protected		0.959			0.990		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1763	0	1770	3525	0	1770	3444	0
Flt Permitted		0.729			0.910		0.194			0.237		
Satd. Flow (perm)	0	1358	1583	0	1621	0	361	3525	0	441	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		33			4			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	153	27	15	27	59	42	12	934	24	36	879	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	15	0	128	0	12	958	0	36	1075	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		16.7	16.7		16.7		27.0	27.0		27.0	27.0	
Actuated g/C Ratio		0.32	0.32		0.32		0.52	0.52		0.52	0.52	
v/c Ratio		0.41	0.03		0.24		0.06	0.52		0.16	0.59	
Control Delay		17.8	0.6		11.9		8.5	9.9		9.8	10.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		17.8	0.6		11.9		8.5	9.9		9.8	10.5	
LOS		B	A		B		A	A		A	B	
Approach Delay		16.5			11.9			9.9			10.4	
Approach LOS		B			B			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 51.9			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	180	15	128	12	958	36	1075
v/c Ratio	0.41	0.03	0.24	0.06	0.52	0.16	0.59
Control Delay	17.8	0.6	11.9	8.5	9.9	9.8	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	0.6	11.9	8.5	9.9	9.8	10.5
Queue Length 50th (m)	12.1	0.0	5.9	0.5	27.4	1.6	31.1
Queue Length 95th (m)	33.7	0.6	19.9	3.3	56.7	7.4	64.8
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	1000	1179	1203	317	3095	387	3029
Starvation Cap Reductn	0	0	0	0	0	0	50
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.01	0.11	0.04	0.31	0.09	0.36

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	25	14	25	54	39	11	859	22	33	809	180
Future Volume (vph)	141	25	14	25	54	39	11	859	22	33	809	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.96		1.00	1.00		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1762		1770	3526		1770	3442	
Flt Permitted		0.73	1.00		0.91		0.19	1.00		0.24	1.00	
Satd. Flow (perm)		1358	1583		1621		361	3526		441	3442	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	153	27	15	27	59	42	12	934	24	36	879	196
RTOR Reduction (vph)	0	0	10	0	22	0	0	2	0	0	20	0
Lane Group Flow (vph)	0	180	5	0	106	0	12	956	0	36	1055	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		13.6	13.6		13.6		23.9	23.9		23.9	23.9	
Effective Green, g (s)		16.6	16.6		16.6		26.9	26.9		26.9	26.9	
Actuated g/C Ratio		0.32	0.32		0.32		0.52	0.52		0.52	0.52	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		437	510		522		188	1841		230	1797	
v/s Ratio Prot								0.27			c0.31	
v/s Ratio Perm		c0.13	0.00		0.07		0.03			0.08		
v/c Ratio		0.41	0.01		0.20		0.06	0.52		0.16	0.59	
Uniform Delay, d1		13.6	11.9		12.7		6.1	8.1		6.4	8.5	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6	0.0		0.2		0.1	0.2		0.3	0.5	
Delay (s)		14.3	11.9		12.8		6.2	8.3		6.7	9.0	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		14.1			12.8			8.3			8.9	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.52				
Actuated Cycle Length (s)	51.5	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	51.4%	ICU Level of Service		A	
Analysis Period (min)	15				

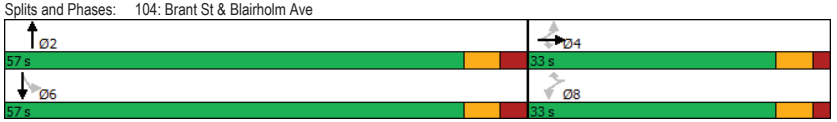
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	20	18	0	71	0	767	17	45	669	0
Future Volume (vph)	16	5	20	18	0	71	0	767	17	45	669	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.997				
Flt Protected		0.963		0.950						0.950		
Satd. Flow (prot)	0	1794	1583	1770	0	1583	0	3529	0	1770	1863	0
Flt Permitted		0.963		0.743						0.318		
Satd. Flow (perm)	0	1794	1583	1384	0	1583	0	3529	0	592	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			77		4				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		51.0			305.8			317.1			241.2	
Travel Time (s)		3.7			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	5	22	20	0	77	0	834	18	49	727	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	22	20	0	77	0	852	0	49	727	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.4	8.4	10.5		10.5		32.7		32.7	32.7	
Actuated g/C Ratio		0.18	0.18	0.23		0.23		0.71		0.71	0.71	
v/c Ratio		0.07	0.07	0.06		0.18		0.34		0.12	0.55	
Control Delay		18.4	3.6	16.8		6.7		4.4		4.5	7.1	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		18.4	3.6	16.8		6.7		4.4		4.5	7.1	
LOS		B	A	B		A		A		A	A	
Approach Delay		11.0			8.8			4.4			7.0	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 46.2			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 56.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	22	22	20	77	852	49	727
v/c Ratio	0.07	0.07	0.06	0.18	0.34	0.12	0.55
Control Delay	18.4	3.6	16.8	6.7	4.4	4.5	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	3.6	16.8	6.7	4.4	4.5	7.1
Queue Length 50th (m)	1.6	0.0	1.4	0.0	15.7	1.4	31.9
Queue Length 95th (m)	7.0	2.6	6.3	8.8	24.3	4.7	58.5
Internal Link Dist (m)	27.0				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1090	980	903	1060	3505	588	1850
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.02	0.07	0.24	0.08	0.39

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	5	20	18	0	71	0	767	17	45	669	0
Future Volume (vph)	16	5	20	18	0	71	0	767	17	45	669	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1793	1583	1770		1583		3528		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.32	1.00	
Satd. Flow (perm)		1793	1583	1384		1583		3528		592	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	5	22	20	0	77	0	834	18	49	727	0
RTOR Reduction (vph)	0	0	19	0	0	64	0	1	0	0	0	0
Lane Group Flow (vph)	0	22	3	20	0	13	0	851	0	49	727	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.1	6.1	6.1		6.1		28.3		28.3	28.3	
Effective Green, g (s)		6.1	6.1	8.1		8.1		31.3		31.3	31.3	
Actuated g/C Ratio		0.13	0.13	0.17		0.17		0.66		0.66	0.66	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		230	203	236		270		2329		390	1230	
v/s Ratio Prot								0.24			c0.39	
v/s Ratio Perm		0.01	0.00	c0.01		0.01				0.08		
v/c Ratio		0.10	0.01	0.08		0.05		0.37		0.13	0.59	
Uniform Delay, d1		18.2	18.0	16.5		16.4		3.6		3.0	4.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.2		0.1		0.1		0.1	0.8	
Delay (s)		18.4	18.1	16.7		16.5		3.7		3.1	5.3	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		18.2			16.5			3.7			5.1	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	47.4	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	56.9%	ICU Level of Service	B	
Analysis Period (min)	15			

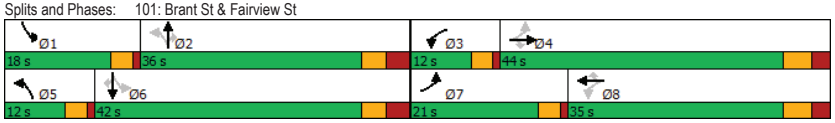
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	297	709	201	124	664	227	196	532	133	223	540	155
Future Volume (vph)	297	709	201	124	664	227	196	532	133	223	540	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.140			0.289			0.322			0.185		
Satd. Flow (perm)	261	3539	1583	538	3539	1583	600	3539	1583	345	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			247			192			168
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	323	771	218	135	722	247	213	578	145	242	587	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	323	771	218	135	722	247	213	578	145	242	587	168
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	47.8	35.8	35.8	34.8	26.9	26.9	32.3	24.2	24.2	40.2	28.7	28.7
Actuated g/C Ratio	0.49	0.37	0.37	0.36	0.28	0.28	0.33	0.25	0.25	0.41	0.30	0.30
v/c Ratio	0.83	0.59	0.30	0.46	0.73	0.40	0.71	0.65	0.27	0.74	0.56	0.29
Control Delay	41.7	27.5	4.4	21.3	37.5	6.0	36.2	37.0	2.9	33.5	31.0	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	27.5	4.4	21.3	37.5	6.0	36.2	37.0	2.9	33.5	31.0	5.4
LOS	D	C	A	C	D	A	D	D	A	C	C	A
Approach Delay		27.2			28.5			31.5			27.3	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 96.9			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 75.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Base Year (2021)
SAT Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	323	771	218	135	722	247	213	578	145	242	587	168
v/c Ratio	0.83	0.59	0.30	0.46	0.73	0.40	0.71	0.65	0.27	0.74	0.56	0.29
Control Delay	41.7	27.5	4.4	21.3	37.5	6.0	36.2	37.0	2.9	33.5	31.0	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	27.5	4.4	21.3	37.5	6.0	36.2	37.0	2.9	33.5	31.0	5.4
Queue Length 50th (m)	45.4	65.9	0.0	14.7	70.3	0.0	28.3	57.0	0.0	32.8	53.1	0.0
Queue Length 95th (m)	#105.2	94.3	15.7	29.1	99.7	19.0	#49.1	76.6	6.6	#57.3	71.4	14.5
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	398	1487	791	298	1152	682	298	1189	659	355	1412	732
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.52	0.28	0.45	0.63	0.36	0.71	0.49	0.22	0.68	0.42	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Base Year (2021)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	297	709	201	124	664	227	196	532	133	223	540	155
Future Volume (vph)	297	709	201	124	664	227	196	532	133	223	540	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.14	1.00	1.00	0.29	1.00	1.00	0.32	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	261	3539	1583	539	3539	1583	601	3539	1583	346	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	323	771	218	135	722	247	213	578	145	242	587	168
RTOR Reduction (vph)	0	0	137	0	0	178	0	0	109	0	0	118
Lane Group Flow (vph)	323	771	81	135	722	69	213	578	36	242	587	50
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	45.3	33.4	33.4	32.4	24.5	24.5	29.8	21.7	21.7	38.4	26.3	26.3
Effective Green, g (s)	45.3	35.8	35.8	32.4	26.9	26.9	29.8	24.2	24.2	38.4	28.8	28.8
Actuated g/C Ratio	0.47	0.37	0.37	0.34	0.28	0.28	0.31	0.25	0.25	0.40	0.30	0.30
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	384	1311	586	281	985	440	283	886	396	324	1055	471
v/s Ratio Prot	c0.15	0.22		0.04	0.20		0.06	0.16		c0.10	0.17	
v/s Ratio Perm	c0.25		0.05	0.12		0.04	0.17		0.02	c0.20		0.03
v/c Ratio	0.84	0.59	0.14	0.48	0.73	0.16	0.75	0.65	0.09	0.75	0.56	0.11
Uniform Delay, d1	23.3	24.5	20.2	23.2	31.6	26.3	27.1	32.4	27.8	21.9	28.5	24.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.2	0.7	0.1	1.3	2.9	0.2	10.8	1.7	0.1	9.1	0.6	0.1
Delay (s)	38.5	25.1	20.3	24.5	34.4	26.5	37.9	34.2	27.9	31.0	29.2	24.7
Level of Service	D	C	C	C	C	C	D	C	C	C	C	C
Approach Delay (s)		27.6			31.4			34.0			28.8	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	96.6	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	75.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	7	14	59	11	106	12	766	34	94	771	35
Future Volume (vph)	54	7	14	59	11	106	12	766	34	94	771	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.902			0.864			0.994			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1680	0	1770	1609	0	1770	3518	0	1770	3514	0
Flt Permitted	0.676			0.742			0.273			0.276		
Satd. Flow (perm)	1259	1680	0	1382	1609	0	509	3518	0	514	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			115			8			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	8	15	64	12	115	13	833	37	102	838	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	23	0	64	127	0	13	870	0	102	876	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	12.9	12.9		12.9	12.9		33.7	33.7		44.0	33.7	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.60	0.60		0.78	0.60	
v/c Ratio	0.21	0.06		0.20	0.28		0.04	0.41		0.16	0.42	
Control Delay	24.0	14.7		23.7	8.5		8.7	9.9		3.2	9.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.0	14.7		23.7	8.5		8.7	9.9		3.2	9.9	
LOS	C	B		C	A		A	A		A	A	
Approach Delay		21.4			13.6			9.8			9.2	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 56.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 49.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	59	23	64	127	13	870	102	876
v/c Ratio	0.21	0.06	0.20	0.28	0.04	0.41	0.16	0.42
Control Delay	24.0	14.7	23.7	8.5	8.7	9.9	3.2	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	14.7	23.7	8.5	8.7	9.9	3.2	9.9
Queue Length 50th (m)	5.4	0.7	5.8	1.1	0.7	30.5	2.3	30.7
Queue Length 95th (m)	17.5	6.7	18.6	14.8	3.5	53.0	6.9	53.2
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	451	612	495	650	447	3089	685	3085
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.04	0.13	0.20	0.03	0.28	0.15	0.28

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	7	14	59	11	106	12	766	34	94	771	35
Future Volume (vph)	54	7	14	59	11	106	12	766	34	94	771	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1681		1770	1610		1770	3517		1770	3516	
Flt Permitted	0.68	1.00		0.74	1.00		0.27	1.00		0.28	1.00	
Satd. Flow (perm)	1258	1681		1383	1610		509	3517		514	3516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	8	15	64	12	115	13	833	37	102	838	38
RTOR Reduction (vph)	0	12	0	0	95	0	0	4	0	0	4	0
Lane Group Flow (vph)	59	11	0	64	32	0	13	866	0	102	872	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.2	7.2		7.2	7.2		29.2	29.2		34.3	29.2	
Effective Green, g (s)	10.2	10.2		10.2	10.2		32.2	32.2		40.3	32.2	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.55	0.55		0.69	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	219	293		241	280		280	1935		527	1935	
v/s Ratio Prot		0.01			0.02			0.25		c0.03	c0.25	
v/s Ratio Perm	c0.05			0.05			0.03			0.11		
v/c Ratio	0.27	0.04		0.27	0.11		0.05	0.45		0.19	0.45	
Uniform Delay, d1	20.9	20.1		20.9	20.3		6.1	7.8		3.3	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.1		0.6	0.2		0.1	0.2		0.2	0.2	
Delay (s)	21.6	20.1		21.5	20.5		6.1	8.0		3.4	8.0	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		21.2			20.9			8.0			7.6	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.36				
Actuated Cycle Length (s)	58.5	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	49.0%	ICU Level of Service		A	
Analysis Period (min)	15				

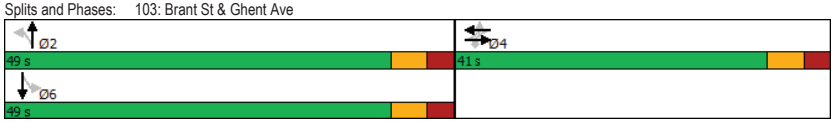
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	15	8	17	14	32	14	687	17	38	706	95
Future Volume (vph)	85	15	8	17	14	32	14	687	17	38	706	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.931			0.996			0.982	
Flt Protected		0.959			0.987		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1712	0	1770	3525	0	1770	3476	0
Flt Permitted		0.710			0.892		0.294			0.341		
Satd. Flow (perm)	0	1323	1583	0	1547	0	548	3525	0	635	3476	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		35			4			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	92	16	9	18	15	35	15	747	18	41	767	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	9	0	68	0	15	765	0	41	870	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		12.8	12.8		12.8		24.5	24.5		24.5	24.5	
Actuated g/C Ratio		0.32	0.32		0.32		0.61	0.61		0.61	0.61	
v/c Ratio		0.26	0.02		0.13		0.05	0.36		0.11	0.41	
Control Delay		13.6	0.0		7.7		6.4	6.7		6.9	6.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		13.6	0.0		7.7		6.4	6.7		6.9	6.9	
LOS		B	A		A		A	A		A	A	
Approach Delay		12.5			7.7			6.7			6.9	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 40.4			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 7.2		Intersection LOS: A	
Intersection Capacity Utilization 50.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	9	68	15	765	41	870
v/c Ratio	0.26	0.02	0.13	0.05	0.36	0.11	0.41
Control Delay	13.6	0.0	7.7	6.4	6.7	6.9	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	0.0	7.7	6.4	6.7	6.9	6.9
Queue Length 50th (m)	5.3	0.0	1.5	0.5	15.7	1.3	18.2
Queue Length 95th (m)	17.1	0.0	8.8	2.8	31.1	5.8	35.8
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	1183	1421	1387	537	3453	622	3406
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.01	0.05	0.03	0.22	0.07	0.26

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	15	8	17	14	32	14	687	17	38	706	95
Future Volume (vph)	85	15	8	17	14	32	14	687	17	38	706	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1711		1770	3527		1770	3476	
Flt Permitted		0.71	1.00		0.89		0.29	1.00		0.34	1.00	
Satd. Flow (perm)		1323	1583		1545		547	3527		635	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	16	9	18	15	35	15	747	18	41	767	103
RTOR Reduction (vph)	0	0	7	0	26	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	108	2	0	42	0	15	763	0	41	860	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		7.5	7.5		7.5		20.4	20.4		20.4	20.4	
Effective Green, g (s)		10.5	10.5		10.5		23.4	23.4		23.4	23.4	
Actuated g/C Ratio		0.25	0.25		0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		331	396		387		305	1969		354	1941	
v/s Ratio Prot								0.22			c0.25	
v/s Ratio Perm		c0.08	0.00		0.03		0.03			0.06		
v/c Ratio		0.33	0.01		0.11		0.05	0.39		0.12	0.44	
Uniform Delay, d1		12.8	11.8		12.1		4.2	5.2		4.4	5.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6	0.0		0.1		0.1	0.1		0.1	0.2	
Delay (s)		13.4	11.8		12.2		4.3	5.3		4.5	5.6	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		13.3			12.2			5.3			5.5	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio	0.41			
Actuated Cycle Length (s)	41.9	Sum of lost time (s)		8.0
Intersection Capacity Utilization	50.4%	ICU Level of Service		A
Analysis Period (min)	15			

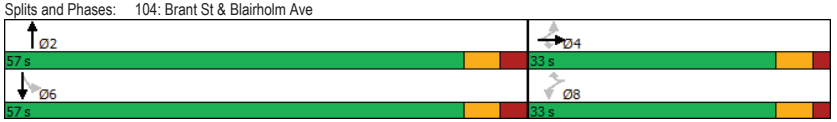
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	5	10	0	41	0	660	8	33	666	0
Future Volume (vph)	14	0	5	10	0	41	0	660	8	33	666	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.998				
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1770	1583	1770	0	1583	0	3532	0	1770	1863	0
Flt Permitted		0.950		0.748						0.376		
Satd. Flow (perm)	0	1770	1583	1393	0	1583	0	3532	0	700	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			48		2				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		55.3			305.8			317.1			241.2	
Travel Time (s)		4.0			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	5	11	0	45	0	717	9	36	724	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	5	11	0	45	0	726	0	36	724	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.5	8.5	10.7		10.7		35.9		35.9	35.9	
Actuated g/C Ratio		0.19	0.19	0.24		0.24		0.80		0.80	0.80	
v/c Ratio		0.04	0.01	0.03		0.11		0.26		0.06	0.49	
Control Delay		19.6	0.0	17.8		7.3		3.2		3.6	5.4	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		19.6	0.0	17.8		7.3		3.2		3.6	5.4	
LOS		B	A	B		A		A		A	A	
Approach Delay		14.7			9.3			3.2			5.3	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 45			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 4.6		Intersection LOS: A	
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	15	5	11	45	726	36	724
v/c Ratio	0.04	0.01	0.03	0.11	0.26	0.06	0.49
Control Delay	19.6	0.0	17.8	7.3	3.2	3.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	0.0	17.8	7.3	3.2	3.6	5.4
Queue Length 50th (m)	1.5	0.0	1.0	0.0	12.8	1.0	31.8
Queue Length 95th (m)	5.4	0.0	4.2	6.3	19.1	3.3	55.5
Internal Link Dist (m)	31.3				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1132	1030	957	1102	3478	689	1834
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.00	0.01	0.04	0.21	0.05	0.39

Intersection Summary

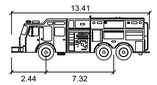
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	5	10	0	41	0	660	8	33	666	0
Future Volume (vph)	14	0	5	10	0	41	0	660	8	33	666	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583	1770		1583		3533		1770	1863	
Flt Permitted		0.95	1.00	0.75		1.00		1.00		0.38	1.00	
Satd. Flow (perm)		1770	1583	1393		1583		3533		700	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	5	11	0	45	0	717	9	36	724	0
RTOR Reduction (vph)	0	0	5	0	0	39	0	1	0	0	0	0
Lane Group Flow (vph)	0	15	0	11	0	6	0	725	0	36	724	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		4.0	4.0	4.0		4.0		30.4		30.4	30.4	
Effective Green, g (s)		4.0	4.0	6.0		6.0		33.4		33.4	33.4	
Actuated g/C Ratio		0.08	0.08	0.13		0.13		0.70		0.70	0.70	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		149	133	176		200		2489		493	1312	
v/s Ratio Prot								0.21			c0.39	
v/s Ratio Perm		0.01	0.00	0.01		0.00				0.05		
v/c Ratio		0.10	0.00	0.06		0.03		0.29		0.07	0.55	
Uniform Delay, d1		20.0	19.9	18.2		18.1		2.6		2.2	3.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.0	0.1		0.1		0.1		0.1	0.5	
Delay (s)		20.3	19.9	18.4		18.2		2.7		2.2	3.9	
Level of Service		C	B	B		B		A		A	A	
Approach Delay (s)		20.2			18.2			2.7			3.8	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	47.4	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	56.7%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Appendix D

Swept Path Analysis



Pumper Fire Truck

	meters
Width	: 2.59
Track	: 2.59
Lock to Lock Time	: 6.0
Steering Angle	: 37.8

PART 2, PLAN 20R-9602

PROPERTY LINE

PLAINS ROAD EAST (P-2070-135) PIN 07087-0484 PART 1, PLAN 20R-9602

PIN 07087-0381

PART 4, PLAN 20R-5638

DRIVEWAY

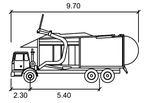
RELOCATED HERITAGE BUILDING (OFFICE)

CONCRETE CURB

CONCRETE SIDEWALK

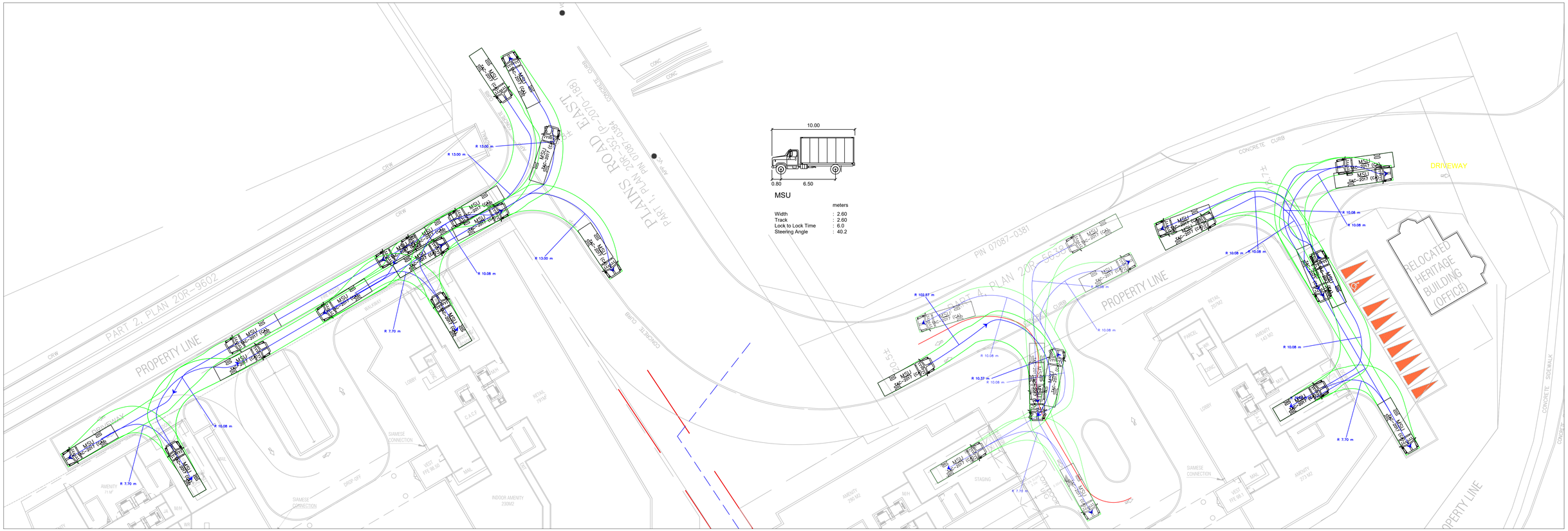
CRW

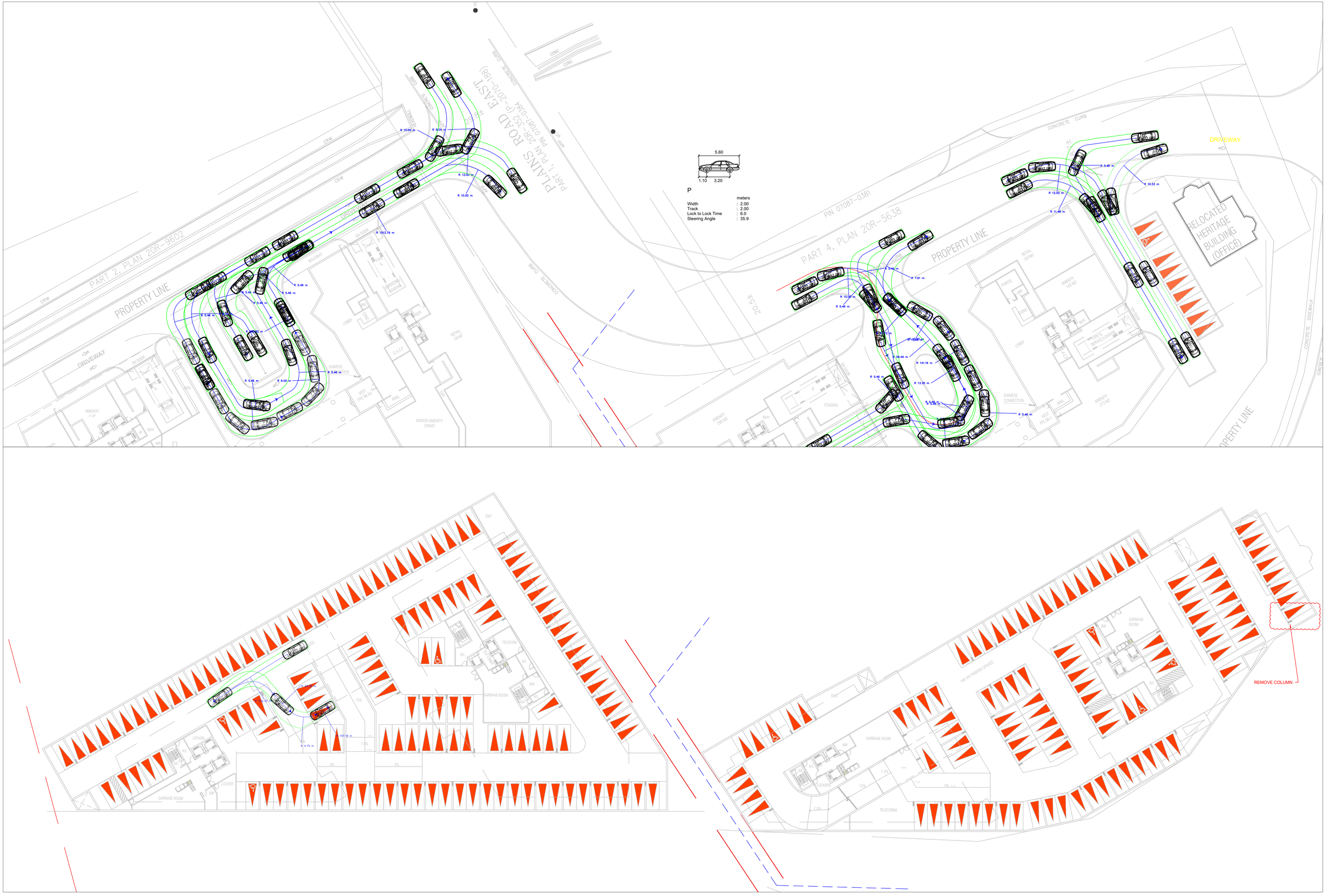
R 11.95 m



Halton Front End Loader

	meters
Width	: 2.70
Track	: 2.70
Lock to Lock Time	: 6.0
Steering Angle	: 24.5


10.00
0.80
6.50
MSU
meters
Width : 2.60
Track : 2.60
Lock to Lock Time : 6.0
Steering Angle : 40.2
PLAINS ROAD EAST
PART 1, PLAN 20R-15548 (PIN 07087-0384)
PART 2, PLAN 20R-9602
PROPERTY LINE
PIN 07087-0381
PART 1, PLAN 20R-9602
DRIVEWAY
RELOCATED HERITAGE BUILDING (OFFICE)
CONCRETE CURB
CONCRETE SIDEWALK
CRW
R 13.00 m
R 10.08 m
R 7.70 m
R 102.87 m
R 10.37 m
MSU
2AC-20IT (Cab)
SIAMESE CONNECTION
DROP-OFF
INDOOR AMENITY 230M2
AMENITY 290 M2
AMENITY 143 M2
AMENITY 273 M2
STAGING
OUTDOOR AMENITY
LOBBY
RETAIL 727M2
RETAIL 1010M2
MAIL
VEST
FIRE RISER
ELEC
PARCEL
MAIN
M/H
CONC


5.60
1.10
3.20
P
meters
Width : 2.00
Track : 2.00
Lock to Lock Time : 6.0
Steering Angle : 35.9
PART 2, PLAN 20R-9602
PROPERTY LINE
PLAINS ROAD EAST
PART 1, PLAN 20R-20535 (PIN 07087-0484)
PART 4, PLAN 20R-5638
PIN 07087-0381
DRIVEWAY
CONCRETE CURB
CONCRETE SIDEWALK
RELOCATED HERITAGE BUILDING (OFFICE)
REMOVE COLUMN
GARBAGE ROOM
TELECOMM
LOCKER
SWT
INDOOR AMENITY 230M2
AMENITY 71.9M
AMENITY 143.M2
AMENITY 273.M2
AMENITY 280.M2
STAGING
RETAIL 1574M2
SIAMESE CONNECTION
VEST. FFE 98.35
VEST. FFE 99.1
LOBBY
MAIL
ELEC
MECH
WHEEL
GARBAGE ROOM
TELECOMM
SW
A/C
15%
7.5%
5%
R 15.00 m
R 8.04 m
R 12.00 m
R 10.00 m
R 1313.79 m
R 5.46 m
R 6.00 m
R 7.61 m
R 10.33 m
R 11.48 m
R 141.16 m
R 13.35 m
R 4.75 m
R 197.19 m

Appendix E

Trip Generation Calculations

Phase 1

ITE Land Use	Units	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
222 - Multifamily Housing, High-Rise (Units)	425	32	100	**132**	93	60	**153**	86	70	**156**
820 - Shopping Center (/1,000ft^2 GFA)	8.55	5	3	**8**	16	17	**33**	20	18	**38**
Phase 1 Total Trip Generation		37	103	**140**	109	77	**186**	106	88	**194**
LUC 820 Pass-by PM Peak Hour	*34%*				*-6*	*-6*	*-12*			
LUC 820 Pass-by SAT Peak Hour	*26%*							*-5*	*-5*	*-10*
Internal Capture - AM Peak Hour	*2%*	*-1*	*-2*	*-3*						
Internal Capture - PM Peak Hour	*3%*				*-3*	*-2*	*-5*			
Internal Capture - SAT Peak Hour	*3%*							*-3*	*-3*	*-6*
Phase 1 Net Trip Generation		**36**	**101**	**137**	**100**	**69**	**169**	**98**	**80**	**178**

222: AM T = 0.28(X) + 12.86 / PM T = 0.34(X) + 8.56 / SAT T = 0.31(X) + 24.03

820: AM Avg Rate 0.94 / PM Avg Rate 3.81 / SAT Avg Rate 4.50

Phase 2

ITE Land Use	Units	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
222 - Multifamily Housing, High-Rise (Units)	328	25	80	**105**	73	47	**120**	69	57	**126**
820 - Shopping Center (/1,000ft^2 GFA)	5.29	3	2	**5**	10	10	**20**	12	12	**24**
Phase 2 Total Trip Generation		28	82	**110**	83	57	**140**	81	69	**150**
LUC 820 Pass-by PM Peak Hour	*34%*				*-3*	*-3*	*-6*			
LUC 820 Pass-by SAT Peak Hour	*26%*							*-3*	*-3*	*-6*
Internal Capture - AM Peak Hour	*2%*	*-1*	*-2*	*-3*						
Internal Capture - PM Peak Hour	*4%*				*-3*	*-2*	*-5*			
Internal Capture - SAT Peak Hour	*3%*							*-2*	*-2*	*-4*
Phase 2 Net Trip Generation		**27**	**80**	**107**	**77**	**52**	**129**	**76**	**64**	**140**

220: AM Ln(T) = 0.95 Ln(X) - 0.51 / PM Ln(T) = 0.89 Ln(X) - 0.02 / SAT Avg Rate 0.70

222: AM T = 0.28(X) + 12.86 / PM T = 0.34(X) + 8.56 / SAT T = 0.31(X) + 24.03

820: AM Avg Rate 0.94 / PM Avg Rate 3.81 / SAT Avg Rate 4.50

Phase 3

ITE Land Use	Units	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
221 - Multifamily Housing, Mid-Rise (Units)	128	11	33	**44**	34	22	**56**	29	31	**60**
Phase 3 Net Trip Generation		**11**	**33**	**44**	**34**	**22**	**56**	**29**	**31**	**60**

221: AM Ln(T) = 0.98 Ln(X) - 0.98 / PM Ln(T) = 0.96 Ln(X) - 0.63 / SAT T = 0.42(X) + 6.73

820: AM Avg Rate 0.94 / PM Avg Rate 3.81 / SAT Avg Rate 4.50

All Phases

ITE Land Use	Units	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
221 - Multifamily Housing, Mid-Rise (Units)	128	11	33	44	34	22	56	29	31	60
222 - Multifamily Housing, High-Rise (Units)	753	57	180	237	166	107	273	155	127	282
820 - Shopping Center (/1,000ft^2 GFA)	13.84	8	5	13	26	27	53	32	30	62
All Phases Total Trip Generation		76	218	294	226	156	382	216	188	404
LUC 820 Pass-by PM Peak Hour	*34%*	*0*	*0*	0	*-9*	*-9*	-18	*0*	*0*	0
LUC 820 Pass-by SAT Peak Hour	*26%*	*0*	*0*	0	*0*	*0*	0	*-8*	*-8*	-16
Internal Capture - AM Peak Hour	*2%*	*-2*	*-4*	-6	*0*	*0*	0	*0*	*0*	0
Internal Capture - PM Peak Hour	*3%/4%*	*0*	*0*	0	*-6*	*-4*	-10	*0*	*0*	0
Internal Capture - SAT Peak Hour	*3%*	*0*	*0*	0	*0*	*0*	0	*-5*	*-5*	-10
All Phases Net Trip Generation		**74**	**214**	**288**	**211**	**143**	**354**	**203**	**175**	**378**

Appendix F

NCHRP Internal Capture



NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	200403	**Organization:**	PTSL
Project Location:	Brant/Ghent Burlington	**Performed By:**	AE
Scenario Description:	Phase 1	**Date:**	May-21
Analysis Year:	2022	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	9	1000 Sq. ft	8	5	3
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	425	Units	132	32	100
Hotel				0		
All Other Land Uses[2]				0		
Total				140	37	103

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.13	3%	5%	1.18	15%	5%
Restaurant		15%				
Cinema/Entertainment						
Residential	1.16	15%	5%	1.16	15%	5%
Hotel						
All Other Land Uses[2]	1.00	15%	5%	1.00	15%	5%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	163	43	120
Internal Capture Percentage	2%	5%	2%
External Vehicle-Trips[3]	111	29	82
External Transit-Trips[4]	22	5	17
External Non-Motorized Trips[4]	8	2	6

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	17%	25%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	3%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	200403
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.13	5	6	1.18	3	4
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	32	37	1.16	100	116
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		1	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	23	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	0		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	5	6	4	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	36	37	25	5	2
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	3	4	3	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	115	116	79	17	6
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	200403	**Organization:**	PTSL
Project Location:	Brant/Ghent Burlington	**Performed By:**	AE
Scenario Description:	Phase 1	**Date:**	May-21
Analysis Year:	2027	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	9	1000 Sq. ft	33	16	17
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	425	Units	153	93	60
Hotel				0		
All Other Land Uses[2]				0		
Total				186	109	77

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.13	15%	5%	1.18	15%	5%
Restaurant						
Cinema/Entertainment						
Residential	1.16	15%	5%	1.16	15%	5%
Hotel						
All Other Land Uses[2]	1.00	15%	5%	1.00	15%	5%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	216	126	90
Internal Capture Percentage	3%	2%	3%
External Vehicle-Trips[3]	145	85	60
External Transit-Trips[4]	32	19	13
External Non-Motorized Trips[4]	10	6	4

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	6%	10%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	200403
Analysis Period:	PM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.13	16	18	1.18	17	20
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	93	108	1.16	60	70
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	6		3	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	14	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	1		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	17	18	12	3	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	106	108	73	16	5
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	18	20	12	3	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	69	70	48	10	3
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	200403	**Organization:**	PTSL
Project Location:	Brant/Ghent Burlington	**Performed By:**	AE
Scenario Description:	Phase 1	**Date:**	May 202
Analysis Year:	2027	**Checked By:**	
Analysis Period:	**SAT Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	9	1000 Sq. ft	38	20	18
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	425	Units	156	86	70
Hotel				0		
All Other Land Uses[2]				0		
Total				194	106	88

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.13	15%	5%	1.18	15%	5%
Restaurant						
Cinema/Entertainment						
Residential	1.16	15%	5%	1.16	15%	5%
Hotel						
All Other Land Uses[2]	1.00	15%	5%	1.00	15%	5%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	225	123	102
Internal Capture Percentage	3%	2%	3%
External Vehicle-Trips[3]	151	83	68
External Transit-Trips[4]	33	18	15
External Non-Motorized Trips[4]	11	6	5

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	4%	10%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	200403
Analysis Period:	SAT Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.13	20	23	1.18	18	21
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	86	100	1.16	70	81
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	6		3	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	16	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	2		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	22	23	16	3	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	98	100	67	15	5
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	19	21	13	3	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	80	81	55	12	4
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	200403	**Organization:**	PTSL
Project Location:	Brant/Ghent Burlington	**Performed By:**	AE
Scenario Description:	Phase 2	**Date:**	May-21
Analysis Year:	2028	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	5	1000 Sq. ft	5	3	2
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	328	Units	105	25	80
Hotel				0		
All Other Land Uses[2]				0		
Total				110	28	82

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.13	15%	5%	1.18	15%	5%
Restaurant						
Cinema/Entertainment						
Residential	1.16	15%	5%	1.16	15%	5%
Hotel						
All Other Land Uses[2]	1.00	15%	5%	1.00	15%	5%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	127	32	95
Internal Capture Percentage	2%	3%	1%
External Vehicle-Trips[3]	88	23	65
External Transit-Trips[4]	18	4	14
External Non-Motorized Trips[4]	6	1	5

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	33%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	0%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	200403
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.13	3	3	1.18	2	2
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	25	29	1.16	80	93
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	19	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	0		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	2	3	2	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	29	29	21	4	1
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	2	2	2	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	92	93	63	14	5
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	200403	**Organization:**	PTSL
Project Location:	Brant/Ghent Burlington	**Performed By:**	AE
Scenario Description:	Phase 2	**Date:**	May-21
Analysis Year:	2028	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	5	1000 Sq. ft	20	10	10
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	328	Units	120	73	47
Hotel				0		
All Other Land Uses[2]				0		
Total				140	83	57

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.13	15%	5%	1.18	15%	5%
Restaurant						
Cinema/Entertainment						
Residential	1.16	15%	5%	1.16	15%	5%
Hotel						
All Other Land Uses[2]	1.00	15%	5%	1.00	15%	5%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	163	96	67
Internal Capture Percentage	4%	3%	4%
External Vehicle-Trips[3]	107	64	43
External Transit-Trips[4]	24	14	10
External Non-Motorized Trips[4]	9	5	4

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	9%	17%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	2%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	200403
Analysis Period:	PM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.13	10	11	1.18	10	12
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	73	85	1.16	47	55
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	3		2	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	11	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	1		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	0	0		0
Hotel	0	0	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	10	11	6	2	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	83	85	58	12	4
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	10	12	6	2	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	54	55	37	8	3
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	200403	**Organization:**	PTSL
Project Location:	Brant/Ghent Burlington	**Performed By:**	AE
Scenario Description:	Phase 2	**Date:**	May-21
Analysis Year:	2029	**Checked By:**	
Analysis Period:	**SAT Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	5	1000 Sq. ft	24	12	12
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	328	Units	126	69	57
Hotel				0		
All Other Land Uses[2]				0		
Total				150	81	69

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.13	15%	5%	1.18	15%	5%
Restaurant						
Cinema/Entertainment						
Residential	1.16	15%	5%	1.16	15%	5%
Hotel						
All Other Land Uses[2]	1.00	15%	5%	1.00	15%	5%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	174	94	80
Internal Capture Percentage	3%	3%	4%
External Vehicle-Trips[3]	115	62	53
External Transit-Trips[4]	26	14	12
External Non-Motorized Trips[4]	9	5	4

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	7%	14%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	3%	2%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	200403
Analysis Period:	SAT Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.13	12	14	1.18	12	14
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	69	80	1.16	57	66
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	4		2	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	13	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	1		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	13	14	9	2	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	78	80	53	12	4
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	12	14	8	2	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	65	66	45	10	3
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

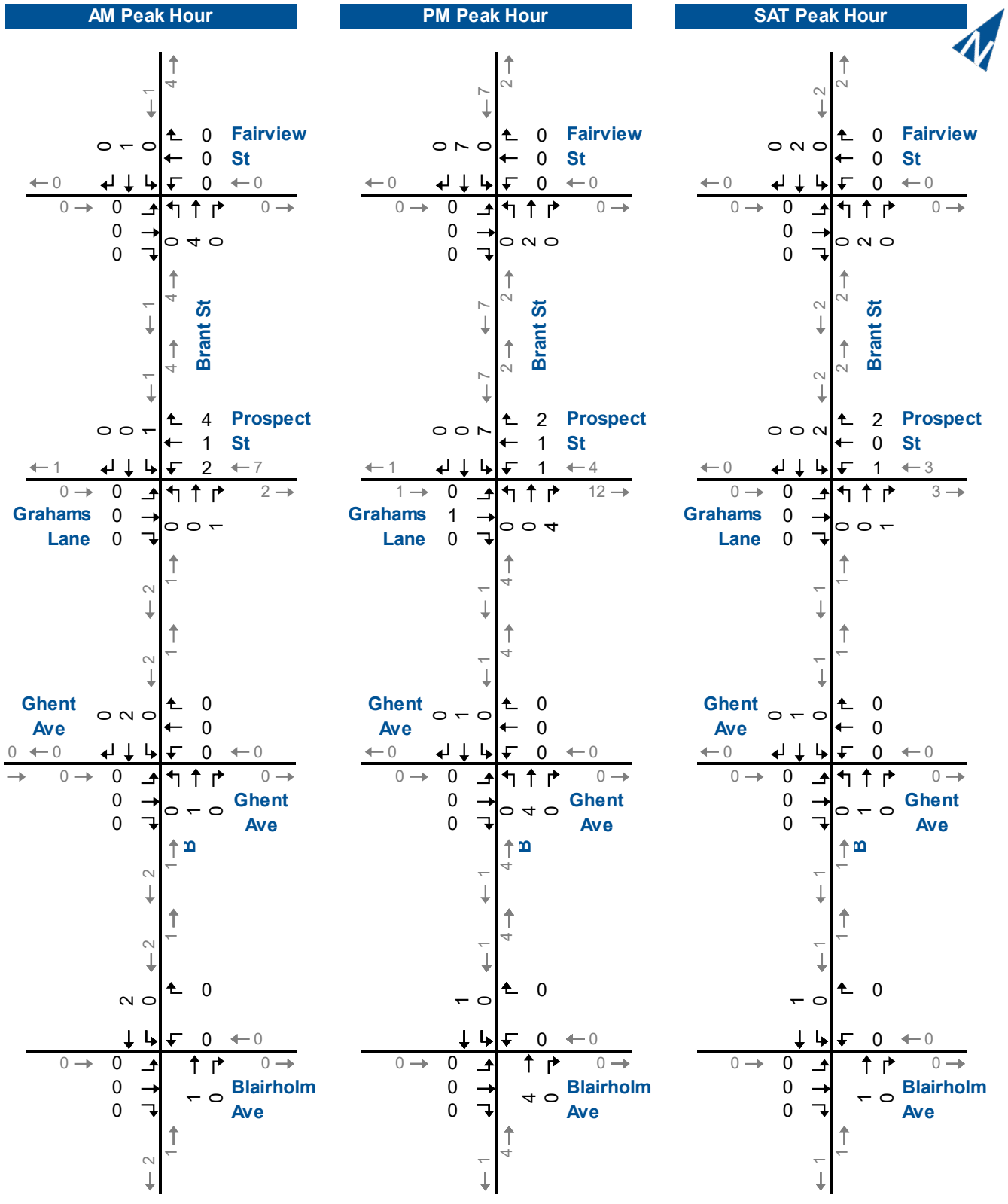
[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Appendix G

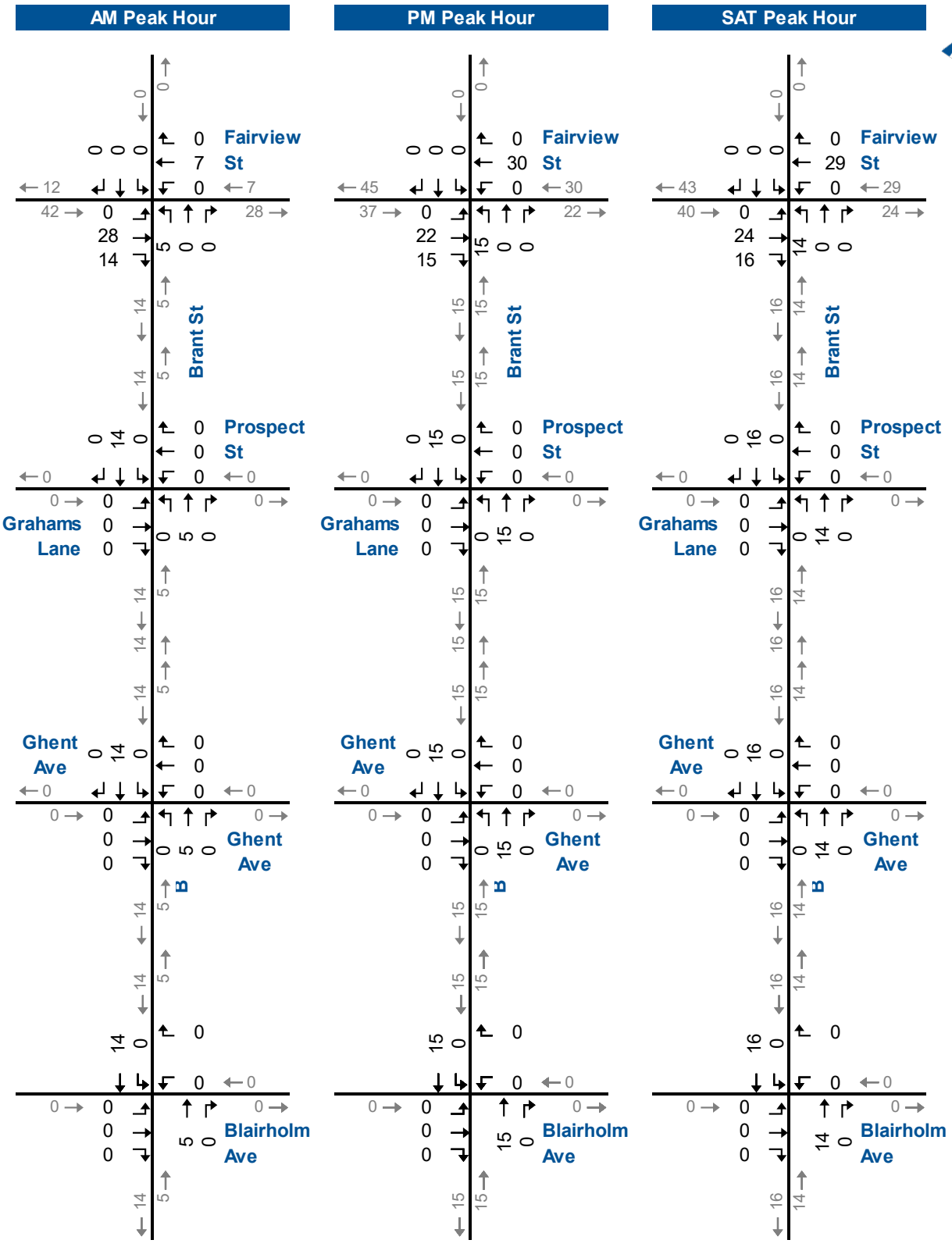
Background Development Traffic Volumes



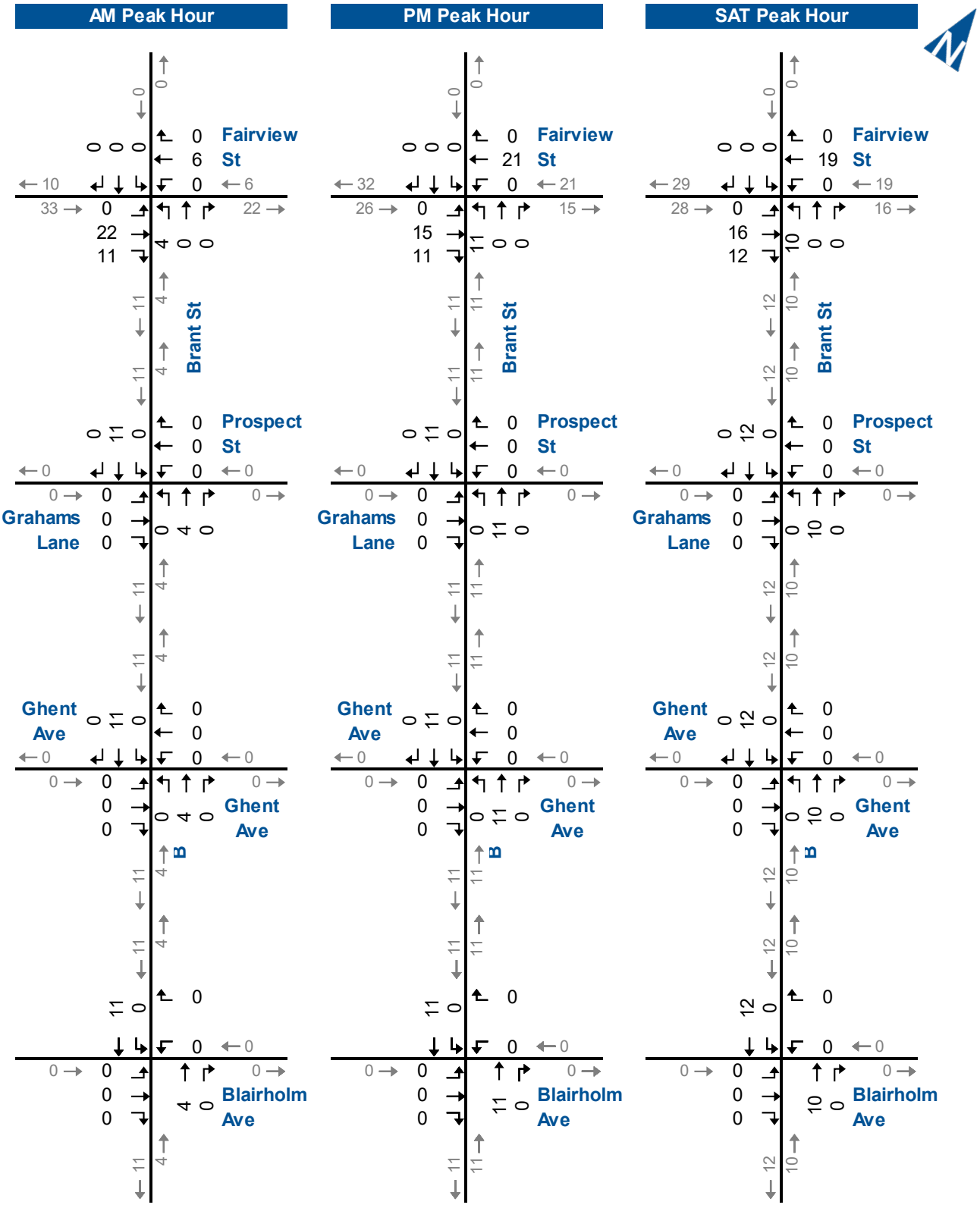
2095 Prospect Street Traffic Volumes

Brant St / Ghent Ave, Burlington TIS
200403

Figure A



1134-1146 Plains Road East Phase 1 (2027) Traffic Volumes



1134-1146 Plains Road East Phase 2 (2029) Traffic Volumes

Appendix H1

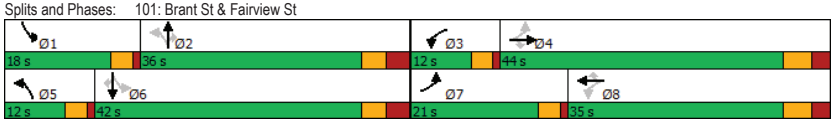
Background – Phase 1 Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	1078	257	118	340	151	179	600	255	227	689	150
Future Volume (vph)	334	1078	257	118	340	151	179	600	255	227	689	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.386			0.143			0.209			0.154		
Satd. Flow (perm)	719	3539	1583	266	3539	1583	389	3539	1583	287	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			266			193			192			163
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	363	1172	279	128	370	164	195	652	277	247	749	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	363	1172	279	128	370	164	195	652	277	247	749	163
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.4	38.5	38.5	38.2	30.4	30.4	35.2	27.2	27.2	44.0	32.3	32.3
Actuated g/C Ratio	0.49	0.37	0.37	0.37	0.30	0.30	0.34	0.26	0.26	0.43	0.31	0.31
v/c Ratio	0.71	0.88	0.37	0.60	0.35	0.27	0.81	0.70	0.50	0.79	0.67	0.27
Control Delay	26.6	40.2	5.1	30.8	30.7	3.9	47.9	38.8	13.7	40.0	34.1	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	40.2	5.1	30.8	30.7	3.9	47.9	38.8	13.7	40.0	34.1	5.2
LOS	C	D	A	C	C	A	D	D	B	D	C	A
Approach Delay		32.0			24.1			34.2			31.3	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 102.8			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 31.3		Intersection LOS: C	
Intersection Capacity Utilization 78.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Background (2027)
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	363	1172	279	128	370	164	195	652	277	247	749	163
v/c Ratio	0.71	0.88	0.37	0.60	0.35	0.27	0.81	0.70	0.50	0.79	0.67	0.27
Control Delay	26.6	40.2	5.1	30.8	30.7	3.9	47.9	38.8	13.7	40.0	34.1	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	40.2	5.1	30.8	30.7	3.9	47.9	38.8	13.7	40.0	34.1	5.2
Queue Length 50th (m)	49.5	124.5	1.8	14.9	33.6	0.0	26.3	67.3	14.4	34.5	73.3	0.0
Queue Length 95th (m)	77.9	#174.0	19.5	#33.0	49.2	10.8	#53.2	87.4	38.9	#69.9	94.0	14.3
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	527	1388	782	217	1081	617	241	1110	628	327	1319	692
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.84	0.36	0.59	0.34	0.27	0.81	0.59	0.44	0.76	0.57	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Background (2027)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	1078	257	118	340	151	179	600	255	227	689	150
Future Volume (vph)	334	1078	257	118	340	151	179	600	255	227	689	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.39	1.00	1.00	0.14	1.00	1.00	0.21	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	719	3539	1583	266	3539	1583	389	3539	1583	286	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	363	1172	279	128	370	164	195	652	277	247	749	163
RTOR Reduction (vph)	0	0	166	0	0	115	0	0	141	0	0	112
Lane Group Flow (vph)	363	1172	113	128	370	49	195	652	136	247	749	51
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	47.9	36.1	36.1	35.8	28.0	28.0	32.8	24.7	24.7	41.9	29.8	29.8
Effective Green, g (s)	47.9	38.5	38.5	35.8	30.4	30.4	32.8	27.2	27.2	41.9	32.3	32.3
Actuated g/C Ratio	0.47	0.37	0.37	0.35	0.30	0.30	0.32	0.26	0.26	0.41	0.31	0.31
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	498	1326	593	206	1047	468	233	937	419	307	1113	497
v/s Ratio Prot	c0.11	c0.33		0.05	0.10		0.07	0.18		c0.10	0.21	
v/s Ratio Perm	0.23		0.07	0.17		0.03	0.20		0.09	c0.22		0.03
v/c Ratio	0.73	0.88	0.19	0.62	0.35	0.10	0.84	0.70	0.32	0.80	0.67	0.10
Uniform Delay, d1	19.0	30.0	21.6	26.0	28.4	26.3	28.2	34.0	30.4	23.2	30.6	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	7.3	0.2	5.7	0.2	0.1	22.2	2.3	0.5	14.1	1.6	0.1
Delay (s)	24.3	37.3	21.8	31.7	28.6	26.4	50.3	36.3	30.8	37.3	32.2	25.0
Level of Service	C	D	C	C	C	C	D	D	C	D	C	C
Approach Delay (s)		32.3			28.7			37.4			32.3	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	102.7	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	78.8%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	10	16	57	8	81	25	779	41	89	878	86
Future Volume (vph)	33	10	16	57	8	81	25	779	41	89	878	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.909			0.864			0.992			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1693	0	1770	1609	0	1770	3511	0	1770	3493	0
Flt Permitted	0.694			0.739			0.218			0.275		
Satd. Flow (perm)	1293	1693	0	1377	1609	0	406	3511	0	512	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			88			10			19	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	11	17	62	9	88	27	847	45	97	954	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	28	0	62	97	0	27	892	0	97	1047	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.2	13.2		13.2	13.2		38.6	38.6		48.7	38.6	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.63	0.63		0.80	0.63	
v/c Ratio	0.13	0.07		0.21	0.23		0.11	0.40		0.16	0.47	
Control Delay	26.5	16.7		27.3	9.8		8.9	8.9		2.9	9.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.5	16.7		27.3	9.8		8.9	8.9		2.9	9.5	
LOS	C	B		C	A		A	A		A	A	
Approach Delay		22.2			16.6			8.9			9.0	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 60.9			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 53.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	28	62	97	27	892	97	1047
v/c Ratio	0.13	0.07	0.21	0.23	0.11	0.40	0.16	0.47
Control Delay	26.5	16.7	27.3	9.8	8.9	8.9	2.9	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	16.7	27.3	9.8	8.9	8.9	2.9	9.5
Queue Length 50th (m)	3.6	1.1	6.3	0.9	1.5	31.3	2.1	38.8
Queue Length 95th (m)	13.4	8.6	20.2	14.0	5.9	52.7	6.4	64.9
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	440	588	469	606	332	2876	680	2862
Starvation Cap Reductn	0	0	0	0	0	218	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.13	0.16	0.08	0.34	0.14	0.37

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	10	16	57	8	81	25	779	41	89	878	86
Future Volume (vph)	33	10	16	57	8	81	25	779	41	89	878	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1693		1770	1609		1770	3512		1770	3492	
Flt Permitted	0.69	1.00		0.74	1.00		0.22	1.00		0.27	1.00	
Satd. Flow (perm)	1293	1693		1377	1609		407	3512		511	3492	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	11	17	62	9	88	27	847	45	97	954	93
RTOR Reduction (vph)	0	14	0	0	74	0	0	4	0	0	8	0
Lane Group Flow (vph)	36	14	0	62	23	0	27	888	0	97	1039	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.0	7.0		7.0	7.0		33.9	33.9		38.8	33.9	
Effective Green, g (s)	10.0	10.0		10.0	10.0		36.9	36.9		44.8	36.9	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.59	0.59		0.71	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	269		219	256		239	2063		522	2051	
v/s Ratio Prot		0.01			0.01			0.25		c0.02	c0.30	
v/s Ratio Perm	0.03			c0.05			0.07			0.11		
v/c Ratio	0.18	0.05		0.28	0.09		0.11	0.43		0.19	0.51	
Uniform Delay, d1	22.8	22.4		23.2	22.5		5.7	7.1		3.0	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.7	0.2		0.2	0.1		0.2	0.2	
Delay (s)	23.2	22.5		24.0	22.7		5.9	7.3		3.2	7.8	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		22.9			23.2			7.3			7.4	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.41				
Actuated Cycle Length (s)	62.8	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	53.5%	ICU Level of Service		A	
Analysis Period (min)	15				

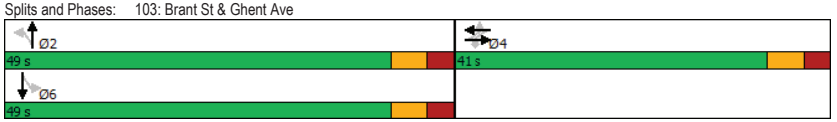
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	24	21	23	10	28	12	677	31	33	806	118
Future Volume (vph)	138	24	21	23	10	28	12	677	31	33	806	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.939			0.993			0.981	
Flt Protected		0.959			0.981		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1716	0	1770	3514	0	1770	3472	0
Flt Permitted		0.712			0.854		0.222			0.320		
Satd. Flow (perm)	0	1326	1583	0	1494	0	414	3514	0	596	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		30			7			26	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	150	26	23	25	11	30	13	736	34	36	876	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	176	23	0	66	0	13	770	0	36	1004	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		15.9	15.9		15.9		26.6	26.6		26.6	26.6	
Actuated g/C Ratio		0.31	0.31		0.31		0.52	0.52		0.52	0.52	
v/c Ratio		0.42	0.04		0.13		0.06	0.42		0.12	0.55	
Control Delay		17.4	2.2		9.1		8.1	8.6		8.5	9.7	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		17.4	2.2		9.1		8.1	8.6		8.5	9.7	
LOS		B	A		A		A	A		A	A	
Approach Delay		15.6			9.1			8.6			9.7	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 50.7			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 49.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	176	23	66	13	770	36	1004
v/c Ratio	0.42	0.04	0.13	0.06	0.42	0.12	0.55
Control Delay	17.4	2.2	9.1	8.1	8.6	8.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	2.2	9.1	8.1	8.6	8.5	9.7
Queue Length 50th (m)	11.1	0.0	2.0	0.5	19.5	1.5	27.3
Queue Length 95th (m)	31.2	2.1	10.2	3.3	40.6	6.6	56.3
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	993	1198	1126	366	3112	527	3077
Starvation Cap Reductn	0	0	0	0	0	0	26
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.02	0.06	0.04	0.25	0.07	0.33

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	24	21	23	10	28	12	677	31	33	806	118
Future Volume (vph)	138	24	21	23	10	28	12	677	31	33	806	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.98	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1716		1770	3516		1770	3472	
Flt Permitted		0.71	1.00		0.85		0.22	1.00		0.32	1.00	
Satd. Flow (perm)		1325	1583		1493		414	3516		597	3472	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	26	23	25	11	30	13	736	34	36	876	128
RTOR Reduction (vph)	0	0	16	0	21	0	0	3	0	0	12	0
Lane Group Flow (vph)	0	176	7	0	45	0	13	767	0	36	992	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		12.8	12.8		12.8		23.5	23.5		23.5	23.5	
Effective Green, g (s)		15.8	15.8		15.8		26.5	26.5		26.5	26.5	
Actuated g/C Ratio		0.31	0.31		0.31		0.53	0.53		0.53	0.53	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		416	497		468		218	1852		314	1829	
v/s Ratio Prot								0.22			c0.29	
v/s Ratio Perm		c0.13	0.00		0.03		0.03			0.06		
v/c Ratio		0.42	0.01		0.10		0.06	0.41		0.11	0.54	
Uniform Delay, d1		13.6	11.9		12.2		5.8	7.2		6.0	7.9	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0		0.1		0.1	0.2		0.2	0.3	
Delay (s)		14.3	11.9		12.3		5.9	7.4		6.2	8.2	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		14.1			12.3			7.3			8.1	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.50				
Actuated Cycle Length (s)	50.3	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	49.7%	ICU Level of Service		A	
Analysis Period (min)	15				

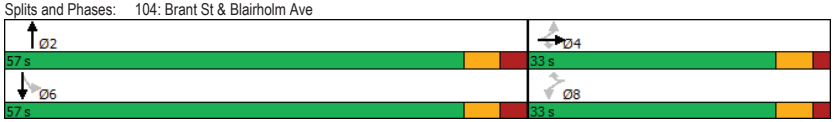
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	7	38	0	109	0	585	16	45	714	0
Future Volume (vph)	16	4	7	38	0	109	0	585	16	45	714	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.996				
Flt Protected		0.961		0.950						0.950		
Satd. Flow (prot)	0	1790	1583	1770	0	1583	0	3525	0	1770	1863	0
Flt Permitted		0.961		0.744						0.404		
Satd. Flow (perm)	0	1790	1583	1386	0	1583	0	3525	0	753	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			118		5				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		57.5			305.8			317.1			241.2	
Travel Time (s)		4.1			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	8	41	0	118	0	636	17	49	776	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	8	41	0	118	0	653	0	49	776	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.8	8.8	10.9		10.9		33.3		33.3	33.3	
Actuated g/C Ratio		0.19	0.19	0.23		0.23		0.71		0.71	0.71	
v/c Ratio		0.06	0.02	0.13		0.26		0.26		0.09	0.59	
Control Delay		19.7	0.1	18.8		6.6		4.1		4.2	7.7	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		19.7	0.1	18.8		6.6		4.1		4.2	7.7	
LOS		B	A	B		A		A		A	A	
Approach Delay		14.3			9.7			4.1			7.5	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 47.2			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 59.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	21	8	41	118	653	49	776
v/c Ratio	0.06	0.02	0.13	0.26	0.26	0.09	0.59
Control Delay	19.7	0.1	18.8	6.6	4.1	4.2	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	0.1	18.8	6.6	4.1	4.2	7.7
Queue Length 50th (m)	1.4	0.0	2.7	0.0	11.2	1.4	35.6
Queue Length 95th (m)	7.3	0.0	11.3	11.4	19.3	4.7	70.8
Internal Link Dist (m)	33.5				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1070	965	890	1059	3437	734	1816
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.05	0.11	0.19	0.07	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	7	38	0	109	0	585	16	45	714	0
Future Volume (vph)	16	4	7	38	0	109	0	585	16	45	714	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1790	1583	1770		1583		3525		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.40	1.00	
Satd. Flow (perm)		1790	1583	1385		1583		3525		752	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	8	41	0	118	0	636	17	49	776	0
RTOR Reduction (vph)	0	0	7	0	0	98	0	2	0	0	0	0
Lane Group Flow (vph)	0	21	1	41	0	20	0	651	0	49	776	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.4	6.4	6.4		6.4		29.0		29.0	29.0	
Effective Green, g (s)		6.4	6.4	8.4		8.4		32.0		32.0	32.0	
Actuated g/C Ratio		0.13	0.13	0.17		0.17		0.66		0.66	0.66	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		236	209	240		274		2330		497	1231	
v/s Ratio Prot								0.18			c0.42	
v/s Ratio Perm		0.01	0.00	c0.03		0.01				0.07		
v/c Ratio		0.09	0.01	0.17		0.07		0.28		0.10	0.63	
Uniform Delay, d1		18.4	18.2	17.0		16.7		3.4		3.0	4.8	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.3		0.1		0.1		0.1	1.1	
Delay (s)		18.6	18.2	17.4		16.9		3.5		3.1	5.8	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		18.5			17.0			3.5			5.7	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	48.4	Sum of lost time (s)		10.0
Intersection Capacity Utilization	59.2%	ICU Level of Service		B
Analysis Period (min)	15			

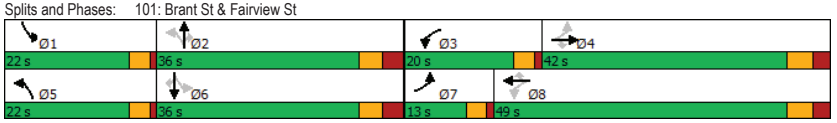
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	796	276	201	1482	434	164	775	182	231	634	429
Future Volume (vph)	210	796	276	201	1482	434	164	775	182	231	634	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.106			0.124			0.199			0.126		
Satd. Flow (perm)	197	3539	1583	231	3539	1583	371	3539	1583	235	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			300			294			140			249
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	228	865	300	218	1611	472	178	842	198	251	689	466
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	865	300	218	1611	472	178	842	198	251	689	466
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	13.0	42.0	42.0	20.0	49.0	49.0	22.0	36.0	36.0	22.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	16.7%	40.8%	40.8%	18.3%	30.0%	30.0%	18.3%	30.0%	30.0%
Maximum Green (s)	9.0	35.6	35.6	16.0	42.6	42.6	18.0	29.5	29.5	18.0	29.5	29.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	49.3	40.3	40.3	57.2	45.0	45.0	44.5	31.4	31.4	50.0	34.2	34.2
Actuated g/C Ratio	0.42	0.34	0.34	0.49	0.38	0.38	0.38	0.27	0.27	0.43	0.29	0.29
v/c Ratio	1.12	0.71	0.41	0.74	1.19	0.60	0.60	0.89	0.38	0.82	0.67	0.73
Control Delay	128.9	38.4	5.2	37.5	125.1	14.1	29.9	54.1	13.8	48.5	40.7	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	128.9	38.4	5.2	37.5	125.1	14.1	29.9	54.1	13.8	48.5	40.7	24.9
LOS	F	D	A	D	F	B	C	D	B	D	D	C
Approach Delay		46.1			94.1			44.0			36.9	
Approach LOS		D			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117.3			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 61.1		Intersection LOS: E	
Intersection Capacity Utilization 100.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	865	300	218	1611	472	178	842	198	251	689	466
v/c Ratio	1.12	0.71	0.41	0.74	1.19	0.60	0.60	0.89	0.38	0.82	0.67	0.73
Control Delay	128.9	38.4	5.2	37.5	125.1	14.1	29.9	54.1	13.8	48.5	40.7	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	128.9	38.4	5.2	37.5	125.1	14.1	29.9	54.1	13.8	48.5	40.7	24.9
Queue Length 50th (m)	~49.5	99.7	0.0	30.4	~253.8	32.8	26.4	104.7	10.9	40.5	77.0	47.9
Queue Length 95th (m)	#103.4	126.8	20.0	57.5	#302.0	69.7	42.1	#141.4	31.9	#82.0	104.4	95.3
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	203	1214	740	324	1358	789	369	965	533	336	1032	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	0.71	0.41	0.67	1.19	0.60	0.48	0.87	0.37	0.75	0.67	0.73

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	796	276	201	1482	434	164	775	182	231	634	429
Future Volume (vph)	210	796	276	201	1482	434	164	775	182	231	634	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.11	1.00	1.00	0.12	1.00	1.00	0.20	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	197	3539	1583	231	3539	1583	370	3539	1583	235	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	865	300	218	1611	472	178	842	198	251	689	466
RTOR Reduction (vph)	0	0	197	0	0	181	0	0	103	0	0	176
Lane Group Flow (vph)	228	865	103	218	1611	291	178	842	95	251	689	290
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	46.9	37.9	37.9	55.7	42.7	42.7	41.9	28.9	28.9	47.5	31.7	31.7
Effective Green, g (s)	46.9	40.3	40.3	55.7	45.1	45.1	41.9	31.4	31.4	47.5	34.2	34.2
Actuated g/C Ratio	0.40	0.34	0.34	0.47	0.38	0.38	0.36	0.27	0.27	0.40	0.29	0.29
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	1215	543	290	1360	608	287	947	423	301	1031	461
v/s Ratio Prot	c0.09	0.24		0.09	c0.46		0.07	c0.24		c0.11	0.19	
v/s Ratio Perm	0.37		0.07	0.27		0.18	0.15		0.06	0.22		0.18
v/c Ratio	1.15	0.71	0.19	0.75	1.18	0.48	0.62	0.89	0.23	0.83	0.67	0.63
Uniform Delay, d1	29.6	33.5	27.0	23.0	36.1	27.2	28.1	41.3	33.5	29.3	36.6	36.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	108.5	2.0	0.2	10.5	90.8	0.6	4.1	10.2	0.3	17.7	1.7	2.7
Delay (s)	138.1	35.5	27.2	33.4	126.9	27.8	32.2	51.5	33.7	46.9	38.2	38.7
Level of Service	F	D	C	C	F	C	C	D	C	D	D	D
Approach Delay (s)		50.5			97.7			45.8			39.9	
Approach LOS		D			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	64.4	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	117.3	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	100.2%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	20	41	106	12	177	15	1030	61	115	964	59
Future Volume (vph)	121	20	41	106	12	177	15	1030	61	115	964	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899			0.860			0.992			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1675	0	1770	1602	0	1770	3511	0	1770	3507	0
Flt Permitted	0.502			0.713			0.181			0.158		
Satd. Flow (perm)	935	1675	0	1328	1602	0	337	3511	0	294	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			192			11			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	22	45	115	13	192	16	1120	66	125	1048	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	67	0	115	205	0	16	1186	0	125	1112	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	17.6	17.6		17.6	17.6		42.1	42.1		54.1	42.1	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.55	0.55		0.71	0.55	
v/c Ratio	0.61	0.16		0.37	0.40		0.09	0.61		0.30	0.57	
Control Delay	44.5	14.5		32.8	8.4		10.2	13.3		5.2	12.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.2		0.0	0.0	
Total Delay	44.5	14.5		32.8	8.4		10.2	13.5		5.2	12.8	
LOS	D	B		C	A		B	B		A	B	
Approach Delay		34.4			17.2			13.4			12.0	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.9			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	132	67	115	205	16	1186	125	1112
v/c Ratio	0.61	0.16	0.37	0.40	0.09	0.61	0.30	0.57
Control Delay	44.5	14.5	32.8	8.4	10.2	13.3	5.2	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	44.5	14.5	32.8	8.4	10.2	13.5	5.2	12.8
Queue Length 50th (m)	19.2	2.8	15.7	1.6	1.2	64.7	5.1	58.7
Queue Length 95th (m)	#48.7	14.0	34.6	19.8	4.5	87.1	9.4	79.5
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	246	475	350	563	234	2448	455	2445
Starvation Cap Reductn	0	0	0	0	0	405	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.14	0.33	0.36	0.07	0.58	0.27	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	20	41	106	12	177	15	1030	61	115	964	59
Future Volume (vph)	121	20	41	106	12	177	15	1030	61	115	964	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1675		1770	1601		1770	3510		1770	3509	
Flt Permitted	0.50	1.00		0.71	1.00		0.18	1.00		0.16	1.00	
Satd. Flow (perm)	934	1675		1329	1601		337	3510		295	3509	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	22	45	115	13	192	16	1120	66	125	1048	64
RTOR Reduction (vph)	0	35	0	0	148	0	0	5	0	0	5	0
Lane Group Flow (vph)	132	32	0	115	57	0	16	1181	0	125	1107	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	14.4	14.4		14.4	14.4		39.0	39.0		44.6	39.0	
Effective Green, g (s)	17.4	17.4		17.4	17.4		42.0	42.0		50.6	42.0	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.55	0.55		0.67	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	383		304	366		186	1939		363	1939	
v/s Ratio Prot		0.02			0.04			c0.34		c0.04	0.32	
v/s Ratio Perm	c0.14			0.09			0.05			0.19		
v/c Ratio	0.62	0.08		0.38	0.16		0.09	0.61		0.34	0.57	
Uniform Delay, d1	26.3	23.0		24.7	23.4		8.0	11.5		6.4	11.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.3	0.1		0.8	0.2		0.2	0.5		0.6	0.4	
Delay (s)	31.6	23.1		25.5	23.6		8.2	12.0		6.9	11.5	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		28.8			24.3			12.0			11.1	
Approach LOS		C			C			B			B	

Intersection Summary					
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.56				
Actuated Cycle Length (s)	76.0	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	68.4%	ICU Level of Service		C	
Analysis Period (min)	15				

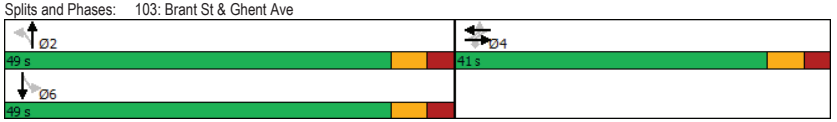
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	27	15	27	57	41	12	916	23	35	860	191
Future Volume (vph)	150	27	15	27	57	41	12	916	23	35	860	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.955			0.996			0.973	
Flt Protected		0.959			0.989		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1759	0	1770	3525	0	1770	3444	0
Flt Permitted		0.713			0.907		0.171			0.213		
Satd. Flow (perm)	0	1328	1583	0	1613	0	319	3525	0	397	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		34			4			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	163	29	16	29	62	45	13	996	25	38	935	208
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	192	16	0	136	0	13	1021	0	38	1143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		17.9	17.9		17.9		28.8	28.8		28.8	28.8	
Actuated g/C Ratio		0.32	0.32		0.32		0.52	0.52		0.52	0.52	
v/c Ratio		0.45	0.03		0.25		0.08	0.55		0.18	0.63	
Control Delay		19.6	0.6		13.0		9.2	10.6		10.8	11.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		19.6	0.6		13.0		9.2	10.6		10.8	11.3	
LOS		B	A		B		A	B		B	B	
Approach Delay		18.1			13.0			10.6			11.3	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 55.1			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 53.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	192	16	136	13	1021	38	1143
v/c Ratio	0.45	0.03	0.25	0.08	0.55	0.18	0.63
Control Delay	19.6	0.6	13.0	9.2	10.6	10.8	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	0.6	13.0	9.2	10.6	10.8	11.3
Queue Length 50th (m)	14.5	0.0	7.1	0.6	32.3	1.8	36.7
Queue Length 95th (m)	39.3	0.7	22.7	3.7	65.4	8.3	74.9
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	933	1127	1144	268	2963	333	2901
Starvation Cap Reductn	0	0	0	0	0	0	84
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.01	0.12	0.05	0.34	0.11	0.41

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	27	15	27	57	41	12	916	23	35	860	191
Future Volume (vph)	150	27	15	27	57	41	12	916	23	35	860	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.96		1.00	1.00		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1761		1770	3526		1770	3443	
Flt Permitted		0.71	1.00		0.91		0.17	1.00		0.21	1.00	
Satd. Flow (perm)		1327	1583		1615		319	3526		396	3443	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	29	16	29	62	45	13	996	25	38	935	208
RTOR Reduction (vph)	0	0	11	0	23	0	0	2	0	0	20	0
Lane Group Flow (vph)	0	192	5	0	113	0	13	1019	0	38	1123	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		14.7	14.7		14.7		25.7	25.7		25.7	25.7	
Effective Green, g (s)		17.7	17.7		17.7		28.7	28.7		28.7	28.7	
Actuated g/C Ratio		0.33	0.33		0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		431	515		525		168	1860		208	1816	
v/s Ratio Prot								0.29			c0.33	
v/s Ratio Perm		c0.14	0.00		0.07		0.04			0.10		
v/c Ratio		0.45	0.01		0.22		0.08	0.55		0.18	0.62	
Uniform Delay, d1		14.5	12.4		13.3		6.3	8.5		6.7	9.0	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0		0.2		0.2	0.3		0.4	0.6	
Delay (s)		15.2	12.4		13.5		6.5	8.9		7.1	9.6	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		15.0			13.5			8.8			9.6	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.55				
Actuated Cycle Length (s)	54.4	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	53.5%	ICU Level of Service		A	
Analysis Period (min)	15				

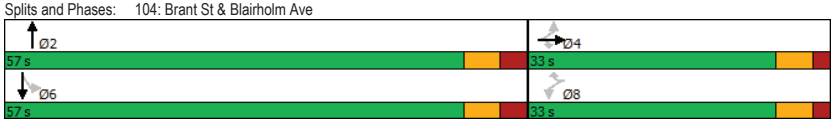
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	21	19	0	75	0	818	18	48	711	0
Future Volume (vph)	17	5	21	19	0	75	0	818	18	48	711	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.997				
Flt Protected		0.962		0.950						0.950		
Satd. Flow (prot)	0	1792	1583	1770	0	1583	0	3529	0	1770	1863	0
Flt Permitted		0.962		0.742						0.296		
Satd. Flow (perm)	0	1792	1583	1382	0	1583	0	3529	0	551	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			82		4				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		57.0			305.8			317.1			241.2	
Travel Time (s)		4.1			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	23	21	0	82	0	889	20	52	773	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	23	21	0	82	0	909	0	52	773	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.5	8.5	10.6		10.6		34.6		34.6	34.6	
Actuated g/C Ratio		0.18	0.18	0.22		0.22		0.72		0.72	0.72	
v/c Ratio		0.07	0.07	0.07		0.20		0.36		0.13	0.58	
Control Delay		19.7	4.0	18.2		7.0		4.3		4.5	7.3	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		19.7	4.0	18.2		7.0		4.3		4.5	7.3	
LOS		B	A	B		A		A		A	A	
Approach Delay		11.8			9.3			4.3			7.1	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 48.1			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 59.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	23	23	21	82	909	52	773
v/c Ratio	0.07	0.07	0.07	0.20	0.36	0.13	0.58
Control Delay	19.7	4.0	18.2	7.0	4.3	4.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	4.0	18.2	7.0	4.3	4.5	7.3
Queue Length 50th (m)	1.7	0.0	1.5	0.0	17.1	1.5	35.3
Queue Length 95th (m)	7.6	2.8	6.9	9.4	26.3	4.9	64.6
Internal Link Dist (m)	33.0				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1052	949	871	1028	3438	537	1815
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.02	0.08	0.26	0.10	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	21	19	0	75	0	818	18	48	711	0
Future Volume (vph)	17	5	21	19	0	75	0	818	18	48	711	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1793	1583	1770		1583		3528		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.30	1.00	
Satd. Flow (perm)		1793	1583	1383		1583		3528		552	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	23	21	0	82	0	889	20	52	773	0
RTOR Reduction (vph)	0	0	20	0	0	69	0	1	0	0	0	0
Lane Group Flow (vph)	0	23	3	21	0	13	0	908	0	52	773	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.1	6.1	6.1		6.1		30.2		30.2	30.2	
Effective Green, g (s)		6.1	6.1	8.1		8.1		33.2		33.2	33.2	
Actuated g/C Ratio		0.12	0.12	0.16		0.16		0.67		0.67	0.67	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		221	195	227		260		2375		371	1254	
v/s Ratio Prot								0.26			c0.41	
v/s Ratio Perm		0.01	0.00	c0.02		0.01				0.09		
v/c Ratio		0.10	0.01	0.09		0.05		0.38		0.14	0.62	
Uniform Delay, d1		19.2	19.0	17.5		17.4		3.5		2.9	4.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.2		0.1		0.1		0.2	0.9	
Delay (s)		19.4	19.0	17.7		17.4		3.6		3.1	5.4	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		19.2			17.5			3.6			5.3	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	49.3	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	59.1%	ICU Level of Service	B	
Analysis Period (min)	15			

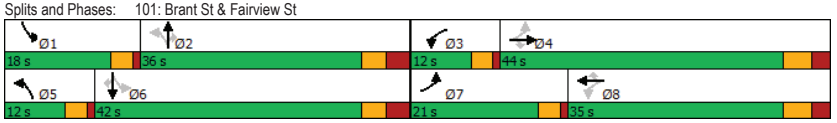
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	777	229	132	734	241	222	567	141	237	575	165
Future Volume (vph)	315	777	229	132	734	241	222	567	141	237	575	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.132			0.242			0.299			0.163		
Satd. Flow (perm)	246	3539	1583	451	3539	1583	557	3539	1583	304	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			249			262			192			179
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	342	845	249	143	798	262	241	616	153	258	625	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	845	249	143	798	262	241	616	153	258	625	179
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	49.8	37.9	37.9	36.5	28.6	28.6	33.6	25.5	25.5	42.5	30.7	30.7
Actuated g/C Ratio	0.49	0.38	0.38	0.36	0.28	0.28	0.33	0.25	0.25	0.42	0.30	0.30
v/c Ratio	0.90	0.63	0.33	0.54	0.79	0.41	0.85	0.69	0.28	0.80	0.58	0.29
Control Delay	53.0	29.0	4.3	24.7	40.7	5.9	51.7	38.6	3.3	40.7	31.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	29.0	4.3	24.7	40.7	5.9	51.7	38.6	3.3	40.7	31.8	5.2
LOS	D	C	A	C	D	A	D	D	A	D	C	A
Approach Delay		30.4			31.2			36.4			29.5	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 100.7			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 31.7		Intersection LOS: C	
Intersection Capacity Utilization 79.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	342	845	249	143	798	262	241	616	153	258	625	179
v/c Ratio	0.90	0.63	0.33	0.54	0.79	0.41	0.85	0.69	0.28	0.80	0.58	0.29
Control Delay	53.0	29.0	4.3	24.7	40.7	5.9	51.7	38.6	3.3	40.7	31.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	29.0	4.3	24.7	40.7	5.9	51.7	38.6	3.3	40.7	31.8	5.2
Queue Length 50th (m)	53.0	75.7	0.0	16.1	81.2	0.0	33.5	62.7	0.0	36.3	58.5	0.0
Queue Length 95th (m)	#117.6	105.3	16.5	30.6	112.2	19.4	#67.7	82.2	8.3	#73.0	76.5	15.0
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	380	1417	783	269	1098	672	282	1134	637	334	1346	713
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.60	0.32	0.53	0.73	0.39	0.85	0.54	0.24	0.77	0.46	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	777	229	132	734	241	222	567	141	237	575	165
Future Volume (vph)	315	777	229	132	734	241	222	567	141	237	575	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.13	1.00	1.00	0.24	1.00	1.00	0.30	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	247	3539	1583	450	3539	1583	557	3539	1583	304	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	845	249	143	798	262	241	616	153	258	625	179
RTOR Reduction (vph)	0	0	155	0	0	187	0	0	114	0	0	124
Lane Group Flow (vph)	342	845	94	143	798	75	241	616	39	258	625	55
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	47.3	35.5	35.5	34.0	26.2	26.2	31.1	23.0	23.0	40.3	28.2	28.2
Effective Green, g (s)	47.3	37.9	37.9	34.0	28.6	28.6	31.1	25.5	25.5	40.3	30.7	30.7
Actuated g/C Ratio	0.47	0.38	0.38	0.34	0.28	0.28	0.31	0.25	0.25	0.40	0.31	0.31
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	375	1334	596	254	1007	450	270	897	401	315	1081	483
v/s Ratio Prot	c0.16	0.24		0.04	0.23		0.07	0.17		c0.11	0.18	
v/s Ratio Perm	c0.27		0.06	0.15		0.05	0.20		0.02	c0.22		0.03
v/c Ratio	0.91	0.63	0.16	0.56	0.79	0.17	0.89	0.69	0.10	0.82	0.58	0.11
Uniform Delay, d1	26.7	25.6	20.7	24.3	33.2	27.0	30.2	33.9	28.7	23.1	29.4	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.8	1.0	0.1	2.8	4.3	0.2	28.7	2.2	0.1	15.2	0.8	0.1
Delay (s)	52.5	26.6	20.9	27.1	37.6	27.2	58.8	36.1	28.8	38.3	30.2	25.2
Level of Service	D	C	C	C	D	C	E	D	C	D	C	C
Approach Delay (s)		31.8			34.0			40.4			31.3	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	100.5	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	79.9%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	7	15	64	12	115	13	813	37	102	818	37
Future Volume (vph)	57	7	15	64	12	115	13	813	37	102	818	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.900			0.864			0.994			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1676	0	1770	1609	0	1770	3518	0	1770	3518	0
Flt Permitted	0.655			0.742			0.255			0.257		
Satd. Flow (perm)	1220	1676	0	1382	1609	0	475	3518	0	479	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			125			8			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	8	16	70	13	125	14	884	40	111	889	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	24	0	70	138	0	14	924	0	111	929	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.3	13.3		13.3	13.3		36.1	36.1		46.5	36.1	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.61	0.61		0.78	0.61	
v/c Ratio	0.23	0.06		0.23	0.30		0.05	0.43		0.19	0.43	
Control Delay	25.8	15.2		25.4	8.8		8.8	10.0		3.4	10.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.8	15.2		25.4	8.8		8.8	10.0		3.4	10.1	
LOS	C	B		C	A		A	B		A	B	
Approach Delay		22.8			14.4			10.0			9.3	
Approach LOS		C			B			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 59.3			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 10.6		Intersection LOS: B	
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	62	24	70	138	14	924	111	929
v/c Ratio	0.23	0.06	0.23	0.30	0.05	0.43	0.19	0.43
Control Delay	25.8	15.2	25.4	8.8	8.8	10.0	3.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	15.2	25.4	8.8	8.8	10.0	3.4	10.1
Queue Length 50th (m)	6.0	0.7	6.7	1.2	0.8	33.8	2.6	34.1
Queue Length 95th (m)	19.3	7.2	21.0	16.0	3.8	59.2	7.9	59.6
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	417	584	473	633	401	2976	654	2976
Starvation Cap Reductn	0	0	0	0	0	134	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.04	0.15	0.22	0.03	0.33	0.17	0.31

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	7	15	64	12	115	13	813	37	102	818	37
Future Volume (vph)	57	7	15	64	12	115	13	813	37	102	818	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1676		1770	1610		1770	3516		1770	3516	
Flt Permitted	0.65	1.00		0.74	1.00		0.25	1.00		0.26	1.00	
Satd. Flow (perm)	1220	1676		1381	1610		474	3516		478	3516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	8	16	70	13	125	14	884	40	111	889	40
RTOR Reduction (vph)	0	13	0	0	104	0	0	3	0	0	3	0
Lane Group Flow (vph)	62	11	0	70	34	0	14	921	0	111	926	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.5	7.5		7.5	7.5		31.6	31.6		36.8	31.6	
Effective Green, g (s)	10.5	10.5		10.5	10.5		34.6	34.6		42.8	34.6	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.56	0.56		0.70	0.56	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	208	287		236	275		267	1984		506	1984	
v/s Ratio Prot		0.01			0.02			0.26		c0.03	c0.26	
v/s Ratio Perm	c0.05			0.05			0.03			0.12		
v/c Ratio	0.30	0.04		0.30	0.13		0.05	0.46		0.22	0.47	
Uniform Delay, d1	22.2	21.2		22.2	21.5		6.0	7.9		3.3	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.1		0.7	0.2		0.1	0.2		0.2	0.2	
Delay (s)	23.0	21.2		22.9	21.7		6.1	8.1		3.5	8.1	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		22.5			22.1			8.0			7.6	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.38				
Actuated Cycle Length (s)	61.3	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	58.2%	ICU Level of Service		B	
Analysis Period (min)	15				

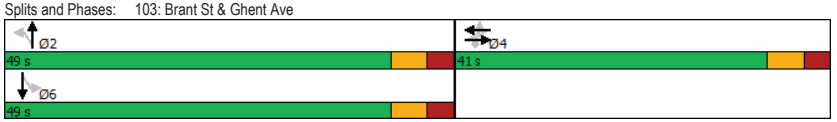
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	16	8	18	15	34	15	730	18	40	750	101
Future Volume (vph)	90	16	8	18	15	34	15	730	18	40	750	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.932			0.996			0.982	
Flt Protected		0.959			0.986		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1712	0	1770	3525	0	1770	3476	0
Flt Permitted		0.707			0.887		0.271			0.318		
Satd. Flow (perm)	0	1317	1583	0	1540	0	505	3525	0	592	3476	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		37			4			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	98	17	9	20	16	37	16	793	20	43	815	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	9	0	73	0	16	813	0	43	925	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		13.2	13.2		13.2		25.5	25.5		25.5	25.5	
Actuated g/C Ratio		0.32	0.32		0.32		0.61	0.61		0.61	0.61	
v/c Ratio		0.28	0.02		0.14		0.05	0.38		0.12	0.43	
Control Delay		14.3	0.0		8.1		6.6	6.9		7.2	7.2	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		14.3	0.0		8.1		6.6	6.9		7.2	7.2	
LOS		B	A		A		A	A		A	A	
Approach Delay		13.2			8.1			6.9			7.2	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 41.8			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 7.5		Intersection LOS: A	
Intersection Capacity Utilization 52.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	115	9	73	16	813	43	925
v/c Ratio	0.28	0.02	0.14	0.05	0.38	0.12	0.43
Control Delay	14.3	0.0	8.1	6.6	6.9	7.2	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	0.0	8.1	6.6	6.9	7.2	7.2
Queue Length 50th (m)	6.2	0.0	1.8	0.5	17.5	1.5	20.4
Queue Length 95th (m)	18.8	0.0	9.6	3.1	34.7	6.3	40.1
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	1149	1387	1348	490	3423	575	3376
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.01	0.05	0.03	0.24	0.07	0.27

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	16	8	18	15	34	15	730	18	40	750	101
Future Volume (vph)	90	16	8	18	15	34	15	730	18	40	750	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1712		1770	3526		1770	3476	
Flt Permitted		0.71	1.00		0.89		0.27	1.00		0.32	1.00	
Satd. Flow (perm)		1317	1583		1539		504	3526		593	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	17	9	20	16	37	16	793	20	43	815	110
RTOR Reduction (vph)	0	0	7	0	28	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	115	2	0	45	0	16	811	0	43	915	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		7.9	7.9		7.9		21.4	21.4		21.4	21.4	
Effective Green, g (s)		10.9	10.9		10.9		24.4	24.4		24.4	24.4	
Actuated g/C Ratio		0.25	0.25		0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		331	398		387		284	1986		334	1958	
v/s Ratio Prot								0.23			c0.26	
v/s Ratio Perm		c0.09	0.00		0.03		0.03			0.07		
v/c Ratio		0.35	0.01		0.12		0.06	0.41		0.13	0.47	
Uniform Delay, d1		13.3	12.1		12.5		4.3	5.4		4.4	5.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6	0.0		0.1		0.1	0.1		0.2	0.2	
Delay (s)		13.9	12.1		12.6		4.3	5.5		4.6	5.8	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		13.8			12.6			5.5			5.7	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.43			
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	52.4%	ICU Level of Service	A	
Analysis Period (min)	15			

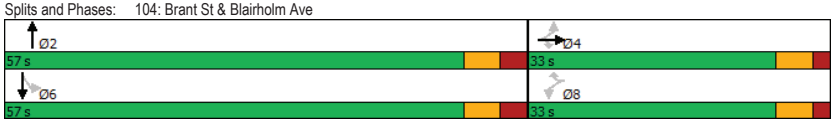
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	702	8	35	708	0
Future Volume (vph)	15	0	5	11	0	44	0	702	8	35	708	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.998				
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1770	1583	1770	0	1583	0	3532	0	1770	1863	0
Flt Permitted		0.950		0.747						0.358		
Satd. Flow (perm)	0	1770	1583	1391	0	1583	0	3532	0	667	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			48		2				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.8			305.8			317.1			241.2	
Travel Time (s)		5.0			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	763	9	38	770	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	5	12	0	48	0	772	0	38	770	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.5	8.5	10.7		10.7		37.4		37.4	37.4	
Actuated g/C Ratio		0.18	0.18	0.23		0.23		0.80		0.80	0.80	
v/c Ratio		0.05	0.02	0.04		0.12		0.27		0.07	0.51	
Control Delay		20.7	0.0	19.0		8.0		3.1		3.5	5.5	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		20.7	0.0	19.0		8.0		3.1		3.5	5.5	
LOS		C	A	B		A		A		A	A	
Approach Delay		15.8			10.2			3.1			5.4	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 46.5			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 4.6		Intersection LOS: A	
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	16	5	12	48	772	38	770
v/c Ratio	0.05	0.02	0.04	0.12	0.27	0.07	0.51
Control Delay	20.7	0.0	19.0	8.0	3.1	3.5	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.7	0.0	19.0	8.0	3.1	3.5	5.5
Queue Length 50th (m)	1.6	0.0	1.2	0.0	13.8	1.1	35.0
Queue Length 95th (m)	5.9	0.0	4.8	7.2	20.3	3.4	60.9
Internal Link Dist (m)	44.8				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1097	999	926	1069	3430	648	1809
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.04	0.23	0.06	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	702	8	35	708	0
Future Volume (vph)	15	0	5	11	0	44	0	702	8	35	708	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583	1770		1583		3533		1770	1863	
Flt Permitted		0.95	1.00	0.75		1.00		1.00		0.36	1.00	
Satd. Flow (perm)		1770	1583	1392		1583		3533		667	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	763	9	38	770	0
RTOR Reduction (vph)	0	0	5	0	0	42	0	1	0	0	0	0
Lane Group Flow (vph)	0	16	0	12	0	6	0	771	0	38	770	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		4.0	4.0	4.0		4.0		31.9		31.9	31.9	
Effective Green, g (s)		4.0	4.0	6.0		6.0		34.9		34.9	34.9	
Actuated g/C Ratio		0.08	0.08	0.12		0.12		0.71		0.71	0.71	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		144	129	170		194		2521		476	1329	
v/s Ratio Prot								0.22			c0.41	
v/s Ratio Perm		0.01	0.00	0.01		0.00				0.06		
v/c Ratio		0.11	0.00	0.07		0.03		0.31		0.08	0.58	
Uniform Delay, d1		20.8	20.6	19.0		18.9		2.6		2.1	3.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.0	0.2		0.1		0.1		0.1	0.6	
Delay (s)		21.1	20.6	19.2		19.0		2.6		2.2	4.0	
Level of Service		C	C	B		B		A		A	A	
Approach Delay (s)		21.0			19.0			2.6			3.9	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.53			
Actuated Cycle Length (s)	48.9	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	58.9%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Appendix H2

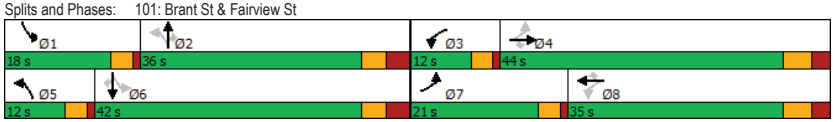
Background – Phase 2 Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	1088	260	119	344	152	181	605	257	229	696	151
Future Volume (vph)	338	1088	260	119	344	152	181	605	257	229	696	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.382			0.143			0.205			0.150		
Satd. Flow (perm)	712	3539	1583	266	3539	1583	382	3539	1583	279	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			265			193			192			164
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	367	1183	283	129	374	165	197	658	279	249	757	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	1183	283	129	374	165	197	658	279	249	757	164
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.5	38.7	38.7	38.3	30.4	30.4	35.4	27.3	27.3	44.3	32.5	32.5
Actuated g/C Ratio	0.49	0.38	0.38	0.37	0.29	0.29	0.34	0.26	0.26	0.43	0.31	0.31
v/c Ratio	0.72	0.89	0.37	0.61	0.36	0.27	0.82	0.70	0.50	0.80	0.68	0.27
Control Delay	27.2	41.0	5.3	31.3	30.9	3.9	50.2	39.0	13.8	41.6	34.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	41.0	5.3	31.3	30.9	3.9	50.2	39.0	13.8	41.6	34.2	5.2
LOS	C	D	A	C	C	A	D	D	B	D	C	A
Approach Delay		32.7			24.3			34.7			31.7	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 103.2			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 31.8		Intersection LOS: C	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Background (2028)
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	367	1183	283	129	374	165	197	658	279	249	757	164
v/c Ratio	0.72	0.89	0.37	0.61	0.36	0.27	0.82	0.70	0.50	0.80	0.68	0.27
Control Delay	27.2	41.0	5.3	31.3	30.9	3.9	50.2	39.0	13.8	41.6	34.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	41.0	5.3	31.3	30.9	3.9	50.2	39.0	13.8	41.6	34.2	5.2
Queue Length 50th (m)	50.4	126.5	2.5	15.1	34.2	0.0	26.6	68.0	14.7	34.8	74.3	0.0
Queue Length 95th (m)	78.8	#176.7	20.5	#33.4	49.6	10.8	#55.5	88.3	39.2	#71.7	95.1	14.5
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	524	1382	779	216	1074	615	239	1105	626	324	1313	690
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.86	0.36	0.60	0.35	0.27	0.82	0.60	0.45	0.77	0.58	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Background (2028)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	1088	260	119	344	152	181	605	257	229	696	151
Future Volume (vph)	338	1088	260	119	344	152	181	605	257	229	696	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.38	1.00	1.00	0.14	1.00	1.00	0.20	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	711	3539	1583	266	3539	1583	381	3539	1583	279	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	367	1183	283	129	374	165	197	658	279	249	757	164
RTOR Reduction (vph)	0	0	166	0	0	116	0	0	141	0	0	112
Lane Group Flow (vph)	367	1183	117	129	374	49	197	658	138	249	757	52
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.1	36.3	36.3	35.8	28.0	28.0	32.9	24.8	24.8	42.1	30.0	30.0
Effective Green, g (s)	48.1	38.7	38.7	35.8	30.4	30.4	32.9	27.3	27.3	42.1	32.5	32.5
Actuated g/C Ratio	0.47	0.38	0.38	0.35	0.29	0.29	0.32	0.26	0.26	0.41	0.32	0.32
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	497	1328	594	206	1043	466	230	937	419	306	1115	499
v/s Ratio Prot	c0.12	c0.33		0.05	0.11		0.07	0.19		c0.10	0.21	
v/s Ratio Perm	0.23		0.07	0.17		0.03	0.21		0.09	c0.23		0.03
v/c Ratio	0.74	0.89	0.20	0.63	0.36	0.10	0.86	0.70	0.33	0.81	0.68	0.10
Uniform Delay, d1	19.1	30.2	21.7	26.3	28.7	26.4	28.6	34.2	30.5	23.4	30.8	25.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	7.9	0.2	5.8	0.2	0.1	25.5	2.4	0.5	15.1	1.7	0.1
Delay (s)	24.8	38.1	21.9	32.1	28.9	26.5	54.0	36.6	31.0	38.5	32.4	25.1
Level of Service	C	D	C	C	C	C	D	D	C	D	C	C
Approach Delay (s)		32.9			28.9			38.3			32.7	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	79.4%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	10	16	58	9	82	26	787	42	90	887	87
Future Volume (vph)	33	10	16	58	9	82	26	787	42	90	887	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.909			0.865			0.992			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1693	0	1770	1611	0	1770	3511	0	1770	3493	0
Flt Permitted	0.693			0.739			0.215			0.271		
Satd. Flow (perm)	1291	1693	0	1377	1611	0	400	3511	0	505	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			89			10			19	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	11	17	63	10	89	28	855	46	98	964	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	28	0	63	99	0	28	901	0	98	1059	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.2	13.2		13.2	13.2		39.1	39.1		49.2	39.1	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.64	0.64		0.80	0.64	
v/c Ratio	0.13	0.07		0.21	0.24		0.11	0.40		0.16	0.48	
Control Delay	26.9	17.0		27.7	10.1		8.9	8.9		2.9	9.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.9	17.0		27.7	10.1		8.9	8.9		2.9	9.5	
LOS	C	B		C	B		A	A		A	A	
Approach Delay		22.6			16.9			8.9			9.0	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 61.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 53.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Background (2028)
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	28	63	99	28	901	98	1059
v/c Ratio	0.13	0.07	0.21	0.24	0.11	0.40	0.16	0.48
Control Delay	26.9	17.0	27.7	10.1	8.9	8.9	2.9	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	17.0	27.7	10.1	8.9	8.9	2.9	9.5
Queue Length 50th (m)	3.6	1.1	6.5	1.0	1.5	31.7	2.1	39.4
Queue Length 95th (m)	13.7	8.7	20.8	14.4	6.0	53.3	6.4	65.5
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	437	585	466	604	325	2860	675	2847
Starvation Cap Reductn	0	0	0	0	0	235	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.14	0.16	0.09	0.34	0.15	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Background (2028)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	10	16	58	9	82	26	787	42	90	887	87
Future Volume (vph)	33	10	16	58	9	82	26	787	42	90	887	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1693		1770	1612		1770	3512		1770	3492	
Flt Permitted	0.69	1.00		0.74	1.00		0.21	1.00		0.27	1.00	
Satd. Flow (perm)	1291	1693		1377	1612		400	3512		506	3492	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	11	17	63	10	89	28	855	46	98	964	95
RTOR Reduction (vph)	0	14	0	0	75	0	0	4	0	0	8	0
Lane Group Flow (vph)	36	14	0	63	24	0	28	897	0	98	1051	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.1	7.1		7.1	7.1		34.4	34.4		39.3	34.4	
Effective Green, g (s)	10.1	10.1		10.1	10.1		37.4	37.4		45.3	37.4	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.59	0.59		0.71	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	269		219	256		235	2071		519	2059	
v/s Ratio Prot		0.01			0.02			0.26		c0.02	c0.30	
v/s Ratio Perm	0.03			c0.05			0.07			0.11		
v/c Ratio	0.18	0.05		0.29	0.09		0.12	0.43		0.19	0.51	
Uniform Delay, d1	23.0	22.6		23.5	22.7		5.7	7.2		3.0	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.7	0.2		0.2	0.1		0.2	0.2	
Delay (s)	23.5	22.7		24.2	22.9		6.0	7.3		3.2	7.8	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		23.1			23.4			7.3			7.4	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.42			
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	53.8%	ICU Level of Service	A	
Analysis Period (min)	15			

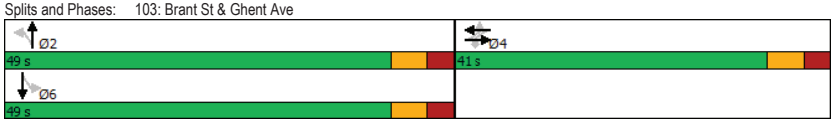
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	25	21	24	10	28	12	684	31	33	814	119
Future Volume (vph)	139	25	21	24	10	28	12	684	31	33	814	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.940			0.993			0.981	
Flt Protected		0.959			0.981		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1718	0	1770	3514	0	1770	3472	0
Flt Permitted		0.712			0.850		0.218			0.316		
Satd. Flow (perm)	0	1326	1583	0	1488	0	406	3514	0	589	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		30			7			25	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	151	27	23	26	11	30	13	743	34	36	885	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	178	23	0	67	0	13	777	0	36	1014	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		16.1	16.1		16.1		26.8	26.8		26.8	26.8	
Actuated g/C Ratio		0.32	0.32		0.32		0.52	0.52		0.52	0.52	
v/c Ratio		0.43	0.04		0.14		0.06	0.42		0.12	0.55	
Control Delay		17.5	2.2		9.2		8.2	8.7		8.5	9.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		17.5	2.2		9.2		8.2	8.7		8.5	9.8	
LOS		B	A		A		A	A		A	A	
Approach Delay		15.8			9.2			8.7			9.8	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 51.1			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 49.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	178	23	67	13	777	36	1014
v/c Ratio	0.43	0.04	0.14	0.06	0.42	0.12	0.55
Control Delay	17.5	2.2	9.2	8.2	8.7	8.5	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	2.2	9.2	8.2	8.7	8.5	9.8
Queue Length 50th (m)	11.4	0.0	2.1	0.5	19.9	1.5	28.1
Queue Length 95th (m)	31.9	2.1	10.4	3.3	41.3	6.6	57.3
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	985	1189	1113	357	3094	518	3059
Starvation Cap Reductn	0	0	0	0	0	0	31
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.02	0.06	0.04	0.25	0.07	0.33

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	25	21	24	10	28	12	684	31	33	814	119
Future Volume (vph)	139	25	21	24	10	28	12	684	31	33	814	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.98	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1717		1770	3516		1770	3472	
Flt Permitted		0.71	1.00		0.85		0.22	1.00		0.32	1.00	
Satd. Flow (perm)		1326	1583		1488		406	3516		589	3472	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	151	27	23	26	11	30	13	743	34	36	885	129
RTOR Reduction (vph)	0	0	16	0	21	0	0	3	0	0	12	0
Lane Group Flow (vph)	0	178	7	0	46	0	13	774	0	36	1002	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		13.0	13.0		13.0		23.7	23.7		23.7	23.7	
Effective Green, g (s)		16.0	16.0		16.0		26.7	26.7		26.7	26.7	
Actuated g/C Ratio		0.32	0.32		0.32		0.53	0.53		0.53	0.53	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		418	499		469		213	1851		310	1828	
v/s Ratio Prot								0.22			c0.29	
v/s Ratio Perm		c0.13	0.00		0.03		0.03			0.06		
v/c Ratio		0.43	0.01		0.10		0.06	0.42		0.12	0.55	
Uniform Delay, d1		13.7	11.9		12.3		5.9	7.3		6.1	8.0	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0		0.1		0.1	0.2		0.2	0.3	
Delay (s)		14.4	11.9		12.4		6.0	7.4		6.2	8.3	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		14.1			12.4			7.4			8.3	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.50				
Actuated Cycle Length (s)	50.7	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	49.8%	ICU Level of Service		A	
Analysis Period (min)	15				

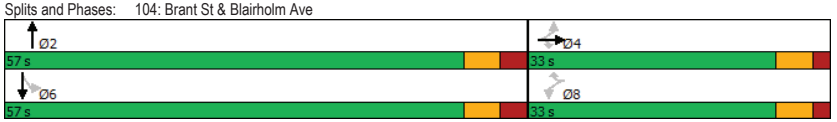
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	8	39	0	110	0	591	16	45	721	0
Future Volume (vph)	16	4	8	39	0	110	0	591	16	45	721	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.996				
Flt Protected		0.961		0.950						0.950		
Satd. Flow (prot)	0	1790	1583	1770	0	1583	0	3525	0	1770	1863	0
Flt Permitted		0.961		0.744						0.401		
Satd. Flow (perm)	0	1790	1583	1386	0	1583	0	3525	0	747	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			120		5				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.5			305.8			317.1			241.2	
Travel Time (s)		4.9			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	9	42	0	120	0	642	17	49	784	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	9	42	0	120	0	659	0	49	784	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.8	8.8	10.9		10.9		33.7		33.7	33.7	
Actuated g/C Ratio		0.18	0.18	0.23		0.23		0.71		0.71	0.71	
v/c Ratio		0.06	0.03	0.13		0.26		0.26		0.09	0.59	
Control Delay		19.9	0.1	19.1		6.7		4.1		4.2	7.8	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		19.9	0.1	19.1		6.7		4.1		4.2	7.8	
LOS		B	A	B		A		A		A	A	
Approach Delay		14.0			9.9			4.1			7.6	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 47.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	21	9	42	120	659	49	784
v/c Ratio	0.06	0.03	0.13	0.26	0.26	0.09	0.59
Control Delay	19.9	0.1	19.1	6.7	4.1	4.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	0.1	19.1	6.7	4.1	4.2	7.8
Queue Length 50th (m)	1.5	0.0	2.8	0.0	11.3	1.4	36.2
Queue Length 95th (m)	7.4	0.0	11.7	11.5	19.5	4.7	72.4
Internal Link Dist (m)	44.5				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1064	960	885	1054	3429	726	1812
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.05	0.11	0.19	0.07	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	8	39	0	110	0	591	16	45	721	0
Future Volume (vph)	16	4	8	39	0	110	0	591	16	45	721	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1790	1583	1770		1583		3526		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.40	1.00	
Satd. Flow (perm)		1790	1583	1385		1583		3526		747	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	9	42	0	120	0	642	17	49	784	0
RTOR Reduction (vph)	0	0	8	0	0	99	0	2	0	0	0	0
Lane Group Flow (vph)	0	21	1	42	0	21	0	657	0	49	784	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.4	6.4	6.4		6.4		29.3		29.3	29.3	
Effective Green, g (s)		6.4	6.4	8.4		8.4		32.3		32.3	32.3	
Actuated g/C Ratio		0.13	0.13	0.17		0.17		0.66		0.66	0.66	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		235	208	238		273		2338		495	1235	
v/s Ratio Prot								0.19			c0.42	
v/s Ratio Perm		0.01	0.00	c0.03		0.01				0.07		
v/c Ratio		0.09	0.01	0.18		0.08		0.28		0.10	0.63	
Uniform Delay, d1		18.6	18.4	17.2		16.9		3.4		3.0	4.8	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.4		0.1		0.1		0.1	1.1	
Delay (s)		18.8	18.4	17.6		17.0		3.5		3.0	5.8	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		18.6			17.2			3.5			5.7	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	48.7	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	59.6%	ICU Level of Service	B	
Analysis Period (min)	15			

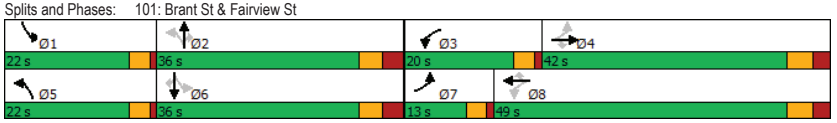
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	804	279	203	1497	439	165	783	183	234	641	433
Future Volume (vph)	212	804	279	203	1497	439	165	783	183	234	641	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.106			0.118			0.196			0.125		
Satd. Flow (perm)	197	3539	1583	220	3539	1583	365	3539	1583	233	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			303			294			140			248
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	230	874	303	221	1627	477	179	851	199	254	697	471
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	874	303	221	1627	477	179	851	199	254	697	471
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	13.0	42.0	42.0	20.0	49.0	49.0	22.0	36.0	36.0	22.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	16.7%	40.8%	40.8%	18.3%	30.0%	30.0%	18.3%	30.0%	30.0%
Maximum Green (s)	9.0	35.6	35.6	16.0	42.6	42.6	18.0	29.5	29.5	18.0	29.5	29.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	49.1	40.1	40.1	57.3	45.0	45.0	44.7	31.6	31.6	50.3	34.4	34.4
Actuated g/C Ratio	0.42	0.34	0.34	0.49	0.38	0.38	0.38	0.27	0.27	0.43	0.29	0.29
v/c Ratio	1.14	0.72	0.41	0.76	1.20	0.61	0.61	0.90	0.38	0.82	0.67	0.74
Control Delay	133.5	39.0	5.1	39.7	131.1	14.4	30.1	54.9	13.9	49.6	41.0	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.5	39.0	5.1	39.7	131.1	14.4	30.1	54.9	13.9	49.6	41.0	25.5
LOS	F	D	A	D	F	B	C	D	B	D	D	C
Approach Delay		47.1			98.5			44.6			37.4	
Approach LOS		D			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117.6			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 63.2		Intersection LOS: E	
Intersection Capacity Utilization 101.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Background (2028)
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	230	874	303	221	1627	477	179	851	199	254	697	471
v/c Ratio	1.14	0.72	0.41	0.76	1.20	0.61	0.61	0.90	0.38	0.82	0.67	0.74
Control Delay	133.5	39.0	5.1	39.7	131.1	14.4	30.1	54.9	13.9	49.6	41.0	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.5	39.0	5.1	39.7	131.1	14.4	30.1	54.9	13.9	49.6	41.0	25.5
Queue Length 50th (m)	~51.1	101.9	0.0	31.2	~259.2	34.2	26.6	106.6	11.1	41.5	78.0	49.6
Queue Length 95th (m)	#104.4	128.4	20.2	#63.9	#306.0	71.5	42.5	#144.2	31.9	#83.9	105.9	98.1
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	202	1207	739	319	1355	787	367	963	532	335	1034	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.72	0.41	0.69	1.20	0.61	0.49	0.88	0.37	0.76	0.67	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Background (2028)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	804	279	203	1497	439	165	783	183	234	641	433
Future Volume (vph)	212	804	279	203	1497	439	165	783	183	234	641	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.11	1.00	1.00	0.12	1.00	1.00	0.20	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	198	3539	1583	219	3539	1583	365	3539	1583	233	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	230	874	303	221	1627	477	179	851	199	254	697	471
RTOR Reduction (vph)	0	0	200	0	0	182	0	0	102	0	0	175
Lane Group Flow (vph)	230	874	103	221	1627	296	179	851	97	254	697	296
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	46.7	37.7	37.7	55.6	42.6	42.6	42.2	29.1	29.1	48.0	32.0	32.0
Effective Green, g (s)	46.7	40.1	40.1	55.6	45.0	45.0	42.2	31.6	31.6	48.0	34.5	34.5
Actuated g/C Ratio	0.40	0.34	0.34	0.47	0.38	0.38	0.36	0.27	0.27	0.41	0.29	0.29
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	1206	539	286	1354	605	287	950	425	304	1038	464
v/s Ratio Prot	c0.09	0.25		0.09	c0.46		0.07	c0.24		c0.11	0.20	
v/s Ratio Perm	0.37		0.07	0.27		0.19	0.15		0.06	0.23		0.19
v/c Ratio	1.16	0.72	0.19	0.77	1.20	0.49	0.62	0.90	0.23	0.84	0.67	0.64
Uniform Delay, d1	29.5	33.9	27.3	23.6	36.3	27.6	28.1	41.4	33.5	29.7	36.6	36.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	114.3	2.2	0.2	12.2	98.1	0.6	4.2	10.9	0.3	17.7	1.7	2.9
Delay (s)	143.8	36.1	27.5	35.8	134.4	28.2	32.2	52.3	33.8	47.3	38.3	39.0
Level of Service	F	D	C	D	F	C	C	D	C	D	D	D
Approach Delay (s)		51.9			103.2			46.4			40.1	
Approach LOS		D			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	66.9	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.04			
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	101.1%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	20	42	107	12	179	15	1040	62	116	973	60
Future Volume (vph)	122	20	42	107	12	179	15	1040	62	116	973	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899			0.859			0.992			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1675	0	1770	1600	0	1770	3511	0	1770	3507	0
Flt Permitted	0.496			0.713			0.177			0.155		
Satd. Flow (perm)	924	1675	0	1328	1600	0	330	3511	0	289	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			195			11			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	133	22	46	116	13	195	16	1130	67	126	1058	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	68	0	116	208	0	16	1197	0	126	1123	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	17.8	17.8		17.8	17.8		42.3	42.3		54.3	42.3	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.55	0.55		0.71	0.55	
v/c Ratio	0.62	0.16		0.38	0.40		0.09	0.61		0.31	0.58	
Control Delay	45.3	14.4		32.9	8.4		10.3	13.5		5.3	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.2		0.0	0.0	
Total Delay	45.3	14.4		32.9	8.4		10.3	13.7		5.3	12.9	
LOS	D	B		C	A		B	B		A	B	
Approach Delay		34.8			17.1			13.6			12.1	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 76.3			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	133	68	116	208	16	1197	126	1123
v/c Ratio	0.62	0.16	0.38	0.40	0.09	0.61	0.31	0.58
Control Delay	45.3	14.4	32.9	8.4	10.3	13.5	5.3	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	45.3	14.4	32.9	8.4	10.3	13.7	5.3	12.9
Queue Length 50th (m)	19.5	2.8	16.0	1.7	1.2	65.5	5.1	59.6
Queue Length 95th (m)	#49.6	14.2	34.9	19.9	4.5	88.6	9.5	80.7
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	242	472	348	563	229	2440	451	2437
Starvation Cap Reductn	0	0	0	0	0	408	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.14	0.33	0.37	0.07	0.59	0.28	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	20	42	107	12	179	15	1040	62	116	973	60
Future Volume (vph)	122	20	42	107	12	179	15	1040	62	116	973	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1674		1770	1601		1770	3510		1770	3508	
Flt Permitted	0.50	1.00		0.71	1.00		0.18	1.00		0.15	1.00	
Satd. Flow (perm)	924	1674		1328	1601		330	3510		289	3508	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	133	22	46	116	13	195	16	1130	67	126	1058	65
RTOR Reduction (vph)	0	35	0	0	150	0	0	5	0	0	5	0
Lane Group Flow (vph)	133	33	0	116	58	0	16	1192	0	126	1118	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	14.6	14.6		14.6	14.6		39.2	39.2		44.8	39.2	
Effective Green, g (s)	17.6	17.6		17.6	17.6		42.2	42.2		50.8	42.2	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.55	0.55		0.66	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	385		305	368		182	1938		358	1937	
v/s Ratio Prot		0.02			0.04			c0.34		c0.04	0.32	
v/s Ratio Perm	c0.14			0.09			0.05			0.19		
v/c Ratio	0.63	0.08		0.38	0.16		0.09	0.62		0.35	0.58	
Uniform Delay, d1	26.4	23.1		24.8	23.5		8.0	11.6		6.5	11.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.7	0.1		0.8	0.2		0.2	0.6		0.6	0.4	
Delay (s)	32.1	23.2		25.6	23.7		8.3	12.2		7.1	11.7	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		29.1			24.4			12.1			11.2	
Approach LOS		C			C			B			B	

Intersection Summary					
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.57				
Actuated Cycle Length (s)	76.4	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	68.9%	ICU Level of Service		C	
Analysis Period (min)	15				

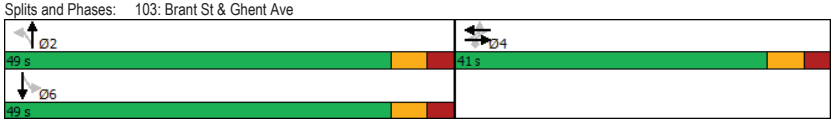
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	27	15	27	58	42	12	925	24	35	868	193
Future Volume (vph)	151	27	15	27	58	42	12	925	24	35	868	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.955			0.996			0.973	
Flt Protected		0.959			0.990		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1761	0	1770	3525	0	1770	3444	0
Flt Permitted		0.709			0.909		0.168			0.209		
Satd. Flow (perm)	0	1321	1583	0	1617	0	313	3525	0	389	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		34			4			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	164	29	16	29	63	46	13	1005	26	38	943	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	193	16	0	138	0	13	1031	0	38	1153	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		18.0	18.0		18.0		29.2	29.2		29.2	29.2	
Actuated g/C Ratio		0.32	0.32		0.32		0.53	0.53		0.53	0.53	
v/c Ratio		0.45	0.03		0.25		0.08	0.56		0.19	0.63	
Control Delay		20.0	0.6		13.2		9.3	10.7		10.9	11.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		20.0	0.6		13.2		9.3	10.7		10.9	11.4	
LOS		B	A		B		A	B		B	B	
Approach Delay		18.5			13.2			10.7			11.3	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 55.6			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 11.7		Intersection LOS: B	
Intersection Capacity Utilization 53.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	193	16	138	13	1031	38	1153
v/c Ratio	0.45	0.03	0.25	0.08	0.56	0.19	0.63
Control Delay	20.0	0.6	13.2	9.3	10.7	10.9	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	0.6	13.2	9.3	10.7	10.9	11.4
Queue Length 50th (m)	14.7	0.0	7.2	0.6	33.0	1.8	37.5
Queue Length 95th (m)	39.8	0.7	23.3	3.8	66.5	8.3	76.2
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	922	1119	1138	260	2936	324	2875
Starvation Cap Reductn	0	0	0	0	0	0	87
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.01	0.12	0.05	0.35	0.12	0.41

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	27	15	27	58	42	12	925	24	35	868	193
Future Volume (vph)	151	27	15	27	58	42	12	925	24	35	868	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.95		1.00	1.00		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1760		1770	3526		1770	3443	
Flt Permitted		0.71	1.00		0.91		0.17	1.00		0.21	1.00	
Satd. Flow (perm)		1320	1583		1616		313	3526		390	3443	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	164	29	16	29	63	46	13	1005	26	38	943	210
RTOR Reduction (vph)	0	0	11	0	23	0	0	2	0	0	20	0
Lane Group Flow (vph)	0	193	5	0	115	0	13	1029	0	38	1133	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		14.9	14.9		14.9		26.0	26.0		26.0	26.0	
Effective Green, g (s)		17.9	17.9		17.9		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.33	0.33		0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		430	516		526		165	1862		206	1818	
v/s Ratio Prot								0.29			c0.33	
v/s Ratio Perm		c0.15	0.00		0.07		0.04			0.10		
v/c Ratio		0.45	0.01		0.22		0.08	0.55		0.18	0.62	
Uniform Delay, d1		14.6	12.5		13.4		6.4	8.6		6.8	9.1	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0		0.2		0.2	0.4		0.4	0.7	
Delay (s)		15.4	12.5		13.6		6.6	9.0		7.2	9.8	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		15.1			13.6			9.0			9.7	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.56				
Actuated Cycle Length (s)	54.9	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	53.9%	ICU Level of Service		A	
Analysis Period (min)	15				

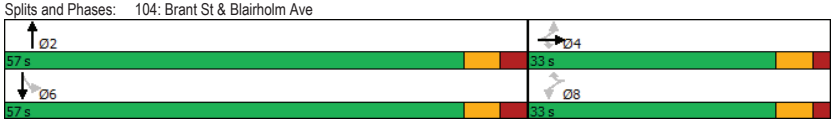
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	21	19	0	76	0	826	18	48	718	0
Future Volume (vph)	17	5	21	19	0	76	0	826	18	48	718	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.997				
Flt Protected		0.962		0.950						0.950		
Satd. Flow (prot)	0	1792	1583	1770	0	1583	0	3529	0	1770	1863	0
Flt Permitted		0.962		0.742						0.293		
Satd. Flow (perm)	0	1792	1583	1382	0	1583	0	3529	0	546	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			83		4				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		71.0			305.8			317.1			241.2	
Travel Time (s)		5.1			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	23	21	0	83	0	898	20	52	780	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	23	21	0	83	0	918	0	52	780	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.5	8.5	10.6		10.6		34.9		34.9	34.9	
Actuated g/C Ratio		0.18	0.18	0.22		0.22		0.72		0.72	0.72	
v/c Ratio		0.07	0.07	0.07		0.20		0.36		0.13	0.58	
Control Delay		20.0	4.0	18.4		7.0		4.3		4.5	7.3	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		20.0	4.0	18.4		7.0		4.3		4.5	7.3	
LOS		B	A	B		A		A		A	A	
Approach Delay		12.0			9.3			4.3			7.1	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 48.4			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 59.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	23	23	21	83	918	52	780
v/c Ratio	0.07	0.07	0.07	0.20	0.36	0.13	0.58
Control Delay	20.0	4.0	18.4	7.0	4.3	4.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	4.0	18.4	7.0	4.3	4.5	7.3
Queue Length 50th (m)	1.7	0.0	1.5	0.0	17.3	1.5	35.8
Queue Length 95th (m)	7.7	2.8	6.9	9.5	26.4	4.9	65.5
Internal Link Dist (m)	47.0				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1046	944	867	1024	3430	530	1811
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.02	0.08	0.27	0.10	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	21	19	0	76	0	826	18	48	718	0
Future Volume (vph)	17	5	21	19	0	76	0	826	18	48	718	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1793	1583	1770		1583		3528		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.29	1.00	
Satd. Flow (perm)		1793	1583	1383		1583		3528		546	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	23	21	0	83	0	898	20	52	780	0
RTOR Reduction (vph)	0	0	20	0	0	69	0	1	0	0	0	0
Lane Group Flow (vph)	0	23	3	21	0	14	0	917	0	52	780	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.1	6.1	6.1		6.1		30.5		30.5	30.5	
Effective Green, g (s)		6.1	6.1	8.1		8.1		33.5		33.5	33.5	
Actuated g/C Ratio		0.12	0.12	0.16		0.16		0.68		0.68	0.68	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		220	194	225		258		2382		368	1258	
v/s Ratio Prot								0.26			c0.42	
v/s Ratio Perm		0.01	0.00	c0.02		0.01				0.10		
v/c Ratio		0.10	0.01	0.09		0.05		0.38		0.14	0.62	
Uniform Delay, d1		19.3	19.1	17.6		17.5		3.5		2.9	4.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.2		0.1		0.1		0.2	1.0	
Delay (s)		19.5	19.1	17.8		17.6		3.6		3.1	5.5	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		19.3			17.6			3.6			5.3	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	49.6	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	59.5%	ICU Level of Service	B	
Analysis Period (min)	15			

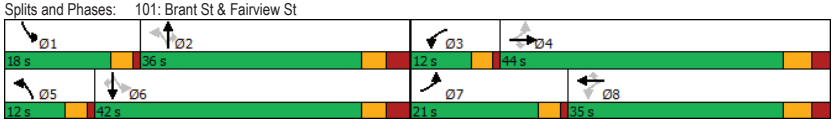
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	784	231	133	741	243	224	572	143	239	581	166
Future Volume (vph)	318	784	231	133	741	243	224	572	143	239	581	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.131			0.237			0.295			0.159		
Satd. Flow (perm)	244	3539	1583	441	3539	1583	550	3539	1583	296	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			251			264			192			180
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	346	852	251	145	805	264	243	622	155	260	632	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	346	852	251	145	805	264	243	622	155	260	632	180
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.1	38.3	38.3	36.8	29.0	29.0	33.8	25.7	25.7	42.8	31.0	31.0
Actuated g/C Ratio	0.49	0.38	0.38	0.36	0.29	0.29	0.33	0.25	0.25	0.42	0.31	0.31
v/c Ratio	0.91	0.64	0.33	0.55	0.80	0.41	0.87	0.69	0.28	0.82	0.58	0.30
Control Delay	55.8	29.1	4.3	25.3	40.8	5.9	54.0	38.9	3.4	42.4	32.1	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	29.1	4.3	25.3	40.8	5.9	54.0	38.9	3.4	42.4	32.1	5.2
LOS	E	C	A	C	D	A	D	D	A	D	C	A
Approach Delay		31.2			31.4			37.1			30.0	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 101.3			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 32.2		Intersection LOS: C	
Intersection Capacity Utilization 80.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Background (2028)
SAT Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	346	852	251	145	805	264	243	622	155	260	632	180
v/c Ratio	0.91	0.64	0.33	0.55	0.80	0.41	0.87	0.69	0.28	0.82	0.58	0.30
Control Delay	55.8	29.1	4.3	25.3	40.8	5.9	54.0	38.9	3.4	42.4	32.1	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	29.1	4.3	25.3	40.8	5.9	54.0	38.9	3.4	42.4	32.1	5.2
Queue Length 50th (m)	54.4	76.8	0.0	16.4	82.4	0.0	33.8	63.5	0.0	36.6	59.4	0.0
Queue Length 95th (m)	#120.4	106.4	16.7	30.9	113.3	19.4	#69.7	83.0	8.8	#75.7	77.5	14.8
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	379	1408	781	267	1091	670	280	1126	634	331	1338	710
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.61	0.32	0.54	0.74	0.39	0.87	0.55	0.24	0.79	0.47	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Background (2028)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	784	231	133	741	243	224	572	143	239	581	166
Future Volume (vph)	318	784	231	133	741	243	224	572	143	239	581	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.13	1.00	1.00	0.24	1.00	1.00	0.29	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	243	3539	1583	442	3539	1583	549	3539	1583	297	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	346	852	251	145	805	264	243	622	155	260	632	180
RTOR Reduction (vph)	0	0	156	0	0	188	0	0	116	0	0	125
Lane Group Flow (vph)	346	852	95	145	805	76	243	622	39	260	632	55
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	47.7	35.9	35.9	34.4	26.6	26.6	31.3	23.2	23.2	40.6	28.5	28.5
Effective Green, g (s)	47.7	38.3	38.3	34.4	29.0	29.0	31.3	25.7	25.7	40.6	31.0	31.0
Actuated g/C Ratio	0.47	0.38	0.38	0.34	0.29	0.29	0.31	0.25	0.25	0.40	0.31	0.31
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	372	1339	599	252	1014	453	267	898	402	314	1084	484
v/s Ratio Prot	c0.16	0.24		0.04	0.23		0.07	0.18		c0.11	0.18	
v/s Ratio Perm	c0.28		0.06	0.15		0.05	0.21		0.02	c0.22		0.03
v/c Ratio	0.93	0.64	0.16	0.58	0.79	0.17	0.91	0.69	0.10	0.83	0.58	0.11
Uniform Delay, d1	27.4	25.7	20.8	24.4	33.3	27.0	30.7	34.2	28.9	23.4	29.6	25.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.5	1.0	0.1	3.2	4.3	0.2	32.4	2.3	0.1	16.2	0.8	0.1
Delay (s)	56.9	26.7	20.9	27.5	37.7	27.2	63.1	36.5	29.0	39.6	30.4	25.3
Level of Service	E	C	C	C	D	C	E	D	C	D	C	C
Approach Delay (s)		32.9			34.2			41.7			31.8	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	101.2	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	80.5%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	8	15	64	12	116	13	821	37	103	827	38
Future Volume (vph)	58	8	15	64	12	116	13	821	37	103	827	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.904			0.864			0.994			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1684	0	1770	1609	0	1770	3518	0	1770	3514	0
Flt Permitted	0.651			0.741			0.251			0.254		
Satd. Flow (perm)	1213	1684	0	1380	1609	0	468	3518	0	473	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			126			8			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	9	16	70	13	126	14	892	40	112	899	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	25	0	70	139	0	14	932	0	112	940	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.4	13.4		13.4	13.4		36.4	36.4		46.8	36.4	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.61	0.61		0.78	0.61	
v/c Ratio	0.23	0.06		0.23	0.30		0.05	0.43		0.19	0.44	
Control Delay	26.0	15.5		25.6	8.8		8.9	10.1		3.4	10.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.0	15.5		25.6	8.8		8.9	10.1		3.4	10.1	
LOS	C	B		C	A		A	B		A	B	
Approach Delay		23.0			14.4			10.1			9.4	
Approach LOS		C			B			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 59.7			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 58.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	25	70	139	14	932	112	940
v/c Ratio	0.23	0.06	0.23	0.30	0.05	0.43	0.19	0.44
Control Delay	26.0	15.5	25.6	8.8	8.9	10.1	3.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	15.5	25.6	8.8	8.9	10.1	3.4	10.1
Queue Length 50th (m)	6.1	0.8	6.8	1.2	0.8	34.4	2.6	34.7
Queue Length 95th (m)	19.6	7.4	21.1	16.0	3.8	60.2	8.0	60.8
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	413	584	470	631	393	2962	650	2959
Starvation Cap Reductn	0	0	0	0	0	138	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.04	0.15	0.22	0.04	0.33	0.17	0.32

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	8	15	64	12	116	13	821	37	103	827	38
Future Volume (vph)	58	8	15	64	12	116	13	821	37	103	827	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1684		1770	1609		1770	3516		1770	3516	
Flt Permitted	0.65	1.00		0.74	1.00		0.25	1.00		0.25	1.00	
Satd. Flow (perm)	1212	1684		1380	1609		467	3516		472	3516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	9	16	70	13	126	14	892	40	112	899	41
RTOR Reduction (vph)	0	13	0	0	104	0	0	3	0	0	3	0
Lane Group Flow (vph)	63	12	0	70	35	0	14	929	0	112	937	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.6	7.6		7.6	7.6		31.9	31.9		37.1	31.9	
Effective Green, g (s)	10.6	10.6		10.6	10.6		34.9	34.9		43.1	34.9	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.57	0.57		0.70	0.57	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	208	289		237	276		264	1988		502	1988	
v/s Ratio Prot		0.01			0.02			0.26		c0.03	c0.27	
v/s Ratio Perm	c0.05			0.05			0.03			0.13		
v/c Ratio	0.30	0.04		0.30	0.13		0.05	0.47		0.22	0.47	
Uniform Delay, d1	22.3	21.3		22.3	21.6		6.0	7.9		3.4	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.1		0.7	0.2		0.1	0.2		0.2	0.2	
Delay (s)	23.1	21.4		23.0	21.8		6.1	8.1		3.6	8.1	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		22.6			22.2			8.1			7.6	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.39				
Actuated Cycle Length (s)	61.7	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	58.5%	ICU Level of Service		B	
Analysis Period (min)	15				

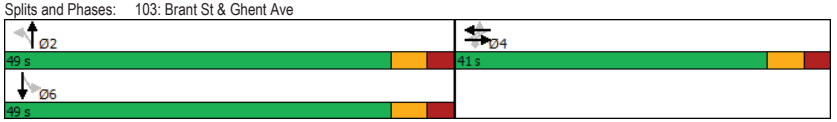
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	16	9	18	15	34	15	738	18	41	758	102
Future Volume (vph)	91	16	9	18	15	34	15	738	18	41	758	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.932			0.996			0.982	
Flt Protected		0.959			0.986		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1712	0	1770	3525	0	1770	3476	0
Flt Permitted		0.707			0.887		0.266			0.314		
Satd. Flow (perm)	0	1317	1583	0	1540	0	495	3525	0	585	3476	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		37			4			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	99	17	10	20	16	37	16	802	20	45	824	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	10	0	73	0	16	822	0	45	935	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		13.2	13.2		13.2		25.7	25.7		25.7	25.7	
Actuated g/C Ratio		0.31	0.31		0.31		0.61	0.61		0.61	0.61	
v/c Ratio		0.28	0.02		0.14		0.05	0.38		0.13	0.44	
Control Delay		14.4	0.1		8.1		6.6	7.0		7.4	7.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		14.4	0.1		8.1		6.6	7.0		7.4	7.3	
LOS		B	A		A		A	A		A	A	
Approach Delay		13.2			8.1			7.0			7.3	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 42			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 53.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	116	10	73	16	822	45	935
v/c Ratio	0.28	0.02	0.14	0.05	0.38	0.13	0.44
Control Delay	14.4	0.1	8.1	6.6	7.0	7.4	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	0.1	8.1	6.6	7.0	7.4	7.3
Queue Length 50th (m)	6.3	0.0	1.8	0.5	17.9	1.6	20.8
Queue Length 95th (m)	19.0	0.0	9.6	3.1	35.4	6.6	41.1
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	1145	1383	1344	480	3419	567	3372
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.01	0.05	0.03	0.24	0.08	0.28

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	16	9	18	15	34	15	738	18	41	758	102
Future Volume (vph)	91	16	9	18	15	34	15	738	18	41	758	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1712		1770	3526		1770	3476	
Flt Permitted		0.71	1.00		0.89		0.27	1.00		0.31	1.00	
Satd. Flow (perm)		1316	1583		1540		496	3526		585	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	17	10	20	16	37	16	802	20	45	824	111
RTOR Reduction (vph)	0	0	7	0	28	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	116	3	0	45	0	16	820	0	45	925	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		8.0	8.0		8.0		21.5	21.5		21.5	21.5	
Effective Green, g (s)		11.0	11.0		11.0		24.5	24.5		24.5	24.5	
Actuated g/C Ratio		0.25	0.25		0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		332	400		389		279	1985		329	1957	
v/s Ratio Prot								0.23			c0.27	
v/s Ratio Perm		c0.09	0.00		0.03		0.03			0.08		
v/c Ratio		0.35	0.01		0.12		0.06	0.41		0.14	0.47	
Uniform Delay, d1		13.3	12.2		12.5		4.3	5.4		4.5	5.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6	0.0		0.1		0.1	0.1		0.2	0.2	
Delay (s)		14.0	12.2		12.6		4.4	5.5		4.7	5.8	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		13.8			12.6			5.5			5.8	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.43				
Actuated Cycle Length (s)	43.5	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	53.3%	ICU Level of Service		A	
Analysis Period (min)	15				

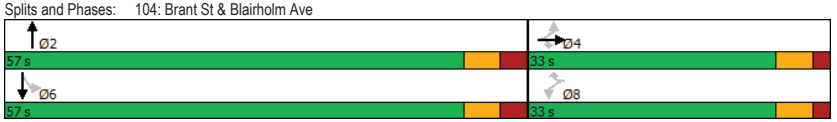
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	709	9	35	715	0
Future Volume (vph)	15	0	5	11	0	44	0	709	9	35	715	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.998				
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1770	1583	1770	0	1583	0	3532	0	1770	1863	0
Flt Permitted		0.950		0.747						0.355		
Satd. Flow (perm)	0	1770	1583	1391	0	1583	0	3532	0	661	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			48		2				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		80.4			305.8			317.1			241.2	
Travel Time (s)		5.8			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	771	10	38	777	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	5	12	0	48	0	781	0	38	777	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.6	8.6	10.7		10.7		37.8		37.8	37.8	
Actuated g/C Ratio		0.18	0.18	0.23		0.23		0.81		0.81	0.81	
v/c Ratio		0.05	0.02	0.04		0.12		0.27		0.07	0.52	
Control Delay		21.1	0.0	19.4		8.1		3.1		3.5	5.5	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		21.1	0.0	19.4		8.1		3.1		3.5	5.5	
LOS		C	A	B		A		A		A	A	
Approach Delay		16.1			10.4			3.1			5.4	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 46.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 4.6		Intersection LOS: A	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	16	5	12	48	781	38	777
v/c Ratio	0.05	0.02	0.04	0.12	0.27	0.07	0.52
Control Delay	21.1	0.0	19.4	8.1	3.1	3.5	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	0.0	19.4	8.1	3.1	3.5	5.5
Queue Length 50th (m)	1.6	0.0	1.2	0.0	14.0	1.1	35.7
Queue Length 95th (m)	6.0	0.0	4.8	7.2	20.5	3.4	61.8
Internal Link Dist (m)	56.4				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1089	992	919	1062	3420	640	1804
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.05	0.23	0.06	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	709	9	35	715	0
Future Volume (vph)	15	0	5	11	0	44	0	709	9	35	715	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583	1770		1583		3532		1770	1863	
Flt Permitted		0.95	1.00	0.75		1.00		1.00		0.35	1.00	
Satd. Flow (perm)		1770	1583	1392		1583		3532		660	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	771	10	38	777	0
RTOR Reduction (vph)	0	0	5	0	0	42	0	1	0	0	0	0
Lane Group Flow (vph)	0	16	0	12	0	6	0	780	0	38	777	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		4.0	4.0	4.0		4.0		32.4		32.4	32.4	
Effective Green, g (s)		4.0	4.0	6.0		6.0		35.4		35.4	35.4	
Actuated g/C Ratio		0.08	0.08	0.12		0.12		0.72		0.72	0.72	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		143	128	169		192		2531		472	1335	
v/s Ratio Prot								0.22			c0.42	
v/s Ratio Perm		0.01	0.00	0.01		0.00				0.06		
v/c Ratio		0.11	0.00	0.07		0.03		0.31		0.08	0.58	
Uniform Delay, d1		21.1	20.9	19.2		19.1		2.5		2.1	3.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.0	0.2		0.1		0.1		0.1	0.7	
Delay (s)		21.4	20.9	19.4		19.2		2.6		2.2	4.1	
Level of Service		C	C	B		B		A		A	A	
Approach Delay (s)		21.3			19.2			2.6			4.0	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.53			
Actuated Cycle Length (s)	49.4	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	59.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Appendix H3

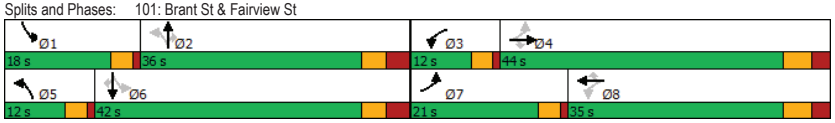
Background – Full Build-Out Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	341	1121	273	120	353	154	187	611	260	232	703	153
Future Volume (vph)	341	1121	273	120	353	154	187	611	260	232	703	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.375			0.141			0.202			0.146		
Satd. Flow (perm)	699	3539	1583	263	3539	1583	376	3539	1583	272	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			263			193			192			166
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	371	1218	297	130	384	167	203	664	283	252	764	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	371	1218	297	130	384	167	203	664	283	252	764	166
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	51.0	39.2	39.2	38.6	30.8	30.8	35.6	27.5	27.5	44.7	32.9	32.9
Actuated g/C Ratio	0.49	0.38	0.38	0.37	0.30	0.30	0.34	0.26	0.26	0.43	0.32	0.32
v/c Ratio	0.73	0.91	0.39	0.62	0.37	0.28	0.86	0.71	0.51	0.82	0.68	0.27
Control Delay	28.0	43.2	6.2	32.1	31.1	4.1	55.5	39.3	14.2	43.6	34.5	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	43.2	6.2	32.1	31.1	4.1	55.5	39.3	14.2	43.6	34.5	5.1
LOS	C	D	A	C	C	A	E	D	B	D	C	A
Approach Delay		34.4			24.7			36.0			32.3	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 104			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 32.9		Intersection LOS: C	
Intersection Capacity Utilization 80.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	371	1218	297	130	384	167	203	664	283	252	764	166
v/c Ratio	0.73	0.91	0.39	0.62	0.37	0.28	0.86	0.71	0.51	0.82	0.68	0.27
Control Delay	28.0	43.2	6.2	32.1	31.1	4.1	55.5	39.3	14.2	43.6	34.5	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	43.2	6.2	32.1	31.1	4.1	55.5	39.3	14.2	43.6	34.5	5.1
Queue Length 50th (m)	51.2	132.8	4.7	15.3	35.3	0.0	27.5	68.8	15.5	35.3	75.3	0.0
Queue Length 95th (m)	#80.2	#185.4	24.1	#34.3	51.0	11.4	#59.5	89.1	40.4	#74.7	96.2	14.3
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	519	1369	773	215	1061	610	236	1095	622	320	1300	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.89	0.38	0.60	0.36	0.27	0.86	0.61	0.45	0.79	0.59	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	341	1121	273	120	353	154	187	611	260	232	703	153
Future Volume (vph)	341	1121	273	120	353	154	187	611	260	232	703	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.37	1.00	1.00	0.14	1.00	1.00	0.20	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	698	3539	1583	262	3539	1583	377	3539	1583	272	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	371	1218	297	130	384	167	203	664	283	252	764	166
RTOR Reduction (vph)	0	0	164	0	0	117	0	0	141	0	0	113
Lane Group Flow (vph)	371	1218	133	130	384	50	203	664	142	252	764	53
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.6	36.8	36.8	36.2	28.4	28.4	33.0	25.0	25.0	42.4	30.4	30.4
Effective Green, g (s)	48.6	39.2	39.2	36.2	30.8	30.8	33.0	27.5	27.5	42.4	32.9	32.9
Actuated g/C Ratio	0.47	0.38	0.38	0.35	0.30	0.30	0.32	0.26	0.26	0.41	0.32	0.32
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	493	1335	597	204	1049	469	226	936	418	304	1120	501
v/s Ratio Prot	c0.12	c0.34		0.05	0.11		0.07	0.19		c0.11	0.22	
v/s Ratio Perm	0.23		0.08	0.17		0.03	0.22		0.09	c0.23		0.03
v/c Ratio	0.75	0.91	0.22	0.64	0.37	0.11	0.90	0.71	0.34	0.83	0.68	0.10
Uniform Delay, d1	19.3	30.7	22.0	26.7	28.8	26.5	29.7	34.6	30.9	23.7	30.9	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	9.7	0.2	6.4	0.2	0.1	33.5	2.5	0.5	16.8	1.7	0.1
Delay (s)	25.7	40.4	22.2	33.1	29.1	26.6	63.1	37.1	31.3	40.5	32.7	25.2
Level of Service	C	D	C	C	C	C	E	D	C	D	C	C
Approach Delay (s)		34.6			29.2			40.3			33.3	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	103.9	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	80.8%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	10	16	58	9	83	26	795	42	91	896	88
Future Volume (vph)	34	10	16	58	9	83	26	795	42	91	896	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.909			0.865			0.992			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1693	0	1770	1611	0	1770	3511	0	1770	3493	0
Flt Permitted	0.692			0.739			0.211			0.268		
Satd. Flow (perm)	1289	1693	0	1377	1611	0	393	3511	0	499	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			90			10			19	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	11	17	63	10	90	28	864	46	99	974	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	28	0	63	100	0	28	910	0	99	1070	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.2	13.2		13.2	13.2		39.3	39.3		49.3	39.3	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.64	0.64		0.80	0.64	
v/c Ratio	0.13	0.07		0.21	0.24		0.11	0.41		0.16	0.48	
Control Delay	27.1	17.0		27.8	10.0		9.0	8.9		2.9	9.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.1	17.0		27.8	10.0		9.0	8.9		2.9	9.6	
LOS	C	B		C	B		A	A		A	A	
Approach Delay		22.8			16.9			8.9			9.0	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 61.6			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 54.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	28	63	100	28	910	99	1070
v/c Ratio	0.13	0.07	0.21	0.24	0.11	0.41	0.16	0.48
Control Delay	27.1	17.0	27.8	10.0	9.0	8.9	2.9	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	17.0	27.8	10.0	9.0	8.9	2.9	9.6
Queue Length 50th (m)	3.8	1.1	6.5	1.0	1.5	32.2	2.2	40.1
Queue Length 95th (m)	14.0	8.7	20.9	14.5	6.1	54.1	6.5	66.6
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	435	583	465	604	319	2853	671	2840
Starvation Cap Reductn	0	0	0	0	0	240	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.05	0.14	0.17	0.09	0.35	0.15	0.38

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	10	16	58	9	83	26	795	42	91	896	88
Future Volume (vph)	34	10	16	58	9	83	26	795	42	91	896	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1693		1770	1611		1770	3512		1770	3492	
Flt Permitted	0.69	1.00		0.74	1.00		0.21	1.00		0.27	1.00	
Satd. Flow (perm)	1290	1693		1377	1611		394	3512		499	3492	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	11	17	63	10	90	28	864	46	99	974	96
RTOR Reduction (vph)	0	14	0	0	76	0	0	4	0	0	8	0
Lane Group Flow (vph)	37	14	0	63	24	0	28	906	0	99	1062	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.1	7.1		7.1	7.1		34.5	34.5		39.4	34.5	
Effective Green, g (s)	10.1	10.1		10.1	10.1		37.5	37.5		45.4	37.5	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.59	0.59		0.71	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	269		219	256		232	2074		514	2062	
v/s Ratio Prot		0.01			0.02			0.26		c0.02	c0.30	
v/s Ratio Perm	0.03			c0.05			0.07			0.11		
v/c Ratio	0.18	0.05		0.29	0.09		0.12	0.44		0.19	0.52	
Uniform Delay, d1	23.1	22.6		23.5	22.8		5.7	7.2		3.0	7.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.7	0.2		0.2	0.1		0.2	0.2	
Delay (s)	23.5	22.7		24.3	23.0		6.0	7.3		3.2	7.9	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		23.2			23.5			7.3			7.5	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.42			
Actuated Cycle Length (s)	63.5	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	54.1%	ICU Level of Service	A	
Analysis Period (min)	15			

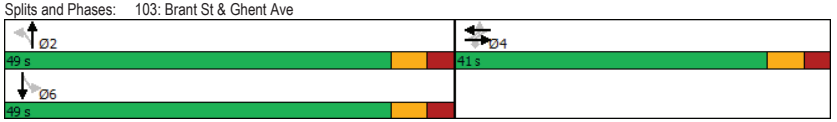
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	25	22	24	10	28	12	691	31	34	822	120
Future Volume (vph)	141	25	22	24	10	28	12	691	31	34	822	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.940			0.994			0.981	
Flt Protected		0.959			0.981		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1718	0	1770	3518	0	1770	3472	0
Flt Permitted		0.711			0.850		0.215			0.313		
Satd. Flow (perm)	0	1324	1583	0	1488	0	400	3518	0	583	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		30			7			25	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	153	27	24	26	11	30	13	751	34	37	893	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	24	0	67	0	13	785	0	37	1023	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		16.2	16.2		16.2		27.3	27.3		27.3	27.3	
Actuated g/C Ratio		0.31	0.31		0.31		0.53	0.53		0.53	0.53	
v/c Ratio		0.43	0.05		0.14		0.06	0.42		0.12	0.56	
Control Delay		17.8	2.4		9.3		8.2	8.7		8.6	9.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		17.8	2.4		9.3		8.2	8.7		8.6	9.9	
LOS		B	A		A		A	A		A	A	
Approach Delay		16.0			9.3			8.7			9.9	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 51.7			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 10.0		Intersection LOS: B	
Intersection Capacity Utilization 50.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	180	24	67	13	785	37	1023
v/c Ratio	0.43	0.05	0.14	0.06	0.42	0.12	0.56
Control Delay	17.8	2.4	9.3	8.2	8.7	8.6	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	2.4	9.3	8.2	8.7	8.6	9.9
Queue Length 50th (m)	11.6	0.0	2.1	0.5	20.3	1.5	28.5
Queue Length 95th (m)	32.5	2.3	10.5	3.3	42.2	6.9	58.6
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	971	1173	1099	350	3080	510	3041
Starvation Cap Reductn	0	0	0	0	0	0	34
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.02	0.06	0.04	0.25	0.07	0.34

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	25	22	24	10	28	12	691	31	34	822	120
Future Volume (vph)	141	25	22	24	10	28	12	691	31	34	822	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.98	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1717		1770	3516		1770	3472	
Flt Permitted		0.71	1.00		0.85		0.21	1.00		0.31	1.00	
Satd. Flow (perm)		1325	1583		1487		400	3516		583	3472	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	153	27	24	26	11	30	13	751	34	37	893	130
RTOR Reduction (vph)	0	0	16	0	21	0	0	3	0	0	12	0
Lane Group Flow (vph)	0	180	8	0	46	0	13	782	0	37	1011	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		13.2	13.2		13.2		24.2	24.2		24.2	24.2	
Effective Green, g (s)		16.2	16.2		16.2		27.2	27.2		27.2	27.2	
Actuated g/C Ratio		0.32	0.32		0.32		0.53	0.53		0.53	0.53	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		417	498		468		211	1860		308	1837	
v/s Ratio Prot								0.22			c0.29	
v/s Ratio Perm		c0.14	0.00		0.03		0.03			0.06		
v/c Ratio		0.43	0.02		0.10		0.06	0.42		0.12	0.55	
Uniform Delay, d1		14.0	12.1		12.4		5.9	7.3		6.1	8.0	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0		0.1		0.1	0.2		0.2	0.4	
Delay (s)		14.7	12.1		12.5		6.0	7.5		6.3	8.4	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		14.4			12.5			7.5			8.3	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.51				
Actuated Cycle Length (s)	51.4	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	50.7%	ICU Level of Service		A	
Analysis Period (min)	15				

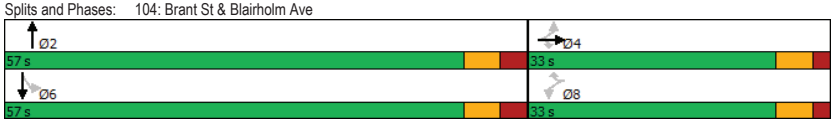
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	8	39	0	112	0	597	16	45	729	0
Future Volume (vph)	16	4	8	39	0	112	0	597	16	45	729	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.996				
Flt Protected		0.961		0.950						0.950		
Satd. Flow (prot)	0	1790	1583	1770	0	1583	0	3525	0	1770	1863	0
Flt Permitted		0.961		0.744						0.399		
Satd. Flow (perm)	0	1790	1583	1386	0	1583	0	3525	0	743	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			122		5				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		71.8			305.8			317.1			241.2	
Travel Time (s)		5.2			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	9	42	0	122	0	649	17	49	792	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	9	42	0	122	0	666	0	49	792	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.8	8.8	10.9		10.9		34.0		34.0	34.0	
Actuated g/C Ratio		0.18	0.18	0.23		0.23		0.71		0.71	0.71	
v/c Ratio		0.06	0.03	0.13		0.27		0.27		0.09	0.60	
Control Delay		20.2	0.1	19.3		6.7		4.1		4.2	7.8	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		20.2	0.1	19.3		6.7		4.1		4.2	7.8	
LOS		C	A	B		A		A		A	A	
Approach Delay		14.1			9.9			4.1			7.6	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 47.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 60.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	21	9	42	122	666	49	792
v/c Ratio	0.06	0.03	0.13	0.27	0.27	0.09	0.60
Control Delay	20.2	0.1	19.3	6.7	4.1	4.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.2	0.1	19.3	6.7	4.1	4.2	7.8
Queue Length 50th (m)	1.5	0.0	2.8	0.0	11.4	1.4	36.9
Queue Length 95th (m)	7.4	0.0	11.7	11.7	19.8	4.7	73.7
Internal Link Dist (m)	47.8				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1058	955	880	1049	3423	721	1809
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.05	0.12	0.19	0.07	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	8	39	0	112	0	597	16	45	729	0
Future Volume (vph)	16	4	8	39	0	112	0	597	16	45	729	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1790	1583	1770		1583		3526		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.40	1.00	
Satd. Flow (perm)		1790	1583	1385		1583		3526		742	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	9	42	0	122	0	649	17	49	792	0
RTOR Reduction (vph)	0	0	8	0	0	101	0	2	0	0	0	0
Lane Group Flow (vph)	0	21	1	42	0	21	0	664	0	49	792	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.4	6.4	6.4		6.4		29.6		29.6	29.6	
Effective Green, g (s)		6.4	6.4	8.4		8.4		32.6		32.6	32.6	
Actuated g/C Ratio		0.13	0.13	0.17		0.17		0.67		0.67	0.67	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		233	206	237		271		2345		493	1239	
v/s Ratio Prot								0.19			c0.43	
v/s Ratio Perm		0.01	0.00	c0.03		0.01				0.07		
v/c Ratio		0.09	0.01	0.18		0.08		0.28		0.10	0.64	
Uniform Delay, d1		18.7	18.5	17.3		17.0		3.4		2.9	4.8	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.4		0.1		0.1		0.1	1.1	
Delay (s)		18.9	18.5	17.7		17.2		3.4		3.0	5.9	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		18.8			17.3			3.4			5.7	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	49.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	60.0%	ICU Level of Service	B	
Analysis Period (min)	15			

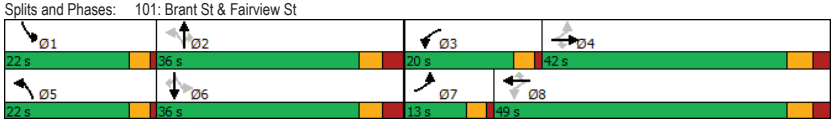
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	826	292	205	1532	443	178	790	185	236	647	437
Future Volume (vph)	214	826	292	205	1532	443	178	790	185	236	647	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.106			0.106			0.184			0.127		
Satd. Flow (perm)	197	3539	1583	197	3539	1583	343	3539	1583	237	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			317			291			140			237
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	233	898	317	223	1665	482	193	859	201	257	703	475
Shared Lane Traffic (%)												
Lane Group Flow (vph)	233	898	317	223	1665	482	193	859	201	257	703	475
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	13.0	42.0	42.0	20.0	49.0	49.0	22.0	36.0	36.0	22.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	16.7%	40.8%	40.8%	18.3%	30.0%	30.0%	18.3%	30.0%	30.0%
Maximum Green (s)	9.0	35.6	35.6	16.0	42.6	42.6	18.0	29.5	29.5	18.0	29.5	29.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	49.0	40.0	40.0	57.3	45.0	45.0	45.4	31.7	31.7	50.2	34.1	34.1
Actuated g/C Ratio	0.42	0.34	0.34	0.49	0.38	0.38	0.39	0.27	0.27	0.43	0.29	0.29
v/c Ratio	1.15	0.75	0.42	0.79	1.23	0.61	0.65	0.90	0.38	0.83	0.69	0.76
Control Delay	139.9	40.0	5.2	44.8	144.1	15.0	31.9	55.8	14.1	49.9	41.7	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.9	40.0	5.2	44.8	144.1	15.0	31.9	55.8	14.1	49.9	41.7	27.9
LOS	F	D	A	D	F	B	C	E	B	D	D	C
Approach Delay		48.4			108.5			45.4			38.6	
Approach LOS		D			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117.9			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 67.6		Intersection LOS: E	
Intersection Capacity Utilization 102.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Background (2029)
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	233	898	317	223	1665	482	193	859	201	257	703	475
v/c Ratio	1.15	0.75	0.42	0.79	1.23	0.61	0.65	0.90	0.38	0.83	0.69	0.76
Control Delay	139.9	40.0	5.2	44.8	144.1	15.0	31.9	55.8	14.1	49.9	41.7	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.9	40.0	5.2	44.8	144.1	15.0	31.9	55.8	14.1	49.9	41.7	27.9
Queue Length 50th (m)	~53.4	106.7	0.0	34.5	~271.4	36.4	28.9	108.6	11.5	42.0	79.4	54.0
Queue Length 95th (m)	#106.6	132.9	20.4	#69.2	#316.6	74.0	45.6	#146.3	32.7	#84.9	107.0	#106.6
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	202	1201	746	310	1352	784	361	961	532	336	1024	626
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.75	0.42	0.72	1.23	0.61	0.53	0.89	0.38	0.76	0.69	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Background (2029)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	826	292	205	1532	443	178	790	185	236	647	437
Future Volume (vph)	214	826	292	205	1532	443	178	790	185	236	647	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.18	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	198	3539	1583	197	3539	1583	342	3539	1583	236	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	898	317	223	1665	482	193	859	201	257	703	475
RTOR Reduction (vph)	0	0	209	0	0	180	0	0	102	0	0	168
Lane Group Flow (vph)	233	898	108	223	1665	302	193	859	99	257	703	307
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	46.6	37.6	37.6	55.6	42.6	42.6	42.9	29.2	29.2	47.7	31.6	31.6
Effective Green, g (s)	46.6	40.0	40.0	55.6	45.0	45.0	42.9	31.7	31.7	47.7	34.1	34.1
Actuated g/C Ratio	0.40	0.34	0.34	0.47	0.38	0.38	0.36	0.27	0.27	0.40	0.29	0.29
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	1201	537	279	1351	604	290	952	425	305	1024	458
v/s Ratio Prot	c0.09	0.25		0.09	c0.47		0.08	c0.24		c0.12	0.20	
v/s Ratio Perm	0.37		0.07	0.28		0.19	0.16		0.06	0.23		0.19
v/c Ratio	1.18	0.75	0.20	0.80	1.23	0.50	0.67	0.90	0.23	0.84	0.69	0.67
Uniform Delay, d1	29.6	34.4	27.6	26.9	36.4	27.8	28.1	41.6	33.6	29.9	37.1	36.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	119.7	2.6	0.2	14.7	111.2	0.7	5.7	11.6	0.3	18.6	1.9	3.7
Delay (s)	149.3	37.0	27.8	41.6	147.6	28.5	33.7	53.2	33.8	48.5	39.0	40.6
Level of Service	F	D	C	D	F	C	C	D	C	D	D	D
Approach Delay (s)		53.1			113.4			47.1			41.3	
Approach LOS		D			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	71.3	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.06			
Actuated Cycle Length (s)	117.8	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	102.5%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	20	42	108	12	181	15	1050	62	117	983	61
Future Volume (vph)	123	20	42	108	12	181	15	1050	62	117	983	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899			0.859			0.992			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1675	0	1770	1600	0	1770	3511	0	1770	3507	0
Flt Permitted	0.493			0.713			0.174			0.152		
Satd. Flow (perm)	918	1675	0	1328	1600	0	324	3511	0	283	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			197			11			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	22	46	117	13	197	16	1141	67	127	1068	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	68	0	117	210	0	16	1208	0	127	1134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	18.0	18.0		18.0	18.0		42.7	42.7		54.6	42.7	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.56	0.56		0.71	0.56	
v/c Ratio	0.63	0.16		0.38	0.40		0.09	0.62		0.31	0.58	
Control Delay	45.8	14.4		33.0	8.3		10.3	13.6		5.4	13.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.2		0.0	0.0	
Total Delay	45.8	14.4		33.0	8.3		10.3	13.8		5.4	13.0	
LOS	D	B		C	A		B	B		A	B	
Approach Delay		35.2			17.2			13.7			12.2	
Approach LOS		D			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 76.8			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 14.9		Intersection LOS: B	
Intersection Capacity Utilization 69.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	134	68	117	210	16	1208	127	1134
v/c Ratio	0.63	0.16	0.38	0.40	0.09	0.62	0.31	0.58
Control Delay	45.8	14.4	33.0	8.3	10.3	13.6	5.4	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	45.8	14.4	33.0	8.3	10.3	13.8	5.4	13.0
Queue Length 50th (m)	19.8	2.8	16.2	1.7	1.2	66.5	5.2	60.4
Queue Length 95th (m)	#50.6	14.2	35.3	20.0	4.5	89.6	9.5	82.0
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	238	468	344	561	223	2426	445	2423
Starvation Cap Reductn	0	0	0	0	0	411	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.15	0.34	0.37	0.07	0.60	0.29	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	20	42	108	12	181	15	1050	62	117	983	61
Future Volume (vph)	123	20	42	108	12	181	15	1050	62	117	983	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1674		1770	1601		1770	3510		1770	3508	
Flt Permitted	0.49	1.00		0.71	1.00		0.17	1.00		0.15	1.00	
Satd. Flow (perm)	917	1674		1328	1601		323	3510		283	3508	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	22	46	117	13	197	16	1141	67	127	1068	66
RTOR Reduction (vph)	0	35	0	0	151	0	0	5	0	0	5	0
Lane Group Flow (vph)	134	33	0	117	59	0	16	1203	0	127	1129	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	14.8	14.8		14.8	14.8		39.5	39.5		45.1	39.5	
Effective Green, g (s)	17.8	17.8		17.8	17.8		42.5	42.5		51.1	42.5	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.55	0.55		0.66	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	387		307	370		178	1939		354	1938	
v/s Ratio Prot		0.02			0.04			c0.34		c0.04	0.32	
v/s Ratio Perm	c0.15			0.09			0.05			0.20		
v/c Ratio	0.63	0.08		0.38	0.16		0.09	0.62		0.36	0.58	
Uniform Delay, d1	26.6	23.2		24.9	23.6		8.1	11.7		6.7	11.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	0.1		0.8	0.2		0.2	0.6		0.6	0.5	
Delay (s)	32.6	23.3		25.7	23.8		8.3	12.3		7.3	11.8	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		29.5			24.5			12.3			11.3	
Approach LOS		C			C			B			B	

Intersection Summary					
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.58				
Actuated Cycle Length (s)	76.9	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	69.4%	ICU Level of Service		C	
Analysis Period (min)	15				

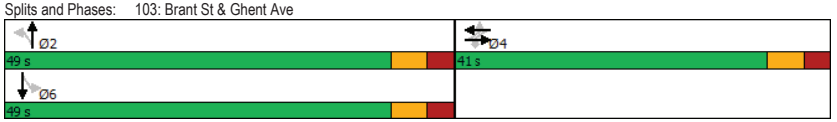
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	27	15	27	58	42	12	934	24	36	877	195
Future Volume (vph)	153	27	15	27	58	42	12	934	24	36	877	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.955			0.996			0.973	
Flt Protected		0.959			0.990		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1761	0	1770	3525	0	1770	3444	0
Flt Permitted		0.707			0.908		0.164			0.205		
Satd. Flow (perm)	0	1317	1583	0	1615	0	305	3525	0	382	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		34			4			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	166	29	16	29	63	46	13	1015	26	39	953	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	16	0	138	0	13	1041	0	39	1165	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		18.3	18.3		18.3		29.5	29.5		29.5	29.5	
Actuated g/C Ratio		0.33	0.33		0.33		0.52	0.52		0.52	0.52	
v/c Ratio		0.46	0.03		0.25		0.08	0.56		0.20	0.64	
Control Delay		20.3	0.6		13.4		9.4	10.8		11.2	11.5	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		20.3	0.6		13.4		9.4	10.8		11.2	11.5	
LOS		C	A		B		A	B		B	B	
Approach Delay		18.8			13.4			10.8			11.5	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 56.2			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 54.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	195	16	138	13	1041	39	1165
v/c Ratio	0.46	0.03	0.25	0.08	0.56	0.20	0.64
Control Delay	20.3	0.6	13.4	9.4	10.8	11.2	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	0.6	13.4	9.4	10.8	11.2	11.5
Queue Length 50th (m)	15.1	0.0	7.3	0.6	33.8	1.9	38.7
Queue Length 95th (m)	40.8	0.7	23.5	3.8	67.7	8.7	78.1
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	911	1110	1127	251	2911	315	2851
Starvation Cap Reductn	0	0	0	0	0	0	91
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.01	0.12	0.05	0.36	0.12	0.42

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	27	15	27	58	42	12	934	24	36	877	195
Future Volume (vph)	153	27	15	27	58	42	12	934	24	36	877	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.95		1.00	1.00		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1760		1770	3526		1770	3443	
Flt Permitted		0.71	1.00		0.91		0.16	1.00		0.21	1.00	
Satd. Flow (perm)		1317	1583		1616		306	3526		383	3443	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	29	16	29	63	46	13	1015	26	39	953	212
RTOR Reduction (vph)	0	0	11	0	23	0	0	2	0	0	20	0
Lane Group Flow (vph)	0	195	5	0	115	0	13	1039	0	39	1145	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		15.1	15.1		15.1		26.3	26.3		26.3	26.3	
Effective Green, g (s)		18.1	18.1		18.1		29.3	29.3		29.3	29.3	
Actuated g/C Ratio		0.33	0.33		0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		430	517		527		161	1864		202	1820	
v/s Ratio Prot								0.29			c0.33	
v/s Ratio Perm		c0.15	0.00		0.07		0.04			0.10		
v/c Ratio		0.45	0.01		0.22		0.08	0.56		0.19	0.63	
Uniform Delay, d1		14.7	12.6		13.5		6.4	8.7		6.8	9.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8	0.0		0.2		0.2	0.4		0.5	0.7	
Delay (s)		15.5	12.6		13.7		6.6	9.1		7.3	9.9	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		15.3			13.7			9.1			9.8	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	54.2%	ICU Level of Service	A	
Analysis Period (min)	15			

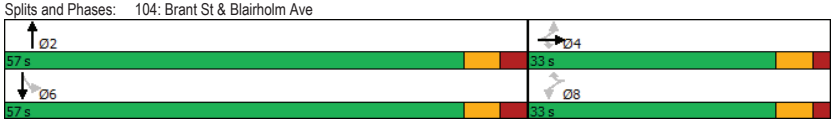
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	22	19	0	77	0	835	18	49	725	0
Future Volume (vph)	17	5	22	19	0	77	0	835	18	49	725	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.997				
Flt Protected		0.962		0.950						0.950		
Satd. Flow (prot)	0	1792	1583	1770	0	1583	0	3529	0	1770	1863	0
Flt Permitted		0.962		0.742						0.290		
Satd. Flow (perm)	0	1792	1583	1382	0	1583	0	3529	0	540	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			84		4				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		69.4			305.8			317.1			241.2	
Travel Time (s)		5.0			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	24	21	0	84	0	908	20	53	788	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	24	21	0	84	0	928	0	53	788	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.5	8.5	10.6		10.6		35.2		35.2	35.2	
Actuated g/C Ratio		0.17	0.17	0.22		0.22		0.72		0.72	0.72	
v/c Ratio		0.07	0.08	0.07		0.20		0.36		0.14	0.59	
Control Delay		20.1	4.1	18.6		7.1		4.3		4.6	7.3	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		20.1	4.1	18.6		7.1		4.3		4.6	7.3	
LOS		C	A	B		A		A		A	A	
Approach Delay		12.0			9.4			4.3			7.2	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 48.7			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	23	24	21	84	928	53	788
v/c Ratio	0.07	0.08	0.07	0.20	0.36	0.14	0.59
Control Delay	20.1	4.1	18.6	7.1	4.3	4.6	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	4.1	18.6	7.1	4.3	4.6	7.3
Queue Length 50th (m)	1.7	0.0	1.5	0.0	17.5	1.6	36.5
Queue Length 95th (m)	7.8	3.0	7.1	9.7	26.9	5.0	67.1
Internal Link Dist (m)	45.4				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1041	940	862	1019	3419	523	1805
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.03	0.02	0.08	0.27	0.10	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	22	19	0	77	0	835	18	49	725	0
Future Volume (vph)	17	5	22	19	0	77	0	835	18	49	725	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1793	1583	1770		1583		3528		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.29	1.00	
Satd. Flow (perm)		1793	1583	1383		1583		3528		540	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	24	21	0	84	0	908	20	53	788	0
RTOR Reduction (vph)	0	0	21	0	0	70	0	1	0	0	0	0
Lane Group Flow (vph)	0	23	3	21	0	14	0	927	0	53	788	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.1	6.1	6.1		6.1		30.8		30.8	30.8	
Effective Green, g (s)		6.1	6.1	8.1		8.1		33.8		33.8	33.8	
Actuated g/C Ratio		0.12	0.12	0.16		0.16		0.68		0.68	0.68	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		219	193	224		256		2389		365	1261	
v/s Ratio Prot								0.26			c0.42	
v/s Ratio Perm		0.01	0.00	c0.02		0.01				0.10		
v/c Ratio		0.11	0.02	0.09		0.05		0.39		0.15	0.62	
Uniform Delay, d1		19.5	19.3	17.8		17.7		3.5		2.9	4.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.2		0.1		0.1		0.2	1.0	
Delay (s)		19.7	19.3	18.0		17.7		3.6		3.1	5.5	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		19.5			17.8			3.6			5.3	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	49.9	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	59.8%	ICU Level of Service	B	
Analysis Period (min)	15			

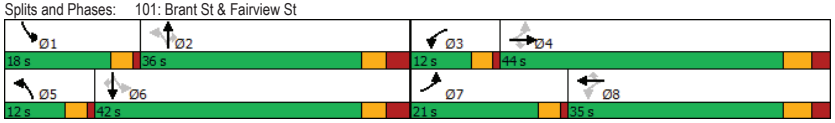
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	808	246	134	767	246	236	578	144	241	587	168
Future Volume (vph)	322	808	246	134	767	246	236	578	144	241	587	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.129			0.221			0.290			0.157		
Satd. Flow (perm)	240	3539	1583	412	3539	1583	540	3539	1583	292	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			267			267			192			183
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	350	878	267	146	834	267	257	628	157	262	638	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	350	878	267	146	834	267	257	628	157	262	638	183
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.7	38.8	38.8	37.3	29.5	29.5	34.2	26.1	26.1	43.3	31.5	31.5
Actuated g/C Ratio	0.50	0.38	0.38	0.36	0.29	0.29	0.33	0.26	0.26	0.42	0.31	0.31
v/c Ratio	0.94	0.65	0.35	0.57	0.82	0.41	0.93	0.69	0.29	0.83	0.59	0.30
Control Delay	60.2	29.7	4.3	26.6	42.1	5.9	65.2	39.1	3.6	44.1	32.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.2	29.7	4.3	26.6	42.1	5.9	65.2	39.1	3.6	44.1	32.2	5.2
LOS	E	C	A	C	D	A	E	D	A	D	C	A
Approach Delay		32.3			32.5			40.2			30.5	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 102.3			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 33.7		Intersection LOS: C	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Background (2029)
SAT Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	350	878	267	146	834	267	257	628	157	262	638	183
v/c Ratio	0.94	0.65	0.35	0.57	0.82	0.41	0.93	0.69	0.29	0.83	0.59	0.30
Control Delay	60.2	29.7	4.3	26.6	42.1	5.9	65.2	39.1	3.6	44.1	32.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.2	29.7	4.3	26.6	42.1	5.9	65.2	39.1	3.6	44.1	32.2	5.2
Queue Length 50th (m)	56.1	80.5	0.0	16.6	86.6	0.0	36.1	64.3	0.0	36.9	60.1	0.0
Queue Length 95th (m)	#122.9	110.3	17.2	31.2	118.2	19.6	#78.2	83.9	9.3	#77.3	78.3	15.0
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	374	1393	785	258	1080	668	277	1115	630	328	1324	706
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.63	0.34	0.57	0.77	0.40	0.93	0.56	0.25	0.80	0.48	0.26

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Background (2029)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	808	246	134	767	246	236	578	144	241	587	168
Future Volume (vph)	322	808	246	134	767	246	236	578	144	241	587	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.13	1.00	1.00	0.22	1.00	1.00	0.29	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	240	3539	1583	412	3539	1583	539	3539	1583	293	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	878	267	146	834	267	257	628	157	262	638	183
RTOR Reduction (vph)	0	0	166	0	0	190	0	0	117	0	0	127
Lane Group Flow (vph)	350	878	101	146	834	77	257	628	40	262	638	56
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.2	36.4	36.4	34.9	27.1	27.1	31.7	23.6	23.6	41.0	28.9	28.9
Effective Green, g (s)	48.2	38.8	38.8	34.9	29.5	29.5	31.7	26.1	26.1	41.0	31.4	31.4
Actuated g/C Ratio	0.47	0.38	0.38	0.34	0.29	0.29	0.31	0.26	0.26	0.40	0.31	0.31
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	369	1344	601	244	1022	457	265	904	404	311	1088	486
v/s Ratio Prot	c0.16	0.25		0.05	0.24		0.08	0.18		c0.11	0.18	
v/s Ratio Perm	c0.29		0.06	0.16		0.05	c0.22		0.03	0.23		0.04
v/c Ratio	0.95	0.65	0.17	0.60	0.82	0.17	0.97	0.69	0.10	0.84	0.59	0.12
Uniform Delay, d1	28.2	26.1	21.0	24.6	33.8	27.1	31.9	34.4	29.0	23.6	29.9	25.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	33.3	1.2	0.1	3.9	5.1	0.2	46.3	2.3	0.1	18.3	0.8	0.1
Delay (s)	61.6	27.3	21.1	28.5	38.9	27.3	78.2	36.7	29.1	41.9	30.7	25.5
Level of Service	E	C	C	C	D	C	E	D	C	D	C	C
Approach Delay (s)		34.2			35.2			45.8			32.5	
Approach LOS		C			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	102.1	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	81.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	8	15	65	12	117	13	829	38	104	835	38
Future Volume (vph)	58	8	15	65	12	117	13	829	38	104	835	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.904			0.864			0.993			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1684	0	1770	1609	0	1770	3514	0	1770	3518	0
Flt Permitted	0.646			0.741			0.248			0.250		
Satd. Flow (perm)	1203	1684	0	1380	1609	0	462	3514	0	466	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			127			8			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	9	16	71	13	127	14	901	41	113	908	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	25	0	71	140	0	14	942	0	113	949	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.4	13.4		13.4	13.4		36.9	36.9		47.4	36.9	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.61	0.61		0.79	0.61	
v/c Ratio	0.24	0.06		0.23	0.31		0.05	0.44		0.19	0.44	
Control Delay	26.5	15.8		26.0	9.0		8.8	10.1		3.4	10.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.5	15.8		26.0	9.0		8.8	10.1		3.4	10.1	
LOS	C	B		C	A		A	B		A	B	
Approach Delay		23.5			14.7			10.0			9.4	
Approach LOS		C			B			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 60.3			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	25	71	140	14	942	113	949
v/c Ratio	0.24	0.06	0.23	0.31	0.05	0.44	0.19	0.44
Control Delay	26.5	15.8	26.0	9.0	8.8	10.1	3.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	15.8	26.0	9.0	8.8	10.1	3.4	10.1
Queue Length 50th (m)	6.1	0.8	6.9	1.2	0.8	34.8	2.6	35.2
Queue Length 95th (m)	20.1	7.6	21.7	16.3	3.8	61.1	8.1	61.7
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	406	580	466	627	386	2937	644	2940
Starvation Cap Reductn	0	0	0	0	0	146	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.04	0.15	0.22	0.04	0.34	0.18	0.32

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	8	15	65	12	117	13	829	38	104	835	38
Future Volume (vph)	58	8	15	65	12	117	13	829	38	104	835	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1684		1770	1609		1770	3516		1770	3516	
Flt Permitted	0.65	1.00		0.74	1.00		0.25	1.00		0.25	1.00	
Satd. Flow (perm)	1203	1684		1380	1609		461	3516		466	3516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	9	16	71	13	127	14	901	41	113	908	41
RTOR Reduction (vph)	0	13	0	0	105	0	0	3	0	0	3	0
Lane Group Flow (vph)	63	12	0	71	35	0	14	939	0	113	946	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.7	7.7		7.7	7.7		32.4	32.4		37.6	32.4	
Effective Green, g (s)	10.7	10.7		10.7	10.7		35.4	35.4		43.6	35.4	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.57	0.57		0.70	0.57	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	206	289		237	276		261	1997		497	1997	
v/s Ratio Prot		0.01			0.02			0.27		c0.03	c0.27	
v/s Ratio Perm	c0.05			0.05			0.03			0.13		
v/c Ratio	0.31	0.04		0.30	0.13		0.05	0.47		0.23	0.47	
Uniform Delay, d1	22.6	21.5		22.5	21.8		6.0	7.9		3.4	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.1		0.7	0.2		0.1	0.2		0.2	0.2	
Delay (s)	23.4	21.6		23.2	22.0		6.1	8.1		3.6	8.1	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		22.9			22.5			8.1			7.6	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	62.3	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	58.8%	ICU Level of Service	B	
Analysis Period (min)	15			

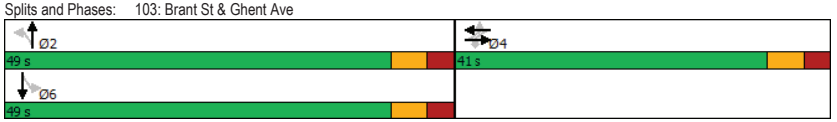
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	16	9	18	15	35	15	745	18	41	765	103
Future Volume (vph)	92	16	9	18	15	35	15	745	18	41	765	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.931			0.996			0.982	
Flt Protected		0.959			0.987		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1712	0	1770	3525	0	1770	3476	0
Flt Permitted		0.706			0.888		0.263			0.310		
Satd. Flow (perm)	0	1315	1583	0	1540	0	490	3525	0	577	3476	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		38			4			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	100	17	10	20	16	38	16	810	20	45	832	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	117	10	0	74	0	16	830	0	45	944	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		13.3	13.3		13.3		25.8	25.8		25.8	25.8	
Actuated g/C Ratio		0.32	0.32		0.32		0.61	0.61		0.61	0.61	
v/c Ratio		0.28	0.02		0.15		0.05	0.38		0.13	0.44	
Control Delay		14.5	0.1		8.1		6.7	7.0		7.4	7.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		14.5	0.1		8.1		6.7	7.0		7.4	7.3	
LOS		B	A		A		A	A		A	A	
Approach Delay		13.3			8.1			7.0			7.3	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 42.1			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 53.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	117	10	74	16	830	45	944
v/c Ratio	0.28	0.02	0.15	0.05	0.38	0.13	0.44
Control Delay	14.5	0.1	8.1	6.7	7.0	7.4	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	0.1	8.1	6.7	7.0	7.4	7.3
Queue Length 50th (m)	6.4	0.0	1.8	0.5	18.2	1.6	21.1
Queue Length 95th (m)	19.3	0.0	9.7	3.1	36.0	6.7	41.8
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	1140	1379	1340	474	3414	559	3367
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.01	0.06	0.03	0.24	0.08	0.28

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	16	9	18	15	35	15	745	18	41	765	103
Future Volume (vph)	92	16	9	18	15	35	15	745	18	41	765	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786	1583		1710		1770	3526		1770	3476	
Flt Permitted		0.71	1.00		0.89		0.26	1.00		0.31	1.00	
Satd. Flow (perm)		1314	1583		1540		490	3526		578	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	17	10	20	16	38	16	810	20	45	832	112
RTOR Reduction (vph)	0	0	7	0	28	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	117	3	0	46	0	16	828	0	45	934	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		8.0	8.0		8.0		21.6	21.6		21.6	21.6	
Effective Green, g (s)		11.0	11.0		11.0		24.6	24.6		24.6	24.6	
Actuated g/C Ratio		0.25	0.25		0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		331	399		388		276	1989		326	1961	
v/s Ratio Prot								0.23			c0.27	
v/s Ratio Perm		c0.09	0.00		0.03		0.03			0.08		
v/c Ratio		0.35	0.01		0.12		0.06	0.42		0.14	0.48	
Uniform Delay, d1		13.4	12.2		12.6		4.3	5.4		4.5	5.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0		0.1		0.1	0.1		0.2	0.2	
Delay (s)		14.0	12.2		12.7		4.4	5.6		4.7	5.8	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		13.9			12.7			5.5			5.8	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.44			
Actuated Cycle Length (s)	43.6	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	53.3%	ICU Level of Service	A	
Analysis Period (min)	15			

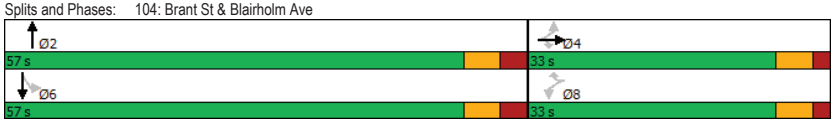
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	716	9	36	722	0
Future Volume (vph)	15	0	5	11	0	44	0	716	9	36	722	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.998				
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1770	1583	1770	0	1583	0	3532	0	1770	1863	0
Flt Permitted		0.950		0.747						0.352		
Satd. Flow (perm)	0	1770	1583	1391	0	1583	0	3532	0	656	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			48		2				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		66.6			305.8			317.1			241.2	
Travel Time (s)		4.8			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	778	10	39	785	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	5	12	0	48	0	788	0	39	785	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.6	8.6	10.7		10.7		38.2		38.2	38.2	
Actuated g/C Ratio		0.18	0.18	0.23		0.23		0.81		0.81	0.81	
v/c Ratio		0.05	0.02	0.04		0.12		0.28		0.07	0.52	
Control Delay		21.3	0.0	19.5		8.2		3.0		3.4	5.5	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		21.3	0.0	19.5		8.2		3.0		3.4	5.5	
LOS		C	A	B		A		A		A	A	
Approach Delay		16.3			10.5			3.0			5.4	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 47.2			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 4.6		Intersection LOS: A	
Intersection Capacity Utilization 59.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	16	5	12	48	788	39	785
v/c Ratio	0.05	0.02	0.04	0.12	0.28	0.07	0.52
Control Delay	21.3	0.0	19.5	8.2	3.0	3.4	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	0.0	19.5	8.2	3.0	3.4	5.5
Queue Length 50th (m)	1.6	0.0	1.2	0.0	14.2	1.1	36.4
Queue Length 95th (m)	6.1	0.0	4.9	7.3	20.7	3.5	62.6
Internal Link Dist (m)	42.6				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1083	988	914	1057	3406	632	1796
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.05	0.23	0.06	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	716	9	36	722	0
Future Volume (vph)	15	0	5	11	0	44	0	716	9	36	722	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583	1770		1583		3532		1770	1863	
Flt Permitted		0.95	1.00	0.75		1.00		1.00		0.35	1.00	
Satd. Flow (perm)		1770	1583	1392		1583		3532		655	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	778	10	39	785	0
RTOR Reduction (vph)	0	0	5	0	0	42	0	1	0	0	0	0
Lane Group Flow (vph)	0	16	0	12	0	6	0	787	0	39	785	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		4.0	4.0	4.0		4.0		32.7		32.7	32.7	
Effective Green, g (s)		4.0	4.0	6.0		6.0		35.7		35.7	35.7	
Actuated g/C Ratio		0.08	0.08	0.12		0.12		0.72		0.72	0.72	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		142	127	168		191		2537		470	1338	
v/s Ratio Prot								0.22			c0.42	
v/s Ratio Perm		0.01	0.00	0.01		0.00				0.06		
v/c Ratio		0.11	0.00	0.07		0.03		0.31		0.08	0.59	
Uniform Delay, d1		21.2	21.0	19.4		19.3		2.5		2.1	3.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.4	0.0	0.2		0.1		0.1		0.1	0.7	
Delay (s)		21.6	21.0	19.6		19.3		2.6		2.2	4.1	
Level of Service		C	C	B		B		A		A	A	
Approach Delay (s)		21.4			19.4			2.6			4.0	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	49.7	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	59.7%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Appendix H4

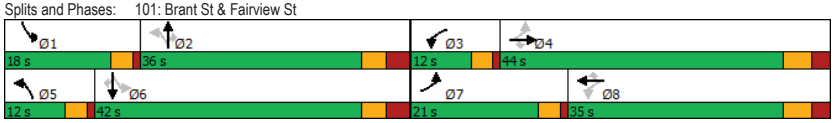
Background – Five-Year Horizon Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	358	1176	286	126	370	162	196	642	273	244	738	160
Future Volume (vph)	358	1176	286	126	370	162	196	642	273	244	738	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.361			0.137			0.182			0.133		
Satd. Flow (perm)	672	3539	1583	255	3539	1583	339	3539	1583	248	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			253			193			192			174
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	389	1278	311	137	402	176	213	698	297	265	802	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	389	1278	311	137	402	176	213	698	297	265	802	174
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	51.9	40.1	40.1	39.4	31.6	31.6	36.5	28.5	28.5	46.1	34.1	34.1
Actuated g/C Ratio	0.49	0.38	0.38	0.37	0.30	0.30	0.34	0.27	0.27	0.43	0.32	0.32
v/c Ratio	0.78	0.96	0.41	0.67	0.38	0.29	0.95	0.73	0.53	0.87	0.71	0.28
Control Delay	31.7	49.5	7.4	36.0	31.7	4.7	73.8	40.5	15.2	53.1	35.3	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	49.5	7.4	36.0	31.7	4.7	73.8	40.5	15.2	53.1	35.3	5.1
LOS	C	D	A	D	C	A	E	D	B	D	D	A
Approach Delay		39.4			25.9			40.1			34.9	
Approach LOS		D			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 106.1			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 36.6		Intersection LOS: D	
Intersection Capacity Utilization 84.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	389	1278	311	137	402	176	213	698	297	265	802	174
v/c Ratio	0.78	0.96	0.41	0.67	0.38	0.29	0.95	0.73	0.53	0.87	0.71	0.28
Control Delay	31.7	49.5	7.4	36.0	31.7	4.7	73.8	40.5	15.2	53.1	35.3	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	49.5	7.4	36.0	31.7	4.7	73.8	40.5	15.2	53.1	35.3	5.1
Queue Length 50th (m)	55.7	145.9	8.4	16.6	37.8	0.0	29.1	73.2	18.0	39.0	80.0	0.0
Queue Length 95th (m)	#94.2	#200.8	29.7	#39.4	53.4	13.3	#70.0	94.5	44.4	#85.8	102.0	14.7
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	505	1337	755	209	1053	606	224	1069	612	309	1270	679
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.96	0.41	0.66	0.38	0.29	0.95	0.65	0.49	0.86	0.63	0.26

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	358	1176	286	126	370	162	196	642	273	244	738	160
Future Volume (vph)	358	1176	286	126	370	162	196	642	273	244	738	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.36	1.00	1.00	0.14	1.00	1.00	0.18	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	673	3539	1583	255	3539	1583	338	3539	1583	248	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	389	1278	311	137	402	176	213	698	297	265	802	174
RTOR Reduction (vph)	0	0	157	0	0	124	0	0	140	0	0	118
Lane Group Flow (vph)	389	1278	154	137	402	52	213	698	157	265	802	56
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	49.6	37.8	37.8	37.0	29.2	29.2	34.0	26.0	26.0	43.6	31.6	31.6
Effective Green, g (s)	49.6	40.2	40.2	37.0	31.6	31.6	34.0	28.5	28.5	43.6	34.1	34.1
Actuated g/C Ratio	0.47	0.38	0.38	0.35	0.30	0.30	0.32	0.27	0.27	0.41	0.32	0.32
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	484	1340	599	200	1054	471	216	950	425	297	1137	508
v/s Ratio Prot	c0.12	c0.36		0.05	0.11		0.07	0.20		c0.11	0.23	
v/s Ratio Perm	0.25		0.10	0.19		0.03	c0.24		0.10	0.25		0.04
v/c Ratio	0.80	0.95	0.26	0.69	0.38	0.11	0.99	0.73	0.37	0.89	0.71	0.11
Uniform Delay, d1	20.1	32.0	22.7	27.6	29.5	27.1	31.6	35.4	31.5	25.9	31.6	25.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.4	14.9	0.2	9.3	0.2	0.1	56.8	3.0	0.5	26.7	2.0	0.1
Delay (s)	29.4	46.9	22.9	36.9	29.7	27.2	88.4	38.3	32.0	52.5	33.6	25.4
Level of Service	C	D	C	D	C	C	F	D	C	D	C	C
Approach Delay (s)		39.7			30.5			45.6			36.5	
Approach LOS		D			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	106.1	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	84.1%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	10	17	61	9	87	27	835	44	95	941	92
Future Volume (vph)	35	10	17	61	9	87	27	835	44	95	941	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.907			0.864			0.992			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1690	0	1770	1609	0	1770	3511	0	1770	3493	0
Flt Permitted	0.689			0.738			0.197			0.253		
Satd. Flow (perm)	1283	1690	0	1375	1609	0	367	3511	0	471	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			95			10			19	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	11	18	66	10	95	29	908	48	103	1023	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	29	0	66	105	0	29	956	0	103	1123	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.4	13.4		13.4	13.4		41.4	41.4		51.6	41.4	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.65	0.65		0.81	0.65	
v/c Ratio	0.14	0.08		0.23	0.25		0.12	0.42		0.17	0.50	
Control Delay	28.0	17.2		29.0	10.1		9.3	9.0		3.0	9.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.0	17.2		29.0	10.1		9.3	9.0		3.0	9.7	
LOS	C	B		C	B		A	A		A	A	
Approach Delay		23.3			17.4			9.0			9.2	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 64			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 55.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	29	66	105	29	956	103	1123
v/c Ratio	0.14	0.08	0.23	0.25	0.12	0.42	0.17	0.50
Control Delay	28.0	17.2	29.0	10.1	9.3	9.0	3.0	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	17.2	29.0	10.1	9.3	9.0	3.0	9.7
Queue Length 50th (m)	4.1	1.2	7.3	1.1	1.6	35.2	2.4	44.1
Queue Length 95th (m)	14.2	8.7	21.6	14.8	6.4	58.7	6.9	72.6
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	416	561	446	586	288	2765	645	2753
Starvation Cap Reductn	0	0	0	0	0	317	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.05	0.15	0.18	0.10	0.39	0.16	0.41

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	10	17	61	9	87	27	835	44	95	941	92
Future Volume (vph)	35	10	17	61	9	87	27	835	44	95	941	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1689		1770	1610		1770	3513		1770	3492	
Flt Permitted	0.69	1.00		0.74	1.00		0.20	1.00		0.25	1.00	
Satd. Flow (perm)	1284	1689		1375	1610		367	3513		471	3492	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	11	18	66	10	95	29	908	48	103	1023	100
RTOR Reduction (vph)	0	15	0	0	80	0	0	4	0	0	8	0
Lane Group Flow (vph)	38	14	0	66	25	0	29	952	0	103	1115	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.3	7.3		7.3	7.3		36.7	36.7		41.7	36.7	
Effective Green, g (s)	10.3	10.3		10.3	10.3		39.7	39.7		47.7	39.7	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.60		0.72	0.60	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	200	263		214	251		220	2113		497	2100	
v/s Ratio Prot		0.01			0.02			0.27		c0.03	c0.32	
v/s Ratio Perm	0.03			c0.05			0.08			0.12		
v/c Ratio	0.19	0.05		0.31	0.10		0.13	0.45		0.21	0.53	
Uniform Delay, d1	24.2	23.7		24.7	23.9		5.7	7.2		3.1	7.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.1		0.8	0.2		0.3	0.2		0.2	0.3	
Delay (s)	24.7	23.8		25.5	24.0		6.0	7.3		3.3	8.0	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		24.3			24.6			7.3			7.6	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.44			
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	55.7%	ICU Level of Service	B	
Analysis Period (min)	15			

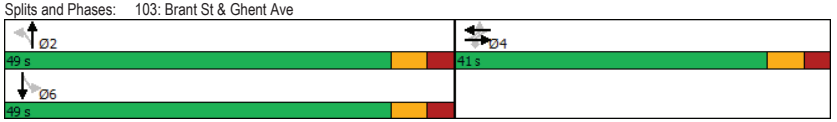
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	26	23	25	10	30	13	726	33	35	864	126
Future Volume (vph)	148	26	23	25	10	30	13	726	33	35	864	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.937			0.993			0.981	
Flt Protected		0.959			0.981		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1712	0	1770	3514	0	1770	3472	0
Flt Permitted		0.708			0.850		0.196			0.294		
Satd. Flow (perm)	0	1319	1583	0	1484	0	365	3514	0	548	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		33			7			26	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	161	28	25	27	11	33	14	789	36	38	939	137
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	189	25	0	71	0	14	825	0	38	1076	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		16.9	16.9		16.9		28.5	28.5		28.5	28.5	
Actuated g/C Ratio		0.31	0.31		0.31		0.53	0.53		0.53	0.53	
v/c Ratio		0.45	0.05		0.14		0.07	0.44		0.13	0.58	
Control Delay		18.8	2.5		9.5		8.8	9.1		9.0	10.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		18.8	2.5		9.5		8.8	9.1		9.0	10.4	
LOS		B	A		A		A	A		A	B	
Approach Delay		16.9			9.5			9.1			10.4	
Approach LOS		B			A			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 53.7			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	189	25	71	14	825	38	1076
v/c Ratio	0.45	0.05	0.14	0.07	0.44	0.13	0.58
Control Delay	18.8	2.5	9.5	8.8	9.1	9.0	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	2.5	9.5	8.8	9.1	9.0	10.4
Queue Length 50th (m)	12.9	0.0	2.3	0.6	22.5	1.6	31.9
Queue Length 95th (m)	35.7	2.5	11.3	3.6	46.8	7.4	65.5
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	933	1133	1059	310	2990	466	2957
Starvation Cap Reductn	0	0	0	0	0	0	54
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.02	0.07	0.05	0.28	0.08	0.37

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	26	23	25	10	30	13	726	33	35	864	126
Future Volume (vph)	148	26	23	25	10	30	13	726	33	35	864	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.98	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1713		1770	3516		1770	3472	
Flt Permitted		0.71	1.00		0.85		0.20	1.00		0.29	1.00	
Satd. Flow (perm)		1319	1583		1484		366	3516		548	3472	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	161	28	25	27	11	33	14	789	36	38	939	137
RTOR Reduction (vph)	0	0	17	0	23	0	0	3	0	0	12	0
Lane Group Flow (vph)	0	189	8	0	48	0	14	822	0	38	1064	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		13.9	13.9		13.9		25.5	25.5		25.5	25.5	
Effective Green, g (s)		16.9	16.9		16.9		28.5	28.5		28.5	28.5	
Actuated g/C Ratio		0.32	0.32		0.32		0.53	0.53		0.53	0.53	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		417	500		469		195	1876		292	1853	
v/s Ratio Prot								0.23			c0.31	
v/s Ratio Perm		c0.14	0.00		0.03		0.04			0.07		
v/c Ratio		0.45	0.02		0.10		0.07	0.44		0.13	0.57	
Uniform Delay, d1		14.6	12.5		12.9		6.0	7.6		6.2	8.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8	0.0		0.1		0.2	0.2		0.2	0.4	
Delay (s)		15.3	12.5		13.0		6.2	7.7		6.4	8.8	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		15.0			13.0			7.7			8.7	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.53				
Actuated Cycle Length (s)	53.4	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	52.0%	ICU Level of Service		A	
Analysis Period (min)	15				

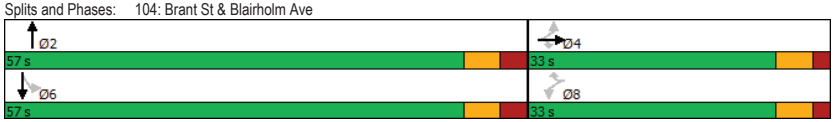
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	8	41	0	117	0	627	17	48	766	0
Future Volume (vph)	17	5	8	41	0	117	0	627	17	48	766	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.996				
Flt Protected		0.962		0.950						0.950		
Satd. Flow (prot)	0	1792	1583	1770	0	1583	0	3525	0	1770	1863	0
Flt Permitted		0.962		0.742						0.383		
Satd. Flow (perm)	0	1792	1583	1382	0	1583	0	3525	0	713	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			127		5				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		70.6			305.8			317.1			241.2	
Travel Time (s)		5.1			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	9	45	0	127	0	682	18	52	833	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	9	45	0	127	0	700	0	52	833	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		9.0	9.0	11.1		11.1		35.7		35.7	35.7	
Actuated g/C Ratio		0.18	0.18	0.22		0.22		0.72		0.72	0.72	
v/c Ratio		0.07	0.03	0.15		0.28		0.28		0.10	0.62	
Control Delay		21.8	0.1	20.9		7.1		4.0		4.1	8.1	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		21.8	0.1	20.9		7.1		4.0		4.1	8.1	
LOS		C	A	C		A		A		A	A	
Approach Delay		15.7			10.7			4.0			7.8	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 49.7			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 6.8		Intersection LOS: A	
Intersection Capacity Utilization 62.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	23	9	45	127	700	52	833
v/c Ratio	0.07	0.03	0.15	0.28	0.28	0.10	0.62
Control Delay	21.8	0.1	20.9	7.1	4.0	4.1	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	0.1	20.9	7.1	4.0	4.1	8.1
Queue Length 50th (m)	1.7	0.0	3.2	0.0	12.1	1.5	40.3
Queue Length 95th (m)	8.5	0.0	13.2	12.7	20.8	4.9	80.0
Internal Link Dist (m)	46.6				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1029	929	852	1025	3374	682	1783
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.05	0.12	0.21	0.08	0.47

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	8	41	0	117	0	627	17	48	766	0
Future Volume (vph)	17	5	8	41	0	117	0	627	17	48	766	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1793	1583	1770		1583		3526		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.38	1.00	
Satd. Flow (perm)		1793	1583	1383		1583		3526		713	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	9	45	0	127	0	682	18	52	833	0
RTOR Reduction (vph)	0	0	8	0	0	106	0	2	0	0	0	0
Lane Group Flow (vph)	0	23	1	45	0	21	0	698	0	52	833	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.5	6.5	6.5		6.5		31.3		31.3	31.3	
Effective Green, g (s)		6.5	6.5	8.5		8.5		34.3		34.3	34.3	
Actuated g/C Ratio		0.13	0.13	0.17		0.17		0.68		0.68	0.68	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		229	202	231		264		2380		481	1257	
v/s Ratio Prot								0.20			c0.45	
v/s Ratio Perm		0.01	0.00	c0.03		0.01				0.07		
v/c Ratio		0.10	0.01	0.19		0.08		0.29		0.11	0.66	
Uniform Delay, d1		19.6	19.3	18.2		17.9		3.3		2.9	4.8	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.4		0.1		0.1		0.1	1.3	
Delay (s)		19.8	19.3	18.6		18.0		3.4		3.0	6.2	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		19.6			18.1			3.4			6.0	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	62.0%	ICU Level of Service	B	
Analysis Period (min)	15			

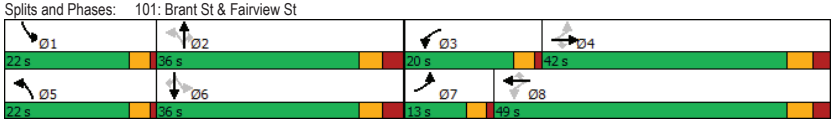
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	867	306	215	1608	465	185	831	195	248	680	460
Future Volume (vph)	225	867	306	215	1608	465	185	831	195	248	680	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.108			0.097			0.161			0.125		
Satd. Flow (perm)	201	3539	1583	181	3539	1583	300	3539	1583	233	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			333			290			140			229
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	245	942	333	234	1748	505	201	903	212	270	739	500
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	942	333	234	1748	505	201	903	212	270	739	500
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	13.0	42.0	42.0	20.0	49.0	49.0	22.0	36.0	36.0	22.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	16.7%	40.8%	40.8%	18.3%	30.0%	30.0%	18.3%	30.0%	30.0%
Maximum Green (s)	9.0	35.6	35.6	16.0	42.6	42.6	18.0	29.5	29.5	18.0	29.5	29.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	48.6	39.6	39.6	57.5	45.0	45.0	46.1	32.0	32.0	51.0	34.5	34.5
Actuated g/C Ratio	0.41	0.33	0.33	0.48	0.38	0.38	0.39	0.27	0.27	0.43	0.29	0.29
v/c Ratio	1.22	0.80	0.44	0.83	1.30	0.65	0.69	0.95	0.40	0.86	0.72	0.80
Control Delay	162.8	42.6	5.2	51.9	173.4	16.7	35.3	61.6	15.3	54.3	42.9	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	162.8	42.6	5.2	51.9	173.4	16.7	35.3	61.6	15.3	54.3	42.9	32.2
LOS	F	D	A	D	F	B	D	E	B	D	D	C
Approach Delay		53.8			130.2			50.1			41.4	
Approach LOS		D			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.6			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.30			
Intersection Signal Delay: 78.2		Intersection LOS: E	
Intersection Capacity Utilization 107.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	245	942	333	234	1748	505	201	903	212	270	739	500
v/c Ratio	1.22	0.80	0.44	0.83	1.30	0.65	0.69	0.95	0.40	0.86	0.72	0.80
Control Delay	162.8	42.6	5.2	51.9	173.4	16.7	35.3	61.6	15.3	54.3	42.9	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	162.8	42.6	5.2	51.9	173.4	16.7	35.3	61.6	15.3	54.3	42.9	32.2
Queue Length 50th (m)	~59.2	114.2	0.0	39.2	~294.3	42.8	30.2	116.3	13.8	46.1	85.4	64.4
Queue Length 95th (m)	#112.7	141.3	20.8	#79.0	#339.1	82.3	50.0	#158.8	36.0	#93.3	113.3	#128.9
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	201	1181	750	303	1343	780	349	955	529	334	1029	622
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.80	0.44	0.77	1.30	0.65	0.58	0.95	0.40	0.81	0.72	0.80

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	867	306	215	1608	465	185	831	195	248	680	460
Future Volume (vph)	225	867	306	215	1608	465	185	831	195	248	680	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.11	1.00	1.00	0.10	1.00	1.00	0.16	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	200	3539	1583	181	3539	1583	299	3539	1583	233	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	942	333	234	1748	505	201	903	212	270	739	500
RTOR Reduction (vph)	0	0	222	0	0	180	0	0	102	0	0	162
Lane Group Flow (vph)	245	942	111	234	1748	325	201	903	110	270	739	338
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	46.2	37.2	37.2	55.6	42.6	42.6	43.7	29.6	29.6	48.5	32.0	32.0
Effective Green, g (s)	46.2	39.6	39.6	55.6	45.0	45.0	43.7	32.1	32.1	48.5	34.5	34.5
Actuated g/C Ratio	0.39	0.33	0.33	0.47	0.38	0.38	0.37	0.27	0.27	0.41	0.29	0.29
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	197	1181	528	277	1342	600	285	957	428	309	1029	460
v/s Ratio Prot	c0.09	0.27		0.10	c0.49		0.08	c0.26		c0.12	0.21	
v/s Ratio Perm	0.39		0.07	0.29		0.21	0.18		0.07	0.24		0.21
v/c Ratio	1.24	0.80	0.21	0.84	1.30	0.54	0.71	0.94	0.26	0.87	0.72	0.73
Uniform Delay, d1	30.2	35.9	28.3	30.7	36.8	28.7	28.4	42.4	33.9	31.4	37.7	37.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	144.9	3.8	0.2	20.4	141.7	1.0	7.7	17.0	0.3	22.8	2.4	6.0
Delay (s)	175.2	39.7	28.5	51.1	178.5	29.7	36.1	59.4	34.2	54.2	40.1	43.9
Level of Service	F	D	C	D	F	C	D	E	C	D	D	D
Approach Delay (s)		59.1			136.3			51.8			43.9	
Approach LOS		E			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	82.4	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.12			
Actuated Cycle Length (s)	118.6	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	107.0%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	21	44	114	12	190	16	1104	65	123	1033	64
Future Volume (vph)	130	21	44	114	12	190	16	1104	65	123	1033	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899			0.859			0.992			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1675	0	1770	1600	0	1770	3511	0	1770	3507	0
Flt Permitted	0.468			0.711			0.158			0.136		
Satd. Flow (perm)	872	1675	0	1324	1600	0	294	3511	0	253	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			207			11			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	23	48	124	13	207	17	1200	71	134	1123	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	71	0	124	220	0	17	1271	0	134	1193	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	18.5	18.5		18.5	18.5		44.6	44.6		56.6	44.6	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.56	0.56		0.71	0.56	
v/c Ratio	0.69	0.17		0.40	0.41		0.10	0.64		0.35	0.60	
Control Delay	52.0	14.4		34.0	8.3		10.8	14.1		5.9	13.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.3		0.0	0.0	
Total Delay	52.0	14.4		34.0	8.3		10.8	14.4		5.9	13.4	
LOS	D	B		C	A		B	B		A	B	
Approach Delay		39.4			17.5			14.4			12.6	
Approach LOS		D			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.3			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	141	71	124	220	17	1271	134	1193
v/c Ratio	0.69	0.17	0.40	0.41	0.10	0.64	0.35	0.60
Control Delay	52.0	14.4	34.0	8.3	10.8	14.1	5.9	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	52.0	14.4	34.0	8.3	10.8	14.4	5.9	13.4
Queue Length 50th (m)	22.7	3.2	18.5	1.8	1.3	72.1	5.5	65.5
Queue Length 95th (m)	#56.1	14.5	37.2	20.4	4.8	97.4	10.0	88.6
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	216	451	328	552	195	2342	418	2340
Starvation Cap Reductn	0	0	0	0	0	454	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.16	0.38	0.40	0.09	0.67	0.32	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	21	44	114	12	190	16	1104	65	123	1033	64
Future Volume (vph)	130	21	44	114	12	190	16	1104	65	123	1033	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1674		1770	1600		1770	3510		1770	3508	
Flt Permitted	0.47	1.00		0.71	1.00		0.16	1.00		0.14	1.00	
Satd. Flow (perm)	872	1674		1324	1600		294	3510		254	3508	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	23	48	124	13	207	17	1200	71	134	1123	70
RTOR Reduction (vph)	0	37	0	0	159	0	0	5	0	0	5	0
Lane Group Flow (vph)	141	34	0	124	61	0	17	1266	0	134	1188	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	15.4	15.4		15.4	15.4		41.5	41.5		47.2	41.5	
Effective Green, g (s)	18.4	18.4		18.4	18.4		44.5	44.5		53.2	44.5	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.56	0.56		0.67	0.56	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	386		306	369		164	1962		335	1961	
v/s Ratio Prot		0.02			0.04			c0.36		c0.04	0.34	
v/s Ratio Perm	c0.16			0.09			0.06			0.22		
v/c Ratio	0.70	0.09		0.41	0.16		0.10	0.65		0.40	0.61	
Uniform Delay, d1	28.1	24.0		26.0	24.5		8.2	12.1		7.4	11.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.5	0.1		0.9	0.2		0.3	0.7		0.8	0.5	
Delay (s)	38.6	24.1		26.8	24.7		8.5	12.8		8.2	12.2	
Level of Service	D	C		C	C		A	B		A	B	
Approach Delay (s)		33.8			25.5			12.8			11.8	
Approach LOS		C			C			B			B	

Intersection Summary				
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	72.3%	ICU Level of Service	C	
Analysis Period (min)	15			

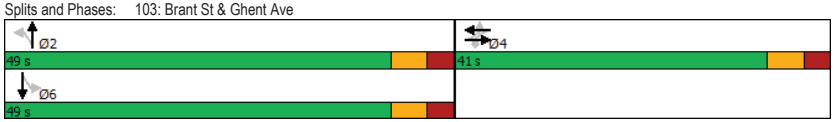
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	28	16	28	61	44	13	982	25	38	922	205
Future Volume (vph)	160	28	16	28	61	44	13	982	25	38	922	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.955			0.996			0.973	
Flt Protected		0.959			0.990		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1761	0	1770	3525	0	1770	3444	0
Flt Permitted		0.693			0.908		0.147			0.187		
Satd. Flow (perm)	0	1291	1583	0	1615	0	274	3525	0	348	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		34			4			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	174	30	17	30	66	48	14	1067	27	41	1002	223
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	204	17	0	144	0	14	1094	0	41	1225	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		19.3	19.3		19.3		31.2	31.2		31.2	31.2	
Actuated g/C Ratio		0.33	0.33		0.33		0.53	0.53		0.53	0.53	
v/c Ratio		0.48	0.03		0.26		0.10	0.59		0.22	0.66	
Control Delay		21.7	0.8		14.1		10.2	11.4		12.4	12.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		21.7	0.8		14.1		10.2	11.4		12.4	12.3	
LOS		C	A		B		B	B		B	B	
Approach Delay		20.1			14.1			11.4			12.3	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 59			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	204	17	144	14	1094	41	1225
v/c Ratio	0.48	0.03	0.26	0.10	0.59	0.22	0.66
Control Delay	21.7	0.8	14.1	10.2	11.4	12.4	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	0.8	14.1	10.2	11.4	12.4	12.3
Queue Length 50th (m)	16.9	0.0	8.2	0.7	38.4	2.2	44.1
Queue Length 95th (m)	45.2	0.9	25.9	4.2	75.4	9.7	87.1
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	855	1064	1081	217	2800	276	2744
Starvation Cap Reductn	0	0	0	0	0	0	106
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.02	0.13	0.06	0.39	0.15	0.46

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	28	16	28	61	44	13	982	25	38	922	205
Future Volume (vph)	160	28	16	28	61	44	13	982	25	38	922	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.95		1.00	1.00		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1761		1770	3526		1770	3443	
Flt Permitted		0.69	1.00		0.91		0.15	1.00		0.19	1.00	
Satd. Flow (perm)		1290	1583		1615		273	3526		349	3443	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	30	17	30	66	48	14	1067	27	41	1002	223
RTOR Reduction (vph)	0	0	11	0	23	0	0	2	0	0	20	0
Lane Group Flow (vph)	0	204	6	0	121	0	14	1092	0	41	1205	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		16.1	16.1		16.1		28.0	28.0		28.0	28.0	
Effective Green, g (s)		19.1	19.1		19.1		31.0	31.0		31.0	31.0	
Actuated g/C Ratio		0.33	0.33		0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		424	520		530		145	1881		186	1837	
v/s Ratio Prot								0.31			c0.35	
v/s Ratio Perm		c0.16	0.00		0.08		0.05			0.12		
v/c Ratio		0.48	0.01		0.23		0.10	0.58		0.22	0.66	
Uniform Delay, d1		15.5	13.1		14.2		6.7	9.2		7.2	9.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9	0.0		0.2		0.3	0.5		0.6	0.9	
Delay (s)		16.4	13.1		14.4		7.0	9.6		7.8	10.6	
Level of Service		B	B		B		A	A		A	B	
Approach Delay (s)		16.2			14.4			9.6			10.5	
Approach LOS		B			B			A			B	

Intersection Summary					
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.59				
Actuated Cycle Length (s)	58.1	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	56.1%	ICU Level of Service		B	
Analysis Period (min)	15				

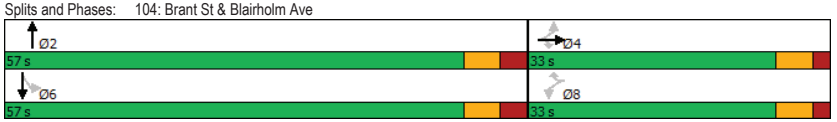
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	6	23	20	0	81	0	877	19	51	762	0
Future Volume (vph)	18	6	23	20	0	81	0	877	19	51	762	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.997				
Flt Protected		0.964		0.950						0.950		
Satd. Flow (prot)	0	1796	1583	1770	0	1583	0	3529	0	1770	1863	0
Flt Permitted		0.964		0.740						0.274		
Satd. Flow (perm)	0	1796	1583	1378	0	1583	0	3529	0	510	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			88		4				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		75.8			305.8			317.1			241.2	
Travel Time (s)		5.5			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	7	25	22	0	88	0	953	21	55	828	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	25	22	0	88	0	974	0	55	828	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.6	8.6	10.7		10.7		36.9		36.9	36.9	
Actuated g/C Ratio		0.17	0.17	0.21		0.21		0.73		0.73	0.73	
v/c Ratio		0.09	0.08	0.08		0.22		0.38		0.15	0.61	
Control Delay		21.7	4.4	20.1		7.5		4.3		4.6	7.5	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		21.7	4.4	20.1		7.5		4.3		4.6	7.5	
LOS		C	A	C		A		A		A	A	
Approach Delay		13.4			10.0			4.3			7.3	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 50.4			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 6.1		Intersection LOS: A	
Intersection Capacity Utilization 61.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	27	25	22	88	974	55	828
v/c Ratio	0.09	0.08	0.08	0.22	0.38	0.15	0.61
Control Delay	21.7	4.4	20.1	7.5	4.3	4.6	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	4.4	20.1	7.5	4.3	4.6	7.5
Queue Length 50th (m)	2.0	0.0	1.6	0.0	18.7	1.7	39.8
Queue Length 95th (m)	9.3	3.3	7.8	10.6	28.3	5.2	72.5
Internal Link Dist (m)	51.8				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1014	914	835	994	3360	485	1774
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.03	0.03	0.09	0.29	0.11	0.47

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	6	23	20	0	81	0	877	19	51	762	0
Future Volume (vph)	18	6	23	20	0	81	0	877	19	51	762	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1796	1583	1770		1583		3528		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.27	1.00	
Satd. Flow (perm)		1796	1583	1378		1583		3528		511	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	7	25	22	0	88	0	953	21	55	828	0
RTOR Reduction (vph)	0	0	22	0	0	74	0	1	0	0	0	0
Lane Group Flow (vph)	0	27	3	22	0	14	0	973	0	55	828	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.1	6.1	6.1		6.1		32.5		32.5	32.5	
Effective Green, g (s)		6.1	6.1	8.1		8.1		35.5		35.5	35.5	
Actuated g/C Ratio		0.12	0.12	0.16		0.16		0.69		0.69	0.69	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		212	187	216		248		2427		351	1281	
v/s Ratio Prot								0.28			c0.44	
v/s Ratio Perm		0.02	0.00	c0.02		0.01				0.11		
v/c Ratio		0.13	0.02	0.10		0.06		0.40		0.16	0.65	
Uniform Delay, d1		20.4	20.1	18.6		18.5		3.5		2.8	4.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.0	0.2		0.1		0.1		0.2	1.1	
Delay (s)		20.6	20.1	18.8		18.6		3.6		3.0	5.7	
Level of Service		C	C	B		B		A		A	A	
Approach Delay (s)		20.4			18.6			3.6			5.5	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	51.6	Sum of lost time (s)		10.0
Intersection Capacity Utilization	61.8%	ICU Level of Service		B
Analysis Period (min)	15			

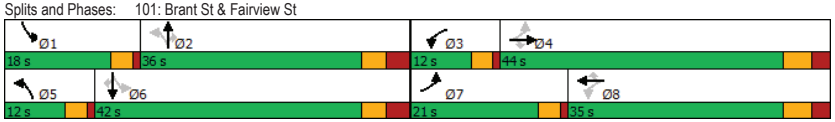
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	847	257	141	804	258	247	607	151	254	617	176
Future Volume (vph)	338	847	257	141	804	258	247	607	151	254	617	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.127			0.190			0.274			0.145		
Satd. Flow (perm)	237	3539	1583	354	3539	1583	510	3539	1583	270	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			277			260			192			191
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	367	921	279	153	874	280	268	660	164	276	671	191
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	921	279	153	874	280	268	660	164	276	671	191
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	51.1	39.2	39.2	37.9	30.0	30.0	35.3	27.3	27.3	45.0	32.9	32.9
Actuated g/C Ratio	0.49	0.38	0.38	0.36	0.29	0.29	0.34	0.26	0.26	0.43	0.32	0.32
v/c Ratio	1.00	0.69	0.36	0.65	0.86	0.44	0.99	0.71	0.29	0.88	0.60	0.30
Control Delay	76.1	31.3	4.5	31.8	45.3	7.3	80.9	39.6	4.1	52.6	32.5	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	31.3	4.5	31.8	45.3	7.3	80.9	39.6	4.1	52.6	32.5	5.0
LOS	E	C	A	C	D	A	F	D	A	D	C	A
Approach Delay		37.0			35.6			44.4			32.7	
Approach LOS		D			D			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 104.1			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 37.3		Intersection LOS: D	
Intersection Capacity Utilization 85.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Background (2034)
SAT Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	367	921	279	153	874	280	268	660	164	276	671	191
v/c Ratio	1.00	0.69	0.36	0.65	0.86	0.44	0.99	0.71	0.29	0.88	0.60	0.30
Control Delay	76.1	31.3	4.5	31.8	45.3	7.3	80.9	39.6	4.1	52.6	32.5	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	31.3	4.5	31.8	45.3	7.3	80.9	39.6	4.1	52.6	32.5	5.0
Queue Length 50th (m)	~63.7	87.4	0.3	17.9	93.6	3.1	37.9	68.2	0.0	39.8	63.9	0.0
Queue Length 95th (m)	#132.5	117.3	17.7	#35.8	#133.5	24.1	#87.0	88.7	10.9	#88.5	82.9	15.3
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	367	1365	780	238	1058	655	270	1092	621	319	1297	701
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.67	0.36	0.64	0.83	0.43	0.99	0.60	0.26	0.87	0.52	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Background (2034)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	847	257	141	804	258	247	607	151	254	617	176
Future Volume (vph)	338	847	257	141	804	258	247	607	151	254	617	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.13	1.00	1.00	0.19	1.00	1.00	0.27	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	236	3539	1583	353	3539	1583	511	3539	1583	271	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	367	921	279	153	874	280	268	660	164	276	671	191
RTOR Reduction (vph)	0	0	173	0	0	185	0	0	121	0	0	130
Lane Group Flow (vph)	367	921	106	153	874	95	268	660	43	276	671	61
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.7	36.8	36.8	35.5	27.6	27.6	32.8	24.8	24.8	42.5	30.5	30.5
Effective Green, g (s)	48.7	39.2	39.2	35.5	30.0	30.0	32.8	27.3	27.3	42.5	33.0	33.0
Actuated g/C Ratio	0.47	0.38	0.38	0.34	0.29	0.29	0.32	0.26	0.26	0.41	0.32	0.32
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	362	1332	596	227	1019	456	257	928	415	307	1121	501
v/s Ratio Prot	c0.17	0.26		0.05	0.25		0.08	0.19		c0.12	0.19	
v/s Ratio Perm	c0.31		0.07	0.18		0.06	c0.25		0.03	0.25		0.04
v/c Ratio	1.01	0.69	0.18	0.67	0.86	0.21	1.04	0.71	0.10	0.90	0.60	0.12
Uniform Delay, d1	30.2	27.4	21.7	25.5	35.0	28.1	32.8	34.8	29.1	24.6	30.0	25.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	50.8	1.6	0.1	7.7	7.3	0.2	67.8	2.6	0.1	27.0	0.9	0.1
Delay (s)	81.1	28.9	21.8	33.2	42.3	28.3	100.5	37.4	29.2	51.5	30.8	25.4
Level of Service	F	C	C	C	D	C	F	D	C	D	C	C
Approach Delay (s)		39.9			38.2			51.7			34.9	
Approach LOS		D			D			D			C	

Intersection Summary

HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	104.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	8	16	68	13	123	14	872	40	109	877	40
Future Volume (vph)	61	8	16	68	13	123	14	872	40	109	877	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.902			0.864			0.993			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1680	0	1770	1609	0	1770	3514	0	1770	3518	0
Flt Permitted	0.627			0.740			0.222			0.224		
Satd. Flow (perm)	1168	1680	0	1378	1609	0	414	3514	0	417	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			134			8			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	9	17	74	14	134	15	948	43	118	953	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	26	0	74	148	0	15	991	0	118	996	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.5	13.5		13.5	13.5		36.4	36.4		48.4	36.4	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.55	0.55		0.73	0.55	
v/c Ratio	0.28	0.07		0.26	0.34		0.07	0.51		0.23	0.51	
Control Delay	28.7	16.3		27.9	9.3		9.2	11.0		3.8	11.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.7	16.3		27.9	9.3		9.2	11.0		3.8	11.0	
LOS	C	B		C	A		A	B		A	B	
Approach Delay		25.2			15.5			11.0			10.2	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 66.1			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	26	74	148	15	991	118	996
v/c Ratio	0.28	0.07	0.26	0.34	0.07	0.51	0.23	0.51
Control Delay	28.7	16.3	27.9	9.3	9.2	11.0	3.8	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.7	16.3	27.9	9.3	9.2	11.0	3.8	11.0
Queue Length 50th (m)	6.8	0.9	7.6	1.4	0.8	38.3	2.9	38.6
Queue Length 95th (m)	21.9	8.0	23.6	17.5	4.1	67.7	8.9	68.2
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	348	512	410	573	331	2813	560	2816
Starvation Cap Reductn	0	0	0	0	0	201	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.05	0.18	0.26	0.05	0.38	0.21	0.35

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	8	16	68	13	123	14	872	40	109	877	40
Future Volume (vph)	61	8	16	68	13	123	14	872	40	109	877	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1680		1770	1610		1770	3516		1770	3516	
Flt Permitted	0.63	1.00		0.74	1.00		0.22	1.00		0.22	1.00	
Satd. Flow (perm)	1167	1680		1379	1610		414	3516		417	3516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	9	17	74	14	134	15	948	43	118	953	43
RTOR Reduction (vph)	0	14	0	0	107	0	0	4	0	0	4	0
Lane Group Flow (vph)	66	12	0	74	41	0	15	987	0	118	992	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	10.4	10.4		10.4	10.4		33.3	33.3		38.8	33.3	
Effective Green, g (s)	13.4	13.4		13.4	13.4		36.3	36.3		44.8	36.3	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.55	0.55		0.68	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	236	340		279	325		227	1927		455	1927	
v/s Ratio Prot		0.01			0.03			0.28		c0.03	c0.28	
v/s Ratio Perm	c0.06			0.05			0.04			0.14		
v/c Ratio	0.28	0.04		0.27	0.13		0.07	0.51		0.26	0.51	
Uniform Delay, d1	22.3	21.2		22.3	21.6		7.0	9.4		4.4	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.0		0.5	0.2		0.1	0.2		0.3	0.2	
Delay (s)	23.0	21.3		22.8	21.8		7.1	9.6		4.7	9.6	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		22.5			22.1			9.6			9.1	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.41				
Actuated Cycle Length (s)	66.2	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	60.5%	ICU Level of Service		B	
Analysis Period (min)	15				

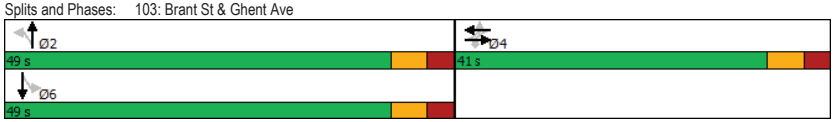
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	17	9	19	16	36	16	783	19	43	804	108
Future Volume (vph)	97	17	9	19	16	36	16	783	19	43	804	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.932			0.996			0.982	
Flt Protected		0.959			0.987		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1714	0	1770	3525	0	1770	3476	0
Flt Permitted		0.704			0.887		0.245			0.292		
Satd. Flow (perm)	0	1311	1583	0	1540	0	456	3525	0	544	3476	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		39			4			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		242.5			333.4			75.4			150.5	
Travel Time (s)		17.5			24.0			5.4			10.8	
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
Adj. Flow (vph)	105	18	10	21	17	39	17	851	21	47	874	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	123	10	0	77	0	17	872	0	47	991	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		13.7	13.7		13.7		26.9	26.9		26.9	26.9	
Actuated g/C Ratio		0.31	0.31		0.31		0.62	0.62		0.62	0.62	
v/c Ratio		0.30	0.02		0.15		0.06	0.40		0.14	0.46	
Control Delay		15.4	0.1		8.6		6.8	7.2		7.7	7.5	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		15.4	0.1		8.6		6.8	7.2		7.7	7.5	
LOS		B	A		A		A	A		A	A	
Approach Delay		14.3			8.6			7.2			7.5	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 43.6			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 7.8		Intersection LOS: A	
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	123	10	77	17	872	47	991
v/c Ratio	0.30	0.02	0.15	0.06	0.40	0.14	0.46
Control Delay	15.4	0.1	8.6	6.8	7.2	7.7	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	0.1	8.6	6.8	7.2	7.7	7.5
Queue Length 50th (m)	7.0	0.0	2.0	0.6	20.0	1.7	23.2
Queue Length 95th (m)	21.4	0.0	10.6	3.4	39.6	7.2	46.2
Internal Link Dist (m)	218.5		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	1107	1345	1307	432	3338	515	3292
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.01	0.06	0.04	0.26	0.09	0.30

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	17	9	19	16	36	16	783	19	43	804	108
Future Volume (vph)	97	17	9	19	16	36	16	783	19	43	804	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786	1583		1712		1770	3526		1770	3477	
Flt Permitted		0.70	1.00		0.89		0.25	1.00		0.29	1.00	
Satd. Flow (perm)		1311	1583		1539		457	3526		544	3477	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	18	10	21	17	39	17	851	21	47	874	117
RTOR Reduction (vph)	0	0	7	0	29	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	123	3	0	48	0	17	870	0	47	981	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		8.4	8.4		8.4		22.7	22.7		22.7	22.7	
Effective Green, g (s)		11.4	11.4		11.4		25.7	25.7		25.7	25.7	
Actuated g/C Ratio		0.25	0.25		0.25		0.57	0.57		0.57	0.57	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		331	400		389		260	2009		309	1981	
v/s Ratio Prot								0.25			c0.28	
v/s Ratio Perm		c0.09	0.00		0.03		0.04			0.09		
v/c Ratio		0.37	0.01		0.12		0.07	0.43		0.15	0.50	
Uniform Delay, d1		13.9	12.6		13.0		4.3	5.5		4.6	5.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0		0.1		0.1	0.2		0.2	0.2	
Delay (s)		14.6	12.6		13.1		4.4	5.7		4.8	6.0	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		14.5			13.1			5.7			6.0	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.46				
Actuated Cycle Length (s)	45.1	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	55.3%	ICU Level of Service		B	
Analysis Period (min)	15				

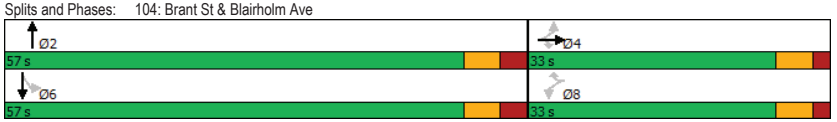
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	0	6	11	0	47	0	752	9	38	759	0
Future Volume (vph)	16	0	6	11	0	47	0	752	9	38	759	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.998				
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1770	1583	1770	0	1583	0	3532	0	1770	1863	0
Flt Permitted		0.950		0.746						0.336		
Satd. Flow (perm)	0	1770	1583	1390	0	1583	0	3532	0	626	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			51		2				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		66.4			305.8			317.1			241.2	
Travel Time (s)		4.8			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	0	7	12	0	51	0	817	10	41	825	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	7	12	0	51	0	827	0	41	825	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.6	8.6	10.8		10.8		39.5		39.5	39.5	
Actuated g/C Ratio		0.18	0.18	0.22		0.22		0.81		0.81	0.81	
v/c Ratio		0.05	0.02	0.04		0.13		0.29		0.08	0.54	
Control Delay		22.6	0.2	20.8		8.6		3.0		3.4	5.6	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		22.6	0.2	20.8		8.6		3.0		3.4	5.6	
LOS		C	A	C		A		A		A	A	
Approach Delay		16.0			10.9			3.0			5.5	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 48.5			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 61.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	17	7	12	51	827	41	825
v/c Ratio	0.05	0.02	0.04	0.13	0.29	0.08	0.54
Control Delay	22.6	0.2	20.8	8.6	3.0	3.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	0.2	20.8	8.6	3.0	3.4	5.6
Queue Length 50th (m)	1.8	0.0	1.2	0.0	15.1	1.2	39.7
Queue Length 95th (m)	6.6	0.0	5.1	8.0	21.6	3.6	67.5
Internal Link Dist (m)	42.4				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1060	968	894	1037	3345	593	1764
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.01	0.05	0.25	0.07	0.47

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	0	6	11	0	47	0	752	9	38	759	0
Future Volume (vph)	16	0	6	11	0	47	0	752	9	38	759	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583	1770		1583		3533		1770	1863	
Flt Permitted		0.95	1.00	0.75		1.00		1.00		0.34	1.00	
Satd. Flow (perm)		1770	1583	1390		1583		3533		626	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	0	7	12	0	51	0	817	10	41	825	0
RTOR Reduction (vph)	0	0	6	0	0	45	0	1	0	0	0	0
Lane Group Flow (vph)	0	17	1	12	0	6	0	826	0	41	825	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		4.0	4.0	4.0		4.0		33.9		33.9	33.9	
Effective Green, g (s)		4.0	4.0	6.0		6.0		36.9		36.9	36.9	
Actuated g/C Ratio		0.08	0.08	0.12		0.12		0.72		0.72	0.72	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		139	124	163		186		2561		453	1350	
v/s Ratio Prot								0.23			c0.44	
v/s Ratio Perm		0.01	0.00	0.01		0.00				0.07		
v/c Ratio		0.12	0.00	0.07		0.03		0.32		0.09	0.61	
Uniform Delay, d1		21.8	21.6	20.0		19.9		2.5		2.1	3.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.4	0.0	0.2		0.1		0.1		0.1	0.8	
Delay (s)		22.2	21.6	20.2		20.0		2.6		2.1	4.3	
Level of Service		C	C	C		B		A		A	A	
Approach Delay (s)		22.0			20.0			2.6			4.2	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	50.9	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	61.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Appendix I1

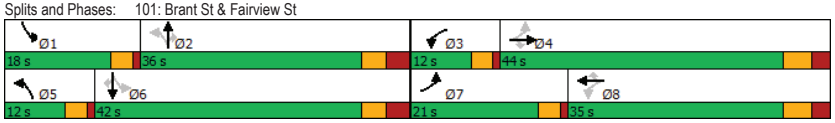
Total – Phase 1 Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	1078	262	122	340	151	191	637	267	227	703	150
Future Volume (vph)	334	1078	262	122	340	151	191	637	267	227	703	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.384			0.143			0.205			0.136		
Satd. Flow (perm)	715	3539	1583	266	3539	1583	382	3539	1583	253	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			262			193			192			163
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	363	1172	285	133	370	164	208	692	290	247	764	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	363	1172	285	133	370	164	208	692	290	247	764	163
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.5	38.6	38.6	38.2	30.4	30.4	36.1	28.0	28.0	45.0	33.3	33.3
Actuated g/C Ratio	0.49	0.37	0.37	0.37	0.29	0.29	0.35	0.27	0.27	0.43	0.32	0.32
v/c Ratio	0.71	0.89	0.38	0.63	0.36	0.27	0.87	0.72	0.51	0.82	0.67	0.26
Control Delay	27.2	41.2	5.7	33.1	31.2	3.8	56.3	39.6	14.6	44.2	34.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	41.2	5.7	33.1	31.2	3.8	56.3	39.6	14.6	44.2	34.0	5.1
LOS	C	D	A	C	C	A	E	D	B	D	C	A
Approach Delay		32.9			24.9			36.4			32.1	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 103.9			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 32.5		Intersection LOS: C	
Intersection Capacity Utilization 80.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2027)
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	363	1172	285	133	370	164	208	692	290	247	764	163
v/c Ratio	0.71	0.89	0.38	0.63	0.36	0.27	0.87	0.72	0.51	0.82	0.67	0.26
Control Delay	27.2	41.2	5.7	33.1	31.2	3.8	56.3	39.6	14.6	44.2	34.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	41.2	5.7	33.1	31.2	3.8	56.3	39.6	14.6	44.2	34.0	5.1
Queue Length 50th (m)	50.9	127.4	3.2	16.0	34.3	0.0	28.3	72.4	16.7	34.5	75.3	0.0
Queue Length 95th (m)	77.9	#174.0	21.6	#36.2	49.2	10.8	#62.0	93.6	42.4	#75.4	96.2	14.3
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	521	1373	774	215	1067	612	240	1098	623	316	1304	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.85	0.37	0.62	0.35	0.27	0.87	0.63	0.47	0.78	0.59	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2027)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	1078	262	122	340	151	191	637	267	227	703	150
Future Volume (vph)	334	1078	262	122	340	151	191	637	267	227	703	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.38	1.00	1.00	0.14	1.00	1.00	0.20	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	715	3539	1583	266	3539	1583	381	3539	1583	253	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	363	1172	285	133	370	164	208	692	290	247	764	163
RTOR Reduction (vph)	0	0	164	0	0	116	0	0	140	0	0	111
Lane Group Flow (vph)	363	1172	121	133	370	48	208	692	150	247	764	52
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.0	36.2	36.2	35.8	28.0	28.0	33.6	25.5	25.5	42.8	30.7	30.7
Effective Green, g (s)	48.0	38.6	38.6	35.8	30.4	30.4	33.6	28.0	28.0	42.8	33.2	33.2
Actuated g/C Ratio	0.46	0.37	0.37	0.35	0.29	0.29	0.32	0.27	0.27	0.41	0.32	0.32
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	493	1317	589	204	1037	464	231	955	427	298	1133	506
v/s Ratio Prot	c0.11	c0.33		0.05	0.10		0.07	0.20		c0.11	0.22	
v/s Ratio Perm	0.23		0.08	0.18		0.03	0.22		0.09	c0.24		0.03
v/c Ratio	0.74	0.89	0.20	0.65	0.36	0.10	0.90	0.72	0.35	0.83	0.67	0.10
Uniform Delay, d1	19.4	30.6	22.1	26.6	28.9	26.7	29.3	34.4	30.5	23.5	30.6	24.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	7.7	0.2	7.3	0.2	0.1	33.8	2.8	0.5	17.1	1.6	0.1
Delay (s)	25.1	38.3	22.3	33.9	29.1	26.8	63.0	37.1	31.0	40.5	32.2	24.9
Level of Service	C	D	C	C	C	C	E	D	C	D	C	C
Approach Delay (s)		33.1			29.5			40.2			32.9	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	103.7	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	80.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	10	16	60	8	81	25	845	50	89	915	86
Future Volume (vph)	33	10	16	60	8	81	25	845	50	89	915	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.909			0.864			0.992			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1693	0	1770	1609	0	1770	3511	0	1770	3493	0
Flt Permitted	0.694			0.739			0.207			0.246		
Satd. Flow (perm)	1293	1693	0	1377	1609	0	386	3511	0	458	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			88			11			18	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	11	17	65	9	88	27	918	54	97	995	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	28	0	65	97	0	27	972	0	97	1088	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.3	13.3		13.3	13.3		40.6	40.6		50.6	40.6	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.64	0.64		0.80	0.64	
v/c Ratio	0.13	0.08		0.22	0.24		0.11	0.43		0.17	0.48	
Control Delay	27.5	17.3		28.5	10.1		8.9	9.0		2.9	9.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.5	17.3		28.5	10.1		8.9	9.1		2.9	9.5	
LOS	C	B		C	B		A	A		A	A	
Approach Delay		23.0			17.5			9.1			9.0	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 63			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 10.0		Intersection LOS: A	
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2027)
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	28	65	97	27	972	97	1088
v/c Ratio	0.13	0.08	0.22	0.24	0.11	0.43	0.17	0.48
Control Delay	27.5	17.3	28.5	10.1	8.9	9.0	2.9	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	17.3	28.5	10.1	8.9	9.1	2.9	9.5
Queue Length 50th (m)	3.7	1.1	6.9	0.9	1.5	35.5	2.2	41.4
Queue Length 95th (m)	13.7	8.7	21.4	14.1	5.9	59.2	6.5	68.7
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	425	568	453	588	307	2802	641	2789
Starvation Cap Reductn	0	0	0	0	0	270	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.14	0.16	0.09	0.38	0.15	0.39

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2027)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	10	16	60	8	81	25	845	50	89	915	86
Future Volume (vph)	33	10	16	60	8	81	25	845	50	89	915	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1693		1770	1609		1770	3510		1770	3494	
Flt Permitted	0.69	1.00		0.74	1.00		0.21	1.00		0.25	1.00	
Satd. Flow (perm)	1293	1693		1377	1609		386	3510		459	3494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	11	17	65	9	88	27	918	54	97	995	93
RTOR Reduction (vph)	0	14	0	0	74	0	0	4	0	0	7	0
Lane Group Flow (vph)	36	14	0	65	23	0	27	968	0	97	1081	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.2	7.2		7.2	7.2		35.9	35.9		40.8	35.9	
Effective Green, g (s)	10.2	10.2		10.2	10.2		38.9	38.9		46.8	38.9	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.60		0.72	0.60	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	202	265		216	252		231	2100		489	2091	
v/s Ratio Prot		0.01			0.01			0.28		c0.02	c0.31	
v/s Ratio Perm	0.03			c0.05			0.07			0.12		
v/c Ratio	0.18	0.05		0.30	0.09		0.12	0.46		0.20	0.52	
Uniform Delay, d1	23.8	23.3		24.2	23.4		5.6	7.2		3.1	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.8	0.2		0.2	0.2		0.2	0.2	
Delay (s)	24.2	23.4		25.0	23.6		5.9	7.4		3.3	7.8	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		23.8			24.2			7.4			7.4	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.43			
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	54.7%	ICU Level of Service	A	
Analysis Period (min)	15			

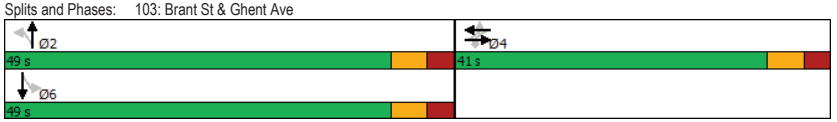
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	36	40	23	14	28	18	682	31	33	820	144
Future Volume (vph)	208	36	40	23	14	28	18	682	31	33	820	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.942			0.993			0.978	
Flt Protected		0.959			0.982		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1723	0	1770	3514	0	1770	3461	0
Flt Permitted		0.709			0.849		0.189			0.303		
Satd. Flow (perm)	0	1321	1583	0	1490	0	352	3514	0	564	3461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		30			7			32	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.7			333.4			75.4			150.5	
Travel Time (s)		7.0			24.0			5.4			10.8	
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
Adj. Flow (vph)	226	39	43	25	15	30	20	741	34	36	891	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	265	43	0	70	0	20	775	0	36	1048	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		20.3	20.3		20.3		27.6	27.6		27.6	27.6	
Actuated g/C Ratio		0.36	0.36		0.36		0.49	0.49		0.49	0.49	
v/c Ratio		0.56	0.07		0.13		0.12	0.45		0.13	0.61	
Control Delay		20.7	4.8		9.5		11.5	10.9		10.8	12.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		20.7	4.8		9.5		11.5	10.9		10.8	12.6	
LOS		C	A		A		B	B		B	B	
Approach Delay		18.5			9.5			10.9			12.5	
Approach LOS		B			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 56.4			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 54.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Queues
103: Brant St & Ghent Ave

Total (2027)
AM Peak Hour

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	265	43	70	20	775	36	1048
v/c Ratio	0.56	0.07	0.13	0.12	0.45	0.13	0.61
Control Delay	20.7	4.8	9.5	11.5	10.9	10.8	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.7	4.8	9.5	11.5	10.9	10.8	12.6
Queue Length 50th (m)	20.4	0.0	2.5	1.0	24.5	1.8	36.1
Queue Length 95th (m)	53.5	5.4	11.8	5.7	52.4	8.3	76.0
Internal Link Dist (m)	72.7		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	913	1109	1039	289	2886	463	2846
Starvation Cap Reductn	0	0	0	0	0	0	77
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.04	0.07	0.07	0.27	0.08	0.38

Intersection Summary

HCM Signalized Intersection Capacity Analysis
103: Brant St & Ghent Ave

Total (2027)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	36	40	23	14	28	18	682	31	33	820	144
Future Volume (vph)	208	36	40	23	14	28	18	682	31	33	820	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.98	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1724		1770	3516		1770	3460	
Flt Permitted		0.71	1.00		0.85		0.19	1.00		0.30	1.00	
Satd. Flow (perm)		1320	1583		1491		352	3516		564	3460	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	39	43	25	15	30	20	741	34	36	891	157
RTOR Reduction (vph)	0	0	27	0	19	0	0	4	0	0	16	0
Lane Group Flow (vph)	0	265	16	0	51	0	20	771	0	36	1032	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		17.2	17.2		17.2		24.5	24.5		24.5	24.5	
Effective Green, g (s)		20.2	20.2		20.2		27.5	27.5		27.5	27.5	
Actuated g/C Ratio		0.36	0.36		0.36		0.49	0.49		0.49	0.49	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		478	574		540		173	1735		278	1708	
v/s Ratio Prot								0.22			c0.30	
v/s Ratio Perm		c0.20	0.01		0.03		0.06			0.06		
v/c Ratio		0.55	0.03		0.09		0.12	0.44		0.13	0.60	
Uniform Delay, d1		14.2	11.4		11.7		7.6	9.1		7.6	10.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.4	0.0		0.1		0.3	0.2		0.2	0.6	
Delay (s)		15.6	11.4		11.8		7.9	9.3		7.8	10.8	
Level of Service		B	B		B		A	A		A	B	
Approach Delay (s)		15.0			11.8			9.3			10.7	
Approach LOS		B			B			A			B	

Intersection Summary					
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.58				
Actuated Cycle Length (s)	55.7	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	54.2%	ICU Level of Service		A	
Analysis Period (min)	15				

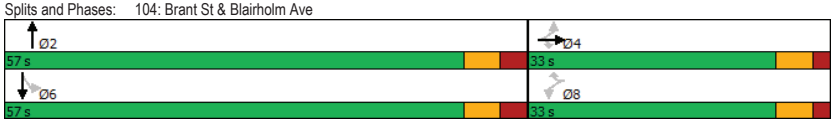
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	7	38	0	109	0	596	16	45	747	0
Future Volume (vph)	16	4	7	38	0	109	0	596	16	45	747	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.996				
Flt Protected		0.961		0.950						0.950		
Satd. Flow (prot)	0	1790	1583	1770	0	1583	0	3525	0	1770	1863	0
Flt Permitted		0.961		0.744						0.399		
Satd. Flow (perm)	0	1790	1583	1386	0	1583	0	3525	0	743	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			118		5				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		81.2			305.8			317.1			241.2	
Travel Time (s)		5.8			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	8	41	0	118	0	648	17	49	812	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	8	41	0	118	0	665	0	49	812	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.8	8.8	10.9		10.9		35.0		35.0	35.0	
Actuated g/C Ratio		0.18	0.18	0.22		0.22		0.72		0.72	0.72	
v/c Ratio		0.07	0.02	0.13		0.27		0.26		0.09	0.61	
Control Delay		21.0	0.1	20.1		7.0		4.0		4.0	7.8	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		21.0	0.1	20.1		7.0		4.0		4.0	7.8	
LOS		C	A	C		A		A		A	A	
Approach Delay		15.2			10.3			4.0			7.6	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 48.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	21	8	41	118	665	49	812
v/c Ratio	0.07	0.02	0.13	0.27	0.26	0.09	0.61
Control Delay	21.0	0.1	20.1	7.0	4.0	4.0	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	0.1	20.1	7.0	4.0	4.0	7.8
Queue Length 50th (m)	1.5	0.0	2.8	0.0	11.3	1.4	38.5
Queue Length 95th (m)	7.7	0.0	12.0	12.0	19.4	4.6	75.7
Internal Link Dist (m)	57.2				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1039	939	864	1031	3401	717	1797
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.05	0.11	0.20	0.07	0.45

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	7	38	0	109	0	596	16	45	747	0
Future Volume (vph)	16	4	7	38	0	109	0	596	16	45	747	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1790	1583	1770		1583		3526		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.40	1.00	
Satd. Flow (perm)		1790	1583	1385		1583		3526		743	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	8	41	0	118	0	648	17	49	812	0
RTOR Reduction (vph)	0	0	7	0	0	98	0	2	0	0	0	0
Lane Group Flow (vph)	0	21	1	41	0	20	0	663	0	49	812	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.4	6.4	6.4		6.4		30.7		30.7	30.7	
Effective Green, g (s)		6.4	6.4	8.4		8.4		33.7		33.7	33.7	
Actuated g/C Ratio		0.13	0.13	0.17		0.17		0.67		0.67	0.67	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		228	202	232		265		2371		499	1253	
v/s Ratio Prot								0.19			c0.44	
v/s Ratio Perm		0.01	0.00	c0.03		0.01				0.07		
v/c Ratio		0.09	0.01	0.18		0.07		0.28		0.10	0.65	
Uniform Delay, d1		19.3	19.1	17.9		17.6		3.3		2.9	4.8	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.4		0.1		0.1		0.1	1.2	
Delay (s)		19.5	19.1	18.3		17.7		3.4		3.0	5.9	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		19.4			17.8			3.4			5.8	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	61.0%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	184	139	36	101	0
Future Volume (vph)	0	184	139	36	101	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.969			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3443	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3443	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		145.8	96.7		53.1	
Travel Time (s)		10.5	7.0		3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	200	151	39	110	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	200	190	0	110	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	184	139	36	101	0
Future Volume (Veh/h)	0	184	139	36	101	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	200	151	39	110	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)			97			
pX, platoon unblocked						
vC, conflicting volume	190				370	95
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	190				370	95
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				82	100
cM capacity (veh/h)	1396				608	949

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	200	101	89	110
Volume Left	0	0	0	110
Volume Right	0	0	39	0
cSH	1396	1700	1700	608
Volume to Capacity	0.00	0.06	0.05	0.18
Queue Length 95th (m)	0.0	0.0	0.0	5.2
Control Delay (s)	0.0	0.0	0.0	12.2
Lane LOS				B
Approach Delay (s)	0.0	0.0		12.2
Approach LOS				B

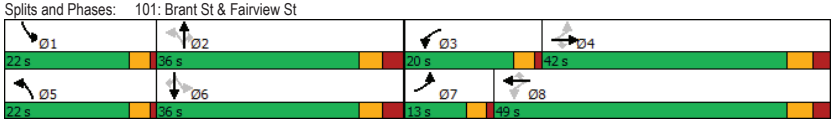
Intersection Summary				
Average Delay		2.7		
Intersection Capacity Utilization		21.9%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	796	287	213	1482	434	172	801	190	231	672	429
Future Volume (vph)	210	796	287	213	1482	434	172	801	190	231	672	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.107			0.118			0.167			0.126		
Satd. Flow (perm)	199	3539	1583	220	3539	1583	311	3539	1583	235	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			312			294			140			238
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	228	865	312	232	1611	472	187	871	207	251	730	466
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	865	312	232	1611	472	187	871	207	251	730	466
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	13.0	42.0	42.0	20.0	49.0	49.0	22.0	36.0	36.0	22.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	16.7%	40.8%	40.8%	18.3%	30.0%	30.0%	18.3%	30.0%	30.0%
Maximum Green (s)	9.0	35.6	35.6	16.0	42.6	42.6	18.0	29.5	29.5	18.0	29.5	29.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	48.7	39.7	39.7	57.5	45.0	45.0	45.3	31.8	31.8	50.0	34.2	34.2
Actuated g/C Ratio	0.41	0.34	0.34	0.49	0.38	0.38	0.38	0.27	0.27	0.42	0.29	0.29
v/c Ratio	1.13	0.72	0.42	0.79	1.19	0.60	0.65	0.91	0.39	0.82	0.71	0.74
Control Delay	131.0	39.2	5.2	42.3	127.0	14.1	32.6	56.5	14.7	48.9	42.4	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	131.0	39.2	5.2	42.3	127.0	14.1	32.6	56.5	14.7	48.9	42.4	26.6
LOS	F	D	A	D	F	B	C	E	B	D	D	C
Approach Delay		46.5			95.5			46.1			38.4	
Approach LOS		D			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117.7			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 62.3		Intersection LOS: E	
Intersection Capacity Utilization 100.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2027)
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	865	312	232	1611	472	187	871	207	251	730	466
v/c Ratio	1.13	0.72	0.42	0.79	1.19	0.60	0.65	0.91	0.39	0.82	0.71	0.74
Control Delay	131.0	39.2	5.2	42.3	127.0	14.1	32.6	56.5	14.7	48.9	42.4	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	131.0	39.2	5.2	42.3	127.0	14.1	32.6	56.5	14.7	48.9	42.4	26.6
Queue Length 50th (m)	~49.8	100.7	0.0	34.1	~254.2	32.9	27.9	109.7	12.6	40.6	83.2	51.1
Queue Length 95th (m)	#103.1	126.8	20.4	#70.2	#302.0	69.7	44.4	#149.6	34.5	#82.0	111.7	98.7
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	202	1194	741	319	1353	787	353	962	532	335	1027	628
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.72	0.42	0.73	1.19	0.60	0.53	0.91	0.39	0.75	0.71	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2027)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	796	287	213	1482	434	172	801	190	231	672	429
Future Volume (vph)	210	796	287	213	1482	434	172	801	190	231	672	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.11	1.00	1.00	0.12	1.00	1.00	0.17	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	200	3539	1583	220	3539	1583	310	3539	1583	235	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	865	312	232	1611	472	187	871	207	251	730	466
RTOR Reduction (vph)	0	0	207	0	0	182	0	0	102	0	0	169
Lane Group Flow (vph)	228	865	105	232	1611	290	187	871	105	251	730	297
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	46.3	37.3	37.3	55.6	42.6	42.6	42.8	29.3	29.3	47.6	31.7	31.7
Effective Green, g (s)	46.3	39.7	39.7	55.6	45.0	45.0	42.8	31.8	31.8	47.6	34.2	34.2
Actuated g/C Ratio	0.39	0.34	0.34	0.47	0.38	0.38	0.36	0.27	0.27	0.40	0.29	0.29
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	1193	533	292	1353	605	280	956	427	302	1028	459
v/s Ratio Prot	c0.09	0.24		0.10	c0.46		0.08	c0.25		c0.11	0.21	
v/s Ratio Perm	0.36		0.07	0.28		0.18	0.17		0.07	0.22		0.19
v/c Ratio	1.15	0.73	0.20	0.79	1.19	0.48	0.67	0.91	0.25	0.83	0.71	0.65
Uniform Delay, d1	29.7	34.2	27.7	24.9	36.4	27.5	28.2	41.6	33.6	29.5	37.3	36.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	110.7	2.2	0.2	13.8	93.4	0.6	5.9	12.6	0.3	17.4	2.3	3.1
Delay (s)	140.4	36.4	27.9	38.7	129.8	28.1	34.1	54.1	33.9	46.9	39.7	39.6
Level of Service	F	D	C	D	F	C	C	D	C	D	D	D
Approach Delay (s)		51.4			99.9			47.9			40.9	
Approach LOS		D			F			D			D	

Intersection Summary

HCM 2000 Control Delay	65.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	117.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	20	41	115	12	177	15	1087	67	115	1040	59
Future Volume (vph)	121	20	41	115	12	177	15	1087	67	115	1040	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899			0.860			0.991			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1675	0	1770	1602	0	1770	3507	0	1770	3511	0
Flt Permitted	0.493			0.713			0.160			0.143		
Satd. Flow (perm)	918	1675	0	1328	1602	0	298	3507	0	266	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			192			11			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	22	45	125	13	192	16	1182	73	125	1130	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	67	0	125	205	0	16	1255	0	125	1194	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	17.6	17.6		17.6	17.6		44.2	44.2		56.2	44.2	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.57	0.57		0.72	0.57	
v/c Ratio	0.64	0.16		0.42	0.40		0.10	0.63		0.32	0.60	
Control Delay	47.3	14.6		34.4	8.5		10.5	13.6		5.4	13.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.3		0.0	0.0	
Total Delay	47.3	14.6		34.4	8.5		10.5	13.9		5.4	13.1	
LOS	D	B		C	A		B	B		A	B	
Approach Delay		36.3			18.3			13.8			12.4	
Approach LOS		D			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 15.1		Intersection LOS: B	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2027)
PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	132	67	125	205	16	1255	125	1194
v/c Ratio	0.64	0.16	0.42	0.40	0.10	0.63	0.32	0.60
Control Delay	47.3	14.6	34.4	8.5	10.5	13.6	5.4	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	47.3	14.6	34.4	8.5	10.5	13.9	5.4	13.1
Queue Length 50th (m)	20.7	3.0	18.5	1.8	1.2	70.6	5.1	65.4
Queue Length 95th (m)	#49.4	14.0	37.4	19.8	4.6	94.8	9.4	88.0
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	234	460	339	551	203	2397	434	2399
Starvation Cap Reductn	0	0	0	0	0	450	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.15	0.37	0.37	0.08	0.64	0.29	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2027)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	20	41	115	12	177	15	1087	67	115	1040	59
Future Volume (vph)	121	20	41	115	12	177	15	1087	67	115	1040	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1675		1770	1601		1770	3508		1770	3511	
Flt Permitted	0.49	1.00		0.71	1.00		0.16	1.00		0.14	1.00	
Satd. Flow (perm)	918	1675		1329	1601		297	3508		266	3511	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	22	45	125	13	192	16	1182	73	125	1130	64
RTOR Reduction (vph)	0	35	0	0	149	0	0	5	0	0	4	0
Lane Group Flow (vph)	132	32	0	125	56	0	16	1250	0	125	1190	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	14.5	14.5		14.5	14.5		41.1	41.1		46.7	41.1	
Effective Green, g (s)	17.5	17.5		17.5	17.5		44.1	44.1		52.7	44.1	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.56	0.56		0.67	0.56	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	374		297	358		167	1978		344	1979	
v/s Ratio Prot		0.02			0.03			c0.36		c0.04	0.34	
v/s Ratio Perm	c0.14			0.09			0.05			0.20		
v/c Ratio	0.64	0.09		0.42	0.16		0.10	0.63		0.36	0.60	
Uniform Delay, d1	27.5	24.0		26.0	24.4		7.9	11.6		6.8	11.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.8	0.1		1.0	0.2		0.3	0.7		0.7	0.5	
Delay (s)	34.3	24.1		27.0	24.6		8.1	12.2		7.4	11.8	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		30.9			25.5			12.2			11.4	
Approach LOS		C			C			B			B	

Intersection Summary					
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.59				
Actuated Cycle Length (s)	78.2	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	70.2%	ICU Level of Service		C	
Analysis Period (min)	15				

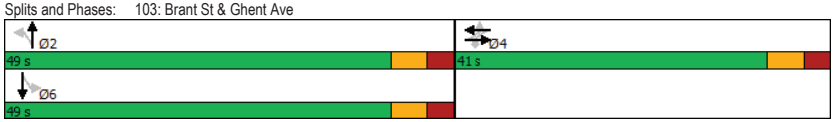
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	35	31	27	69	41	33	928	23	35	872	264
Future Volume (vph)	201	35	31	27	69	41	33	928	23	35	872	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.959			0.996			0.965	
Flt Protected		0.959			0.990		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1769	0	1770	3525	0	1770	3415	0
Flt Permitted		0.681			0.909		0.132			0.196		
Satd. Flow (perm)	0	1269	1583	0	1624	0	246	3525	0	365	3415	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		29			4			63	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		100.9			333.4			75.4			150.5	
Travel Time (s)		7.3			24.0			5.4			10.8	
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
Adj. Flow (vph)	218	38	34	29	75	45	36	1009	25	38	948	287
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	256	34	0	149	0	36	1034	0	38	1235	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		23.1	23.1		23.1		32.3	32.3		32.3	32.3	
Actuated g/C Ratio		0.36	0.36		0.36		0.50	0.50		0.50	0.50	
v/c Ratio		0.56	0.06		0.25		0.29	0.58		0.21	0.70	
Control Delay		23.0	3.7		14.1		18.9	13.3		14.2	14.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		23.0	3.7		14.1		18.9	13.3		14.2	14.9	
LOS		C	A		B		B	B		B	B	
Approach Delay		20.8			14.1			13.5			14.9	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 64			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 14.9		Intersection LOS: B	
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	256	34	149	36	1034	38	1235
v/c Ratio	0.56	0.06	0.25	0.29	0.58	0.21	0.70
Control Delay	23.0	3.7	14.1	18.9	13.3	14.2	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	3.7	14.1	18.9	13.3	14.2	14.9
Queue Length 50th (m)	24.0	0.0	9.7	2.3	41.5	2.3	51.5
Queue Length 95th (m)	56.9	4.1	26.6	11.9	85.0	10.5	106.9
Internal Link Dist (m)	76.9		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	786	999	1018	182	2610	270	2544
Starvation Cap Reductn	0	0	0	0	0	0	94
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.03	0.15	0.20	0.40	0.14	0.50

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	35	31	27	69	41	33	928	23	35	872	264
Future Volume (vph)	201	35	31	27	69	41	33	928	23	35	872	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.96		1.00	1.00		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1770		1770	3526		1770	3416	
Flt Permitted		0.68	1.00		0.91		0.13	1.00		0.20	1.00	
Satd. Flow (perm)		1269	1583		1624		245	3526		365	3416	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	38	34	29	75	45	36	1009	25	38	948	287
RTOR Reduction (vph)	0	0	22	0	18	0	0	2	0	0	31	0
Lane Group Flow (vph)	0	256	12	0	131	0	36	1032	0	38	1204	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		19.9	19.9		19.9		29.1	29.1		29.1	29.1	
Effective Green, g (s)		22.9	22.9		22.9		32.1	32.1		32.1	32.1	
Actuated g/C Ratio		0.36	0.36		0.36		0.51	0.51		0.51	0.51	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		461	575		590		124	1796		185	1740	
v/s Ratio Prot								0.29			c0.35	
v/s Ratio Perm		c0.20	0.01		0.08		0.15			0.10		
v/c Ratio		0.56	0.02		0.22		0.29	0.57		0.21	0.69	
Uniform Delay, d1		16.0	12.9		13.9		8.9	10.7		8.5	11.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5	0.0		0.2		1.3	0.4		0.6	1.2	
Delay (s)		17.4	12.9		14.1		10.2	11.2		9.0	12.9	
Level of Service		B	B		B		B	B		A	B	
Approach Delay (s)		16.9			14.1			11.1			12.8	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	63.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	58.8%	ICU Level of Service	B	
Analysis Period (min)	15			

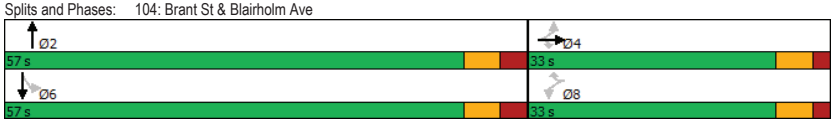
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	21	19	0	75	0	851	18	48	739	0
Future Volume (vph)	17	5	21	19	0	75	0	851	18	48	739	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.997				
Flt Protected		0.962		0.950						0.950		
Satd. Flow (prot)	0	1792	1583	1770	0	1583	0	3529	0	1770	1863	0
Flt Permitted		0.962		0.742						0.284		
Satd. Flow (perm)	0	1792	1583	1382	0	1583	0	3529	0	529	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			82		4				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.0			305.8			317.1			241.2	
Travel Time (s)		4.9			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	23	21	0	82	0	925	20	52	803	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	23	21	0	82	0	945	0	52	803	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.5	8.5	10.6		10.6		36.0		36.0	36.0	
Actuated g/C Ratio		0.17	0.17	0.21		0.21		0.73		0.73	0.73	
v/c Ratio		0.07	0.07	0.07		0.20		0.37		0.14	0.59	
Control Delay		20.9	4.0	19.3		7.4		4.3		4.5	7.3	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		20.9	4.0	19.3		7.4		4.3		4.5	7.3	
LOS		C	A	B		A		A		A	A	
Approach Delay		12.5			9.8			4.3			7.1	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 49.5			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 60.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Queues
104: Brant St & Blairholm Ave

Total (2027)
PM Peak Hour

Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	23	23	21	82	945	52	803
v/c Ratio	0.07	0.07	0.07	0.20	0.37	0.14	0.59
Control Delay	20.9	4.0	19.3	7.4	4.3	4.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	4.0	19.3	7.4	4.3	4.5	7.3
Queue Length 50th (m)	1.8	0.0	1.5	0.0	18.0	1.5	37.7
Queue Length 95th (m)	8.1	2.9	7.3	9.8	27.2	4.9	68.3
Internal Link Dist (m)	44.0				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1026	927	850	1005	3393	508	1791
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.02	0.08	0.28	0.10	0.45

Intersection Summary

HCM Signalized Intersection Capacity Analysis
104: Brant St & Blairholm Ave

Total (2027)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	21	19	0	75	0	851	18	48	739	0
Future Volume (vph)	17	5	21	19	0	75	0	851	18	48	739	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1793	1583	1770		1583		3528		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.28	1.00	
Satd. Flow (perm)		1793	1583	1383		1583		3528		529	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	23	21	0	82	0	925	20	52	803	0
RTOR Reduction (vph)	0	0	20	0	0	69	0	1	0	0	0	0
Lane Group Flow (vph)	0	23	3	21	0	13	0	944	0	52	803	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.1	6.1	6.1		6.1		31.6		31.6	31.6	
Effective Green, g (s)		6.1	6.1	8.1		8.1		34.6		34.6	34.6	
Actuated g/C Ratio		0.12	0.12	0.16		0.16		0.68		0.68	0.68	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		215	190	220		252		2407		361	1271	
v/s Ratio Prot								0.27			c0.43	
v/s Ratio Perm		0.01	0.00	c0.02		0.01				0.10		
v/c Ratio		0.11	0.01	0.10		0.05		0.39		0.14	0.63	
Uniform Delay, d1		19.9	19.7	18.2		18.0		3.5		2.8	4.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.2		0.1		0.1		0.2	1.0	
Delay (s)		20.1	19.7	18.4		18.1		3.6		3.0	5.5	
Level of Service		C	B	B		B		A		A	A	
Approach Delay (s)		19.9			18.2			3.6			5.4	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	50.7	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	60.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	190	258	106	75	0
Future Volume (vph)	0	190	258	106	75	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.956			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3403	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3403	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		141.6	100.9		55.2	
Travel Time (s)		10.2	7.3		4.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	207	280	115	82	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	207	395	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	190	258	106	75	0
Future Volume (Veh/h)	0	190	258	106	75	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	207	280	115	82	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			101			
pX, platoon unblocked						
vC, conflicting volume	395				544	198
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	395				544	198
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				83	100
cM capacity (veh/h)	1175				474	817

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	207	187	208	82
Volume Left	0	0	0	82
Volume Right	0	0	115	0
cSH	1175	1700	1700	474
Volume to Capacity	0.00	0.11	0.12	0.17
Queue Length 95th (m)	0.0	0.0	0.0	5.0
Control Delay (s)	0.0	0.0	0.0	14.2
Lane LOS				B
Approach Delay (s)	0.0	0.0		14.2
Approach LOS				B

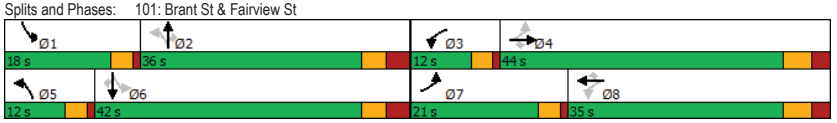
Intersection Summary				
Average Delay		1.7		
Intersection Capacity Utilization		21.3%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	777	240	144	734	241	232	597	150	237	612	165
Future Volume (vph)	315	777	240	144	734	241	232	597	150	237	612	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.132			0.235			0.274			0.153		
Satd. Flow (perm)	246	3539	1583	438	3539	1583	510	3539	1583	285	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			261			262			192			179
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	342	845	261	157	798	262	252	649	163	258	665	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	845	261	157	798	262	252	649	163	258	665	179
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.0	38.1	38.1	36.6	28.8	28.8	34.9	26.8	26.8	43.9	32.1	32.1
Actuated g/C Ratio	0.49	0.37	0.37	0.36	0.28	0.28	0.34	0.26	0.26	0.43	0.31	0.31
v/c Ratio	0.91	0.64	0.35	0.61	0.80	0.41	0.92	0.70	0.29	0.82	0.60	0.29
Control Delay	55.8	29.8	4.4	28.4	41.7	6.0	64.2	38.8	4.0	42.9	32.1	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	29.8	4.4	28.4	41.7	6.0	64.2	38.8	4.0	42.9	32.1	5.1
LOS	E	C	A	C	D	A	E	D	A	D	C	A
Approach Delay		31.3			32.3			39.5			30.2	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 102.2			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 33.1		Intersection LOS: C	
Intersection Capacity Utilization 80.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2027)
SAT Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	342	845	261	157	798	262	252	649	163	258	665	179
v/c Ratio	0.91	0.64	0.35	0.61	0.80	0.41	0.92	0.70	0.29	0.82	0.60	0.29
Control Delay	55.8	29.8	4.4	28.4	41.7	6.0	64.2	38.8	4.0	42.9	32.1	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	29.8	4.4	28.4	41.7	6.0	64.2	38.8	4.0	42.9	32.1	5.1
Queue Length 50th (m)	54.1	77.3	0.0	18.2	82.7	0.0	35.3	67.0	0.0	36.3	63.2	0.0
Queue Length 95th (m)	#117.6	105.3	17.0	33.4	112.2	19.4	#77.6	87.0	10.5	#76.0	82.0	15.0
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	375	1396	782	263	1082	666	273	1117	631	328	1326	705
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.61	0.33	0.60	0.74	0.39	0.92	0.58	0.26	0.79	0.50	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2027)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	777	240	144	734	241	232	597	150	237	612	165
Future Volume (vph)	315	777	240	144	734	241	232	597	150	237	612	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.13	1.00	1.00	0.24	1.00	1.00	0.27	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	245	3539	1583	438	3539	1583	511	3539	1583	284	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	845	261	157	798	262	252	649	163	258	665	179
RTOR Reduction (vph)	0	0	164	0	0	188	0	0	120	0	0	123
Lane Group Flow (vph)	342	845	97	157	798	74	252	649	43	258	665	56
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	47.5	35.6	35.6	34.3	26.4	26.4	32.4	24.3	24.3	41.7	29.6	29.6
Effective Green, g (s)	47.5	38.0	38.0	34.3	28.8	28.8	32.4	26.8	26.8	41.7	32.1	32.1
Actuated g/C Ratio	0.47	0.37	0.37	0.34	0.28	0.28	0.32	0.26	0.26	0.41	0.31	0.31
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	369	1317	589	250	998	446	262	928	415	311	1112	497
v/s Ratio Prot	c0.16	0.24		0.05	0.23		0.08	0.18		c0.11	0.19	
v/s Ratio Perm	c0.28		0.06	0.16		0.05	c0.23		0.03	0.23		0.04
v/c Ratio	0.93	0.64	0.16	0.63	0.80	0.17	0.96	0.70	0.10	0.83	0.60	0.11
Uniform Delay, d1	27.6	26.4	21.4	25.1	34.0	27.6	31.3	34.0	28.5	23.2	29.6	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.8	1.1	0.1	4.9	4.6	0.2	44.9	2.3	0.1	16.5	0.9	0.1
Delay (s)	56.3	27.5	21.6	30.0	38.5	27.8	76.1	36.3	28.6	39.7	30.4	25.0
Level of Service	E	C	C	C	D	C	E	D	C	D	C	C
Approach Delay (s)		33.2			35.1			44.6			31.7	
Approach LOS		C			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	35.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	102.1	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	80.8%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	7	15	72	12	115	13	876	44	102	894	37
Future Volume (vph)	57	7	15	72	12	115	13	876	44	102	894	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.900			0.864			0.993			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1676	0	1770	1609	0	1770	3514	0	1770	3518	0
Flt Permitted	0.647			0.742			0.219			0.223		
Satd. Flow (perm)	1205	1676	0	1382	1609	0	408	3514	0	415	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			125			9			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	8	16	78	13	125	14	952	48	111	972	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	24	0	78	138	0	14	1000	0	111	1012	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.2	13.2		13.2	13.2		37.1	37.1		49.1	37.1	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.56	0.56		0.74	0.56	
v/c Ratio	0.26	0.07		0.28	0.33		0.06	0.51		0.22	0.51	
Control Delay	28.8	16.5		28.7	9.6		8.8	10.6		3.6	10.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.8	16.5		28.7	9.6		8.8	10.6		3.6	10.7	
LOS	C	B		C	A		A	B		A	B	
Approach Delay		25.4			16.5			10.6			10.0	
Approach LOS		C			B			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 66.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 60.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2027)
SAT Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	62	24	78	138	14	1000	111	1012
v/c Ratio	0.26	0.07	0.28	0.33	0.06	0.51	0.22	0.51
Control Delay	28.8	16.5	28.7	9.6	8.8	10.6	3.6	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	16.5	28.7	9.6	8.8	10.6	3.6	10.7
Queue Length 50th (m)	6.5	0.8	8.2	1.3	0.8	38.1	2.6	38.8
Queue Length 95th (m)	20.9	7.6	24.6	16.9	3.8	65.9	8.0	67.1
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	356	506	408	563	323	2790	559	2793
Starvation Cap Reductn	0	0	0	0	0	234	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.05	0.19	0.25	0.04	0.39	0.20	0.36

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2027)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	7	15	72	12	115	13	876	44	102	894	37
Future Volume (vph)	57	7	15	72	12	115	13	876	44	102	894	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1676		1770	1610		1770	3514		1770	3518	
Flt Permitted	0.65	1.00		0.74	1.00		0.22	1.00		0.22	1.00	
Satd. Flow (perm)	1205	1676		1381	1610		408	3514		416	3518	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	8	16	78	13	125	14	952	48	111	972	40
RTOR Reduction (vph)	0	13	0	0	100	0	0	4	0	0	3	0
Lane Group Flow (vph)	62	11	0	78	38	0	14	996	0	111	1009	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	10.1	10.1		10.1	10.1		34.0	34.0		39.4	34.0	
Effective Green, g (s)	13.1	13.1		13.1	13.1		37.0	37.0		45.4	37.0	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.56	0.56		0.68	0.56	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	237	330		272	317		227	1955		455	1957	
v/s Ratio Prot		0.01			0.02			0.28		c0.03	c0.29	
v/s Ratio Perm	0.05			c0.06			0.03			0.14		
v/c Ratio	0.26	0.03		0.29	0.12		0.06	0.51		0.24	0.52	
Uniform Delay, d1	22.6	21.6		22.7	22.0		6.8	9.1		4.2	9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.0		0.6	0.2		0.1	0.2		0.3	0.2	
Delay (s)	23.2	21.6		23.3	22.1		6.9	9.3		4.5	9.4	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		22.8			22.6			9.3			8.9	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.41				
Actuated Cycle Length (s)	66.5	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	60.3%	ICU Level of Service		B	
Analysis Period (min)	15				

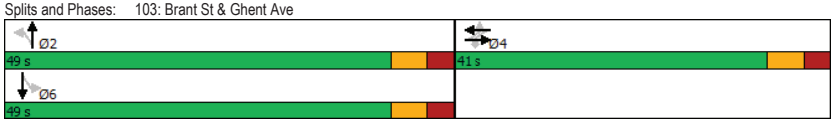
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	25	25	18	27	34	36	741	18	40	764	171
Future Volume (vph)	149	25	25	18	27	34	36	741	18	40	764	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.942			0.996			0.973	
Flt Protected		0.959			0.989		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1735	0	1770	3525	0	1770	3444	0
Flt Permitted		0.697			0.906		0.216			0.293		
Satd. Flow (perm)	0	1298	1583	0	1590	0	402	3525	0	546	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		37			4			43	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.4			333.4			75.4			150.5	
Travel Time (s)		6.9			24.0			5.4			10.8	
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
Adj. Flow (vph)	162	27	27	20	29	37	39	805	20	43	830	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	189	27	0	86	0	39	825	0	43	1016	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		16.4	16.4		16.4		26.7	26.7		26.7	26.7	
Actuated g/C Ratio		0.32	0.32		0.32		0.52	0.52		0.52	0.52	
v/c Ratio		0.46	0.05		0.16		0.19	0.45		0.15	0.56	
Control Delay		18.2	2.8		9.3		10.6	9.2		9.3	9.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		18.2	2.8		9.3		10.6	9.2		9.3	9.9	
LOS		B	A		A		B	A		A	A	
Approach Delay		16.3			9.3			9.2			9.9	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 51.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Queues
103: Brant St & Ghent Ave

Total (2027)
SAT Peak Hour

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	189	27	86	39	825	43	1016
v/c Ratio	0.46	0.05	0.16	0.19	0.45	0.15	0.56
Control Delay	18.2	2.8	9.3	10.6	9.2	9.3	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	2.8	9.3	10.6	9.2	9.3	9.9
Queue Length 50th (m)	12.3	0.0	2.8	1.7	22.0	1.8	28.0
Queue Length 95th (m)	34.3	2.7	12.5	8.1	45.7	8.0	58.1
Internal Link Dist (m)	71.4		309.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	960	1183	1186	355	3114	482	3047
Starvation Cap Reductn	0	0	0	0	0	0	31
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.02	0.07	0.11	0.26	0.09	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis
103: Brant St & Ghent Ave

Total (2027)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	25	25	18	27	34	36	741	18	40	764	171
Future Volume (vph)	149	25	25	18	27	34	36	741	18	40	764	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	1.00		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786	1583		1734		1770	3526		1770	3442	
Flt Permitted		0.70	1.00		0.91		0.22	1.00		0.29	1.00	
Satd. Flow (perm)		1298	1583		1589		402	3526		546	3442	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	27	27	20	29	37	39	805	20	43	830	186
RTOR Reduction (vph)	0	0	18	0	25	0	0	2	0	0	21	0
Lane Group Flow (vph)	0	189	9	0	61	0	39	823	0	43	995	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		13.3	13.3		13.3		23.6	23.6		23.6	23.6	
Effective Green, g (s)		16.3	16.3		16.3		26.6	26.6		26.6	26.6	
Actuated g/C Ratio		0.32	0.32		0.32		0.52	0.52		0.52	0.52	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		415	506		508		210	1842		285	1798	
v/s Ratio Prot								0.23			c0.29	
v/s Ratio Perm		c0.15	0.01		0.04		0.10			0.08		
v/c Ratio		0.46	0.02		0.12		0.19	0.45		0.15	0.55	
Uniform Delay, d1		13.8	11.8		12.2		6.4	7.6		6.3	8.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8	0.0		0.1		0.4	0.2		0.2	0.4	
Delay (s)		14.6	11.8		12.3		6.9	7.7		6.5	8.5	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		14.2			12.3			7.7			8.5	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	50.9	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	56.1%	ICU Level of Service	B	
Analysis Period (min)	15			

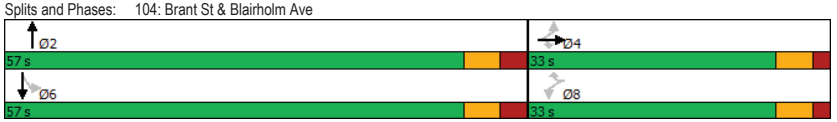
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	734	8	35	739	0
Future Volume (vph)	15	0	5	11	0	44	0	734	8	35	739	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.998				
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1770	1583	1770	0	1583	0	3532	0	1770	1863	0
Flt Permitted		0.950		0.747						0.344		
Satd. Flow (perm)	0	1770	1583	1391	0	1583	0	3532	0	641	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			48		2				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		63.7			305.8			317.1			241.2	
Travel Time (s)		4.6			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	798	9	38	803	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	5	12	0	48	0	807	0	38	803	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.6	8.6	10.7		10.7		38.9		38.9	38.9	
Actuated g/C Ratio		0.18	0.18	0.22		0.22		0.81		0.81	0.81	
v/c Ratio		0.05	0.02	0.04		0.12		0.28		0.07	0.53	
Control Delay		21.9	0.0	20.1		8.4		3.0		3.4	5.6	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		21.9	0.0	20.1		8.4		3.0		3.4	5.6	
LOS		C	A	C		A		A		A	A	
Approach Delay		16.7			10.7			3.0			5.5	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 47.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 4.6		Intersection LOS: A	
Intersection Capacity Utilization 60.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Queues
104: Brant St & Blairholm Ave

Total (2027)
SAT Peak Hour

Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	16	5	12	48	807	38	803
v/c Ratio	0.05	0.02	0.04	0.12	0.28	0.07	0.53
Control Delay	21.9	0.0	20.1	8.4	3.0	3.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	0.0	20.1	8.4	3.0	3.4	5.6
Queue Length 50th (m)	1.7	0.0	1.2	0.0	14.6	1.1	37.7
Queue Length 95th (m)	6.1	0.0	4.9	7.4	21.2	3.4	65.0
Internal Link Dist (m)	39.7				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1071	977	904	1046	3372	612	1778
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.05	0.24	0.06	0.45

Intersection Summary

HCM Signalized Intersection Capacity Analysis
104: Brant St & Blairholm Ave

Total (2027)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	734	8	35	739	0
Future Volume (vph)	15	0	5	11	0	44	0	734	8	35	739	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583	1770		1583		3533		1770	1863	
Flt Permitted		0.95	1.00	0.75		1.00		1.00		0.34	1.00	
Satd. Flow (perm)		1770	1583	1392		1583		3533		641	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	798	9	38	803	0
RTOR Reduction (vph)	0	0	5	0	0	42	0	1	0	0	0	0
Lane Group Flow (vph)	0	16	0	12	0	6	0	806	0	38	803	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		4.0	4.0	4.0		4.0		33.3		33.3	33.3	
Effective Green, g (s)		4.0	4.0	6.0		6.0		36.3		36.3	36.3	
Actuated g/C Ratio		0.08	0.08	0.12		0.12		0.72		0.72	0.72	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		140	125	166		188		2549		462	1344	
v/s Ratio Prot								0.23			c0.43	
v/s Ratio Perm		0.01	0.00	0.01		0.00				0.06		
v/c Ratio		0.11	0.00	0.07		0.03		0.32		0.08	0.60	
Uniform Delay, d1		21.5	21.3	19.7		19.6		2.5		2.1	3.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.4	0.0	0.2		0.1		0.1		0.1	0.7	
Delay (s)		21.9	21.3	19.9		19.6		2.6		2.1	4.1	
Level of Service		C	C	B		B		A		A	A	
Approach Delay (s)		21.7			19.7			2.6			4.1	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	50.3	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	60.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	114	130	103	85	0
Future Volume (vph)	0	114	130	103	85	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.934			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3335	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3335	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		147.1	95.4		67.9	
Travel Time (s)		10.6	6.9		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	124	141	112	92	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	124	253	0	92	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	114	130	103	85	0
Future Volume (Veh/h)	0	114	130	103	85	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	124	141	112	92	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)			95			
pX, platoon unblocked						
vC, conflicting volume	253				321	126
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	253				321	126
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				86	100
cM capacity (veh/h)	1324				653	907

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	124	94	159	92
Volume Left	0	0	0	92
Volume Right	0	0	112	0
cSH	1324	1700	1700	653
Volume to Capacity	0.00	0.06	0.09	0.14
Queue Length 95th (m)	0.0	0.0	0.0	3.9
Control Delay (s)	0.0	0.0	0.0	11.4
Lane LOS				B
Approach Delay (s)	0.0	0.0		11.4
Approach LOS				B

Intersection Summary				
Average Delay		2.2		
Intersection Capacity Utilization		18.3%	ICU Level of Service	A
Analysis Period (min)		15		

Appendix I2

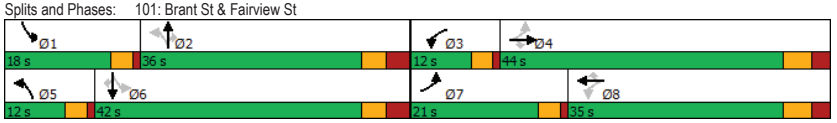
Total – Phase 2 Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	1088	269	126	344	152	203	672	278	229	720	151
Future Volume (vph)	338	1088	269	126	344	152	203	672	278	229	720	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.378			0.142			0.200			0.131		
Satd. Flow (perm)	704	3539	1583	265	3539	1583	373	3539	1583	244	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			257			193			192			164
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	367	1183	292	137	374	165	221	730	302	249	783	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	1183	292	137	374	165	221	730	302	249	783	164
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.8	38.9	38.9	38.4	30.5	30.5	37.1	29.1	29.1	46.3	34.4	34.4
Actuated g/C Ratio	0.48	0.37	0.37	0.36	0.29	0.29	0.35	0.28	0.28	0.44	0.33	0.33
v/c Ratio	0.73	0.91	0.39	0.66	0.36	0.28	0.93	0.75	0.53	0.83	0.68	0.26
Control Delay	28.5	43.0	6.3	35.4	31.7	3.9	68.2	40.4	15.4	46.2	34.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	43.0	6.3	35.4	31.7	3.9	68.2	40.4	15.4	46.2	34.0	5.1
LOS	C	D	A	D	C	A	E	D	B	D	C	A
Approach Delay		34.3			25.7			39.3			32.6	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 105.3			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2028)
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	367	1183	292	137	374	165	221	730	302	249	783	164
v/c Ratio	0.73	0.91	0.39	0.66	0.36	0.28	0.93	0.75	0.53	0.83	0.68	0.26
Control Delay	28.5	43.0	6.3	35.4	31.7	3.9	68.2	40.4	15.4	46.2	34.0	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	43.0	6.3	35.4	31.7	3.9	68.2	40.4	15.4	46.2	34.0	5.1
Queue Length 50th (m)	53.0	131.9	5.1	17.0	35.4	0.0	30.3	77.4	18.9	35.2	77.6	0.0
Queue Length 95th (m)	78.8	#176.7	24.4	#38.1	49.6	10.8	#70.1	99.5	46.0	#77.3	99.0	14.5
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	512	1350	763	211	1047	604	238	1081	616	311	1283	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.88	0.38	0.65	0.36	0.27	0.93	0.68	0.49	0.80	0.61	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2028)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	1088	269	126	344	152	203	672	278	229	720	151
Future Volume (vph)	338	1088	269	126	344	152	203	672	278	229	720	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.38	1.00	1.00	0.14	1.00	1.00	0.20	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	705	3539	1583	265	3539	1583	373	3539	1583	243	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	367	1183	292	137	374	165	221	730	302	249	783	164
RTOR Reduction (vph)	0	0	162	0	0	117	0	0	139	0	0	110
Lane Group Flow (vph)	367	1183	130	137	374	48	221	730	163	249	783	54
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.3	36.5	36.5	35.9	28.1	28.1	34.6	26.6	26.6	44.0	32.0	32.0
Effective Green, g (s)	48.3	38.9	38.9	35.9	30.5	30.5	34.6	29.1	29.1	44.0	34.5	34.5
Actuated g/C Ratio	0.46	0.37	0.37	0.34	0.29	0.29	0.33	0.28	0.28	0.42	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	487	1308	585	202	1026	458	228	978	437	296	1160	519
v/s Ratio Prot	c0.12	c0.33		0.05	0.11		0.07	0.21		c0.11	0.22	
v/s Ratio Perm	0.23		0.08	0.18		0.03	c0.24		0.10	0.24		0.03
v/c Ratio	0.75	0.90	0.22	0.68	0.36	0.10	0.97	0.75	0.37	0.84	0.68	0.10
Uniform Delay, d1	20.1	31.4	22.8	27.5	29.7	27.3	30.8	34.7	30.7	24.2	30.5	24.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	9.0	0.2	8.7	0.2	0.1	50.3	3.1	0.5	18.9	1.6	0.1
Delay (s)	26.6	40.4	23.0	36.2	29.9	27.5	81.1	37.8	31.2	43.2	32.1	24.7
Level of Service	C	D	C	D	C	C	F	D	C	D	C	C
Approach Delay (s)		34.9			30.6			43.9			33.4	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	105.2	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	81.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	10	16	63	9	82	26	902	58	90	941	87
Future Volume (vph)	33	10	16	63	9	82	26	902	58	90	941	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.909			0.865			0.991			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1693	0	1770	1611	0	1770	3507	0	1770	3493	0
Flt Permitted	0.693			0.739			0.199			0.223		
Satd. Flow (perm)	1291	1693	0	1377	1611	0	371	3507	0	415	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			89			12			18	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	11	17	68	10	89	28	980	63	98	1023	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	28	0	68	99	0	28	1043	0	98	1118	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.5	13.5		13.5	13.5		42.1	42.1		52.2	42.1	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.65	0.65		0.81	0.65	
v/c Ratio	0.13	0.08		0.24	0.24		0.12	0.46		0.18	0.49	
Control Delay	28.1	17.5		29.3	10.3		9.1	9.3		3.1	9.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.1	17.5		29.3	10.3		9.1	9.3		3.1	9.6	
LOS	C	B		C	B		A	A		A	A	
Approach Delay		23.4			18.0			9.3			9.1	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 64.7			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 55.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2028)
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	28	68	99	28	1043	98	1118
v/c Ratio	0.13	0.08	0.24	0.24	0.12	0.46	0.18	0.49
Control Delay	28.1	17.5	29.3	10.3	9.1	9.3	3.1	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	17.5	29.3	10.3	9.1	9.3	3.1	9.6
Queue Length 50th (m)	4.0	1.2	7.7	1.1	1.6	39.7	2.3	43.7
Queue Length 95th (m)	13.7	8.7	22.1	14.5	6.3	65.9	6.7	72.6
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	412	553	440	575	289	2740	608	2730
Starvation Cap Reductn	0	0	0	0	0	325	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.05	0.15	0.17	0.10	0.43	0.16	0.41

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2028)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	10	16	63	9	82	26	902	58	90	941	87
Future Volume (vph)	33	10	16	63	9	82	26	902	58	90	941	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1693		1770	1612		1770	3507		1770	3494	
Flt Permitted	0.69	1.00		0.74	1.00		0.20	1.00		0.22	1.00	
Satd. Flow (perm)	1291	1693		1377	1612		372	3507		416	3494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	11	17	68	10	89	28	980	63	98	1023	95
RTOR Reduction (vph)	0	14	0	0	75	0	0	5	0	0	7	0
Lane Group Flow (vph)	36	14	0	68	24	0	28	1038	0	98	1111	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.4	7.4		7.4	7.4		37.4	37.4		42.3	37.4	
Effective Green, g (s)	10.4	10.4		10.4	10.4		40.4	40.4		48.3	40.4	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.61	0.61		0.72	0.61	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	263		214	251		225	2124		461	2116	
v/s Ratio Prot		0.01			0.01			0.30		c0.03	c0.32	
v/s Ratio Perm	0.03			c0.05			0.08			0.13		
v/c Ratio	0.18	0.05		0.32	0.10		0.12	0.49		0.21	0.53	
Uniform Delay, d1	24.4	24.0		25.0	24.1		5.6	7.4		3.2	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.9	0.2		0.2	0.2		0.2	0.2	
Delay (s)	24.9	24.0		25.9	24.3		5.9	7.5		3.4	7.8	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		24.5			24.9			7.5			7.5	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.44			
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	55.6%	ICU Level of Service	B	
Analysis Period (min)	15			

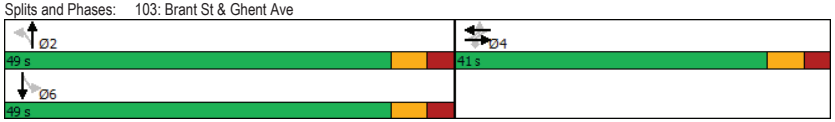
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	37	40	39	14	84	18	689	36	52	828	145
Future Volume (vph)	209	37	40	39	14	84	18	689	36	52	828	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.917			0.993			0.978	
Flt Protected		0.959			0.986		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1684	0	1770	3514	0	1770	3461	0
Flt Permitted		0.693			0.860		0.180			0.291		
Satd. Flow (perm)	0	1291	1583	0	1469	0	335	3514	0	542	3461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		91			8			32	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.7			103.4			75.4			150.5	
Travel Time (s)		7.0			7.4			5.4			10.8	
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
Adj. Flow (vph)	227	40	43	42	15	91	20	749	39	57	900	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	267	43	0	148	0	20	788	0	57	1058	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		22.4	22.4		22.4		28.4	28.4		28.4	28.4	
Actuated g/C Ratio		0.38	0.38		0.38		0.48	0.48		0.48	0.48	
v/c Ratio		0.55	0.07		0.24		0.12	0.47		0.22	0.63	
Control Delay		20.8	4.7		7.8		13.1	12.0		13.4	13.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		20.8	4.7		7.8		13.1	12.0		13.4	13.9	
LOS		C	A		A		B	B		B	B	
Approach Delay		18.5			7.8			12.1			13.9	
Approach LOS		B			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 59.4			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	267	43	148	20	788	57	1058
v/c Ratio	0.55	0.07	0.24	0.12	0.47	0.22	0.63
Control Delay	20.8	4.7	7.8	13.1	12.0	13.4	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	4.7	7.8	13.1	12.0	13.4	13.9
Queue Length 50th (m)	21.6	0.0	3.8	1.1	27.1	3.3	39.6
Queue Length 95th (m)	56.9	5.5	17.5	6.3	60.4	13.7	87.0
Internal Link Dist (m)	72.7		79.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	866	1078	1016	263	2761	425	2724
Starvation Cap Reductn	0	0	0	0	0	0	95
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.04	0.15	0.08	0.29	0.13	0.40

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	37	40	39	14	84	18	689	36	52	828	145
Future Volume (vph)	209	37	40	39	14	84	18	689	36	52	828	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.92		1.00	0.99		1.00	0.98	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1684		1770	3513		1770	3460	
Flt Permitted		0.69	1.00		0.86		0.18	1.00		0.29	1.00	
Satd. Flow (perm)		1291	1583		1469		334	3513		541	3460	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	227	40	43	42	15	91	20	749	39	57	900	158
RTOR Reduction (vph)	0	0	27	0	57	0	0	4	0	0	17	0
Lane Group Flow (vph)	0	267	16	0	91	0	20	784	0	57	1041	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		19.1	19.1		19.1		25.2	25.2		25.2	25.2	
Effective Green, g (s)		22.1	22.1		22.1		28.2	28.2		28.2	28.2	
Actuated g/C Ratio		0.38	0.38		0.38		0.48	0.48		0.48	0.48	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		489	600		556		161	1699		261	1673	
v/s Ratio Prot								0.22			c0.30	
v/s Ratio Perm		c0.21	0.01		0.06		0.06			0.11		
v/c Ratio		0.55	0.03		0.16		0.12	0.46		0.22	0.62	
Uniform Delay, d1		14.2	11.4		12.0		8.3	10.0		8.7	11.1	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.2	0.0		0.1		0.3	0.2		0.4	0.7	
Delay (s)		15.4	11.4		12.1		8.6	10.2		9.1	11.8	
Level of Service		B	B		B		A	B		A	B	
Approach Delay (s)		14.9			12.1			10.2			11.7	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	64.4%	ICU Level of Service	C	
Analysis Period (min)	15			

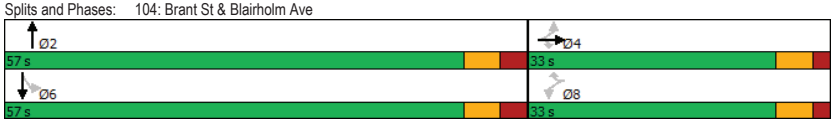
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	8	39	0	110	0	607	16	45	769	0
Future Volume (vph)	16	4	8	39	0	110	0	607	16	45	769	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.996				
Flt Protected		0.961		0.950						0.950		
Satd. Flow (prot)	0	1790	1583	1770	0	1583	0	3525	0	1770	1863	0
Flt Permitted		0.961		0.744						0.394		
Satd. Flow (perm)	0	1790	1583	1386	0	1583	0	3525	0	734	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			120		5				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		65.2			305.8			317.1			241.2	
Travel Time (s)		4.7			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	9	42	0	120	0	660	17	49	836	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	9	42	0	120	0	677	0	49	836	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.9	8.9	11.0		11.0		36.1		36.1	36.1	
Actuated g/C Ratio		0.18	0.18	0.22		0.22		0.72		0.72	0.72	
v/c Ratio		0.07	0.03	0.14		0.27		0.27		0.09	0.62	
Control Delay		21.8	0.1	20.9		7.1		3.9		4.0	8.0	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		21.8	0.1	20.9		7.1		3.9		4.0	8.0	
LOS		C	A	C		A		A		A	A	
Approach Delay		15.3			10.7			3.9			7.8	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 50			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 62.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Queues
104: Brant St & Blairholm Ave

Total (2028)
AM Peak Hour

Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	21	9	42	120	677	49	836
v/c Ratio	0.07	0.03	0.14	0.27	0.27	0.09	0.62
Control Delay	21.8	0.1	20.9	7.1	3.9	4.0	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	0.1	20.9	7.1	3.9	4.0	8.0
Queue Length 50th (m)	1.6	0.0	3.0	0.0	11.6	1.4	40.6
Queue Length 95th (m)	7.9	0.0	12.6	12.3	19.8	4.6	79.8
Internal Link Dist (m)	41.2				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1020	922	848	1015	3378	703	1785
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.05	0.12	0.20	0.07	0.47

Intersection Summary

HCM Signalized Intersection Capacity Analysis
104: Brant St & Blairholm Ave

Total (2028)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	8	39	0	110	0	607	16	45	769	0
Future Volume (vph)	16	4	8	39	0	110	0	607	16	45	769	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1790	1583	1770		1583		3526		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.39	1.00	
Satd. Flow (perm)		1790	1583	1385		1583		3526		733	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	9	42	0	120	0	660	17	49	836	0
RTOR Reduction (vph)	0	0	8	0	0	100	0	2	0	0	0	0
Lane Group Flow (vph)	0	21	1	42	0	20	0	675	0	49	836	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.4	6.4	6.4		6.4		31.7		31.7	31.7	
Effective Green, g (s)		6.4	6.4	8.4		8.4		34.7		34.7	34.7	
Actuated g/C Ratio		0.13	0.13	0.16		0.16		0.68		0.68	0.68	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		224	198	227		260		2394		497	1265	
v/s Ratio Prot								0.19			c0.45	
v/s Ratio Perm		0.01	0.00	c0.03		0.01				0.07		
v/c Ratio		0.09	0.01	0.19		0.08		0.28		0.10	0.66	
Uniform Delay, d1		19.8	19.6	18.4		18.1		3.3		2.8	4.8	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.4		0.1		0.1		0.1	1.3	
Delay (s)		20.0	19.6	18.8		18.2		3.3		2.9	6.1	
Level of Service		B	B	B		B		A		A	A	
Approach Delay (s)		19.8			18.3			3.3			5.9	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	62.1%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	185	140	36	101	0
Future Volume (vph)	0	185	140	36	101	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.969			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3443	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3443	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		145.8	96.7		53.1	
Travel Time (s)		10.5	7.0		3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	201	152	39	110	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	201	191	0	110	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	185	140	36	101	0
Future Volume (Veh/h)	0	185	140	36	101	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	201	152	39	110	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)			97			
pX, platoon unblocked						
vC, conflicting volume	191				372	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191				372	96
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				82	100
cM capacity (veh/h)	1395				607	949

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	201	101	90	110
Volume Left	0	0	0	110
Volume Right	0	0	39	0
cSH	1395	1700	1700	607
Volume to Capacity	0.00	0.06	0.05	0.18
Queue Length 95th (m)	0.0	0.0	0.0	5.3
Control Delay (s)	0.0	0.0	0.0	12.2
Lane LOS				B
Approach Delay (s)	0.0	0.0		12.2
Approach LOS				B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	101	65	3	9	71
Future Volume (vph)	24	101	65	3	9	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995		0.881	
Flt Protected		0.991			0.994	
Satd. Flow (prot)	0	1853	1855	0	1664	0
Flt Permitted		0.991			0.994	
Satd. Flow (perm)	0	1853	1855	0	1664	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		103.4	230.0		30.1	
Travel Time (s)		7.4	16.6		2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	26	110	71	3	10	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	136	74	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	101	65	3	9	71
Future Volume (Veh/h)	24	101	65	3	9	71
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)	26	110	71	3	10	77
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		103				
pX, platoon unblocked						
vC, conflicting volume	74				234	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	74				234	72
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	92
cM capacity (veh/h)	1538				745	995

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	136	74	87
Volume Left	26	0	10
Volume Right	0	3	77
cSH	1538	1700	958
Volume to Capacity	0.02	0.04	0.09
Queue Length 95th (m)	0.4	0.0	2.4
Control Delay (s)	1.5	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	1.5	0.0	9.1
Approach LOS			A

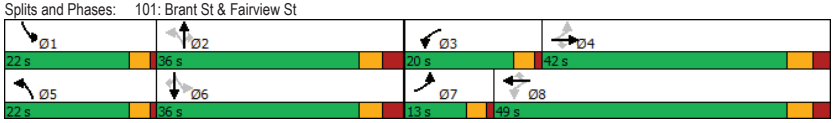
Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	804	299	224	1497	439	180	828	197	234	708	433
Future Volume (vph)	212	804	299	224	1497	439	180	828	197	234	708	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.108			0.111			0.138			0.126		
Satd. Flow (perm)	201	3539	1583	207	3539	1583	257	3539	1583	235	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			325			294			140			229
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	230	874	325	243	1627	477	196	900	214	254	770	471
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	874	325	243	1627	477	196	900	214	254	770	471
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	13.0	42.0	42.0	20.0	49.0	49.0	22.0	36.0	36.0	22.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	16.7%	40.8%	40.8%	18.3%	30.0%	30.0%	18.3%	30.0%	30.0%
Maximum Green (s)	9.0	35.6	35.6	16.0	42.6	42.6	18.0	29.5	29.5	18.0	29.5	29.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	48.4	39.4	39.4	57.6	45.0	45.0	45.9	32.0	32.0	50.2	34.2	34.2
Actuated g/C Ratio	0.41	0.33	0.33	0.49	0.38	0.38	0.39	0.27	0.27	0.43	0.29	0.29
v/c Ratio	1.14	0.74	0.44	0.83	1.21	0.61	0.71	0.94	0.40	0.82	0.75	0.76
Control Delay	135.1	40.1	5.2	48.3	133.5	14.5	38.3	60.2	15.4	49.8	44.1	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	135.1	40.1	5.2	48.3	133.5	14.5	38.3	60.2	15.4	49.8	44.1	28.5
LOS	F	D	A	D	F	B	D	E	B	D	D	C
Approach Delay		47.4			100.5			49.6			40.1	
Approach LOS		D			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.1			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay: 65.1		Intersection LOS: E	
Intersection Capacity Utilization 102.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2028)
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	230	874	325	243	1627	477	196	900	214	254	770	471
v/c Ratio	1.14	0.74	0.44	0.83	1.21	0.61	0.71	0.94	0.40	0.82	0.75	0.76
Control Delay	135.1	40.1	5.2	48.3	133.5	14.5	38.3	60.2	15.4	49.8	44.1	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	135.1	40.1	5.2	48.3	133.5	14.5	38.3	60.2	15.4	49.8	44.1	28.5
Queue Length 50th (m)	~50.9	102.6	0.0	38.7	~260.0	34.3	29.4	115.2	14.1	41.5	89.6	55.3
Queue Length 95th (m)	#103.8	128.4	20.6	#79.4	#306.0	71.5	52.1	#157.7	36.5	#83.6	118.9	#108.3
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	202	1180	744	313	1349	785	338	959	531	335	1024	621
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.74	0.44	0.78	1.21	0.61	0.58	0.94	0.40	0.76	0.75	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2028)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	804	299	224	1497	439	180	828	197	234	708	433
Future Volume (vph)	212	804	299	224	1497	439	180	828	197	234	708	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.14	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	201	3539	1583	207	3539	1583	258	3539	1583	235	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	230	874	325	243	1627	477	196	900	214	254	770	471
RTOR Reduction (vph)	0	0	216	0	0	182	0	0	102	0	0	163
Lane Group Flow (vph)	230	874	109	243	1627	295	196	900	112	254	770	308
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	46.0	37.0	37.0	55.6	42.6	42.6	43.3	29.5	29.5	47.7	31.7	31.7
Effective Green, g (s)	46.0	39.4	39.4	55.6	45.0	45.0	43.3	32.0	32.0	47.7	34.2	34.2
Actuated g/C Ratio	0.39	0.33	0.33	0.47	0.38	0.38	0.37	0.27	0.27	0.40	0.29	0.29
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	1181	528	290	1349	603	271	959	429	303	1025	458
v/s Ratio Prot	c0.09	0.25		0.10	c0.46		0.08	c0.25		c0.11	0.22	
v/s Ratio Perm	0.36		0.07	0.29		0.19	0.18		0.07	0.23		0.19
v/c Ratio	1.16	0.74	0.21	0.84	1.21	0.49	0.72	0.94	0.26	0.84	0.75	0.67
Uniform Delay, d1	30.1	34.8	28.1	27.9	36.5	27.8	28.6	42.0	33.7	29.9	38.0	37.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	114.3	2.5	0.2	18.6	100.0	0.6	9.2	16.1	0.3	18.0	3.1	3.9
Delay (s)	144.4	37.3	28.3	46.6	136.5	28.4	37.7	58.1	34.1	47.8	41.2	40.9
Level of Service	F	D	C	D	F	C	D	E	C	D	D	D
Approach Delay (s)		52.5			105.2			51.1			42.2	
Approach LOS		D			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	68.7	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.06			
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	102.3%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	20	42	123	12	179	15	1129	72	116	1096	60
Future Volume (vph)	122	20	42	123	12	179	15	1129	72	116	1096	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899			0.859			0.991			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1675	0	1770	1600	0	1770	3507	0	1770	3511	0
Flt Permitted	0.480			0.713			0.145			0.132		
Satd. Flow (perm)	894	1675	0	1328	1600	0	270	3507	0	246	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			195			12			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	133	22	46	134	13	195	16	1227	78	126	1191	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	68	0	134	208	0	16	1305	0	126	1256	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	17.9	17.9		17.9	17.9		46.0	46.0		57.9	46.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.58	0.58		0.72	0.58	
v/c Ratio	0.67	0.17		0.45	0.41		0.10	0.65		0.33	0.62	
Control Delay	50.3	14.6		35.7	8.5		10.8	13.9		5.7	13.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.4		0.0	0.0	
Total Delay	50.3	14.6		35.7	8.5		10.8	14.3		5.7	13.5	
LOS	D	B		D	A		B	B		A	B	
Approach Delay		38.3			19.2			14.2			12.7	
Approach LOS		D			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2028)
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	133	68	134	208	16	1305	126	1256
v/c Ratio	0.67	0.17	0.45	0.41	0.10	0.65	0.33	0.62
Control Delay	50.3	14.6	35.7	8.5	10.8	13.9	5.7	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	50.3	14.6	35.7	8.5	10.8	14.3	5.7	13.5
Queue Length 50th (m)	22.0	3.1	20.9	1.9	1.2	75.1	5.1	70.7
Queue Length 95th (m)	#50.8	14.2	40.1	19.9	4.7	100.9	9.5	95.3
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	221	449	328	542	179	2334	416	2336
Starvation Cap Reductn	0	0	0	0	0	479	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.15	0.41	0.38	0.09	0.70	0.30	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2028)
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	20	42	123	12	179	15	1129	72	116	1096	60
Future Volume (vph)	122	20	42	123	12	179	15	1129	72	116	1096	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1674		1770	1601		1770	3507		1770	3512	
Flt Permitted	0.48	1.00		0.71	1.00		0.14	1.00		0.13	1.00	
Satd. Flow (perm)	895	1674		1328	1601		270	3507		246	3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	133	22	46	134	13	195	16	1227	78	126	1191	65
RTOR Reduction (vph)	0	36	0	0	152	0	0	5	0	0	4	0
Lane Group Flow (vph)	133	32	0	134	56	0	16	1300	0	126	1252	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	14.7	14.7		14.7	14.7		42.8	42.8		48.4	42.8	
Effective Green, g (s)	17.7	17.7		17.7	17.7		45.8	45.8		54.4	45.8	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.57	0.57		0.68	0.57	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	197	369		293	353		154	2005		330	2008	
v/s Ratio Prot		0.02			0.04			c0.37		c0.04	0.36	
v/s Ratio Perm	c0.15			0.10			0.06			0.22		
v/c Ratio	0.68	0.09		0.46	0.16		0.10	0.65		0.38	0.62	
Uniform Delay, d1	28.6	24.8		27.0	25.2		7.8	11.7		7.1	11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.8	0.1		1.1	0.2		0.3	0.7		0.7	0.6	
Delay (s)	37.4	24.9		28.2	25.4		8.1	12.4		7.9	12.0	
Level of Service	D	C		C	C		A	B		A	B	
Approach Delay (s)		33.2			26.5			12.3			11.6	
Approach LOS		C			C			B			B	

Intersection Summary					
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.61				
Actuated Cycle Length (s)	80.1	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	71.7%	ICU Level of Service		C	
Analysis Period (min)	15				

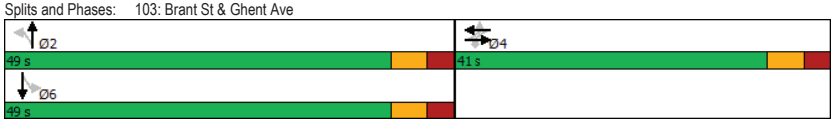
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	35	31	38	70	80	33	936	39	91	878	266
Future Volume (vph)	202	35	31	38	70	80	33	936	39	91	878	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.942			0.994			0.965	
Flt Protected		0.959			0.990		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1737	0	1770	3518	0	1770	3415	0
Flt Permitted		0.613			0.898		0.129			0.186		
Satd. Flow (perm)	0	1142	1583	0	1576	0	240	3518	0	346	3415	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		51			7			63	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		100.9			101.2			75.4			150.5	
Travel Time (s)		7.3			7.3			5.4			10.8	
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
Adj. Flow (vph)	220	38	34	41	76	87	36	1017	42	99	954	289
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	258	34	0	204	0	36	1059	0	99	1243	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		24.8	24.8		24.8		34.4	34.4		34.4	34.4	
Actuated g/C Ratio		0.37	0.37		0.37		0.51	0.51		0.51	0.51	
v/c Ratio		0.62	0.06		0.34		0.30	0.59		0.57	0.70	
Control Delay		26.6	3.7		14.4		19.8	14.0		29.3	15.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		26.6	3.7		14.4		19.8	14.0		29.3	15.4	
LOS		C	A		B		B	B		C	B	
Approach Delay		23.9			14.4			14.2			16.5	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 67.8			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 16.2		Intersection LOS: B	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	258	34	204	36	1059	99	1243
v/c Ratio	0.62	0.06	0.34	0.30	0.59	0.57	0.70
Control Delay	26.6	3.7	14.4	19.8	14.0	29.3	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	3.7	14.4	19.8	14.0	29.3	15.4
Queue Length 50th (m)	26.7	0.0	13.6	2.5	46.7	8.2	57.1
Queue Length 95th (m)	60.2	4.1	34.1	12.0	88.8	#36.9	109.1
Internal Link Dist (m)	76.9		77.2		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	669	948	945	169	2482	244	2426
Starvation Cap Reductn	0	0	0	0	0	0	145
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.04	0.22	0.21	0.43	0.41	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	35	31	38	70	80	33	936	39	91	878	266
Future Volume (vph)	202	35	31	38	70	80	33	936	39	91	878	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1738		1770	3518		1770	3416	
Flt Permitted		0.61	1.00		0.90		0.13	1.00		0.19	1.00	
Satd. Flow (perm)		1141	1583		1576		240	3518		347	3416	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	220	38	34	41	76	87	36	1017	42	99	954	289
RTOR Reduction (vph)	0	0	21	0	32	0	0	3	0	0	31	0
Lane Group Flow (vph)	0	258	13	0	172	0	36	1056	0	99	1212	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		21.6	21.6		21.6		31.2	31.2		31.2	31.2	
Effective Green, g (s)		24.6	24.6		24.6		34.2	34.2		34.2	34.2	
Actuated g/C Ratio		0.37	0.37		0.37		0.51	0.51		0.51	0.51	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		420	582		580		122	1801		177	1748	
v/s Ratio Prot								0.30			c0.35	
v/s Ratio Perm		c0.23	0.01		0.11		0.15			0.29		
v/c Ratio		0.61	0.02		0.30		0.30	0.59		0.56	0.69	
Uniform Delay, d1		17.2	13.4		15.0		9.4	11.4		11.1	12.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.7	0.0		0.3		1.4	0.5		3.8	1.2	
Delay (s)		19.9	13.5		15.2		10.7	11.9		14.9	13.5	
Level of Service		B	B		B		B	B		B	B	
Approach Delay (s)		19.1			15.2			11.8			13.6	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	76.5%	ICU Level of Service	D	
Analysis Period (min)	15			

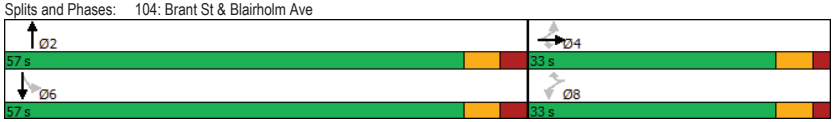
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	21	19	0	76	0	873	18	58	746	0
Future Volume (vph)	17	5	21	19	0	76	0	873	18	58	746	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.997				
Flt Protected		0.962		0.950						0.950		
Satd. Flow (prot)	0	1792	1583	1770	0	1583	0	3529	0	1770	1863	0
Flt Permitted		0.962		0.742						0.276		
Satd. Flow (perm)	0	1792	1583	1382	0	1583	0	3529	0	514	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			83		4				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		72.2			305.8			317.1			241.2	
Travel Time (s)		5.2			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	23	21	0	83	0	949	20	63	811	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	23	21	0	83	0	969	0	63	811	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.5	8.5	10.6		10.6		36.3		36.3	36.3	
Actuated g/C Ratio		0.17	0.17	0.21		0.21		0.73		0.73	0.73	
v/c Ratio		0.07	0.07	0.07		0.21		0.38		0.17	0.60	
Control Delay		21.1	4.0	19.6		7.4		4.3		4.8	7.3	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		21.1	4.0	19.6		7.4		4.3		4.8	7.3	
LOS		C	A	B		A		A		A	A	
Approach Delay		12.6			9.9			4.3			7.2	
Approach LOS		B			A			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 49.8			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 60.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	23	23	21	83	969	63	811
v/c Ratio	0.07	0.07	0.07	0.21	0.38	0.17	0.60
Control Delay	21.1	4.0	19.6	7.4	4.3	4.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	4.0	19.6	7.4	4.3	4.8	7.3
Queue Length 50th (m)	1.8	0.0	1.5	0.0	18.6	1.9	38.5
Queue Length 95th (m)	8.2	2.9	7.4	10.0	27.9	5.9	69.2
Internal Link Dist (m)	48.2				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1021	922	845	1000	3385	493	1787
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.02	0.08	0.29	0.13	0.45

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	21	19	0	76	0	873	18	58	746	0
Future Volume (vph)	17	5	21	19	0	76	0	873	18	58	746	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1793	1583	1770		1583		3528		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.28	1.00	
Satd. Flow (perm)		1793	1583	1383		1583		3528		513	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	23	21	0	83	0	949	20	63	811	0
RTOR Reduction (vph)	0	0	20	0	0	70	0	1	0	0	0	0
Lane Group Flow (vph)	0	23	3	21	0	13	0	968	0	63	811	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.1	6.1	6.1		6.1		31.9		31.9	31.9	
Effective Green, g (s)		6.1	6.1	8.1		8.1		34.9		34.9	34.9	
Actuated g/C Ratio		0.12	0.12	0.16		0.16		0.68		0.68	0.68	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		214	189	219		251		2414		351	1274	
v/s Ratio Prot								0.27			c0.44	
v/s Ratio Perm		0.01	0.00	c0.02		0.01				0.12		
v/c Ratio		0.11	0.01	0.10		0.05		0.40		0.18	0.64	
Uniform Delay, d1		20.0	19.8	18.3		18.2		3.5		2.9	4.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.2		0.1		0.1		0.2	1.1	
Delay (s)		20.2	19.8	18.5		18.3		3.6		3.1	5.6	
Level of Service		C	B	B		B		A		A	A	
Approach Delay (s)		20.0			18.3			3.6			5.4	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	60.9%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	192	261	106	75	0
Future Volume (vph)	0	192	261	106	75	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.957			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3406	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3406	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		141.6	100.9		55.2	
Travel Time (s)		10.2	7.3		4.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	209	284	115	82	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	209	399	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	192	261	106	75	0
Future Volume (Veh/h)	0	192	261	106	75	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	209	284	115	82	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			101			
pX, platoon unblocked						
vC, conflicting volume	399				550	200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	399				550	200
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				83	100
cM capacity (veh/h)	1171				470	814

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	209	189	210	82
Volume Left	0	0	0	82
Volume Right	0	0	115	0
cSH	1171	1700	1700	470
Volume to Capacity	0.00	0.11	0.12	0.17
Queue Length 95th (m)	0.0	0.0	0.0	5.0
Control Delay (s)	0.0	0.0	0.0	14.3
Lane LOS				B
Approach Delay (s)	0.0	0.0		14.3
Approach LOS				B

Intersection Summary				
Average Delay		1.7		
Intersection Capacity Utilization		21.4%	ICU Level of Service	A
Analysis Period (min)		15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	71	94	139	9	6	49
Future Volume (vph)	71	94	139	9	6	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992		0.881	
Flt Protected		0.979			0.994	
Satd. Flow (prot)	0	1839	1850	0	1664	0
Flt Permitted		0.979			0.994	
Satd. Flow (perm)	0	1839	1850	0	1664	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		101.2	232.2		42.1	
Travel Time (s)		7.3	16.7		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	77	102	151	10	7	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	179	161	0	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	71	94	139	9	6	49
Future Volume (Veh/h)	71	94	139	9	6	49
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)	77	102	151	10	7	53
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		101				
pX, platoon unblocked						
vC, conflicting volume	161				412	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	161				412	156
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				99	94
cM capacity (veh/h)	1430				568	895

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	179	161	60
Volume Left	77	0	7
Volume Right	0	10	53
cSH	1430	1700	839
Volume to Capacity	0.05	0.09	0.07
Queue Length 95th (m)	1.4	0.0	1.8
Control Delay (s)	3.5	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	3.5	0.0	9.6
Approach LOS			A

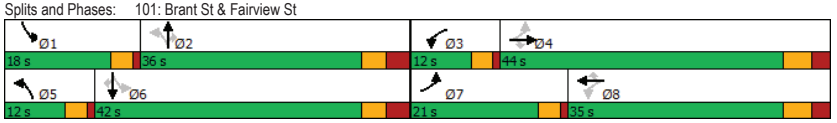
Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	784	250	154	741	243	242	626	159	239	647	166
Future Volume (vph)	318	784	250	154	741	243	242	626	159	239	647	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.129			0.227			0.247			0.139		
Satd. Flow (perm)	240	3539	1583	423	3539	1583	460	3539	1583	259	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			270			261			192			180
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	346	852	272	167	805	264	263	680	173	260	703	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	346	852	272	167	805	264	263	680	173	260	703	180
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.3	38.4	38.4	37.2	29.2	29.2	35.6	27.6	27.6	44.8	32.9	32.9
Actuated g/C Ratio	0.49	0.37	0.37	0.36	0.28	0.28	0.34	0.27	0.27	0.43	0.32	0.32
v/c Ratio	0.94	0.65	0.36	0.65	0.81	0.42	1.01	0.72	0.31	0.84	0.62	0.29
Control Delay	61.2	30.3	4.5	31.6	42.3	6.2	86.2	39.5	4.7	47.6	32.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	30.3	4.5	31.6	42.3	6.2	86.2	39.5	4.7	47.6	32.7	5.1
LOS	E	C	A	C	D	A	F	D	A	D	C	A
Approach Delay		32.8			33.1			45.1			31.7	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 103.4			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 35.4		Intersection LOS: D	
Intersection Capacity Utilization 82.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2028)
SAT Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	346	852	272	167	805	264	263	680	173	260	703	180
v/c Ratio	0.94	0.65	0.36	0.65	0.81	0.42	1.01	0.72	0.31	0.84	0.62	0.29
Control Delay	61.2	30.3	4.5	31.6	42.3	6.2	86.2	39.5	4.7	47.6	32.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	30.3	4.5	31.6	42.3	6.2	86.2	39.5	4.7	47.6	32.7	5.1
Queue Length 50th (m)	56.8	79.6	0.3	20.0	85.0	0.5	~38.7	70.8	0.0	36.7	67.7	0.0
Queue Length 95th (m)	#121.0	106.4	17.5	#38.3	113.3	19.9	#88.1	91.8	12.6	#81.6	87.4	14.8
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	369	1378	781	257	1068	660	260	1102	625	318	1309	699
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.62	0.35	0.65	0.75	0.40	1.01	0.62	0.28	0.82	0.54	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2028)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	784	250	154	741	243	242	626	159	239	647	166
Future Volume (vph)	318	784	250	154	741	243	242	626	159	239	647	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.13	1.00	1.00	0.23	1.00	1.00	0.25	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	241	3539	1583	424	3539	1583	461	3539	1583	259	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	346	852	272	167	805	264	263	680	173	260	703	180
RTOR Reduction (vph)	0	0	170	0	0	187	0	0	127	0	0	123
Lane Group Flow (vph)	346	852	102	167	805	77	263	680	46	260	703	57
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.0	36.0	36.0	34.9	26.9	26.9	33.2	25.1	25.1	42.5	30.4	30.4
Effective Green, g (s)	48.0	38.4	38.4	34.9	29.3	29.3	33.2	27.6	27.6	42.5	32.9	32.9
Actuated g/C Ratio	0.46	0.37	0.37	0.34	0.28	0.28	0.32	0.27	0.27	0.41	0.32	0.32
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	364	1314	587	247	1002	448	250	944	422	302	1126	503
v/s Ratio Prot	c0.16	0.24		0.05	0.23		c0.08	0.19		c0.11	0.20	
v/s Ratio Perm	c0.28		0.06	0.18		0.05	c0.25		0.03	0.24		0.04
v/c Ratio	0.95	0.65	0.17	0.68	0.80	0.17	1.05	0.72	0.11	0.86	0.62	0.11
Uniform Delay, d1	28.6	26.9	21.8	25.5	34.4	27.9	31.9	34.4	28.6	23.8	30.0	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.4	1.1	0.1	7.1	4.7	0.2	71.2	2.7	0.1	21.3	1.1	0.1
Delay (s)	62.9	28.0	22.0	32.7	39.1	28.1	103.2	37.1	28.7	45.1	31.1	25.0
Level of Service	E	C	C	C	D	C	F	D	C	D	C	C
Approach Delay (s)		35.1			35.9			51.4			33.3	
Approach LOS		D			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	103.4	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	82.7%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	8	15	79	12	116	13	923	50	103	949	38
Future Volume (vph)	58	8	15	79	12	116	13	923	50	103	949	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.904			0.864			0.992			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1684	0	1770	1609	0	1770	3511	0	1770	3518	0
Flt Permitted	0.637			0.741			0.200			0.206		
Satd. Flow (perm)	1187	1684	0	1380	1609	0	373	3511	0	384	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			126			10			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	9	16	86	13	126	14	1003	54	112	1032	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	25	0	86	139	0	14	1057	0	112	1073	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.5	13.5		13.5	13.5		38.9	38.9		50.8	38.9	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.57	0.57		0.74	0.57	
v/c Ratio	0.27	0.07		0.32	0.33		0.07	0.53		0.23	0.54	
Control Delay	29.7	17.0		29.9	9.6		9.0	10.9		3.8	11.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.7	17.0		29.9	9.6		9.0	10.9		3.8	11.0	
LOS	C	B		C	A		A	B		A	B	
Approach Delay		26.1			17.4			10.9			10.3	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 68.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 11.7		Intersection LOS: B	
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2028)
SAT Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	25	86	139	14	1057	112	1073
v/c Ratio	0.27	0.07	0.32	0.33	0.07	0.53	0.23	0.54
Control Delay	29.7	17.0	29.9	9.6	9.0	10.9	3.8	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	17.0	29.9	9.6	9.0	10.9	3.8	11.0
Queue Length 50th (m)	7.0	1.0	9.6	1.4	0.8	42.2	2.8	43.3
Queue Length 95th (m)	21.1	7.8	26.8	16.9	3.9	72.3	8.3	74.0
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	339	493	395	551	286	2701	535	2706
Starvation Cap Reductn	0	0	0	0	0	285	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.05	0.22	0.25	0.05	0.44	0.21	0.40

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2028)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	8	15	79	12	116	13	923	50	103	949	38
Future Volume (vph)	58	8	15	79	12	116	13	923	50	103	949	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1684		1770	1609		1770	3512		1770	3519	
Flt Permitted	0.64	1.00		0.74	1.00		0.20	1.00		0.21	1.00	
Satd. Flow (perm)	1187	1684		1380	1609		373	3512		383	3519	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	9	16	86	13	126	14	1003	54	112	1032	41
RTOR Reduction (vph)	0	13	0	0	101	0	0	4	0	0	3	0
Lane Group Flow (vph)	63	12	0	86	38	0	14	1053	0	112	1070	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	10.4	10.4		10.4	10.4		35.8	35.8		41.2	35.8	
Effective Green, g (s)	13.4	13.4		13.4	13.4		38.8	38.8		47.2	38.8	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.57	0.57		0.69	0.57	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	231	328		269	314		210	1986		433	1990	
v/s Ratio Prot		0.01			0.02			0.30		c0.03	c0.30	
v/s Ratio Perm	0.05			c0.06			0.04			0.15		
v/c Ratio	0.27	0.04		0.32	0.12		0.07	0.53		0.26	0.54	
Uniform Delay, d1	23.5	22.4		23.7	22.7		6.7	9.2		4.4	9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.0		0.7	0.2		0.1	0.3		0.3	0.3	
Delay (s)	24.1	22.4		24.4	22.9		6.9	9.5		4.7	9.6	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		23.6			23.5			9.5			9.1	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.44				
Actuated Cycle Length (s)	68.6	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	61.9%	ICU Level of Service		B	
Analysis Period (min)	15				

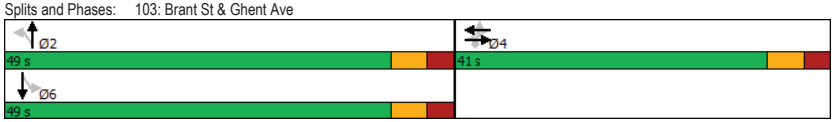
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	25	26	31	27	80	36	747	34	95	771	172
Future Volume (vph)	150	25	26	31	27	80	36	747	34	95	771	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.922			0.993			0.973	
Flt Protected		0.959			0.989		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1699	0	1770	3514	0	1770	3444	0
Flt Permitted		0.702			0.900		0.206			0.276		
Satd. Flow (perm)	0	1308	1583	0	1546	0	384	3514	0	514	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		87			7			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.4			104.0			75.4			150.5	
Travel Time (s)		6.9			7.5			5.4			10.8	
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
Adj. Flow (vph)	163	27	28	34	29	87	39	812	37	103	838	187
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	190	28	0	150	0	39	849	0	103	1025	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		17.6	17.6		17.6		26.3	26.3		26.3	26.3	
Actuated g/C Ratio		0.34	0.34		0.34		0.50	0.50		0.50	0.50	
v/c Ratio		0.43	0.05		0.26		0.20	0.48		0.40	0.59	
Control Delay		18.2	2.9		8.3		11.7	10.0		15.1	10.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		18.2	2.9		8.3		11.7	10.0		15.1	10.9	
LOS		B	A		A		B	B		B	B	
Approach Delay		16.2			8.3			10.1			11.3	
Approach LOS		B			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 52.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 11.1		Intersection LOS: B	
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Queues
103: Brant St & Ghent Ave

Total (2028)
SAT Peak Hour

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	190	28	150	39	849	103	1025
v/c Ratio	0.43	0.05	0.26	0.20	0.48	0.40	0.59
Control Delay	18.2	2.9	8.3	11.7	10.0	15.1	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	2.9	8.3	11.7	10.0	15.1	10.9
Queue Length 50th (m)	12.7	0.0	3.8	1.8	24.2	5.4	30.2
Queue Length 95th (m)	37.5	2.9	17.9	8.8	52.6	21.1	65.4
Internal Link Dist (m)	71.4		80.0		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	974	1191	1173	332	3042	445	2986
Starvation Cap Reductn	0	0	0	0	0	0	73
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.02	0.13	0.12	0.28	0.23	0.35

Intersection Summary

HCM Signalized Intersection Capacity Analysis
103: Brant St & Ghent Ave

Total (2028)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	25	26	31	27	80	36	747	34	95	771	172
Future Volume (vph)	150	25	26	31	27	80	36	747	34	95	771	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.92		1.00	0.99		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786	1583		1698		1770	3516		1770	3442	
Flt Permitted		0.70	1.00		0.90		0.21	1.00		0.28	1.00	
Satd. Flow (perm)		1307	1583		1545		383	3516		515	3442	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	27	28	34	29	87	39	812	37	103	838	187
RTOR Reduction (vph)	0	0	19	0	57	0	0	3	0	0	21	0
Lane Group Flow (vph)	0	190	9	0	93	0	39	846	0	103	1004	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		14.5	14.5		14.5		23.1	23.1		23.1	23.1	
Effective Green, g (s)		17.5	17.5		17.5		26.1	26.1		26.1	26.1	
Actuated g/C Ratio		0.34	0.34		0.34		0.51	0.51		0.51	0.51	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		443	536		523		193	1778		260	1741	
v/s Ratio Prot								0.24			c0.29	
v/s Ratio Perm		c0.15	0.01		0.06		0.10			0.20		
v/c Ratio		0.43	0.02		0.18		0.20	0.48		0.40	0.58	
Uniform Delay, d1		13.2	11.3		12.0		7.0	8.3		7.9	8.9	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.0		0.2		0.5	0.2		1.0	0.5	
Delay (s)		13.9	11.3		12.1		7.5	8.5		8.9	9.4	
Level of Service		B	B		B		A	A		A	A	
Approach Delay (s)		13.5			12.1			8.5			9.3	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	59.8%	ICU Level of Service	B	
Analysis Period (min)	15			

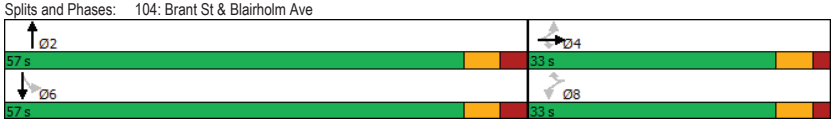
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	755	9	35	758	0
Future Volume (vph)	15	0	5	11	0	44	0	755	9	35	758	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.998				
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1770	1583	1770	0	1583	0	3532	0	1770	1863	0
Flt Permitted		0.950		0.747						0.334		
Satd. Flow (perm)	0	1770	1583	1391	0	1583	0	3532	0	622	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			48		2				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		77.7			305.8			317.1			241.2	
Travel Time (s)		5.6			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	821	10	38	824	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	5	12	0	48	0	831	0	38	824	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.6	8.6	10.8		10.8		39.8		39.8	39.8	
Actuated g/C Ratio		0.18	0.18	0.22		0.22		0.82		0.82	0.82	
v/c Ratio		0.05	0.02	0.04		0.12		0.29		0.07	0.54	
Control Delay		22.8	0.0	21.0		8.8		3.0		3.3	5.6	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		22.8	0.0	21.0		8.8		3.0		3.3	5.6	
LOS		C	A	C		A		A		A	A	
Approach Delay		17.4			11.2			3.0			5.5	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 48.8			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 4.6		Intersection LOS: A	
Intersection Capacity Utilization 61.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Queues
104: Brant St & Blairholm Ave

Total (2028)
SAT Peak Hour

Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	16	5	12	48	831	38	824
v/c Ratio	0.05	0.02	0.04	0.12	0.29	0.07	0.54
Control Delay	22.8	0.0	21.0	8.8	3.0	3.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	0.0	21.0	8.8	3.0	3.3	5.6
Queue Length 50th (m)	1.7	0.0	1.2	0.0	15.2	1.1	39.5
Queue Length 95th (m)	6.4	0.0	5.1	7.7	21.6	3.3	67.2
Internal Link Dist (m)	53.7				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1055	963	890	1030	3323	585	1753
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.01	0.05	0.25	0.06	0.47

Intersection Summary

HCM Signalized Intersection Capacity Analysis
104: Brant St & Blairholm Ave

Total (2028)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	755	9	35	758	0
Future Volume (vph)	15	0	5	11	0	44	0	755	9	35	758	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583	1770		1583		3533		1770	1863	
Flt Permitted		0.95	1.00	0.75		1.00		1.00		0.33	1.00	
Satd. Flow (perm)		1770	1583	1392		1583		3533		623	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	821	10	38	824	0
RTOR Reduction (vph)	0	0	5	0	0	42	0	1	0	0	0	0
Lane Group Flow (vph)	0	16	0	12	0	6	0	830	0	38	824	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		4.0	4.0	4.0		4.0		34.3		34.3	34.3	
Effective Green, g (s)		4.0	4.0	6.0		6.0		37.3		37.3	37.3	
Actuated g/C Ratio		0.08	0.08	0.12		0.12		0.73		0.73	0.73	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		138	123	162		185		2568		452	1354	
v/s Ratio Prot								0.24			c0.44	
v/s Ratio Perm		0.01	0.00	0.01		0.00				0.06		
v/c Ratio		0.12	0.00	0.07		0.03		0.32		0.08	0.61	
Uniform Delay, d1		22.0	21.8	20.2		20.1		2.5		2.0	3.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.4	0.0	0.2		0.1		0.1		0.1	0.8	
Delay (s)		22.4	21.8	20.4		20.1		2.6		2.1	4.2	
Level of Service		C	C	C		C		A		A	A	
Approach Delay (s)		22.2			20.2			2.6			4.1	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	51.3	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	61.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	115	131	103	85	0
Future Volume (vph)	0	115	131	103	85	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.934			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3334	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3334	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		147.1	95.4		67.9	
Travel Time (s)		10.6	6.9		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	125	142	112	92	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	125	254	0	92	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	115	131	103	85	0
Future Volume (Veh/h)	0	115	131	103	85	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	125	142	112	92	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)			95			
pX, platoon unblocked						
vC, conflicting volume	254				323	127
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	254				323	127
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				86	100
cM capacity (veh/h)	1323				651	906

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	125	95	159	92
Volume Left	0	0	0	92
Volume Right	0	0	112	0
cSH	1323	1700	1700	651
Volume to Capacity	0.00	0.06	0.09	0.14
Queue Length 95th (m)	0.0	0.0	0.0	3.9
Control Delay (s)	0.0	0.0	0.0	11.4
Lane LOS				B
Approach Delay (s)	0.0	0.0		11.4
Approach LOS				B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	82	84	9	7	60
Future Volume (vph)	70	82	84	9	7	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.987		0.880	
Flt Protected		0.977			0.995	
Satd. Flow (prot)	0	1836	1842	0	1664	0
Flt Permitted		0.977			0.995	
Satd. Flow (perm)	0	1836	1842	0	1664	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		104.0	229.4		40.7	
Travel Time (s)		7.5	16.5		2.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	76	89	91	10	8	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	165	101	0	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	82	84	9	7	60
Future Volume (Veh/h)	70	82	84	9	7	60
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	89	91	10	8	65
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		104				
pX, platoon unblocked						
vC, conflicting volume	101				337	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	101				337	96
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				99	93
cM capacity (veh/h)	1504				629	966

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	165	101	73
Volume Left	76	0	8
Volume Right	0	10	65
cSH	1504	1700	912
Volume to Capacity	0.05	0.06	0.08
Queue Length 95th (m)	1.3	0.0	2.1
Control Delay (s)	3.7	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix I3

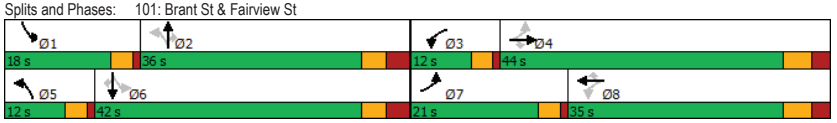
Total – Full Build-Out Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	341	1121	284	128	353	154	213	690	285	232	731	153
Future Volume (vph)	341	1121	284	128	353	154	213	690	285	232	731	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.373			0.138			0.193			0.129		
Satd. Flow (perm)	695	3539	1583	257	3539	1583	360	3539	1583	240	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			254			193			192			166
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	371	1218	309	139	384	167	232	750	310	252	795	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	371	1218	309	139	384	167	232	750	310	252	795	166
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	51.6	39.7	39.7	39.2	31.3	31.3	37.5	29.5	29.5	47.0	35.1	35.1
Actuated g/C Ratio	0.48	0.37	0.37	0.37	0.29	0.29	0.35	0.28	0.28	0.44	0.33	0.33
v/c Ratio	0.74	0.93	0.41	0.67	0.37	0.28	1.00	0.77	0.54	0.84	0.68	0.26
Control Delay	29.5	45.5	7.3	37.0	31.9	4.1	85.5	41.4	16.0	48.5	34.4	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	45.5	7.3	37.0	31.9	4.1	85.5	41.4	16.0	48.5	34.4	5.0
LOS	C	D	A	D	C	A	F	D	B	D	C	A
Approach Delay		36.2			26.2			43.2			33.3	
Approach LOS		D			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 106.7			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 35.9		Intersection LOS: D	
Intersection Capacity Utilization 83.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2029)
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	371	1218	309	139	384	167	232	750	310	252	795	166
v/c Ratio	0.74	0.93	0.41	0.67	0.37	0.28	1.00	0.77	0.54	0.84	0.68	0.26
Control Delay	29.5	45.5	7.3	37.0	31.9	4.1	85.5	41.4	16.0	48.5	34.4	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	45.5	7.3	37.0	31.9	4.1	85.5	41.4	16.0	48.5	34.4	5.0
Queue Length 50th (m)	54.2	139.1	8.1	17.5	36.7	0.0	32.1	80.1	20.4	36.4	79.1	0.0
Queue Length 95th (m)	#80.6	#185.4	29.1	#40.5	51.0	11.4	#77.8	102.7	48.3	#79.9	100.8	14.3
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	507	1330	753	208	1039	601	232	1064	610	307	1263	672
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.92	0.41	0.67	0.37	0.28	1.00	0.70	0.51	0.82	0.63	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2029)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	341	1121	284	128	353	154	213	690	285	232	731	153
Future Volume (vph)	341	1121	284	128	353	154	213	690	285	232	731	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.37	1.00	1.00	0.14	1.00	1.00	0.19	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	695	3539	1583	257	3539	1583	359	3539	1583	240	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	371	1218	309	139	384	167	232	750	310	252	795	166
RTOR Reduction (vph)	0	0	159	0	0	118	0	0	139	0	0	111
Lane Group Flow (vph)	371	1218	150	139	384	49	232	750	171	252	795	55
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	49.2	37.3	37.3	36.9	29.0	29.0	35.0	27.0	27.0	44.5	32.5	32.5
Effective Green, g (s)	49.2	39.7	39.7	36.9	31.4	31.4	35.0	29.5	29.5	44.5	35.0	35.0
Actuated g/C Ratio	0.46	0.37	0.37	0.35	0.29	0.29	0.33	0.28	0.28	0.42	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	484	1317	589	201	1042	466	223	979	438	293	1161	519
v/s Ratio Prot	c0.12	c0.34		0.05	0.11		c0.08	0.21		c0.11	0.22	
v/s Ratio Perm	0.24		0.09	0.19		0.03	c0.26		0.11	0.25		0.03
v/c Ratio	0.77	0.92	0.25	0.69	0.37	0.11	1.04	0.77	0.39	0.86	0.68	0.11
Uniform Delay, d1	20.2	32.0	23.2	27.8	29.8	27.4	31.8	35.4	31.3	25.3	31.0	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	11.1	0.2	9.8	0.2	0.1	71.2	3.6	0.6	21.8	1.7	0.1
Delay (s)	27.4	43.1	23.4	37.7	30.0	27.5	103.0	39.0	31.8	47.1	32.7	25.0
Level of Service	C	D	C	D	C	C	F	D	C	D	C	C
Approach Delay (s)		36.8			30.9			48.8			34.6	
Approach LOS		D			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	106.6	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	83.4%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	10	16	64	9	83	26	934	61	91	968	88
Future Volume (vph)	34	10	16	64	9	83	26	934	61	91	968	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.909			0.865			0.991			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1693	0	1770	1611	0	1770	3507	0	1770	3493	0
Flt Permitted	0.692			0.739			0.192			0.212		
Satd. Flow (perm)	1289	1693	0	1377	1611	0	358	3507	0	395	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			90			12			17	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	11	17	70	10	90	28	1015	66	99	1052	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	28	0	70	100	0	28	1081	0	99	1148	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.6	13.6		13.6	13.6		43.3	43.3		53.3	43.3	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.66	0.66		0.81	0.66	
v/c Ratio	0.14	0.08		0.25	0.25		0.12	0.47		0.19	0.50	
Control Delay	28.6	17.8		30.0	10.4		9.2	9.4		3.1	9.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1		0.0	0.0	
Total Delay	28.6	17.8		30.0	10.4		9.2	9.5		3.1	9.7	
LOS	C	B		C	B		A	A		A	A	
Approach Delay		24.0			18.5			9.5			9.2	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 66			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 56.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2029)
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	28	70	100	28	1081	99	1148
v/c Ratio	0.14	0.08	0.25	0.25	0.12	0.47	0.19	0.50
Control Delay	28.6	17.8	30.0	10.4	9.2	9.4	3.1	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	28.6	17.8	30.0	10.4	9.2	9.5	3.1	9.7
Queue Length 50th (m)	4.3	1.2	8.2	1.1	1.6	42.2	2.4	45.9
Queue Length 95th (m)	13.9	8.7	22.6	14.3	6.4	70.0	6.8	75.7
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	405	544	433	569	275	2698	592	2689
Starvation Cap Reductn	0	0	0	0	0	355	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.05	0.16	0.18	0.10	0.46	0.17	0.43

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2029)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	10	16	64	9	83	26	934	61	91	968	88
Future Volume (vph)	34	10	16	64	9	83	26	934	61	91	968	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1693		1770	1611		1770	3507		1770	3495	
Flt Permitted	0.69	1.00		0.74	1.00		0.19	1.00		0.21	1.00	
Satd. Flow (perm)	1290	1693		1377	1611		357	3507		395	3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	11	17	70	10	90	28	1015	66	99	1052	96
RTOR Reduction (vph)	0	14	0	0	76	0	0	5	0	0	7	0
Lane Group Flow (vph)	37	14	0	70	24	0	28	1076	0	99	1141	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.5	7.5		7.5	7.5		38.5	38.5		43.4	38.5	
Effective Green, g (s)	10.5	10.5		10.5	10.5		41.5	41.5		49.4	41.5	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.61	0.61		0.73	0.61	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	199	261		212	249		218	2143		447	2136	
v/s Ratio Prot		0.01			0.01			0.31		c0.03	c0.33	
v/s Ratio Perm	0.03			c0.05			0.08			0.14		
v/c Ratio	0.19	0.05		0.33	0.10		0.13	0.50		0.22	0.53	
Uniform Delay, d1	25.0	24.5		25.6	24.6		5.6	7.4		3.3	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.1		0.9	0.2		0.3	0.2		0.3	0.3	
Delay (s)	25.4	24.5		26.5	24.8		5.8	7.6		3.5	7.9	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		25.1			25.5			7.5			7.5	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.45				
Actuated Cycle Length (s)	67.9	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	56.4%	ICU Level of Service		B	
Analysis Period (min)	15				

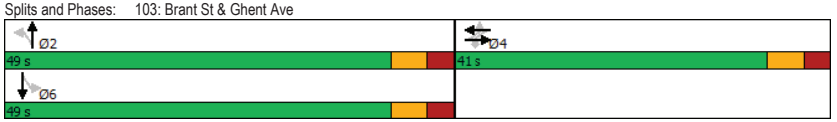
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	37	41	45	14	107	18	700	38	61	847	146
Future Volume (vph)	211	37	41	45	14	107	18	700	38	61	847	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.913			0.992			0.978	
Flt Protected		0.959			0.987		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1679	0	1770	3511	0	1770	3461	0
Flt Permitted		0.656			0.860		0.171			0.283		
Satd. Flow (perm)	0	1222	1583	0	1463	0	319	3511	0	527	3461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		116			9			31	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.7			57.4			75.4			150.5	
Travel Time (s)		7.0			4.1			5.4			10.8	
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
Adj. Flow (vph)	229	40	45	49	15	116	20	761	41	66	921	159
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	269	45	0	180	0	20	802	0	66	1080	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		23.3	23.3		23.3		29.5	29.5		29.5	29.5	
Actuated g/C Ratio		0.38	0.38		0.38		0.48	0.48		0.48	0.48	
v/c Ratio		0.58	0.07		0.29		0.13	0.47		0.26	0.64	
Control Delay		22.4	5.0		7.6		13.6	12.4		14.5	14.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		22.4	5.0		7.6		13.6	12.4		14.5	14.4	
LOS		C	A		A		B	B		B	B	
Approach Delay		19.9			7.6			12.4			14.4	
Approach LOS		B			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 61.5			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Queues
103: Brant St & Ghent Ave

Total (2029)
AM Peak Hour

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	269	45	180	20	802	66	1080
v/c Ratio	0.58	0.07	0.29	0.13	0.47	0.26	0.64
Control Delay	22.4	5.0	7.6	13.6	12.4	14.5	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	5.0	7.6	13.6	12.4	14.5	14.4
Queue Length 50th (m)	23.7	0.0	4.6	1.2	29.4	4.1	43.5
Queue Length 95th (m)	59.9	5.9	20.0	6.4	62.1	15.9	90.3
Internal Link Dist (m)	72.7		33.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	792	1044	990	243	2677	401	2644
Starvation Cap Reductn	0	0	0	0	0	0	100
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.04	0.18	0.08	0.30	0.16	0.42

Intersection Summary

HCM Signalized Intersection Capacity Analysis
103: Brant St & Ghent Ave

Total (2029)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	37	41	45	14	107	18	700	38	61	847	146
Future Volume (vph)	211	37	41	45	14	107	18	700	38	61	847	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.91		1.00	0.99		1.00	0.98	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1678		1770	3512		1770	3461	
Flt Permitted		0.66	1.00		0.86		0.17	1.00		0.28	1.00	
Satd. Flow (perm)		1221	1583		1462		319	3512		527	3461	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	40	45	49	15	116	20	761	41	66	921	159
RTOR Reduction (vph)	0	0	28	0	72	0	0	5	0	0	16	0
Lane Group Flow (vph)	0	269	17	0	108	0	20	797	0	66	1064	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		20.1	20.1		20.1		26.3	26.3		26.3	26.3	
Effective Green, g (s)		23.1	23.1		23.1		29.3	29.3		29.3	29.3	
Actuated g/C Ratio		0.38	0.38		0.38		0.49	0.49		0.49	0.49	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		466	605		559		154	1703		255	1678	
v/s Ratio Prot								0.23			c0.31	
v/s Ratio Perm		c0.22	0.01		0.07		0.06			0.13		
v/c Ratio		0.58	0.03		0.19		0.13	0.47		0.26	0.63	
Uniform Delay, d1		14.8	11.6		12.4		8.5	10.4		9.2	11.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7	0.0		0.2		0.4	0.2		0.5	0.8	
Delay (s)		16.5	11.7		12.6		8.9	10.6		9.7	12.4	
Level of Service		B	B		B		A	B		A	B	
Approach Delay (s)		15.8			12.6			10.5			12.2	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	71.5%	ICU Level of Service	C	
Analysis Period (min)	15			

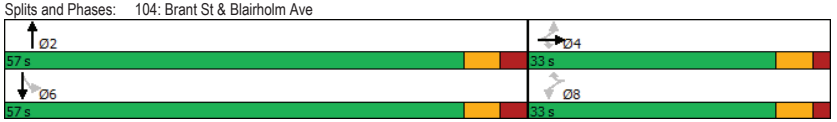
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	8	39	0	112	0	619	16	45	794	0
Future Volume (vph)	16	4	8	39	0	112	0	619	16	45	794	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.996				
Flt Protected		0.961		0.950						0.950		
Satd. Flow (prot)	0	1790	1583	1770	0	1583	0	3525	0	1770	1863	0
Flt Permitted		0.961		0.744						0.388		
Satd. Flow (perm)	0	1790	1583	1386	0	1583	0	3525	0	723	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			122		5				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		70.9			305.8			317.1			241.2	
Travel Time (s)		5.1			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	9	42	0	122	0	673	17	49	863	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	9	42	0	122	0	690	0	49	863	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.9	8.9	11.1		11.1		37.4		37.4	37.4	
Actuated g/C Ratio		0.17	0.17	0.22		0.22		0.73		0.73	0.73	
v/c Ratio		0.07	0.03	0.14		0.28		0.27		0.09	0.64	
Control Delay		22.8	0.1	21.9		7.4		3.8		3.9	8.1	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		22.8	0.1	21.9		7.4		3.8		3.9	8.1	
LOS		C	A	C		A		A		A	A	
Approach Delay		16.0			11.1			3.8			7.9	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 51.3			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 63.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Queues
104: Brant St & Blairholm Ave

Total (2029)
AM Peak Hour

Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	21	9	42	122	690	49	863
v/c Ratio	0.07	0.03	0.14	0.28	0.27	0.09	0.64
Control Delay	22.8	0.1	21.9	7.4	3.8	3.9	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	0.1	21.9	7.4	3.8	3.9	8.1
Queue Length 50th (m)	1.6	0.0	3.1	0.0	12.0	1.4	43.1
Queue Length 95th (m)	8.3	0.0	13.1	12.8	20.2	4.5	83.8
Internal Link Dist (m)	46.9				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	998	904	830	997	3338	685	1764
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.05	0.12	0.21	0.07	0.49

Intersection Summary

HCM Signalized Intersection Capacity Analysis
104: Brant St & Blairholm Ave

Total (2029)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	8	39	0	112	0	619	16	45	794	0
Future Volume (vph)	16	4	8	39	0	112	0	619	16	45	794	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1790	1583	1770		1583		3526		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.39	1.00	
Satd. Flow (perm)		1790	1583	1385		1583		3526		722	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	9	42	0	122	0	673	17	49	863	0
RTOR Reduction (vph)	0	0	8	0	0	102	0	2	0	0	0	0
Lane Group Flow (vph)	0	21	1	42	0	20	0	688	0	49	863	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.4	6.4	6.4		6.4		33.0		33.0	33.0	
Effective Green, g (s)		6.4	6.4	8.4		8.4		36.0		36.0	36.0	
Actuated g/C Ratio		0.12	0.12	0.16		0.16		0.69		0.69	0.69	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		218	193	222		253		2422		496	1279	
v/s Ratio Prot								0.20			c0.46	
v/s Ratio Perm		0.01	0.00	c0.03		0.01				0.07		
v/c Ratio		0.10	0.01	0.19		0.08		0.28		0.10	0.67	
Uniform Delay, d1		20.4	20.2	19.1		18.7		3.2		2.8	4.8	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.4		0.1		0.1		0.1	1.4	
Delay (s)		20.6	20.2	19.5		18.8		3.3		2.8	6.2	
Level of Service		C	C	B		B		A		A	A	
Approach Delay (s)		20.5			19.0			3.3			6.0	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	63.5%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	187	142	36	101	0
Future Volume (vph)	0	187	142	36	101	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.970			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3447	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3447	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		145.8	96.7		53.1	
Travel Time (s)		10.5	7.0		3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	203	154	39	110	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	203	193	0	110	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	22.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	187	142	36	101	0
Future Volume (Veh/h)	0	187	142	36	101	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	203	154	39	110	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)			97			
pX, platoon unblocked						
vC, conflicting volume	193				376	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	193				376	96
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				82	100
cM capacity (veh/h)	1392				603	947

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	203	103	90	110
Volume Left	0	0	0	110
Volume Right	0	0	39	0
cSH	1392	1700	1700	603
Volume to Capacity	0.00	0.06	0.05	0.18
Queue Length 95th (m)	0.0	0.0	0.0	5.3
Control Delay (s)	0.0	0.0	0.0	12.3
Lane LOS				B
Approach Delay (s)	0.0	0.0		12.3
Approach LOS				B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	22.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	106	67	3	9	71
Future Volume (vph)	24	106	67	3	9	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995		0.881	
Flt Protected		0.991			0.994	
Satd. Flow (prot)	0	1853	1855	0	1664	0
Flt Permitted		0.991			0.994	
Satd. Flow (perm)	0	1853	1855	0	1664	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		46.0	230.0		30.1	
Travel Time (s)		3.3	16.6		2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	26	115	73	3	10	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	141	76	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	106	67	3	9	71
Future Volume (Veh/h)	24	106	67	3	9	71
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)	26	115	73	3	10	77
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		103				
pX, platoon unblocked						
vC, conflicting volume	76				242	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	76				242	74
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	92
cM capacity (veh/h)	1536				738	993

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	141	76	87
Volume Left	26	0	10
Volume Right	0	3	77
cSH	1536	1700	955
Volume to Capacity	0.02	0.04	0.09
Queue Length 95th (m)	0.4	0.0	2.4
Control Delay (s)	1.5	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	1.5	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	126	10	1	137	29	4
Future Volume (vph)	126	10	1	137	29	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.985	
Flt Protected					0.957	
Satd. Flow (prot)	1847	0	0	1863	1791	0
Flt Permitted					0.957	
Satd. Flow (perm)	1847	0	0	1863	1791	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	57.4			46.0	35.6	
Travel Time (s)	4.1			3.3	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	137	11	1	149	32	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	148	0	0	150	36	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	126	10	1	137	29	4
Future Volume (Veh/h)	126	10	1	137	29	4
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)	137	11	1	149	32	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	57					
pX, platoon unblocked						
vC, conflicting volume			148		294	142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			148		294	142
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		95	100
cM capacity (veh/h)			1446		701	910

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	148	150	36
Volume Left	0	1	32
Volume Right	11	0	4
cSH	1700	1446	720
Volume to Capacity	0.09	0.00	0.05
Queue Length 95th (m)	0.0	0.0	1.3
Control Delay (s)	0.0	0.1	10.3
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.3
Approach LOS			B

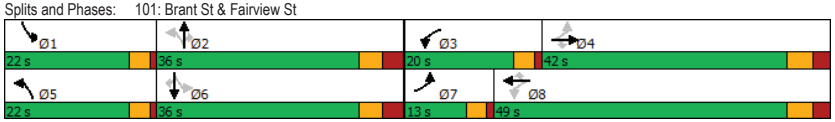
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	826	316	230	1532	443	195	843	202	236	727	437
Future Volume (vph)	214	826	316	230	1532	443	195	843	202	236	727	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.109			0.098			0.136			0.128		
Satd. Flow (perm)	203	3539	1583	183	3539	1583	253	3539	1583	238	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			343			291			140			220
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	233	898	343	250	1665	482	212	916	220	257	790	475
Shared Lane Traffic (%)												
Lane Group Flow (vph)	233	898	343	250	1665	482	212	916	220	257	790	475
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	13.0	42.0	42.0	20.0	49.0	49.0	22.0	36.0	36.0	22.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	16.7%	40.8%	40.8%	18.3%	30.0%	30.0%	18.3%	30.0%	30.0%
Maximum Green (s)	9.0	35.6	35.6	16.0	42.6	42.6	18.0	29.5	29.5	18.0	29.5	29.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	48.1	39.1	39.1	57.7	45.0	45.0	46.5	32.0	32.0	49.8	33.7	33.7
Actuated g/C Ratio	0.41	0.33	0.33	0.49	0.38	0.38	0.39	0.27	0.27	0.42	0.29	0.29
v/c Ratio	1.15	0.77	0.46	0.87	1.24	0.62	0.74	0.96	0.42	0.83	0.78	0.78
Control Delay	139.8	41.3	5.3	56.3	145.9	15.1	41.2	63.2	16.1	50.6	45.9	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.8	41.3	5.3	56.3	145.9	15.1	41.2	63.2	16.1	50.6	45.9	31.1
LOS	F	D	A	E	F	B	D	E	B	D	D	C
Approach Delay		48.5			110.3			52.1			42.1	
Approach LOS		D			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.2			
Natural Cycle: 135			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 69.7		Intersection LOS: E	
Intersection Capacity Utilization 103.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2029)
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	233	898	343	250	1665	482	212	916	220	257	790	475
v/c Ratio	1.15	0.77	0.46	0.87	1.24	0.62	0.74	0.96	0.42	0.83	0.78	0.78
Control Delay	139.8	41.3	5.3	56.3	145.9	15.1	41.2	63.2	16.1	50.6	45.9	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.8	41.3	5.3	56.3	145.9	15.1	41.2	63.2	16.1	50.6	45.9	31.1
Queue Length 50th (m)	~52.5	107.0	0.0	43.5	~271.8	36.6	32.6	118.5	15.4	42.5	93.8	59.7
Queue Length 95th (m)	#105.5	132.9	21.2	#88.1	#316.6	74.0	58.1	#162.3	38.5	#84.7	122.6	#118.2
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	202	1171	753	304	1347	783	337	958	530	335	1007	607
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.77	0.46	0.82	1.24	0.62	0.63	0.96	0.42	0.77	0.78	0.78

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2029)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	826	316	230	1532	443	195	843	202	236	727	437
Future Volume (vph)	214	826	316	230	1532	443	195	843	202	236	727	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.11	1.00	1.00	0.10	1.00	1.00	0.14	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	203	3539	1583	183	3539	1583	253	3539	1583	239	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	898	343	250	1665	482	212	916	220	257	790	475
RTOR Reduction (vph)	0	0	230	0	0	180	0	0	102	0	0	157
Lane Group Flow (vph)	233	898	113	250	1665	302	212	916	118	257	790	318
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	45.7	36.7	36.7	55.6	42.6	42.6	44.0	29.5	29.5	47.4	31.2	31.2
Effective Green, g (s)	45.7	39.1	39.1	55.6	45.0	45.0	44.0	32.0	32.0	47.4	33.7	33.7
Actuated g/C Ratio	0.39	0.33	0.33	0.47	0.38	0.38	0.37	0.27	0.27	0.40	0.29	0.29
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	197	1170	523	286	1347	602	280	958	428	305	1009	451
v/s Ratio Prot	c0.09	0.25		0.11	c0.47		0.09	c0.26		c0.12	0.22	
v/s Ratio Perm	0.37		0.07	0.30		0.19	0.19		0.07	0.22		0.20
v/c Ratio	1.18	0.77	0.22	0.87	1.24	0.50	0.76	0.96	0.28	0.84	0.78	0.70
Uniform Delay, d1	30.3	35.5	28.5	31.5	36.6	28.0	28.7	42.4	34.0	30.0	38.9	37.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	122.1	3.1	0.2	24.2	112.8	0.7	11.1	19.1	0.4	18.6	4.0	5.0
Delay (s)	152.4	38.6	28.7	55.8	149.4	28.7	39.8	61.5	34.3	48.6	42.9	42.7
Level of Service	F	D	C	E	F	C	D	E	C	D	D	D
Approach Delay (s)		54.3			115.4			53.7			43.8	
Approach LOS		D			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	73.5	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.08			
Actuated Cycle Length (s)	118.2	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	103.9%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	20	42	127	12	181	15	1163	74	117	1138	61
Future Volume (vph)	123	20	42	127	12	181	15	1163	74	117	1138	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899			0.859			0.991			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1675	0	1770	1600	0	1770	3507	0	1770	3511	0
Flt Permitted	0.474			0.713			0.133			0.123		
Satd. Flow (perm)	883	1675	0	1328	1600	0	248	3507	0	229	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			197			12			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	22	46	138	13	197	16	1264	80	127	1237	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	68	0	138	210	0	16	1344	0	127	1303	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	18.0	18.0		18.0	18.0		46.7	46.7		58.8	46.7	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.58	0.58		0.73	0.58	
v/c Ratio	0.68	0.17		0.47	0.41		0.11	0.66		0.35	0.64	
Control Delay	52.0	14.7		36.3	8.5		11.2	14.2		5.9	13.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.5		0.0	0.0	
Total Delay	52.0	14.7		36.3	8.5		11.2	14.7		5.9	13.9	
LOS	D	B		D	A		B	B		A	B	
Approach Delay		39.4			19.5			14.7			13.1	
Approach LOS		D			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.9			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 16.0		Intersection LOS: B	
Intersection Capacity Utilization 73.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2029)
PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	134	68	138	210	16	1344	127	1303
v/c Ratio	0.68	0.17	0.47	0.41	0.11	0.66	0.35	0.64
Control Delay	52.0	14.7	36.3	8.5	11.2	14.2	5.9	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	52.0	14.7	36.3	8.5	11.2	14.7	5.9	13.9
Queue Length 50th (m)	22.2	3.1	21.7	1.9	1.2	78.7	5.2	74.9
Queue Length 95th (m)	#51.9	14.2	41.0	20.1	4.8	106.7	9.5	101.6
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	214	441	322	538	161	2292	402	2294
Starvation Cap Reductn	0	0	0	0	0	470	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.15	0.43	0.39	0.10	0.74	0.32	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2029)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	20	42	127	12	181	15	1163	74	117	1138	61
Future Volume (vph)	123	20	42	127	12	181	15	1163	74	117	1138	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1674		1770	1601		1770	3508		1770	3512	
Flt Permitted	0.47	1.00		0.71	1.00		0.13	1.00		0.12	1.00	
Satd. Flow (perm)	883	1674		1328	1601		248	3508		229	3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	22	46	138	13	197	16	1264	80	127	1237	66
RTOR Reduction (vph)	0	36	0	0	154	0	0	5	0	0	4	0
Lane Group Flow (vph)	134	32	0	138	56	0	16	1339	0	127	1299	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	14.9	14.9		14.9	14.9		43.6	43.6		49.3	43.6	
Effective Green, g (s)	17.9	17.9		17.9	17.9		46.6	46.6		55.3	46.6	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.57	0.57		0.68	0.57	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	194	369		292	352		142	2013		321	2015	
v/s Ratio Prot		0.02			0.04			c0.38		c0.04	0.37	
v/s Ratio Perm	c0.15			0.10			0.06			0.23		
v/c Ratio	0.69	0.09		0.47	0.16		0.11	0.67		0.40	0.64	
Uniform Delay, d1	29.1	25.2		27.5	25.6		7.9	11.9		7.6	11.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.1	0.1		1.2	0.2		0.4	0.8		0.8	0.7	
Delay (s)	39.2	25.3		28.8	25.8		8.2	12.8		8.4	12.4	
Level of Service	D	C		C	C		A	B		A	B	
Approach Delay (s)		34.5			27.0			12.7			12.1	
Approach LOS		C			C			B			B	

Intersection Summary				
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	81.2	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	73.0%	ICU Level of Service	C	
Analysis Period (min)	15			

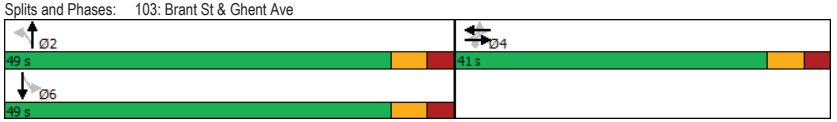
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	35	31	42	70	95	33	956	45	116	898	268
Future Volume (vph)	204	35	31	42	70	95	33	956	45	116	898	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.938			0.993			0.966	
Flt Protected		0.959			0.990		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1730	0	1770	3514	0	1770	3419	0
Flt Permitted		0.578			0.892		0.129			0.182		
Satd. Flow (perm)	0	1077	1583	0	1559	0	240	3514	0	339	3419	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		57			7			62	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		100.9			61.0			75.4			150.5	
Travel Time (s)		7.3			4.4			5.4			10.8	
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
Adj. Flow (vph)	222	38	34	46	76	103	36	1039	49	126	976	291
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	260	34	0	225	0	36	1088	0	126	1267	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		26.1	26.1		26.1		38.9	38.9		38.9	38.9	
Actuated g/C Ratio		0.36	0.36		0.36		0.53	0.53		0.53	0.53	
v/c Ratio		0.68	0.06		0.38		0.28	0.58		0.70	0.69	
Control Delay		31.6	3.6		15.8		19.2	14.1		41.0	15.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.2	
Total Delay		31.6	3.6		15.8		19.2	14.1		41.0	15.6	
LOS		C	A		B		B	B		D	B	
Approach Delay		28.3			15.8			14.2			17.9	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 73.5			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 78.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Queues
103: Brant St & Ghent Ave

Total (2029)
PM Peak Hour

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	260	34	225	36	1088	126	1267
v/c Ratio	0.68	0.06	0.38	0.28	0.58	0.70	0.69
Control Delay	31.6	3.6	15.8	19.2	14.1	41.0	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	31.6	3.6	15.8	19.2	14.1	41.0	15.6
Queue Length 50th (m)	35.8	0.0	19.7	2.8	53.2	13.0	64.5
Queue Length 95th (m)	62.6	4.1	37.3	12.0	92.2	#51.3	112.4
Internal Link Dist (m)	76.9		37.0		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	577	871	862	156	2293	221	2250
Starvation Cap Reductn	0	0	0	0	0	0	332
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.04	0.26	0.23	0.47	0.57	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
103: Brant St & Ghent Ave

Total (2029)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	35	31	42	70	95	33	956	45	116	898	268
Future Volume (vph)	204	35	31	42	70	95	33	956	45	116	898	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786	1583		1730		1770	3515		1770	3417	
Flt Permitted		0.58	1.00		0.89		0.13	1.00		0.18	1.00	
Satd. Flow (perm)		1077	1583		1558		240	3515		340	3417	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	222	38	34	46	76	103	36	1039	49	126	976	291
RTOR Reduction (vph)	0	0	22	0	37	0	0	3	0	0	29	0
Lane Group Flow (vph)	0	260	12	0	188	0	36	1085	0	126	1238	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		22.9	22.9		22.9		35.7	35.7		35.7	35.7	
Effective Green, g (s)		25.9	25.9		25.9		38.7	38.7		38.7	38.7	
Actuated g/C Ratio		0.36	0.36		0.36		0.53	0.53		0.53	0.53	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		384	564		555		127	1873		181	1821	
v/s Ratio Prot								0.31			0.36	
v/s Ratio Perm		c0.24	0.01		0.12		0.15			c0.37		
v/c Ratio		0.68	0.02		0.34		0.28	0.58		0.70	0.68	
Uniform Delay, d1		19.8	15.1		17.1		9.3	11.4		12.6	12.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.7	0.0		0.4		1.2	0.4		11.0	1.0	
Delay (s)		24.5	15.2		17.5		10.6	11.9		23.6	13.4	
Level of Service		C	B		B		B	B		C	B	
Approach Delay (s)		23.4			17.5			11.8			14.4	
Approach LOS		C			B			B			B	

Intersection Summary					
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.69				
Actuated Cycle Length (s)	72.6	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	78.3%	ICU Level of Service		D	
Analysis Period (min)	15				

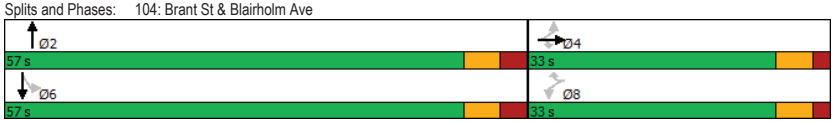
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	22	19	0	77	0	899	18	59	768	0
Future Volume (vph)	17	5	22	19	0	77	0	899	18	59	768	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.997				
Flt Protected		0.962		0.950						0.950		
Satd. Flow (prot)	0	1792	1583	1770	0	1583	0	3529	0	1770	1863	0
Flt Permitted		0.962		0.742						0.266		
Satd. Flow (perm)	0	1792	1583	1382	0	1583	0	3529	0	495	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			84		4				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		67.2			305.8			317.1			241.2	
Travel Time (s)		4.8			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	24	21	0	84	0	977	20	64	835	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	24	21	0	84	0	997	0	64	835	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.6	8.6	10.7		10.7		37.3		37.3	37.3	
Actuated g/C Ratio		0.17	0.17	0.21		0.21		0.73		0.73	0.73	
v/c Ratio		0.08	0.08	0.07		0.21		0.38		0.18	0.61	
Control Delay		21.9	4.3	20.3		7.6		4.3		4.9	7.5	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		21.9	4.3	20.3		7.6		4.3		4.9	7.5	
LOS		C	A	C		A		A		A	A	
Approach Delay		12.9			10.2			4.3			7.3	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 50.8			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 6.1		Intersection LOS: A	
Intersection Capacity Utilization 62.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	23	24	21	84	997	64	835
v/c Ratio	0.08	0.08	0.07	0.21	0.38	0.18	0.61
Control Delay	21.9	4.3	20.3	7.6	4.3	4.9	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	4.3	20.3	7.6	4.3	4.9	7.5
Queue Length 50th (m)	1.8	0.0	1.6	0.0	19.4	2.0	40.6
Queue Length 95th (m)	8.4	3.2	7.6	10.3	29.2	6.0	73.2
Internal Link Dist (m)	43.2				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1003	907	831	985	3355	471	1771
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.03	0.03	0.09	0.30	0.14	0.47

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	22	19	0	77	0	899	18	59	768	0
Future Volume (vph)	17	5	22	19	0	77	0	899	18	59	768	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1793	1583	1770		1583		3529		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.27	1.00	
Satd. Flow (perm)		1793	1583	1383		1583		3529		496	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	24	21	0	84	0	977	20	64	835	0
RTOR Reduction (vph)	0	0	21	0	0	71	0	1	0	0	0	0
Lane Group Flow (vph)	0	23	3	21	0	13	0	996	0	64	835	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.1	6.1	6.1		6.1		32.9		32.9	32.9	
Effective Green, g (s)		6.1	6.1	8.1		8.1		35.9		35.9	35.9	
Actuated g/C Ratio		0.12	0.12	0.16		0.16		0.69		0.69	0.69	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		210	185	215		246		2436		342	1286	
v/s Ratio Prot								0.28			c0.45	
v/s Ratio Perm		0.01	0.00	c0.02		0.01				0.13		
v/c Ratio		0.11	0.02	0.10		0.05		0.41		0.19	0.65	
Uniform Delay, d1		20.5	20.3	18.8		18.7		3.5		2.9	4.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.2		0.1		0.1		0.3	1.1	
Delay (s)		20.8	20.3	19.0		18.8		3.6		3.1	5.7	
Level of Service		C	C	B		B		A		A	A	
Approach Delay (s)		20.5			18.8			3.6			5.5	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	52.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	62.1%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	194	263	106	75	0
Future Volume (vph)	0	194	263	106	75	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.957			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3406	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3406	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		141.6	100.9		55.2	
Travel Time (s)		10.2	7.3		4.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	211	286	115	82	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	211	401	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	194	263	106	75	0
Future Volume (Veh/h)	0	194	263	106	75	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	211	286	115	82	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			101			
pX, platoon unblocked						
vC, conflicting volume	401				554	200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	401				554	200
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				82	100
cM capacity (veh/h)	1169				467	813

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	211	191	210	82
Volume Left	0	0	0	82
Volume Right	0	0	115	0
cSH	1169	1700	1700	467
Volume to Capacity	0.00	0.11	0.12	0.18
Queue Length 95th (m)	0.0	0.0	0.0	5.0
Control Delay (s)	0.0	0.0	0.0	14.3
Lane LOS				B
Approach Delay (s)	0.0	0.0		14.3
Approach LOS				B

Intersection Summary				
Average Delay		1.7		
Intersection Capacity Utilization		21.5%	ICU Level of Service	A
Analysis Period (min)		15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	71	98	144	9	6	49
Future Volume (vph)	71	98	144	9	6	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992		0.881	
Flt Protected		0.980			0.994	
Satd. Flow (prot)	0	1841	1850	0	1664	0
Flt Permitted		0.980			0.994	
Satd. Flow (perm)	0	1841	1850	0	1664	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		40.2	232.2		42.1	
Travel Time (s)		2.9	16.7		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	77	107	157	10	7	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	184	167	0	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	71	98	144	9	6	49
Future Volume (Veh/h)	71	98	144	9	6	49
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)	77	107	157	10	7	53
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		101				
pX, platoon unblocked						
vC, conflicting volume	167				423	162
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	167				423	162
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				99	94
cM capacity (veh/h)	1423				559	888

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	184	167	60
Volume Left	77	0	7
Volume Right	0	10	53
cSH	1423	1700	831
Volume to Capacity	0.05	0.10	0.07
Queue Length 95th (m)	1.4	0.0	1.9
Control Delay (s)	3.5	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	3.5	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	166	30	4	189	19	3
Future Volume (vph)	166	30	4	189	19	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.983	
Flt Protected				0.999	0.958	
Satd. Flow (prot)	1829	0	0	1862	1789	0
Flt Permitted				0.999	0.958	
Satd. Flow (perm)	1829	0	0	1862	1789	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	61.0			40.2	39.0	
Travel Time (s)	4.4			2.9	2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	180	33	4	205	21	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	0	0	209	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	166	30	4	189	19	3
Future Volume (Veh/h)	166	30	4	189	19	3
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)	180	33	4	205	21	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)	61					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			213		410	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			180		382	163
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		97	100
cM capacity (veh/h)			1372		607	865

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	213	209	24
Volume Left	0	4	21
Volume Right	33	0	3
cSH	1700	1372	631
Volume to Capacity	0.13	0.00	0.04
Queue Length 95th (m)	0.0	0.1	0.9
Control Delay (s)	0.0	0.2	10.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	10.9
Approach LOS			B

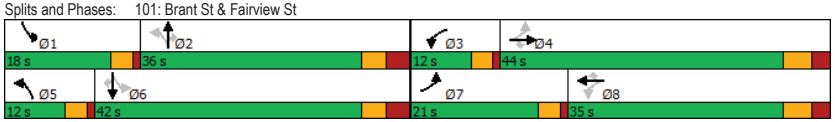
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	808	270	158	767	246	257	643	164	241	664	168
Future Volume (vph)	322	808	270	158	767	246	257	643	164	241	664	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.128			0.211			0.237			0.136		
Satd. Flow (perm)	238	3539	1583	393	3539	1583	441	3539	1583	253	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			263			258			192			183
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	350	878	293	172	834	267	279	699	178	262	722	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	350	878	293	172	834	267	279	699	178	262	722	183
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.8	38.7	38.7	37.7	29.7	29.7	36.0	28.0	28.0	45.5	33.5	33.5
Actuated g/C Ratio	0.49	0.37	0.37	0.36	0.28	0.28	0.34	0.27	0.27	0.44	0.32	0.32
v/c Ratio	0.96	0.67	0.39	0.69	0.83	0.42	1.10	0.74	0.32	0.86	0.64	0.29
Control Delay	65.6	31.0	6.0	34.7	43.8	6.6	111.5	40.2	5.1	49.7	33.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	31.0	6.0	34.7	43.8	6.6	111.5	40.2	5.1	49.7	33.1	5.0
LOS	E	C	A	C	D	A	F	D	A	D	C	A
Approach Delay		34.2			34.7			52.0			32.4	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 104.4			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 37.9		Intersection LOS: D	
Intersection Capacity Utilization 85.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2029)
SAT Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	350	878	293	172	834	267	279	699	178	262	722	183
v/c Ratio	0.96	0.67	0.39	0.69	0.83	0.42	1.10	0.74	0.32	0.86	0.64	0.29
Control Delay	65.6	31.0	6.0	34.7	43.8	6.6	111.5	40.2	5.1	49.7	33.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	31.0	6.0	34.7	43.8	6.6	111.5	40.2	5.1	49.7	33.1	5.0
Queue Length 50th (m)	58.8	83.9	4.2	20.9	89.8	1.4	~41.5	73.3	0.0	37.7	70.0	0.0
Queue Length 95th (m)	#123.2	110.3	23.3	#41.8	118.2	21.3	#91.8	94.6	13.8	#83.5	90.2	15.0
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	366	1363	771	248	1056	653	254	1090	620	315	1295	695
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.64	0.38	0.69	0.79	0.41	1.10	0.64	0.29	0.83	0.56	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2029)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	808	270	158	767	246	257	643	164	241	664	168
Future Volume (vph)	322	808	270	158	767	246	257	643	164	241	664	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.13	1.00	1.00	0.21	1.00	1.00	0.24	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	238	3539	1583	392	3539	1583	442	3539	1583	253	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	878	293	172	834	267	279	699	178	262	722	183
RTOR Reduction (vph)	0	0	165	0	0	185	0	0	130	0	0	124
Lane Group Flow (vph)	350	878	128	172	834	82	279	699	48	262	722	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.4	36.4	36.4	35.3	27.3	27.3	33.5	25.5	25.5	43.0	31.0	31.0
Effective Green, g (s)	48.4	38.8	38.8	35.3	29.7	29.7	33.5	28.0	28.0	43.0	33.5	33.5
Actuated g/C Ratio	0.46	0.37	0.37	0.34	0.28	0.28	0.32	0.27	0.27	0.41	0.32	0.32
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	361	1316	588	238	1007	450	243	950	424	300	1136	508
v/s Ratio Prot	c0.16	0.25		0.06	0.24		c0.09	0.20		c0.11	0.20	
v/s Ratio Perm	c0.29		0.08	0.19		0.05	c0.28		0.03	0.25		0.04
v/c Ratio	0.97	0.67	0.22	0.72	0.83	0.18	1.15	0.74	0.11	0.87	0.64	0.12
Uniform Delay, d1	29.4	27.4	22.4	25.9	34.9	28.1	32.1	34.8	28.8	24.7	30.2	25.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	38.8	1.3	0.2	10.3	5.7	0.2	103.6	3.0	0.1	23.3	1.2	0.1
Delay (s)	68.2	28.7	22.6	36.2	40.6	28.3	135.7	37.8	28.9	48.0	31.4	25.1
Level of Service	E	C	C	D	D	C	F	D	C	D	C	C
Approach Delay (s)		36.6			37.5			60.0			34.1	
Approach LOS		D			D			E			C	

Intersection Summary				
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	104.3	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	85.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	8	15	82	12	117	13	959	54	104	988	38
Future Volume (vph)	58	8	15	82	12	117	13	959	54	104	988	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.904			0.864			0.992			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1684	0	1770	1609	0	1770	3511	0	1770	3518	0
Flt Permitted	0.628			0.741			0.189			0.194		
Satd. Flow (perm)	1170	1684	0	1380	1609	0	352	3511	0	361	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			127			10			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	9	16	89	13	127	14	1042	59	113	1074	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	25	0	89	140	0	14	1101	0	113	1115	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.7	13.7		13.7	13.7		40.7	40.7		52.6	40.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.58	0.58		0.75	0.58	
v/c Ratio	0.28	0.07		0.33	0.34		0.07	0.54		0.24	0.55	
Control Delay	30.6	17.2		31.0	9.7		9.1	11.0		3.9	11.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1		0.0	0.0	
Total Delay	30.6	17.2		31.0	9.7		9.1	11.1		3.9	11.1	
LOS	C	B		C	A		A	B		A	B	
Approach Delay		26.8			18.0			11.0			10.4	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 70.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 63.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2029)
SAT Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	25	89	140	14	1101	113	1115
v/c Ratio	0.28	0.07	0.33	0.34	0.07	0.54	0.24	0.55
Control Delay	30.6	17.2	31.0	9.7	9.1	11.0	3.9	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	30.6	17.2	31.0	9.7	9.1	11.1	3.9	11.1
Queue Length 50th (m)	7.3	1.0	10.4	1.5	0.8	45.6	2.9	46.7
Queue Length 95th (m)	21.1	7.8	27.5	17.0	4.0	77.2	8.5	78.6
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	325	479	383	538	262	2622	516	2626
Starvation Cap Reductn	0	0	0	0	0	321	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.05	0.23	0.26	0.05	0.48	0.22	0.42

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2029)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	8	15	82	12	117	13	959	54	104	988	38
Future Volume (vph)	58	8	15	82	12	117	13	959	54	104	988	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1684		1770	1609		1770	3511		1770	3520	
Flt Permitted	0.63	1.00		0.74	1.00		0.19	1.00		0.19	1.00	
Satd. Flow (perm)	1170	1684		1380	1609		353	3511		361	3520	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	9	16	89	13	127	14	1042	59	113	1074	41
RTOR Reduction (vph)	0	13	0	0	103	0	0	4	0	0	3	0
Lane Group Flow (vph)	63	12	0	89	37	0	14	1097	0	113	1112	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	10.6	10.6		10.6	10.6		37.6	37.6		43.0	37.6	
Effective Green, g (s)	13.6	13.6		13.6	13.6		40.6	40.6		49.0	40.6	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.58	0.58		0.69	0.58	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	225	324		265	309		203	2019		418	2024	
v/s Ratio Prot		0.01			0.02			0.31		c0.03	c0.32	
v/s Ratio Perm	0.05			c0.06			0.04			0.16		
v/c Ratio	0.28	0.04		0.34	0.12		0.07	0.54		0.27	0.55	
Uniform Delay, d1	24.3	23.2		24.6	23.6		6.6	9.3		4.5	9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.0		0.8	0.2		0.1	0.3		0.4	0.3	
Delay (s)	25.0	23.2		25.4	23.7		6.8	9.6		4.9	9.6	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		24.5			24.4			9.5			9.2	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	70.6	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	63.0%	ICU Level of Service	B	
Analysis Period (min)	15			

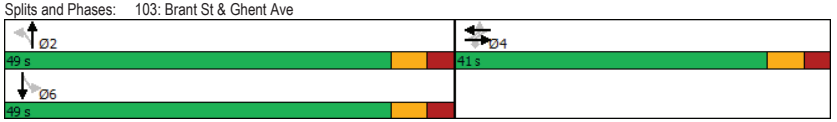
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	25	26	37	27	102	36	764	39	116	790	173
Future Volume (vph)	151	25	26	37	27	102	36	764	39	116	790	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.917			0.993			0.973	
Flt Protected		0.959			0.989		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1689	0	1770	3514	0	1770	3444	0
Flt Permitted		0.659			0.899		0.198			0.266		
Satd. Flow (perm)	0	1228	1583	0	1536	0	369	3514	0	495	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		109			8			41	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.4			59.5			75.4			150.5	
Travel Time (s)		6.9			4.3			5.4			10.8	
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
Adj. Flow (vph)	164	27	28	40	29	111	39	830	42	126	859	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	191	28	0	180	0	39	872	0	126	1047	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		18.6	18.6		18.6		27.9	27.9		27.9	27.9	
Actuated g/C Ratio		0.34	0.34		0.34		0.51	0.51		0.51	0.51	
v/c Ratio		0.46	0.05		0.31		0.21	0.49		0.50	0.59	
Control Delay		20.5	3.1		8.8		12.0	10.2		18.6	11.1	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		20.5	3.1		8.8		12.0	10.2		18.6	11.1	
LOS		C	A		A		B	B		B	B	
Approach Delay		18.3			8.8			10.3			11.9	
Approach LOS		B			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 55.2			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 11.7		Intersection LOS: B	
Intersection Capacity Utilization 66.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Queues
103: Brant St & Ghent Ave

Total (2029)
SAT Peak Hour

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	191	28	180	39	872	126	1047
v/c Ratio	0.46	0.05	0.31	0.21	0.49	0.50	0.59
Control Delay	20.5	3.1	8.8	12.0	10.2	18.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	3.1	8.8	12.0	10.2	18.6	11.1
Queue Length 50th (m)	13.8	0.0	4.6	1.9	26.2	7.4	32.6
Queue Length 95th (m)	43.0	3.1	22.0	9.0	55.8	28.1	69.4
Internal Link Dist (m)	71.4		35.5		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	887	1157	1140	306	2920	411	2867
Starvation Cap Reductn	0	0	0	0	0	0	117
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.02	0.16	0.13	0.30	0.31	0.38

Intersection Summary

HCM Signalized Intersection Capacity Analysis
103: Brant St & Ghent Ave

Total (2029)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	25	26	37	27	102	36	764	39	116	790	173
Future Volume (vph)	151	25	26	37	27	102	36	764	39	116	790	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.92		1.00	0.99		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786	1583		1689		1770	3514		1770	3444	
Flt Permitted		0.66	1.00		0.90		0.20	1.00		0.27	1.00	
Satd. Flow (perm)		1227	1583		1535		369	3514		496	3444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	164	27	28	40	29	111	39	830	42	126	859	188
RTOR Reduction (vph)	0	0	18	0	72	0	0	4	0	0	20	0
Lane Group Flow (vph)	0	191	10	0	108	0	39	868	0	126	1027	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		15.4	15.4		15.4		24.7	24.7		24.7	24.7	
Effective Green, g (s)		18.4	18.4		18.4		27.7	27.7		27.7	27.7	
Actuated g/C Ratio		0.34	0.34		0.34		0.51	0.51		0.51	0.51	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		417	538		522		188	1799		253	1763	
v/s Ratio Prot								0.25			c0.30	
v/s Ratio Perm		c0.16	0.01		0.07		0.11			0.25		
v/c Ratio		0.46	0.02		0.21		0.21	0.48		0.50	0.58	
Uniform Delay, d1		14.0	11.9		12.7		7.2	8.6		8.6	9.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8	0.0		0.2		0.6	0.2		1.5	0.5	
Delay (s)		14.8	11.9		12.9		7.8	8.8		10.2	9.7	
Level of Service		B	B		B		A	A		B	A	
Approach Delay (s)		14.4			12.9			8.7			9.7	
Approach LOS		B			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.53			
Actuated Cycle Length (s)	54.1	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	66.8%	ICU Level of Service	C	
Analysis Period (min)	15			

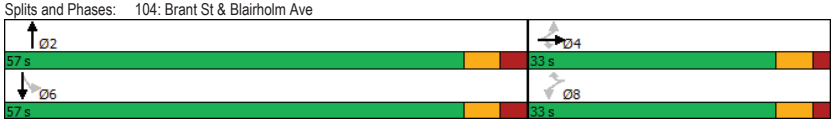
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	777	9	36	783	0
Future Volume (vph)	15	0	5	11	0	44	0	777	9	36	783	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.998				
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1770	1583	1770	0	1583	0	3532	0	1770	1863	0
Flt Permitted		0.950		0.747						0.325		
Satd. Flow (perm)	0	1770	1583	1391	0	1583	0	3532	0	605	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			48		2				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		69.2			305.8			317.1			241.2	
Travel Time (s)		5.0			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	845	10	39	851	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	5	12	0	48	0	855	0	39	851	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.7	8.7	10.8		10.8		41.0		41.0	41.0	
Actuated g/C Ratio		0.17	0.17	0.22		0.22		0.82		0.82	0.82	
v/c Ratio		0.05	0.02	0.04		0.13		0.29		0.08	0.56	
Control Delay		23.7	0.0	21.9		9.0		2.9		3.2	5.6	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		23.7	0.0	21.9		9.0		2.9		3.2	5.6	
LOS		C	A	C		A		A		A	A	
Approach Delay		18.0			11.6			2.9			5.5	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 49.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 62.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	16	5	12	48	855	39	851
v/c Ratio	0.05	0.02	0.04	0.13	0.29	0.08	0.56
Control Delay	23.7	0.0	21.9	9.0	2.9	3.2	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.7	0.0	21.9	9.0	2.9	3.2	5.6
Queue Length 50th (m)	1.7	0.0	1.2	0.0	15.8	1.1	41.9
Queue Length 95th (m)	6.6	0.0	5.4	8.0	22.3	3.4	70.9
Internal Link Dist (m)	45.2				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	1036	947	875	1013	3274	560	1727
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.01	0.05	0.26	0.07	0.49

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	5	11	0	44	0	777	9	36	783	0
Future Volume (vph)	15	0	5	11	0	44	0	777	9	36	783	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583	1770		1583		3533		1770	1863	
Flt Permitted		0.95	1.00	0.75		1.00		1.00		0.33	1.00	
Satd. Flow (perm)		1770	1583	1392		1583		3533		606	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	0	5	12	0	48	0	845	10	39	851	0
RTOR Reduction (vph)	0	0	5	0	0	43	0	1	0	0	0	0
Lane Group Flow (vph)	0	16	0	12	0	5	0	854	0	39	851	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		4.0	4.0	4.0		4.0		35.4		35.4	35.4	
Effective Green, g (s)		4.0	4.0	6.0		6.0		38.4		38.4	38.4	
Actuated g/C Ratio		0.08	0.08	0.11		0.11		0.73		0.73	0.73	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		135	120	159		181		2589		444	1365	
v/s Ratio Prot								0.24			c0.46	
v/s Ratio Perm		0.01	0.00	0.01		0.00				0.06		
v/c Ratio		0.12	0.00	0.08		0.03		0.33		0.09	0.62	
Uniform Delay, d1		22.6	22.4	20.7		20.6		2.5		2.0	3.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.4	0.0	0.2		0.1		0.1		0.1	0.9	
Delay (s)		23.0	22.4	20.9		20.7		2.5		2.1	4.3	
Level of Service		C	C	C		C		A		A	A	
Approach Delay (s)		22.8			20.7			2.5			4.2	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	52.4	Sum of lost time (s)		10.0
Intersection Capacity Utilization	62.9%	ICU Level of Service		B
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	116	132	103	85	0
Future Volume (vph)	0	116	132	103	85	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.934			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3334	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3334	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		147.1	95.4		67.9	
Travel Time (s)		10.6	6.9		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	126	143	112	92	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	126	255	0	92	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	116	132	103	85	0
Future Volume (Veh/h)	0	116	132	103	85	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	126	143	112	92	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)			95			
pX, platoon unblocked						
vC, conflicting volume	255				325	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	255				325	128
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				86	100
cM capacity (veh/h)	1322				649	905

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	126	95	160	92
Volume Left	0	0	0	92
Volume Right	0	0	112	0
cSH	1322	1700	1700	649
Volume to Capacity	0.00	0.06	0.09	0.14
Queue Length 95th (m)	0.0	0.0	0.0	3.9
Control Delay (s)	0.0	0.0	0.0	11.5
Lane LOS				B
Approach Delay (s)	0.0	0.0		11.5
Approach LOS				B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	87	88	9	7	60
Future Volume (vph)	70	87	88	9	7	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.987		0.880	
Flt Protected		0.978			0.995	
Satd. Flow (prot)	0	1838	1842	0	1664	0
Flt Permitted		0.978			0.995	
Satd. Flow (perm)	0	1838	1842	0	1664	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		44.5	229.4		40.7	
Travel Time (s)		3.2	16.5		2.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	76	95	96	10	8	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	171	106	0	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	87	88	9	7	60
Future Volume (Veh/h)	70	87	88	9	7	60
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	95	96	10	8	65
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		104				
pX, platoon unblocked						
vC, conflicting volume	106				348	101
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	106				348	101
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				99	93
cM capacity (veh/h)	1498				620	960

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	171	106	73
Volume Left	76	0	8
Volume Right	0	10	65
cSH	1498	1700	905
Volume to Capacity	0.05	0.06	0.08
Queue Length 95th (m)	1.3	0.0	2.1
Control Delay (s)	3.6	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	3.6	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	153	26	3	145	27	4
Future Volume (vph)	153	26	3	145	27	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981				0.984	
Flt Protected				0.999	0.958	
Satd. Flow (prot)	1827	0	0	1861	1756	0
Flt Permitted				0.999	0.958	
Satd. Flow (perm)	1827	0	0	1861	1756	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	59.5			44.5	71.2	
Travel Time (s)	4.3			3.2	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	28	3	158	29	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	194	0	0	161	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	153	26	3	145	27	4
Future Volume (Veh/h)	153	26	3	145	27	4
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)	166	28	3	158	29	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	59					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			194		344	180
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			169		322	155
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		96	100
cM capacity (veh/h)			1382		658	874

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	194	161	33
Volume Left	0	3	29
Volume Right	28	0	4
cSH	1700	1382	678
Volume to Capacity	0.11	0.00	0.05
Queue Length 95th (m)	0.0	0.1	1.2
Control Delay (s)	0.0	0.2	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	10.6
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix I4

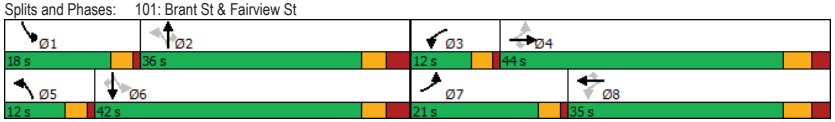
Total – Five-Year Horizon Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	358	1176	297	134	370	162	222	721	298	244	766	160
Future Volume (vph)	358	1176	297	134	370	162	222	721	298	244	766	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.357			0.137			0.176			0.126		
Satd. Flow (perm)	665	3539	1583	255	3539	1583	328	3539	1583	235	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			246			193			192			174
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	389	1278	323	146	402	176	241	784	324	265	833	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	389	1278	323	146	402	176	241	784	324	265	833	174
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	52.0	40.0	40.0	39.4	31.5	31.5	38.2	30.2	30.2	48.1	36.1	36.1
Actuated g/C Ratio	0.48	0.37	0.37	0.36	0.29	0.29	0.35	0.28	0.28	0.44	0.33	0.33
v/c Ratio	0.80	0.98	0.44	0.72	0.39	0.29	1.08	0.79	0.56	0.88	0.71	0.27
Control Delay	33.5	54.1	8.7	40.9	32.6	4.8	109.9	42.7	17.0	54.6	35.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	54.1	8.7	40.9	32.6	4.8	109.9	42.7	17.0	54.6	35.1	5.0
LOS	C	D	A	D	C	A	F	D	B	D	D	A
Approach Delay		42.7			27.5			48.6			35.0	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 108.1			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 40.3		Intersection LOS: D	
Intersection Capacity Utilization 86.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2034)
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	389	1278	323	146	402	176	241	784	324	265	833	174
v/c Ratio	0.80	0.98	0.44	0.72	0.39	0.29	1.08	0.79	0.56	0.88	0.71	0.27
Control Delay	33.5	54.1	8.7	40.9	32.6	4.8	109.9	42.7	17.0	54.6	35.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	54.1	8.7	40.9	32.6	4.8	109.9	42.7	17.0	54.6	35.1	5.0
Queue Length 50th (m)	57.6	149.8	11.5	18.4	38.7	0.0	~37.4	84.7	23.4	40.2	84.1	0.0
Queue Length 95th (m)	#94.9	#200.8	34.3	#45.0	53.4	13.3	#89.0	108.1	52.5	#87.9	106.8	14.7
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	494	1310	741	205	1031	597	223	1048	604	303	1245	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.98	0.44	0.71	0.39	0.29	1.08	0.75	0.54	0.87	0.67	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2034)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	358	1176	297	134	370	162	222	721	298	244	766	160
Future Volume (vph)	358	1176	297	134	370	162	222	721	298	244	766	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.36	1.00	1.00	0.14	1.00	1.00	0.18	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	664	3539	1583	256	3539	1583	328	3539	1583	235	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	389	1278	323	146	402	176	241	784	324	265	833	174
RTOR Reduction (vph)	0	0	155	0	0	125	0	0	138	0	0	116
Lane Group Flow (vph)	389	1278	168	146	402	51	241	784	186	265	833	58
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	49.6	37.7	37.7	37.0	29.1	29.1	35.7	27.7	27.7	45.6	33.6	33.6
Effective Green, g (s)	49.6	40.1	40.1	37.0	31.5	31.5	35.7	30.2	30.2	45.6	36.1	36.1
Actuated g/C Ratio	0.46	0.37	0.37	0.34	0.29	0.29	0.33	0.28	0.28	0.42	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	473	1312	587	198	1031	461	215	988	442	296	1181	528
v/s Ratio Prot	c0.13	c0.36		0.05	0.11		c0.08	0.22		c0.11	0.24	
v/s Ratio Perm	0.25		0.11	0.20		0.03	c0.29		0.12	0.26		0.04
v/c Ratio	0.82	0.97	0.29	0.74	0.39	0.11	1.12	0.79	0.42	0.90	0.71	0.11
Uniform Delay, d1	21.1	33.5	23.9	28.6	30.6	28.0	31.9	36.1	31.8	27.2	31.4	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.0	18.8	0.3	13.3	0.2	0.1	97.7	4.4	0.6	27.2	1.9	0.1
Delay (s)	32.1	52.3	24.2	42.0	30.9	28.2	129.6	40.5	32.4	54.4	33.3	25.0
Level of Service	C	D	C	D	C	C	F	D	C	D	C	C
Approach Delay (s)		43.8			32.5			54.5			36.6	
Approach LOS		D			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	43.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	108.1	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	86.7%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	10	17	67	9	87	27	974	63	95	1013	92
Future Volume (vph)	35	10	17	67	9	87	27	974	63	95	1013	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.907			0.864			0.991			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1690	0	1770	1609	0	1770	3507	0	1770	3497	0
Flt Permitted	0.689			0.738			0.179			0.200		
Satd. Flow (perm)	1283	1690	0	1375	1609	0	333	3507	0	373	3497	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			95			12			17	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	11	18	73	10	95	29	1059	68	103	1101	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	29	0	73	105	0	29	1127	0	103	1201	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	13.8	13.8		13.8	13.8		45.4	45.4		55.5	45.4	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.66	0.66		0.81	0.66	
v/c Ratio	0.15	0.08		0.26	0.26		0.13	0.48		0.20	0.52	
Control Delay	29.6	17.7		31.2	10.3		9.5	9.5		3.2	9.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1		0.0	0.0	
Total Delay	29.6	17.7		31.2	10.3		9.5	9.6		3.2	9.9	
LOS	C	B		C	B		A	A		A	A	
Approach Delay		24.4			18.9			9.6			9.3	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 68.3			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 10.4		Intersection LOS: B	
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2034)
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	29	73	105	29	1127	103	1201
v/c Ratio	0.15	0.08	0.26	0.26	0.13	0.48	0.20	0.52
Control Delay	29.6	17.7	31.2	10.3	9.5	9.5	3.2	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	29.6	17.7	31.2	10.3	9.5	9.6	3.2	9.9
Queue Length 50th (m)	4.6	1.3	9.0	1.2	1.7	45.6	2.5	50.0
Queue Length 95th (m)	14.2	8.7	23.4	14.6	6.7	75.1	7.2	82.2
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	389	525	417	554	248	2623	571	2617
Starvation Cap Reductn	0	0	0	0	0	393	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.06	0.18	0.19	0.12	0.51	0.18	0.46

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2034)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	10	17	67	9	87	27	974	63	95	1013	92
Future Volume (vph)	35	10	17	67	9	87	27	974	63	95	1013	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1689		1770	1610		1770	3507		1770	3495	
Flt Permitted	0.69	1.00		0.74	1.00		0.18	1.00		0.20	1.00	
Satd. Flow (perm)	1284	1689		1375	1610		333	3507		373	3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	11	18	73	10	95	29	1059	68	103	1101	100
RTOR Reduction (vph)	0	15	0	0	81	0	0	5	0	0	6	0
Lane Group Flow (vph)	38	14	0	73	24	0	29	1122	0	103	1195	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	7.6	7.6		7.6	7.6		40.7	40.7		45.7	40.7	
Effective Green, g (s)	10.6	10.6		10.6	10.6		43.7	43.7		51.7	43.7	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.62	0.62		0.74	0.62	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	193	254		207	242		207	2180		433	2172	
v/s Ratio Prot		0.01			0.02			0.32		c0.03	c0.34	
v/s Ratio Perm	0.03			c0.05			0.09			0.15		
v/c Ratio	0.20	0.05		0.35	0.10		0.14	0.51		0.24	0.55	
Uniform Delay, d1	26.1	25.6		26.8	25.7		5.5	7.4		3.4	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.1		1.0	0.2		0.3	0.2		0.3	0.3	
Delay (s)	26.6	25.6		27.8	25.9		5.8	7.6		3.6	7.9	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		26.2			26.7			7.6			7.6	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.47			
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	58.0%	ICU Level of Service	B	
Analysis Period (min)	15			

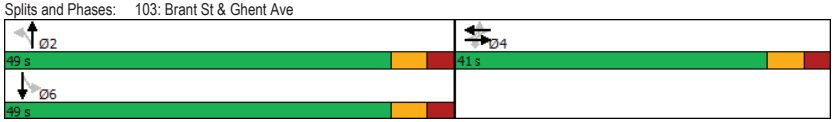
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	38	42	46	14	109	19	735	40	62	889	152
Future Volume (vph)	218	38	42	46	14	109	19	735	40	62	889	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.913			0.992			0.978	
Flt Protected		0.959			0.987		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1679	0	1770	3511	0	1770	3461	0
Flt Permitted		0.648			0.856		0.155			0.265		
Satd. Flow (perm)	0	1207	1583	0	1456	0	289	3511	0	494	3461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		118			9			31	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.7			57.4			75.4			150.5	
Travel Time (s)		7.0			4.1			5.4			10.8	
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
Adj. Flow (vph)	237	41	46	50	15	118	21	799	43	67	966	165
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	278	46	0	183	0	21	842	0	67	1131	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		24.3	24.3		24.3		31.2	31.2		31.2	31.2	
Actuated g/C Ratio		0.38	0.38		0.38		0.49	0.49		0.49	0.49	
v/c Ratio		0.61	0.07		0.29		0.15	0.49		0.28	0.67	
Control Delay		24.1	5.2		7.9		14.3	12.8		15.3	15.1	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		24.1	5.2		7.9		14.3	12.8		15.3	15.1	
LOS		C	A		A		B	B		B	B	
Approach Delay		21.4			7.9			12.8			15.1	
Approach LOS		C			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 64.1			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Queues
103: Brant St & Ghent Ave

Total (2034)
AM Peak Hour

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	278	46	183	21	842	67	1131
v/c Ratio	0.61	0.07	0.29	0.15	0.49	0.28	0.67
Control Delay	24.1	5.2	7.9	14.3	12.8	15.3	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	5.2	7.9	14.3	12.8	15.3	15.1
Queue Length 50th (m)	26.1	0.0	4.9	1.3	33.0	4.5	49.0
Queue Length 95th (m)	63.9	6.2	20.8	6.9	65.8	16.4	96.3
Internal Link Dist (m)	72.7		33.4		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	751	1004	951	213	2592	364	2560
Starvation Cap Reductn	0	0	0	0	0	0	105
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.05	0.19	0.10	0.32	0.18	0.46

Intersection Summary

HCM Signalized Intersection Capacity Analysis
103: Brant St & Ghent Ave

Total (2034)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	38	42	46	14	109	19	735	40	62	889	152
Future Volume (vph)	218	38	42	46	14	109	19	735	40	62	889	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.91		1.00	0.99		1.00	0.98	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1787	1583		1678		1770	3512		1770	3462	
Flt Permitted		0.65	1.00		0.86		0.15	1.00		0.26	1.00	
Satd. Flow (perm)		1206	1583		1457		289	3512		493	3462	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	237	41	46	50	15	118	21	799	43	67	966	165
RTOR Reduction (vph)	0	0	28	0	73	0	0	5	0	0	16	0
Lane Group Flow (vph)	0	278	18	0	110	0	21	837	0	67	1115	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		21.1	21.1		21.1		27.9	27.9		27.9	27.9	
Effective Green, g (s)		24.1	24.1		24.1		30.9	30.9		30.9	30.9	
Actuated g/C Ratio		0.38	0.38		0.38		0.49	0.49		0.49	0.49	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		461	605		557		141	1722		241	1698	
v/s Ratio Prot								0.24			c0.32	
v/s Ratio Perm		c0.23	0.01		0.08		0.07			0.14		
v/c Ratio		0.60	0.03		0.20		0.15	0.49		0.28	0.66	
Uniform Delay, d1		15.6	12.1		13.0		8.8	10.7		9.5	12.1	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.2	0.0		0.2		0.5	0.2		0.6	0.9	
Delay (s)		17.8	12.2		13.2		9.3	11.0		10.1	13.0	
Level of Service		B	B		B		A	B		B	B	
Approach Delay (s)		17.0			13.2			10.9			12.8	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	63.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	73.5%	ICU Level of Service	D	
Analysis Period (min)	15			

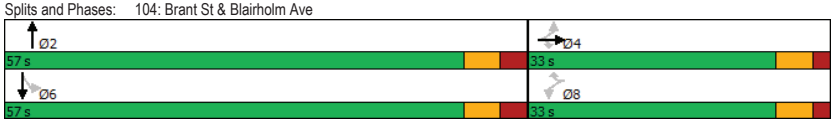
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	8	41	0	117	0	649	17	48	831	0
Future Volume (vph)	17	5	8	41	0	117	0	649	17	48	831	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.996				
Flt Protected		0.962		0.950						0.950		
Satd. Flow (prot)	0	1792	1583	1770	0	1583	0	3525	0	1770	1863	0
Flt Permitted		0.962		0.742						0.373		
Satd. Flow (perm)	0	1792	1583	1382	0	1583	0	3525	0	695	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			127		5				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		81.2			305.8			317.1			241.2	
Travel Time (s)		5.8			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	9	45	0	127	0	705	18	52	903	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	9	45	0	127	0	723	0	52	903	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		9.0	9.0	11.2		11.2		40.2		40.2	40.2	
Actuated g/C Ratio		0.17	0.17	0.21		0.21		0.74		0.74	0.74	
v/c Ratio		0.08	0.03	0.16		0.30		0.28		0.10	0.65	
Control Delay		24.8	0.1	24.0		7.9		3.7		3.8	8.2	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		24.8	0.1	24.0		7.9		3.7		3.8	8.2	
LOS		C	A	C		A		A		A	A	
Approach Delay		17.9			12.1			3.7			7.9	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 54.2			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 6.8		Intersection LOS: A	
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Queues
104: Brant St & Blairholm Ave

Total (2034)
AM Peak Hour

Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	23	9	45	127	723	52	903
v/c Ratio	0.08	0.03	0.16	0.30	0.28	0.10	0.65
Control Delay	24.8	0.1	24.0	7.9	3.7	3.8	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	0.1	24.0	7.9	3.7	3.8	8.2
Queue Length 50th (m)	2.0	0.0	3.7	0.0	12.7	1.5	46.9
Queue Length 95th (m)	9.2	0.0	14.6	13.6	21.3	4.8	91.6
Internal Link Dist (m)	57.2				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	950	861	787	956	3258	642	1722
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.06	0.13	0.22	0.08	0.52

Intersection Summary

HCM Signalized Intersection Capacity Analysis
104: Brant St & Blairholm Ave

Total (2034)
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	5	8	41	0	117	0	649	17	48	831	0
Future Volume (vph)	17	5	8	41	0	117	0	649	17	48	831	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1793	1583	1770		1583		3526		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.37	1.00	
Satd. Flow (perm)		1793	1583	1383		1583		3526		694	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	5	9	45	0	127	0	705	18	52	903	0
RTOR Reduction (vph)	0	0	8	0	0	107	0	1	0	0	0	0
Lane Group Flow (vph)	0	23	1	45	0	20	0	722	0	52	903	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.5	6.5	6.5		6.5		35.8		35.8	35.8	
Effective Green, g (s)		6.5	6.5	8.5		8.5		38.8		38.8	38.8	
Actuated g/C Ratio		0.12	0.12	0.15		0.15		0.70		0.70	0.70	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		210	186	212		243		2473		486	1307	
v/s Ratio Prot								0.20			c0.48	
v/s Ratio Perm		0.01	0.00	c0.03		0.01				0.07		
v/c Ratio		0.11	0.01	0.21		0.08		0.29		0.11	0.69	
Uniform Delay, d1		21.8	21.5	20.5		20.1		3.1		2.7	4.8	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.5		0.1		0.1		0.1	1.6	
Delay (s)		22.0	21.6	21.0		20.2		3.2		2.8	6.4	
Level of Service		C	C	C		C		A		A	A	
Approach Delay (s)		21.9			20.4			3.2			6.2	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	65.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	197	149	36	101	0
Future Volume (vph)	0	197	149	36	101	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.971			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3450	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3450	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		145.8	96.7		53.1	
Travel Time (s)		10.5	7.0		3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	214	162	39	110	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	214	201	0	110	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	197	149	36	101	0
Future Volume (Veh/h)	0	197	149	36	101	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	214	162	39	110	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)			97			
pX, platoon unblocked						
vC, conflicting volume	201				396	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	201				396	100
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				81	100
cM capacity (veh/h)	1383				587	942

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	214	108	93	110
Volume Left	0	0	0	110
Volume Right	0	0	39	0
cSH	1383	1700	1700	587
Volume to Capacity	0.00	0.06	0.05	0.19
Queue Length 95th (m)	0.0	0.0	0.0	5.5
Control Delay (s)	0.0	0.0	0.0	12.5
Lane LOS				B
Approach Delay (s)	0.0	0.0		12.5
Approach LOS				B

Intersection Summary				
Average Delay		2.6		
Intersection Capacity Utilization		22.6%	ICU Level of Service	A
Analysis Period (min)		15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	110	70	3	9	71
Future Volume (vph)	24	110	70	3	9	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995		0.881	
Flt Protected		0.991			0.994	
Satd. Flow (prot)	0	1852	1855	0	1664	0
Flt Permitted		0.991			0.994	
Satd. Flow (perm)	0	1852	1855	0	1664	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		46.0	230.0		30.1	
Travel Time (s)		3.3	16.6		2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	26	120	76	3	10	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	146	79	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	110	70	3	9	71
Future Volume (Veh/h)	24	110	70	3	9	71
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)	26	120	76	3	10	77
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		103				
pX, platoon unblocked						
vC, conflicting volume	79				250	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79				250	78
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	92
cM capacity (veh/h)	1532				731	989

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	146	79	87
Volume Left	26	0	10
Volume Right	0	3	77
cSH	1532	1700	950
Volume to Capacity	0.02	0.05	0.09
Queue Length 95th (m)	0.4	0.0	2.4
Control Delay (s)	1.4	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	1.4	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	130	10	1	140	29	4
Future Volume (vph)	130	10	1	140	29	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.985	
Flt Protected					0.957	
Satd. Flow (prot)	1847	0	0	1863	1791	0
Flt Permitted					0.957	
Satd. Flow (perm)	1847	0	0	1863	1791	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	57.4			46.0	35.6	
Travel Time (s)	4.1			3.3	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	141	11	1	152	32	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	0	0	153	36	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	130	10	1	140	29	4
Future Volume (Veh/h)	130	10	1	140	29	4
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)	141	11	1	152	32	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	57					
pX, platoon unblocked						
vC, conflicting volume			152		300	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			152		300	146
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		95	100
cM capacity (veh/h)			1441		695	906

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	152	153	36
Volume Left	0	1	32
Volume Right	11	0	4
cSH	1700	1441	713
Volume to Capacity	0.09	0.00	0.05
Queue Length 95th (m)	0.0	0.0	1.3
Control Delay (s)	0.0	0.1	10.3
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.3
Approach LOS			B

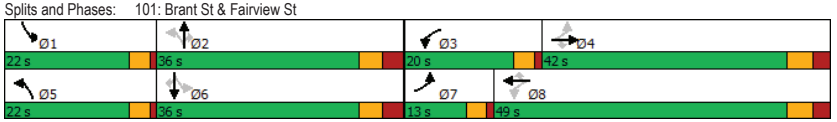
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	867	330	240	1608	465	202	884	212	248	760	460
Future Volume (vph)	225	867	330	240	1608	465	202	884	212	248	760	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.110			0.099			0.136			0.128		
Satd. Flow (perm)	205	3539	1583	184	3539	1583	253	3539	1583	238	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			359			290			140			215
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	245	942	359	261	1748	505	220	961	230	270	826	500
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	942	359	261	1748	505	220	961	230	270	826	500
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	13.0	42.0	42.0	20.0	49.0	49.0	22.0	36.0	36.0	22.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	16.7%	40.8%	40.8%	18.3%	30.0%	30.0%	18.3%	30.0%	30.0%
Maximum Green (s)	9.0	35.6	35.6	16.0	42.6	42.6	18.0	29.5	29.5	18.0	29.5	29.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	47.7	38.7	38.7	58.0	45.0	45.0	46.9	32.0	32.0	50.3	33.7	33.7
Actuated g/C Ratio	0.40	0.33	0.33	0.49	0.38	0.38	0.40	0.27	0.27	0.42	0.28	0.28
v/c Ratio	1.22	0.82	0.47	0.89	1.30	0.65	0.76	1.01	0.43	0.86	0.82	0.83
Control Delay	163.3	43.9	5.3	59.9	173.4	16.7	42.9	74.2	17.1	54.7	48.0	35.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	163.3	43.9	5.3	59.9	173.4	16.7	42.9	74.2	17.1	54.7	48.0	35.7
LOS	F	D	A	E	F	B	D	E	B	D	D	D
Approach Delay		53.9			130.2			60.0			45.3	
Approach LOS		D			F			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.6			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.30			
Intersection Signal Delay: 80.3		Intersection LOS: F	
Intersection Capacity Utilization 108.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2034)
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	245	942	359	261	1748	505	220	961	230	270	826	500
v/c Ratio	1.22	0.82	0.47	0.89	1.30	0.65	0.76	1.01	0.43	0.86	0.82	0.83
Control Delay	163.3	43.9	5.3	59.9	173.4	16.7	42.9	74.2	17.1	54.7	48.0	35.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	163.3	43.9	5.3	59.9	173.4	16.7	42.9	74.2	17.1	54.7	48.0	35.7
Queue Length 50th (m)	~58.5	114.2	0.0	46.5	~294.3	42.8	34.4	~132.7	17.4	46.4	100.2	69.4
Queue Length 95th (m)	#112.0	141.3	21.8	#94.7	#339.1	82.3	61.1	#174.8	41.5	#92.6	#137.1	#134.3
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	201	1155	758	304	1343	780	336	955	529	334	1005	603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.82	0.47	0.86	1.30	0.65	0.65	1.01	0.43	0.81	0.82	0.83

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2034)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	867	330	240	1608	465	202	884	212	248	760	460
Future Volume (vph)	225	867	330	240	1608	465	202	884	212	248	760	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.11	1.00	1.00	0.10	1.00	1.00	0.14	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	205	3539	1583	185	3539	1583	253	3539	1583	239	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	942	359	261	1748	505	220	961	230	270	826	500
RTOR Reduction (vph)	0	0	242	0	0	180	0	0	102	0	0	154
Lane Group Flow (vph)	245	942	117	261	1748	325	220	961	128	270	826	346
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	45.3	36.3	36.3	55.6	42.6	42.6	44.3	29.5	29.5	47.7	31.2	31.2
Effective Green, g (s)	45.3	38.7	38.7	55.6	45.0	45.0	44.3	32.0	32.0	47.7	33.7	33.7
Actuated g/C Ratio	0.38	0.33	0.33	0.47	0.38	0.38	0.37	0.27	0.27	0.40	0.28	0.28
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	197	1155	516	291	1343	601	284	955	427	309	1006	450
v/s Ratio Prot	c0.09	0.27		0.12	c0.49		0.10	c0.27		c0.12	0.23	
v/s Ratio Perm	0.38		0.07	0.30		0.21	0.19		0.08	0.23		0.22
v/c Ratio	1.24	0.82	0.23	0.90	1.30	0.54	0.77	1.01	0.30	0.87	0.82	0.77
Uniform Delay, d1	30.8	36.6	29.0	32.7	36.8	28.7	29.1	43.2	34.3	31.2	39.6	38.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	144.9	4.5	0.2	27.7	141.3	1.0	12.4	30.7	0.4	22.8	5.5	7.7
Delay (s)	175.7	41.2	29.2	60.4	178.0	29.7	41.4	73.9	34.7	53.9	45.1	46.6
Level of Service	F	D	C	E	F	C	D	E	C	D	D	D
Approach Delay (s)		59.7			136.0			62.5			47.0	
Approach LOS		E			F			E			D	

Intersection Summary

HCM 2000 Control Delay	84.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	108.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	21	44	133	12	190	16	1217	77	123	1188	64
Future Volume (vph)	130	21	44	133	12	190	16	1217	77	123	1188	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899			0.859			0.991			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1675	0	1770	1600	0	1770	3507	0	1770	3511	0
Flt Permitted	0.444			0.711			0.115			0.104		
Satd. Flow (perm)	827	1675	0	1324	1600	0	214	3507	0	194	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			207			12			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	23	48	145	13	207	17	1323	84	134	1291	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	71	0	145	220	0	17	1407	0	134	1361	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	18.3	18.3		18.3	18.3		47.8	47.8		62.3	47.8	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.57	0.57		0.74	0.57	
v/c Ratio	0.79	0.18		0.51	0.43		0.14	0.71		0.40	0.68	
Control Delay	65.0	14.6		37.8	8.5		12.4	15.7		8.5	15.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	1.1		0.0	0.0	
Total Delay	65.0	14.6		37.8	8.5		12.4	16.8		8.5	15.2	
LOS	E	B		D	A		B	B		A	B	
Approach Delay		48.1			20.1			16.8			14.6	
Approach LOS		D			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 84.6			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 75.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2034)
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	141	71	145	220	17	1407	134	1361
v/c Ratio	0.79	0.18	0.51	0.43	0.14	0.71	0.40	0.68
Control Delay	65.0	14.6	37.8	8.5	12.4	15.7	8.5	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
Total Delay	65.0	14.6	37.8	8.5	12.4	16.8	8.5	15.2
Queue Length 50th (m)	23.9	3.3	22.9	1.8	1.3	85.1	5.5	80.6
Queue Length 95th (m)	#58.0	14.6	43.0	20.5	5.3	114.8	14.9	108.9
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	187	416	299	522	130	2138	368	2140
Starvation Cap Reductn	0	0	0	0	0	455	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.17	0.48	0.42	0.13	0.84	0.36	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2034)
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	21	44	133	12	190	16	1217	77	123	1188	64
Future Volume (vph)	130	21	44	133	12	190	16	1217	77	123	1188	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1674		1770	1600		1770	3508		1770	3512	
Flt Permitted	0.44	1.00		0.71	1.00		0.12	1.00		0.10	1.00	
Satd. Flow (perm)	827	1674		1324	1600		214	3508		194	3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	23	48	145	13	207	17	1323	84	134	1291	70
RTOR Reduction (vph)	0	38	0	0	162	0	0	5	0	0	4	0
Lane Group Flow (vph)	141	33	0	145	58	0	17	1402	0	134	1357	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	15.3	15.3		15.3	15.3		44.8	44.8		52.2	44.8	
Effective Green, g (s)	18.3	18.3		18.3	18.3		47.8	47.8		58.2	47.8	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.57	0.57		0.69	0.57	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	179	362		286	346		121	1984		327	1986	
v/s Ratio Prot		0.02			0.04			c0.40		c0.05	0.39	
v/s Ratio Perm	c0.17			0.11			0.08			0.23		
v/c Ratio	0.79	0.09		0.51	0.17		0.14	0.71		0.41	0.68	
Uniform Delay, d1	31.3	26.5		29.1	26.9		8.7	13.3		8.9	13.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.1	0.1		1.4	0.2		0.5	1.2		0.8	1.0	
Delay (s)	51.4	26.6		30.5	27.1		9.2	14.4		9.7	14.0	
Level of Service	D	C		C	C		A	B		A	B	
Approach Delay (s)		43.1			28.5			14.4			13.6	
Approach LOS		D			C			B			B	

Intersection Summary				
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	75.8%	ICU Level of Service	D	
Analysis Period (min)	15			

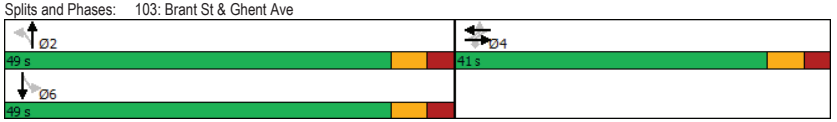
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	36	32	43	73	97	34	1004	46	118	943	278
Future Volume (vph)	211	36	32	43	73	97	34	1004	46	118	943	278
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.939			0.993			0.966	
Flt Protected		0.959			0.990		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1732	0	1770	3514	0	1770	3419	0
Flt Permitted		0.558			0.889		0.121			0.172		
Satd. Flow (perm)	0	1039	1583	0	1555	0	225	3514	0	320	3419	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		57			7			61	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		100.9			61.0			75.4			150.5	
Travel Time (s)		7.3			4.4			5.4			10.8	
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
Adj. Flow (vph)	229	39	35	47	79	105	37	1091	50	128	1025	302
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	268	35	0	231	0	37	1141	0	128	1327	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		27.2	27.2		27.2		44.0	44.0		44.0	44.0	
Actuated g/C Ratio		0.34	0.34		0.34		0.55	0.55		0.55	0.55	
v/c Ratio		0.75	0.06		0.41		0.30	0.58		0.72	0.69	
Control Delay		37.3	3.8		16.6		20.4	14.3		44.0	15.7	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.7	
Total Delay		37.3	3.8		16.6		20.4	14.3		44.0	16.4	
LOS		D	A		B		C	B		D	B	
Approach Delay		33.5			16.6			14.5			18.8	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Queues
103: Brant St & Ghent Ave

Total (2034)
PM Peak Hour

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	268	35	231	37	1141	128	1327
v/c Ratio	0.75	0.06	0.41	0.30	0.58	0.72	0.69
Control Delay	37.3	3.8	16.6	20.4	14.3	44.0	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Total Delay	37.3	3.8	16.6	20.4	14.3	44.0	16.4
Queue Length 50th (m)	37.7	0.0	20.5	3.0	59.1	14.3	72.1
Queue Length 95th (m)	66.2	4.2	38.5	13.0	98.6	#53.9	121.3
Internal Link Dist (m)	76.9		37.0		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	493	776	767	129	2030	184	1998
Starvation Cap Reductn	0	0	0	0	0	0	320
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.05	0.30	0.29	0.56	0.70	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
103: Brant St & Ghent Ave

Total (2034)
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	36	32	43	73	97	34	1004	46	118	943	278
Future Volume (vph)	211	36	32	43	73	97	34	1004	46	118	943	278
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786	1583		1731		1770	3516		1770	3418	
Flt Permitted		0.56	1.00		0.89		0.12	1.00		0.17	1.00	
Satd. Flow (perm)		1040	1583		1554		225	3516		320	3418	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	39	35	47	79	105	37	1091	50	128	1025	302
RTOR Reduction (vph)	0	0	23	0	37	0	0	3	0	0	27	0
Lane Group Flow (vph)	0	268	12	0	194	0	37	1138	0	128	1300	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		24.1	24.1		24.1		40.9	40.9		40.9	40.9	
Effective Green, g (s)		27.1	27.1		27.1		43.9	43.9		43.9	43.9	
Actuated g/C Ratio		0.34	0.34		0.34		0.56	0.56		0.56	0.56	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		356	543		533		125	1953		177	1899	
v/s Ratio Prot								0.32			0.38	
v/s Ratio Perm		c0.26	0.01		0.12		0.16			c0.40		
v/c Ratio		0.75	0.02		0.36		0.30	0.58		0.72	0.68	
Uniform Delay, d1		23.0	17.2		19.5		9.3	11.5		13.0	12.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		8.7	0.0		0.4		1.3	0.4		13.6	1.0	
Delay (s)		31.7	17.2		19.9		10.7	12.0		26.6	13.6	
Level of Service		C	B		B		B	B		C	B	
Approach Delay (s)		30.0			19.9			11.9			14.8	
Approach LOS		C			B			B			B	

Intersection Summary					
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.73				
Actuated Cycle Length (s)	79.0	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	80.7%	ICU Level of Service		D	
Analysis Period (min)	15				

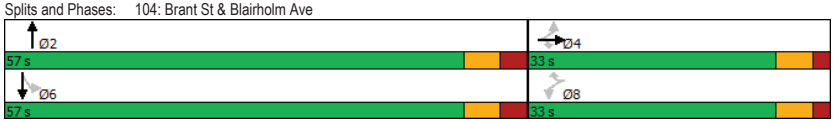
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	6	23	20	0	81	0	941	19	61	805	0
Future Volume (vph)	18	6	23	20	0	81	0	941	19	61	805	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.997				
Flt Protected		0.964		0.950						0.950		
Satd. Flow (prot)	0	1796	1583	1770	0	1583	0	3529	0	1770	1863	0
Flt Permitted		0.964		0.740						0.252		
Satd. Flow (perm)	0	1796	1583	1378	0	1583	0	3529	0	469	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			88		4				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		75.3			305.8			317.1			241.2	
Travel Time (s)		5.4			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	7	25	22	0	88	0	1023	21	66	875	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	25	22	0	88	0	1044	0	66	875	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.6	8.6	10.7		10.7		39.5		39.5	39.5	
Actuated g/C Ratio		0.16	0.16	0.20		0.20		0.75		0.75	0.75	
v/c Ratio		0.09	0.08	0.08		0.23		0.40		0.19	0.63	
Control Delay		23.5	4.7	21.9		8.0		4.2		4.9	7.6	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		23.5	4.7	21.9		8.0		4.2		4.9	7.6	
LOS		C	A	C		A		A		A	A	
Approach Delay		14.5			10.8			4.2			7.4	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 53			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 6.2		Intersection LOS: A	
Intersection Capacity Utilization 64.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	27	25	22	88	1044	66	875
v/c Ratio	0.09	0.08	0.08	0.23	0.40	0.19	0.63
Control Delay	23.5	4.7	21.9	8.0	4.2	4.9	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	4.7	21.9	8.0	4.2	4.9	7.6
Queue Length 50th (m)	2.2	0.0	1.7	0.0	20.7	2.1	44.0
Queue Length 95th (m)	9.8	3.4	8.3	11.0	30.9	6.3	79.5
Internal Link Dist (m)	51.3				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	968	875	797	953	3283	436	1733
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.03	0.03	0.09	0.32	0.15	0.50

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	6	23	20	0	81	0	941	19	61	805	0
Future Volume (vph)	18	6	23	20	0	81	0	941	19	61	805	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1796	1583	1770		1583		3529		1770	1863	
Flt Permitted		0.96	1.00	0.74		1.00		1.00		0.25	1.00	
Satd. Flow (perm)		1796	1583	1378		1583		3529		470	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	7	25	22	0	88	0	1023	21	66	875	0
RTOR Reduction (vph)	0	0	22	0	0	75	0	1	0	0	0	0
Lane Group Flow (vph)	0	27	3	22	0	13	0	1043	0	66	875	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		6.1	6.1	6.1		6.1		35.1		35.1	35.1	
Effective Green, g (s)		6.1	6.1	8.1		8.1		38.1		38.1	38.1	
Actuated g/C Ratio		0.11	0.11	0.15		0.15		0.70		0.70	0.70	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		202	178	205		236		2480		330	1309	
v/s Ratio Prot								0.30			c0.47	
v/s Ratio Perm		0.02	0.00	c0.02		0.01				0.14		
v/c Ratio		0.13	0.02	0.11		0.06		0.42		0.20	0.67	
Uniform Delay, d1		21.7	21.4	19.9		19.8		3.4		2.8	4.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.0	0.2		0.1		0.1		0.3	1.3	
Delay (s)		22.0	21.4	20.2		19.9		3.5		3.1	5.8	
Level of Service		C	C	C		B		A		A	A	
Approach Delay (s)		21.7			19.9			3.5			5.6	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	64.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	204	277	106	75	0
Future Volume (vph)	0	204	277	106	75	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.959			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3413	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3413	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		141.6	100.9		55.2	
Travel Time (s)		10.2	7.3		4.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	222	301	115	82	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	222	416	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	204	277	106	75	0
Future Volume (Veh/h)	0	204	277	106	75	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	222	301	115	82	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			101			
pX, platoon unblocked						
vC, conflicting volume	416				580	208
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	416				580	208
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				82	100
cM capacity (veh/h)	1154				450	804

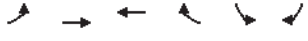
Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	222	201	215	82
Volume Left	0	0	0	82
Volume Right	0	0	115	0
cSH	1154	1700	1700	450
Volume to Capacity	0.00	0.12	0.13	0.18
Queue Length 95th (m)	0.0	0.0	0.0	5.3
Control Delay (s)	0.0	0.0	0.0	14.8
Lane LOS				B
Approach Delay (s)	0.0	0.0		14.8
Approach LOS				B

Intersection Summary				
Average Delay		1.7		
Intersection Capacity Utilization		21.9%	ICU Level of Service	A
Analysis Period (min)		15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	71	102	150	9	6	49
Future Volume (vph)	71	102	150	9	6	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992		0.881	
Flt Protected		0.980			0.994	
Satd. Flow (prot)	0	1840	1850	0	1664	0
Flt Permitted		0.980			0.994	
Satd. Flow (perm)	0	1840	1850	0	1664	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		40.2	232.2		42.1	
Travel Time (s)		2.9	16.7		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	77	111	163	10	7	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	188	173	0	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	71	102	150	9	6	49
Future Volume (Veh/h)	71	102	150	9	6	49
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)	77	111	163	10	7	53
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		101				
pX, platoon unblocked						
vC, conflicting volume	173				433	168
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	173				433	168
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				99	94
cM capacity (veh/h)	1416				552	881

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	188	173	60
Volume Left	77	0	7
Volume Right	0	10	53
cSH	1416	1700	824
Volume to Capacity	0.05	0.10	0.07
Queue Length 95th (m)	1.4	0.0	1.9
Control Delay (s)	3.4	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	3.4	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	170	30	4	195	19	3
Future Volume (vph)	170	30	4	195	19	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980				0.983	
Flt Protected				0.999	0.958	
Satd. Flow (prot)	1831	0	0	1862	1789	0
Flt Permitted				0.999	0.958	
Satd. Flow (perm)	1831	0	0	1862	1789	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	61.0			40.2	39.0	
Travel Time (s)	4.4			2.9	2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	185	33	4	212	21	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	218	0	0	216	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	170	30	4	195	19	3
Future Volume (Veh/h)	170	30	4	195	19	3
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)	185	33	4	212	21	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)	61					
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			218		422	202
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			185		394	168
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		96	100
cM capacity (veh/h)			1367		598	859

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	218	216	24
Volume Left	0	4	21
Volume Right	33	0	3
cSH	1700	1367	621
Volume to Capacity	0.13	0.00	0.04
Queue Length 95th (m)	0.0	0.1	1.0
Control Delay (s)	0.0	0.2	11.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	11.0
Approach LOS			B

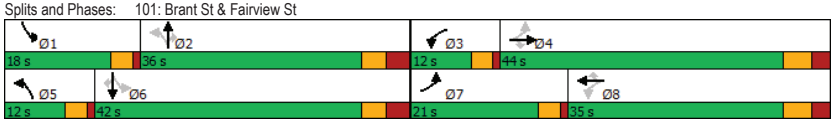
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	847	281	165	804	258	268	672	171	254	694	176
Future Volume (vph)	338	847	281	165	804	258	268	672	171	254	694	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		100.0	30.0		0.0	25.0		20.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			80.0			70.0			30.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.126			0.181			0.223			0.132		
Satd. Flow (perm)	235	3539	1583	337	3539	1583	415	3539	1583	246	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			251			251			192			191
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		235.3			233.0			295.9			242.7	
Travel Time (s)		16.9			16.8			21.3			17.5	
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
Adj. Flow (vph)	367	921	305	179	874	280	291	730	186	276	754	191
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	921	305	179	874	280	291	730	186	276	754	191
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0	7.0	8.0	8.0
Minimum Split (s)	11.5	30.4	30.4	11.5	30.4	30.4	11.5	30.5	30.5	22.0	30.5	30.5
Total Split (s)	21.0	44.0	44.0	12.0	35.0	35.0	12.0	36.0	36.0	18.0	42.0	42.0
Total Split (%)	19.1%	40.0%	40.0%	10.9%	31.8%	31.8%	10.9%	32.7%	32.7%	16.4%	38.2%	38.2%
Maximum Green (s)	17.0	37.6	37.6	8.0	28.6	28.6	8.0	29.5	29.5	14.0	35.5	35.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.2	3.2	1.0	3.2	3.2
Lost Time Adjust (s)	0.0	-2.4	-2.4	0.0	-2.4	-2.4	0.0	-2.5	-2.5	0.0	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	51.2	39.2	39.2	38.2	30.1	30.1	36.8	28.7	28.7	46.7	34.6	34.6
Actuated g/C Ratio	0.48	0.37	0.37	0.36	0.28	0.28	0.35	0.27	0.27	0.44	0.33	0.33
v/c Ratio	1.02	0.70	0.41	0.78	0.87	0.44	1.18	0.76	0.33	0.90	0.65	0.30
Control Delay	81.6	32.4	7.3	43.8	46.9	8.1	141.1	41.3	5.6	56.3	33.5	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.6	32.4	7.3	43.8	46.9	8.1	141.1	41.3	5.6	56.3	33.5	5.0
LOS	F	C	A	D	D	A	F	D	A	E	C	A
Approach Delay		38.9			38.3			59.8			34.2	
Approach LOS		D			D			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 105.9			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 42.4		Intersection LOS: D	
Intersection Capacity Utilization 88.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Brant St & Fairview St



Queues
101: Brant St & Fairview St

Total (2034)
SAT Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	367	921	305	179	874	280	291	730	186	276	754	191
v/c Ratio	1.02	0.70	0.41	0.78	0.87	0.44	1.18	0.76	0.33	0.90	0.65	0.30
Control Delay	81.6	32.4	7.3	43.8	46.9	8.1	141.1	41.3	5.6	56.3	33.5	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.6	32.4	7.3	43.8	46.9	8.1	141.1	41.3	5.6	56.3	33.5	5.0
Queue Length 50th (m)	~70.4	90.9	7.8	22.3	97.1	4.7	~49.6	77.4	0.0	42.0	73.9	0.0
Queue Length 95th (m)	#132.8	117.3	28.7	#53.2	#133.5	26.2	#102.2	99.5	15.5	#92.4	94.7	15.3
Internal Link Dist (m)		211.3			209.0			271.9			218.7	
Turn Bay Length (m)			100.0	30.0			25.0		20.0	40.0		
Base Capacity (vph)	360	1340	755	229	1038	642	246	1072	613	310	1273	691
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.69	0.40	0.78	0.84	0.44	1.18	0.68	0.30	0.89	0.59	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
101: Brant St & Fairview St

Total (2034)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	847	281	165	804	258	268	672	171	254	694	176
Future Volume (vph)	338	847	281	165	804	258	268	672	171	254	694	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.13	1.00	1.00	0.18	1.00	1.00	0.22	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	234	3539	1583	338	3539	1583	415	3539	1583	247	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	367	921	305	179	874	280	291	730	186	276	754	191
RTOR Reduction (vph)	0	0	158	0	0	179	0	0	136	0	0	129
Lane Group Flow (vph)	367	921	147	179	874	101	291	730	50	276	754	62
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.8	36.8	36.8	35.8	27.8	27.8	34.2	26.2	26.2	44.1	32.1	32.1
Effective Green, g (s)	48.8	39.2	39.2	35.8	30.2	30.2	34.2	28.7	28.7	44.1	34.6	34.6
Actuated g/C Ratio	0.46	0.37	0.37	0.34	0.29	0.29	0.32	0.27	0.27	0.42	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	354	1311	586	222	1010	451	236	960	429	303	1157	517
v/s Ratio Prot	c0.17	0.26		0.06	0.25		c0.09	0.21		c0.12	0.21	
v/s Ratio Perm	c0.31		0.09	0.21		0.06	c0.30		0.03	0.26		0.04
v/c Ratio	1.04	0.70	0.25	0.81	0.87	0.22	1.23	0.76	0.12	0.91	0.65	0.12
Uniform Delay, d1	30.8	28.3	23.1	26.7	35.9	28.8	32.3	35.4	29.0	26.7	30.4	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	57.7	1.7	0.2	18.9	7.9	0.3	136.0	3.6	0.1	29.8	1.3	0.1
Delay (s)	88.4	30.1	23.3	45.5	43.7	29.1	168.3	39.0	29.1	56.5	31.8	25.0
Level of Service	F	C	C	D	D	C	F	D	C	E	C	C
Approach Delay (s)		42.2			40.9			68.6			36.3	
Approach LOS		D			D			E			D	

Intersection Summary				
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.06			
Actuated Cycle Length (s)	105.8	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	88.3%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	8	16	85	13	123	14	1002	56	109	1030	40
Future Volume (vph)	61	8	16	85	13	123	14	1002	56	109	1030	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	20.0		0.0	15.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			40.0			10.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.902			0.864			0.992			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1680	0	1770	1609	0	1770	3511	0	1770	3518	0
Flt Permitted	0.602			0.740			0.177			0.180		
Satd. Flow (perm)	1121	1680	0	1378	1609	0	330	3511	0	335	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			134			10			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			113.4			150.5			295.9	
Travel Time (s)		24.8			8.2			10.8			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	9	17	92	14	134	15	1089	61	118	1120	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	26	0	92	148	0	15	1150	0	118	1163	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4		2	2		1	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		41.0	41.0		10.0	41.0	
Total Split (s)	23.0	23.0		23.0	23.0		55.0	55.0		12.0	55.0	
Total Split (%)	25.6%	25.6%		25.6%	25.6%		61.1%	61.1%		13.3%	61.1%	
Maximum Green (s)	16.0	16.0		16.0	16.0		48.0	48.0		9.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lead/Lag							Lag	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		23.0	23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	14.0	14.0		14.0	14.0		42.5	42.5		54.4	42.5	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.59	0.59		0.75	0.59	
v/c Ratio	0.31	0.08		0.35	0.35		0.08	0.56		0.26	0.56	
Control Delay	32.3	17.2		32.2	9.9		9.4	11.2		4.1	11.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1		0.0	0.0	
Total Delay	32.3	17.2		32.2	9.9		9.4	11.3		4.1	11.3	
LOS	C	B		C	A		A	B		A	B	
Approach Delay		28.1			18.4			11.3			10.7	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 72.5			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 64.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Brant St & Grahams Ln/Prospect St



Queues
102: Brant St & Grahams Ln/Prospect St

Total (2034)
SAT Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	26	92	148	15	1150	118	1163
v/c Ratio	0.31	0.08	0.35	0.35	0.08	0.56	0.26	0.56
Control Delay	32.3	17.2	32.2	9.9	9.4	11.2	4.1	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	32.3	17.2	32.2	9.9	9.4	11.3	4.1	11.3
Queue Length 50th (m)	8.2	1.1	11.5	1.7	0.9	49.4	3.2	50.4
Queue Length 95th (m)	22.2	8.0	28.4	17.6	4.3	82.9	8.9	84.6
Internal Link Dist (m)		321.0		89.4		126.5		271.9
Turn Bay Length (m)	30.0		20.0		15.0		20.0	
Base Capacity (vph)	302	466	372	532	239	2549	496	2554
Starvation Cap Reductn	0	0	0	0	0	378	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.06	0.25	0.28	0.06	0.53	0.24	0.46

Intersection Summary

HCM Signalized Intersection Capacity Analysis
102: Brant St & Grahams Ln/Prospect St

Total (2034)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	8	16	85	13	123	14	1002	56	109	1030	40
Future Volume (vph)	61	8	16	85	13	123	14	1002	56	109	1030	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		0.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1680		1770	1610		1770	3511		1770	3520	
Flt Permitted	0.60	1.00		0.74	1.00		0.18	1.00		0.18	1.00	
Satd. Flow (perm)	1121	1680		1379	1610		329	3511		336	3520	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	9	17	92	14	134	15	1089	61	118	1120	43
RTOR Reduction (vph)	0	14	0	0	108	0	0	4	0	0	3	0
Lane Group Flow (vph)	66	12	0	92	40	0	15	1146	0	118	1160	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	10.9	10.9		10.9	10.9		39.4	39.4		44.9	39.4	
Effective Green, g (s)	13.9	13.9		13.9	13.9		42.4	42.4		50.9	42.4	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.58	0.58		0.70	0.58	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	320		263	307		191	2044		402	2050	
v/s Ratio Prot		0.01			0.02			0.33		c0.03	c0.33	
v/s Ratio Perm	0.06			c0.07			0.05			0.17		
v/c Ratio	0.31	0.04		0.35	0.13		0.08	0.56		0.29	0.57	
Uniform Delay, d1	25.3	24.0		25.5	24.4		6.7	9.4		4.7	9.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.0		0.8	0.2		0.2	0.4		0.4	0.4	
Delay (s)	26.1	24.1		26.3	24.6		6.8	9.8		5.1	9.8	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		25.6			25.3			9.7			9.4	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.47				
Actuated Cycle Length (s)	72.8	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	64.7%	ICU Level of Service		C	
Analysis Period (min)	15				

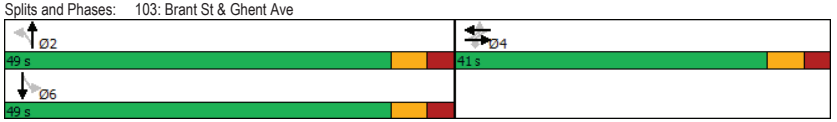
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	26	26	38	28	103	37	802	40	118	829	178
Future Volume (vph)	156	26	26	38	28	103	37	802	40	118	829	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		0.0	25.0		0.0	15.0		0.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			30.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.917			0.993			0.974	
Flt Protected		0.959			0.989		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	1689	0	1770	3514	0	1770	3447	0
Flt Permitted		0.649			0.897		0.181			0.247		
Satd. Flow (perm)	0	1209	1583	0	1532	0	337	3514	0	460	3447	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48		107			8			40	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.4			59.5			75.4			150.5	
Travel Time (s)		6.9			4.3			5.4			10.8	
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
Adj. Flow (vph)	170	28	28	41	30	112	40	872	43	128	901	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	28	0	183	0	40	915	0	128	1094	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0		34.0	34.0		34.0	34.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		-3.0	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0	15.0	15.0	15.0		16.0	16.0		16.0	16.0	
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		19.8	19.8		19.8		29.6	29.6		29.6	29.6	
Actuated g/C Ratio		0.34	0.34		0.34		0.51	0.51		0.51	0.51	
v/c Ratio		0.48	0.05		0.31		0.23	0.51		0.55	0.62	
Control Delay		21.7	2.8		9.3		13.4	10.9		21.7	11.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		21.7	2.8		9.3		13.4	10.9		21.7	11.9	
LOS		C	A		A		B	B		C	B	
Approach Delay		19.4			9.3			11.0			12.9	
Approach LOS		B			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 58.1			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 68.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 103: Brant St & Ghent Ave



Queues
103: Brant St & Ghent Ave

Total (2034)
SAT Peak Hour

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	198	28	183	40	915	128	1094
v/c Ratio	0.48	0.05	0.31	0.23	0.51	0.55	0.62
Control Delay	21.7	2.8	9.3	13.4	10.9	21.7	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	2.8	9.3	13.4	10.9	21.7	11.9
Queue Length 50th (m)	15.4	0.0	5.2	2.1	29.2	8.0	36.4
Queue Length 95th (m)	44.3	3.1	22.6	10.1	63.1	32.6	79.0
Internal Link Dist (m)	71.4		35.5		51.4		126.5
Turn Bay Length (m)		15.0		25.0		15.0	
Base Capacity (vph)	839	1114	1096	270	2818	368	2770
Starvation Cap Reductn	0	0	0	0	0	0	112
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.03	0.17	0.15	0.32	0.35	0.41

Intersection Summary

HCM Signalized Intersection Capacity Analysis
103: Brant St & Ghent Ave

Total (2034)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	26	26	38	28	103	37	802	40	118	829	178
Future Volume (vph)	156	26	26	38	28	103	37	802	40	118	829	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.92		1.00	0.99		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786	1583		1690		1770	3514		1770	3446	
Flt Permitted		0.65	1.00		0.90		0.18	1.00		0.25	1.00	
Satd. Flow (perm)		1209	1583		1533		338	3514		461	3446	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	28	28	41	30	112	40	872	43	128	901	193
RTOR Reduction (vph)	0	0	18	0	70	0	0	4	0	0	19	0
Lane Group Flow (vph)	0	198	10	0	113	0	40	911	0	128	1075	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)		16.5	16.5		16.5		26.3	26.3		26.3	26.3	
Effective Green, g (s)		19.5	19.5		19.5		29.3	29.3		29.3	29.3	
Actuated g/C Ratio		0.34	0.34		0.34		0.52	0.52		0.52	0.52	
Clearance Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		415	543		526		174	1812		237	1777	
v/s Ratio Prot								0.26			c0.31	
v/s Ratio Perm		c0.16	0.01		0.07		0.12			0.28		
v/c Ratio		0.48	0.02		0.21		0.23	0.50		0.54	0.60	
Uniform Delay, d1		14.6	12.3		13.2		7.6	9.0		9.2	9.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9	0.0		0.2		0.7	0.2		2.5	0.6	
Delay (s)		15.5	12.3		13.4		8.2	9.2		11.7	10.3	
Level of Service		B	B		B		A	A		B	B	
Approach Delay (s)		15.1			13.4			9.2			10.4	
Approach LOS		B			B			A			B	

Intersection Summary				
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	68.5%	ICU Level of Service	C	
Analysis Period (min)	15			

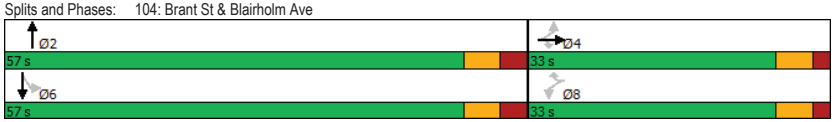
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	0	6	11	0	47	0	813	9	38	820	0
Future Volume (vph)	16	0	6	11	0	47	0	813	9	38	820	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	10.0		0.0	0.0		0.0	10.0		0.0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (m)	7.5			20.0			7.5			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.998				
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1770	1583	1770	0	1583	0	3532	0	1770	1863	0
Flt Permitted		0.950		0.746						0.311		
Satd. Flow (perm)	0	1770	1583	1390	0	1583	0	3532	0	579	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			51		2				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.1			305.8			317.1			241.2	
Travel Time (s)		5.9			22.0			22.8			17.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	0	7	12	0	51	0	884	10	41	891	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	7	12	0	51	0	894	0	41	891	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		1.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1		1		2		1	2	
Detector Template	Left	Thru	Right	Left		Right		Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0		2.0		10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0		2.0		0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Detector 2 Position(m)		9.4						9.4			9.4	
Detector 2 Size(m)		0.6						0.6			0.6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8		8		2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0		8.0		8.0	8.0	
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		43.0		42.0	42.0	
Total Split (s)	33.0	33.0	33.0	33.0		33.0		57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%	36.7%	36.7%		36.7%		63.3%		63.3%	63.3%	
Maximum Green (s)	27.0	27.0	27.0	27.0		27.0		50.0		50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0		3.0		3.0	3.0	
Lost Time Adjust (s)		0.0	0.0	-2.0		-2.0		-3.0		-3.0	-3.0	
Total Lost Time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Recall Mode	None	None	None	None		None		Min		Min	Min	
Walk Time (s)	10.0	10.0	10.0	10.0		10.0		25.0		25.0	25.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0		10.0		8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0	0	0		0		0		0	0	
Act Effct Green (s)		8.7	8.7	10.9		10.9		43.2		43.2	43.2	
Actuated g/C Ratio		0.17	0.17	0.21		0.21		0.83		0.83	0.83	
v/c Ratio		0.06	0.02	0.04		0.14		0.31		0.09	0.58	
Control Delay		25.2	0.2	23.4		9.4		2.8		3.2	5.8	
Queue Delay		0.0	0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay		25.2	0.2	23.4		9.4		2.8		3.2	5.8	
LOS		C	A	C		A		A		A	A	
Approach Delay		17.9			12.0			2.8			5.6	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 52.1			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 104: Brant St & Blairholm Ave



Queues
104: Brant St & Blairholm Ave

Total (2034)
SAT Peak Hour

Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	17	7	12	51	894	41	891
v/c Ratio	0.06	0.02	0.04	0.14	0.31	0.09	0.58
Control Delay	25.2	0.2	23.4	9.4	2.8	3.2	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	0.2	23.4	9.4	2.8	3.2	5.8
Queue Length 50th (m)	2.0	0.0	1.3	0.0	16.7	1.2	45.6
Queue Length 95th (m)	7.2	0.0	5.6	8.5	23.3	3.5	76.6
Internal Link Dist (m)	58.1				293.1		217.2
Turn Bay Length (m)			10.0			10.0	
Base Capacity (vph)	996	912	840	977	3194	523	1684
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.01	0.05	0.28	0.08	0.53

Intersection Summary

HCM Signalized Intersection Capacity Analysis
104: Brant St & Blairholm Ave

Total (2034)
SAT Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	0	6	11	0	47	0	813	9	38	820	0
Future Volume (vph)	16	0	6	11	0	47	0	813	9	38	820	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583	1770		1583		3533		1770	1863	
Flt Permitted		0.95	1.00	0.75		1.00		1.00		0.31	1.00	
Satd. Flow (perm)		1770	1583	1390		1583		3533		579	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	0	7	12	0	51	0	884	10	41	891	0
RTOR Reduction (vph)	0	0	6	0	0	45	0	1	0	0	0	0
Lane Group Flow (vph)	0	17	1	12	0	6	0	893	0	41	891	0
Turn Type	Perm	NA	Perm	Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		4.0	4.0	4.0		4.0		37.5		37.5	37.5	
Effective Green, g (s)		4.0	4.0	6.0		6.0		40.5		40.5	40.5	
Actuated g/C Ratio		0.07	0.07	0.11		0.11		0.74		0.74	0.74	
Clearance Time (s)		6.0	6.0	6.0		6.0		7.0		7.0	7.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		129	116	153		174		2625		430	1384	
v/s Ratio Prot								0.25			c0.48	
v/s Ratio Perm		0.01	0.00	0.01		0.00				0.07		
v/c Ratio		0.13	0.00	0.08		0.03		0.34		0.10	0.64	
Uniform Delay, d1		23.6	23.4	21.8		21.7		2.4		1.9	3.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.5	0.0	0.2		0.1		0.1		0.1	1.0	
Delay (s)		24.1	23.4	22.0		21.7		2.5		2.0	4.5	
Level of Service		C	C	C		C		A		A	A	
Approach Delay (s)		23.9			21.8			2.5			4.4	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	64.8%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	122	139	103	85	0
Future Volume (vph)	0	122	139	103	85	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.936			
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3341	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3341	0	1805	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		147.1	95.4		67.9	
Travel Time (s)		10.6	6.9		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	133	151	112	92	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	133	263	0	92	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	122	139	103	85	0
Future Volume (Veh/h)	0	122	139	103	85	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	133	151	112	92	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)			95			
pX, platoon unblocked						
vC, conflicting volume	263				340	132
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	263				340	132
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				86	100
cM capacity (veh/h)	1313				636	900

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	133	101	162	92
Volume Left	0	0	0	92
Volume Right	0	0	112	0
cSH	1313	1700	1700	636
Volume to Capacity	0.00	0.06	0.10	0.14
Queue Length 95th (m)	0.0	0.0	0.0	4.0
Control Delay (s)	0.0	0.0	0.0	11.6
Lane LOS				B
Approach Delay (s)	0.0	0.0		11.6
Approach LOS				B

Intersection Summary				
Average Delay		2.2		
Intersection Capacity Utilization		18.5%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	91	91	9	7	60
Future Volume (vph)	70	91	91	9	7	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.988		0.880	
Flt Protected		0.979			0.995	
Satd. Flow (prot)	0	1839	1844	0	1664	0
Flt Permitted		0.979			0.995	
Satd. Flow (perm)	0	1839	1844	0	1664	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		44.5	229.4		40.7	
Travel Time (s)		3.2	16.5		2.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	76	99	99	10	8	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	175	109	0	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	91	91	9	7	60
Future Volume (Veh/h)	70	91	91	9	7	60
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	99	99	10	8	65
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		104				
pX, platoon unblocked						
vC, conflicting volume	109				355	104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109				355	104
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				99	93
cM capacity (veh/h)	1494				614	956

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	175	109	73
Volume Left	76	0	8
Volume Right	0	10	65
cSH	1494	1700	901
Volume to Capacity	0.05	0.06	0.08
Queue Length 95th (m)	1.3	0.0	2.1
Control Delay (s)	3.5	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	3.5	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	157	26	3	148	27	4
Future Volume (vph)	157	26	3	148	27	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981				0.984	
Flt Protected				0.999	0.958	
Satd. Flow (prot)	1827	0	0	1861	1756	0
Flt Permitted				0.999	0.958	
Satd. Flow (perm)	1827	0	0	1861	1756	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	59.5			44.5	71.2	
Travel Time (s)	4.3			3.2	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	171	28	3	161	29	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	199	0	0	164	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	20.2%	ICU Level of Service	A
Analysis Period (min)	15		

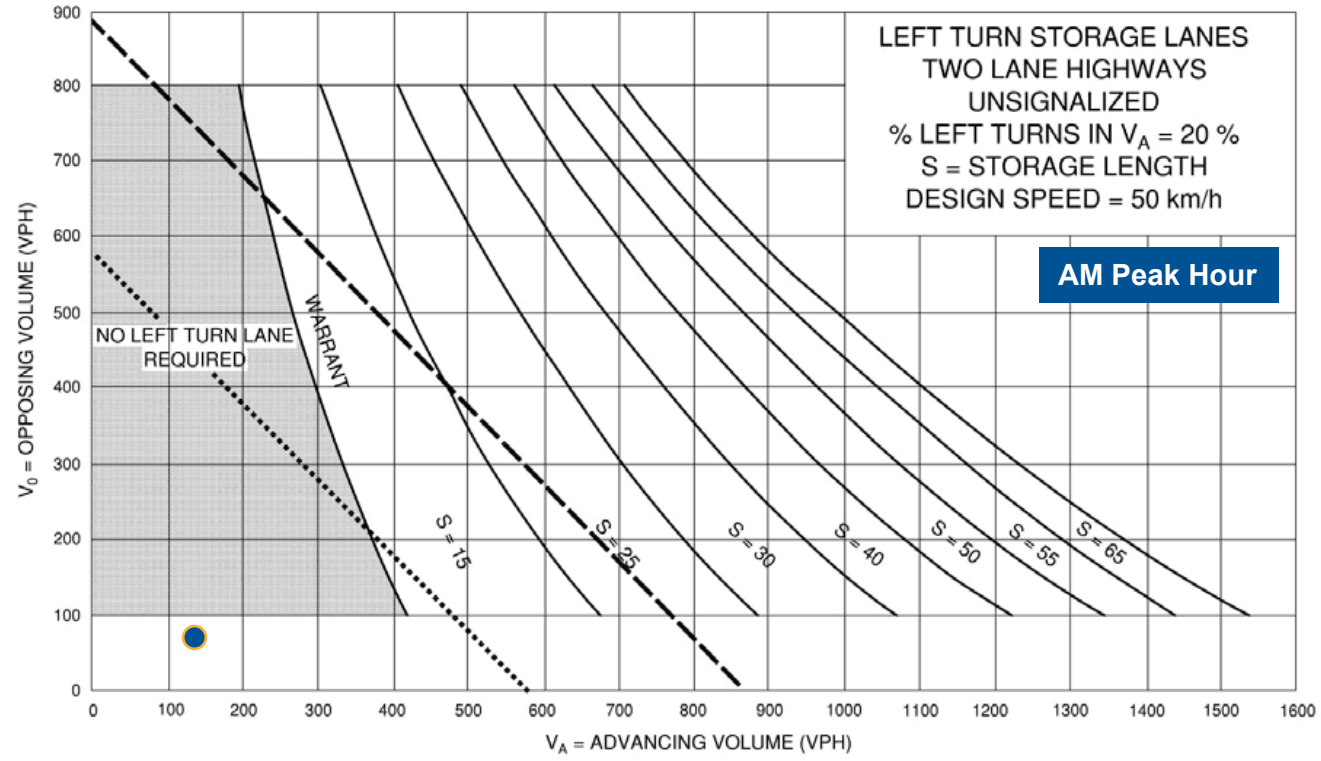
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	157	26	3	148	27	4
Future Volume (Veh/h)	157	26	3	148	27	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	171	28	3	161	29	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	59					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			199		352	185
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			171		327	156
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		96	100
cM capacity (veh/h)			1377		652	870

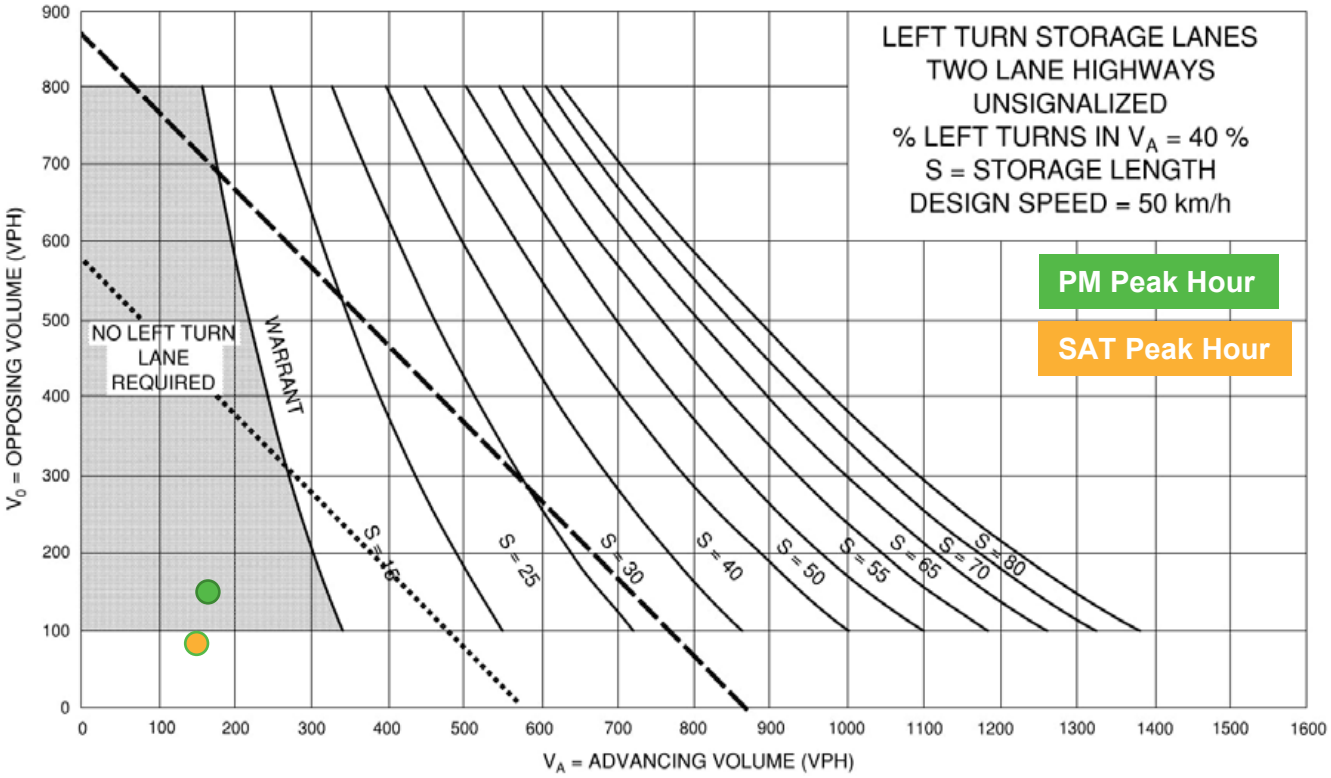
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	199	164	33
Volume Left	0	3	29
Volume Right	28	0	4
cSH	1700	1377	672
Volume to Capacity	0.12	0.00	0.05
Queue Length 95th (m)	0.0	0.1	1.2
Control Delay (s)	0.0	0.2	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	10.6
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	20.2%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix J

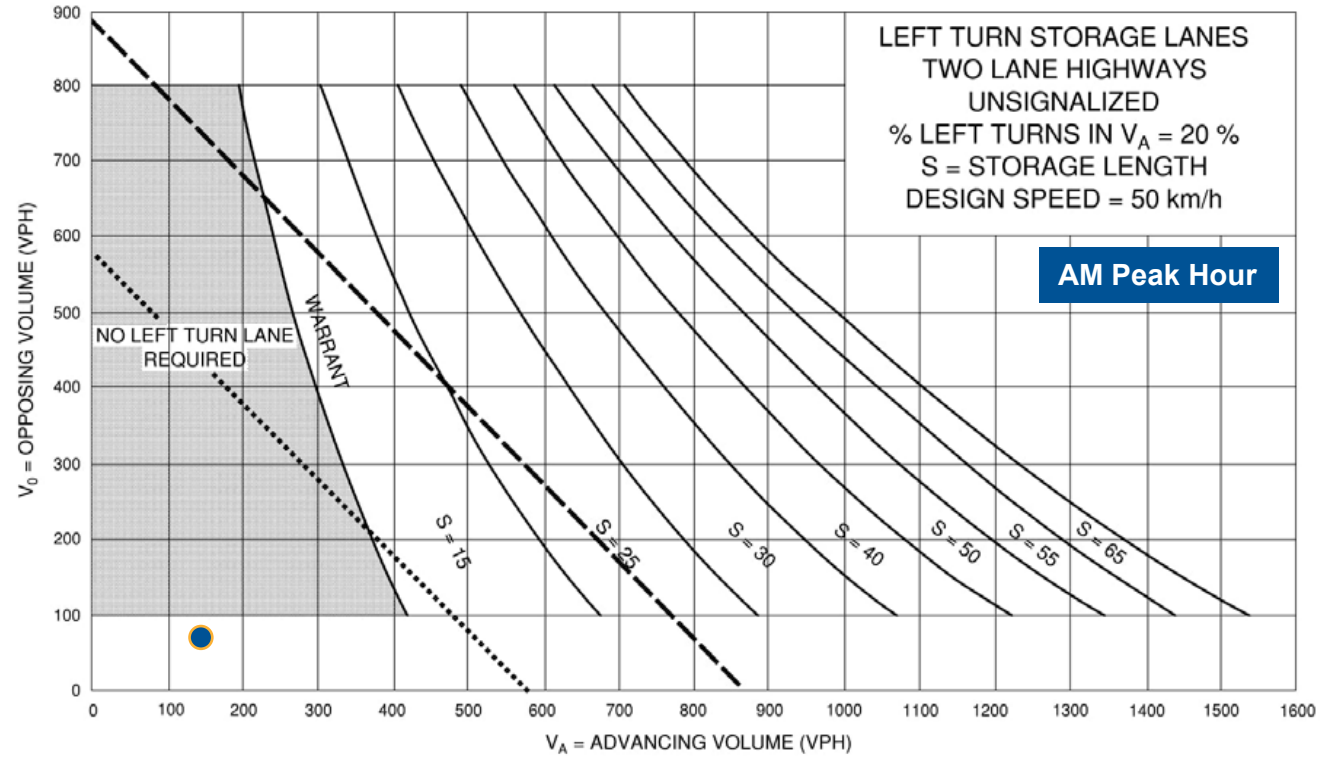
Left-Turn Lane Warrant Nomographs

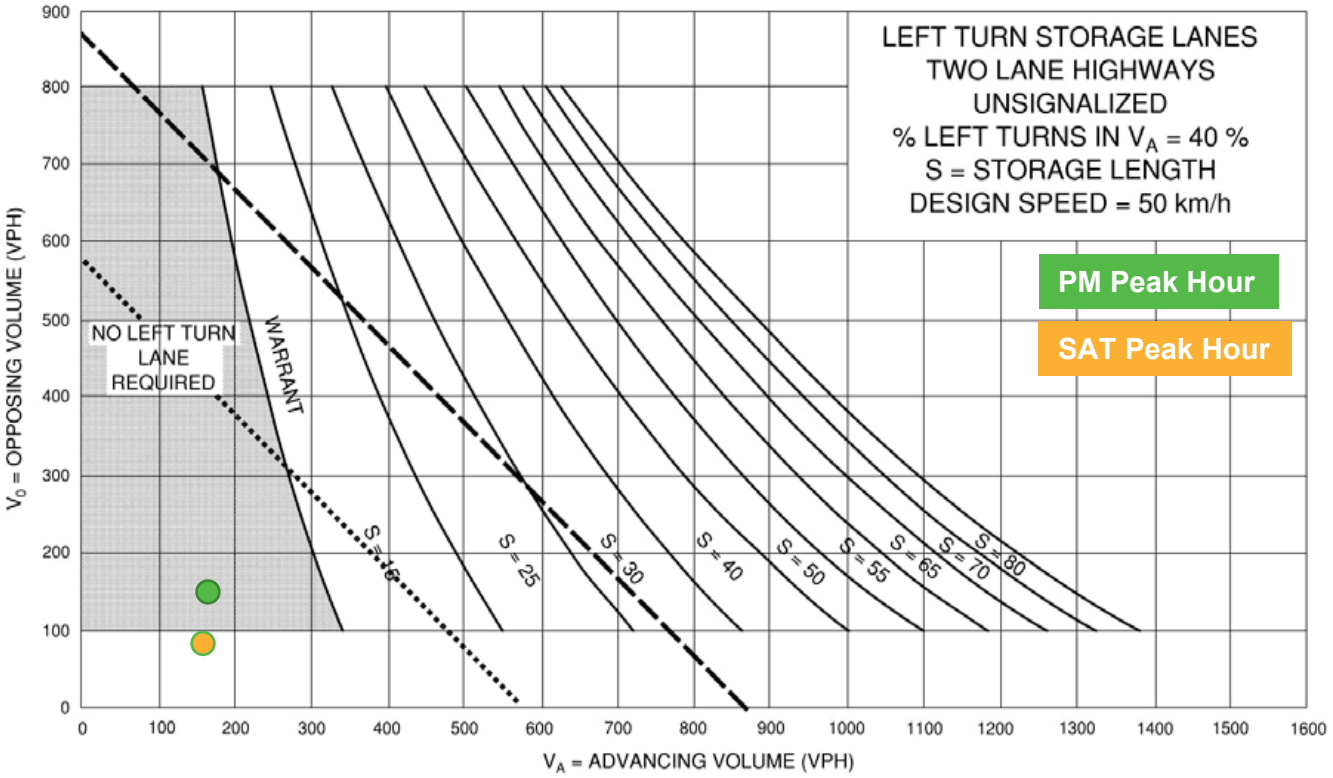




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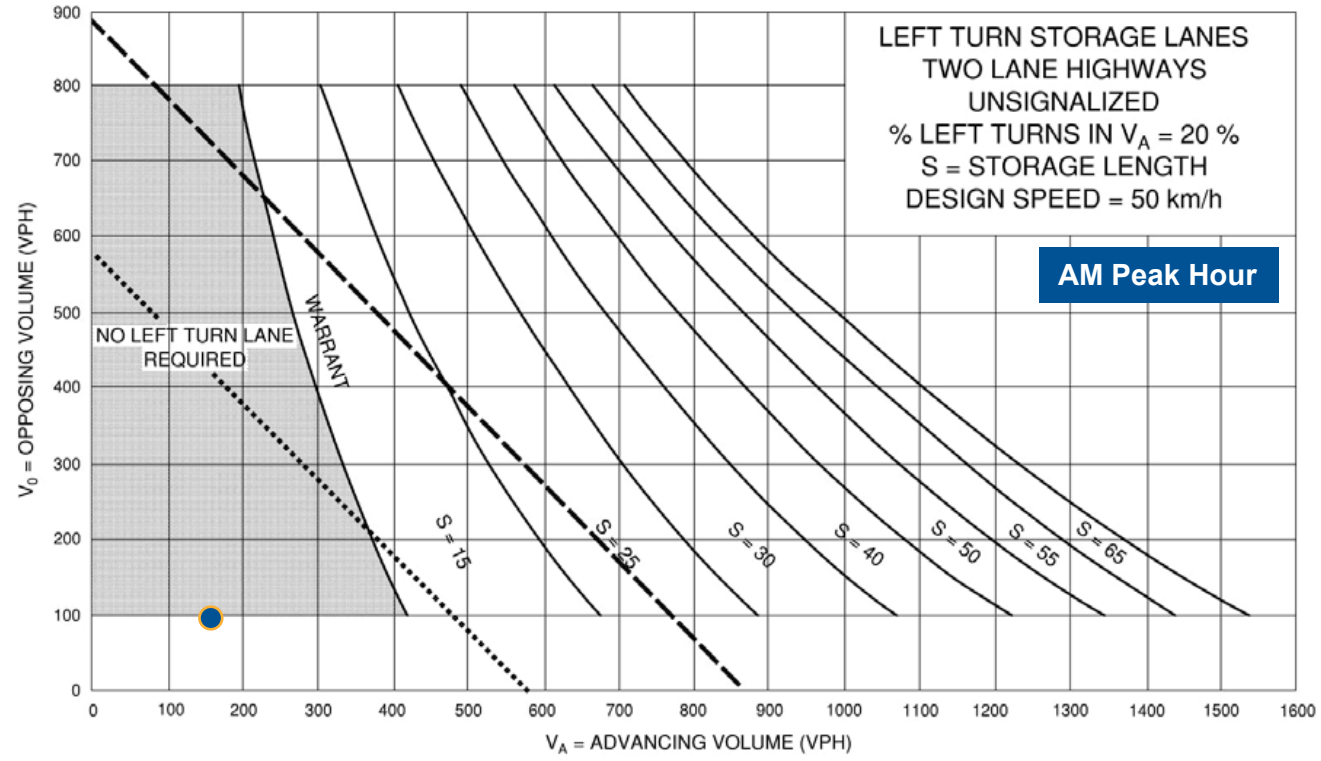
Eastbound Left-Turn Lane
Ghent Avenue and Lot B Driveway
Total – Phase 2 Volumes

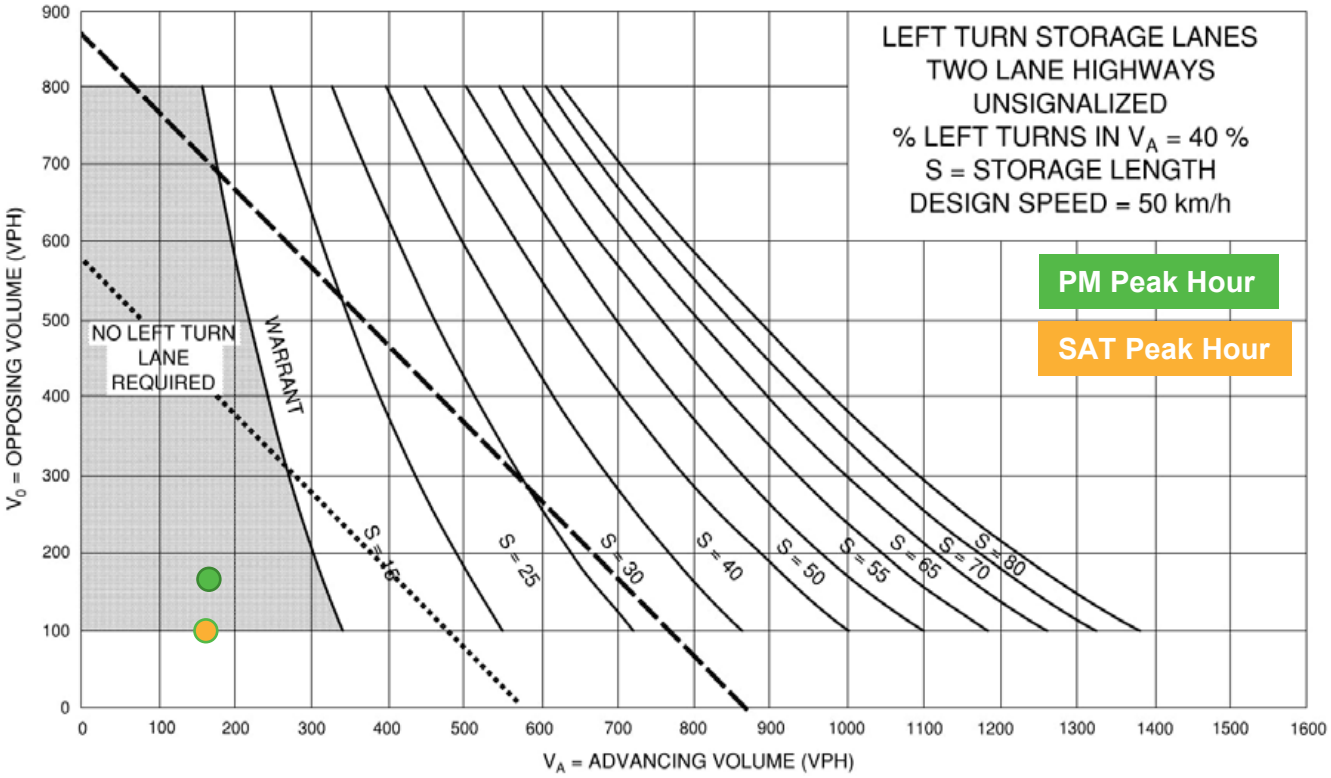




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Eastbound Left-Turn Lane
Ghent Avenue and Lot B Driveway
Total – Full Build-Out Volumes





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Eastbound Left-Turn Lane
Ghent Avenue and Lot B Driveway
Total – Five-Year Horizon Volumes