



50 Welham Road

Proposed Industrial Development Traffic Impact Study

31 March 2023

→ The Power of Commitment



Executive summary

GHD was retained to prepare a Traffic Impact Study (TIS) for the proposed industrial subdivision located at 50 Welham Road in the City of Barrie.

This report establishes the existing and future road network and the subsequent traffic-related impacts of the subject site at the study intersections during the weekday a.m. and p.m. peak hours. These impacts are based on projected future background traffic derived for build-out in 2025 and a period of five and ten year post build-out in 2030 and 2035.

The proposed Draft Plan of Subdivision prepared by Innovative Planning Solutions consists of 20 individual industrial lots with a total of approximately 1,716,628 sq.ft.(15.948 Hectare) of Gross Floor Area (GFA) fronting an internal private ring road.

Access to the development is proposed via an extension of Welham Road north of the intersection of Welham Road & Hamilton Road.

Background site generated traffic from the following planned developments have also been reviewed and if necessary, site trips from these developments included in the future background traffic volumes:

- 249 Bayview Drive – three storey residential development with ground floor commercial.
- 80 Big Bay –Industrial Development that consists of 26 individual industrial lots with a total of approximately 637,000 sq.ft of Gross Floor Area (GFA).

City staff provided growth rates to be used in establishing future background traffic volumes at the study intersections. These growth rates were extracted from the City's EMMIE model and summarized in the report.

Trip Generation for the subject site was based on the following land uses:

- 55% of GFA – Light/General Industrial
- 40% of GFA – Warehouse
- 5% of GFA – Self Storage

The proposed development is expected to generate a total of 215 new two-way vehicle trips during the a.m. peak hour consisting of 56 inbound and 271 outbound trips. During the p.m. peak hour, it is expected to generate 277 new two-way vehicle trips consisting of 67 inbound and 210 outbound trips.

The distribution of site traffic for each horizon year was based on a review of Transportation Tomorrow Survey (TTS) 2016 data and existing traffic patterns in the area.

The overall impact of the proposed development is minor and will not adversely impact any of the study area intersections under all future scenarios.

There are no geometric improvements recommended at any of the study area intersections in response to the traffic generated from the subject development. However, it is recommended that the city reviews increasing the cycle lengths as follows:

- 120 seconds for the intersection of: Big Bay Point Road / Welham Road by 2030 horizon year in the a.m. peak hour and by 2025 horizon year for the p.m. peak hour.
- 120 seconds for the intersection of: Big Bay Point Road / Fairview Road by 2030 horizon year in the p.m. peak hour.
- 120 seconds for the intersection of: Little Avenue / Fairview Road by 2035 horizon year in the p.m. peak hour.

We trust that this satisfies your requirements, but do not hesitate to contact the undersigned if you have any questions.

Sincerely,

GHD



William Maria, P. Eng.
Transportation Planning Lead

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1. Introduction

1.1 Retainer and Objective

GHD is pleased to provide the following Traffic Impact Study in support of a Draft Plan of Subdivision for the proposed industrial subdivision located at 50 Welham Road in the City of Barrie.

This study was completed to determine the following:

- A summary of baseline traffic conditions for the study area intersections.
- Trip generation estimates for the proposed site plan using Institute of Transportation Engineer's (ITE) Trip Generation data and the distribution of the development traffic to the adjacent road network.
- Updates the existing traffic conditions to derive the future background operating conditions for the study intersections for a future 2025, 2030 and 2035 horizon including general corridor growth and background development traffic.
- Determine existing and future (background and total) traffic conditions during the critical peak hours by conducting intersectional capacity analysis.

The site is generally located at 50 Welham Road, north of the intersection of Welham Road/ Hamilton Road and south of Little Avenue as shown in **Figure 1**.

1.2 Terms of Reference Adjustments

GHD has an agreed Terms of Reference (ToR) for this project with City staff. Written correspondence is provided in **Appendix A**. Subsequent correspondence based on a revised site plan modified the ToR to remove the intersections of Little Avenue/Bayview Drive and Mollard Ct/Bayview Drive from the list of study intersection since the access to the Site along Bayview Drive has been removed from the site plan.

1.3 Study Team

The GHD team involved in the preparation of this study are:

- William Maria, P. Eng., Transportation Planning Lead
- Ameer Al Rijjal, Transportation Planner



Figure 1 **Site Location**

1.4 Development Proposal

The proposed Draft Plan of Subdivision prepared by Innovative Planning Solutions dated February 2023 is provided in **Figure 2**. It consists of 20 individual industrial lots with a total of approximately 1,716,628 sq.ft.(15.948 Hectare) of development area fronting an internal private ring road.

Access to the development is proposed via an extension of Welham Road north of the intersection of Welham Road & Hamilton Road. Site Plan details are provided in **Appendix B**.

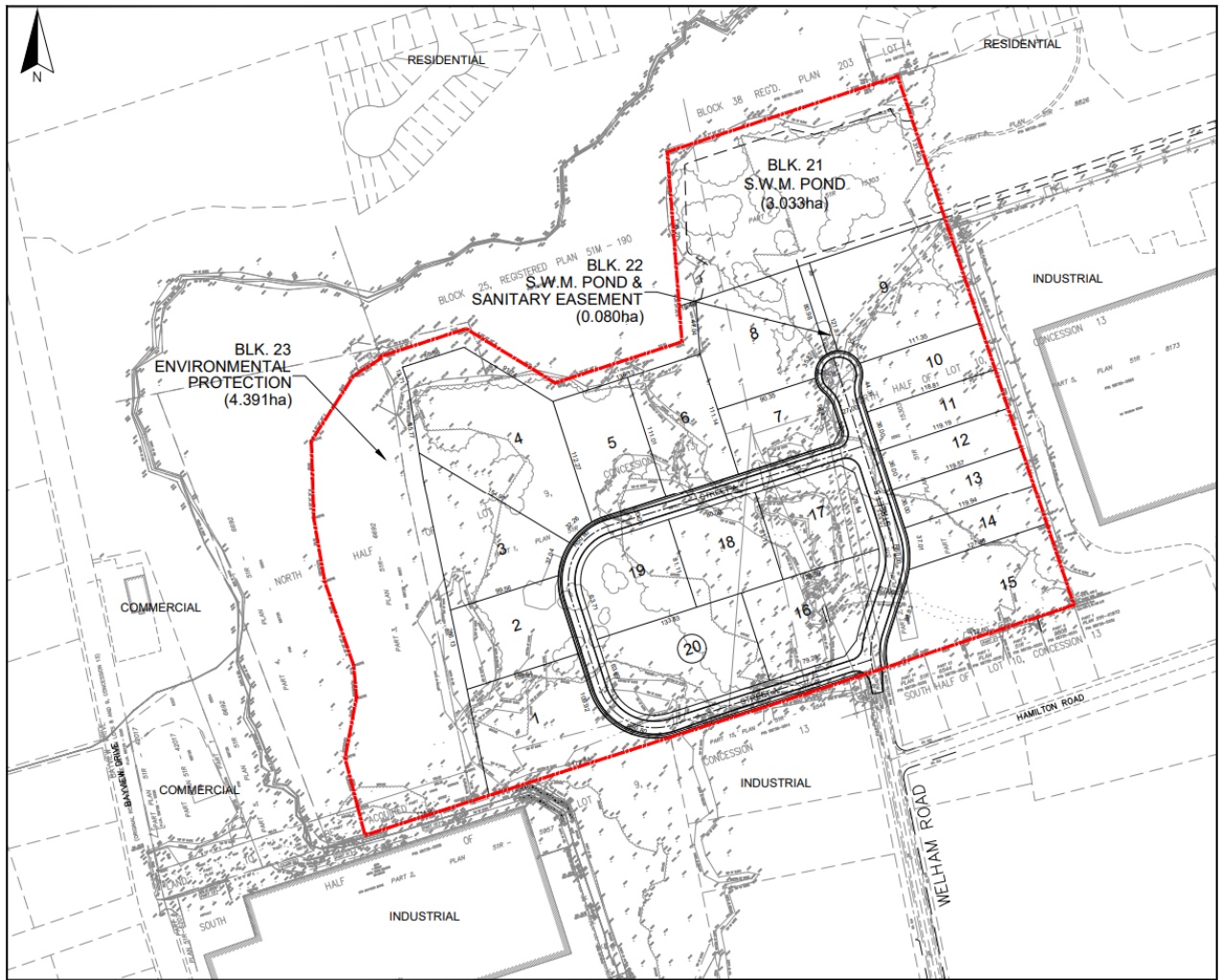


Figure 2 Proposed Draft Plan of Subdivision

2. Existing Road Network

2.1 Study Area

As confirmed by City staff, the following intersections were included in the capacity analysis:

- Big Bay Point Road and Bayview Drive
- Big Bay Point Road and Fairview Road
- Fairview Road and Little Avenue
- Welham Road and Hamilton Road
- Big Bay Point Road and Welham Road

2.2 Existing Road Network

Big Bay Point Road is an east-west arterial road under the jurisdiction of the City of Barrie. The road has recently been reconstructed west of Bayview Drive to provide a five-lane cross section. The posted speed limit is 50 km/h.

Bayview Drive is a north-south major collector road under the jurisdiction of the City of Barrie. From Big Bay Point Road to Little Avenue, it currently has a two-lane rural cross section with paved shoulders. The intersection of Bayview Drive with both Big Bay Point Road and Little Avenue are signalized. The posted speed limit is 50 km/h.

Fairview Road is a north-south arterial road under the jurisdiction of the City of Barrie that extends from Big Bay Point Road to Essa Road. North of Big Bay Point Road it has a two-lane cross section. The posted speed limit is 50 km/h.

Little Avenue is an east-west arterial road under the jurisdiction of the City of Barrie that extends from Fairview Road in the west to Hurst Drive in the east. Within the study area it has a two-lane urban cross section. The posted speed limit is 50 km/h.

Welham Road is a north-south minor collector road under the jurisdiction of the City of Barrie. It currently has a four-lane cross section and a posted speed limit of 50 km/h.

Hamilton Road is an east-west minor collector road under the jurisdiction of the City of Barrie. It currently has a two-lane cross section and a posted speed limit of 50 km/h.

The existing lane configurations and traffic controls at the study intersections are shown in **Figure 3**.

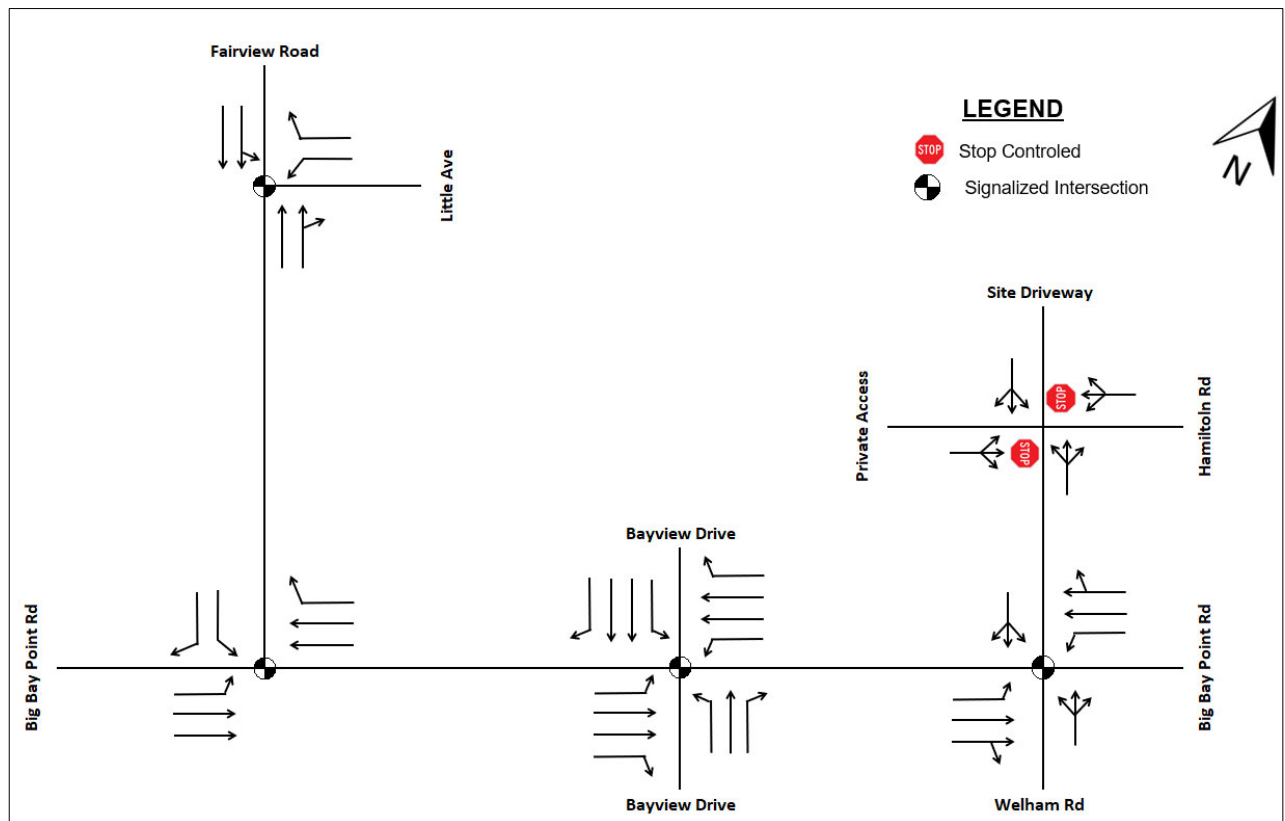


Figure 3 Existing Lane Configurations and Intersection Control

2.3 Pedestrian Facilities

Pedestrian sidewalks are currently provided on several roads within the study area including:

Big Bay Point Road – Sidewalks are provided on the south side of the road within the study area.

Bayview Drive – A sidewalk is provided on the west side of the road that extends from Little Avenue to approximately 400 metre to the south.

Fairview Road – A sidewalk is provided on the east side of the road from Essa Road to approximately 400 metres south of Little Avenue.

Little Avenue – Sidewalks are provided on both sides of the road within the study area.

2.4 Cycling Facilities

Big Bay Point Road was recently reconstructed as part of the Harvie Road extension and crossing over Highway 400. As part of this reconstruction, on-street bike lanes have been constructed on Big Bay Point Road through the study area terminating east of Bayview Drive.

The reconstructed section of Bayview Drive north of Big Bay Point Road also provides on-street bike lanes in both directions which terminate about 150 metres north of Big Bay Point Road.

2.5 Transit Service

Barrie Transit operates Route #3A and #3B which travels northbound and southbound along Bayview Road from the Barrie South GO Station to Downtown Barrie as illustrated in **Figure 4** below.

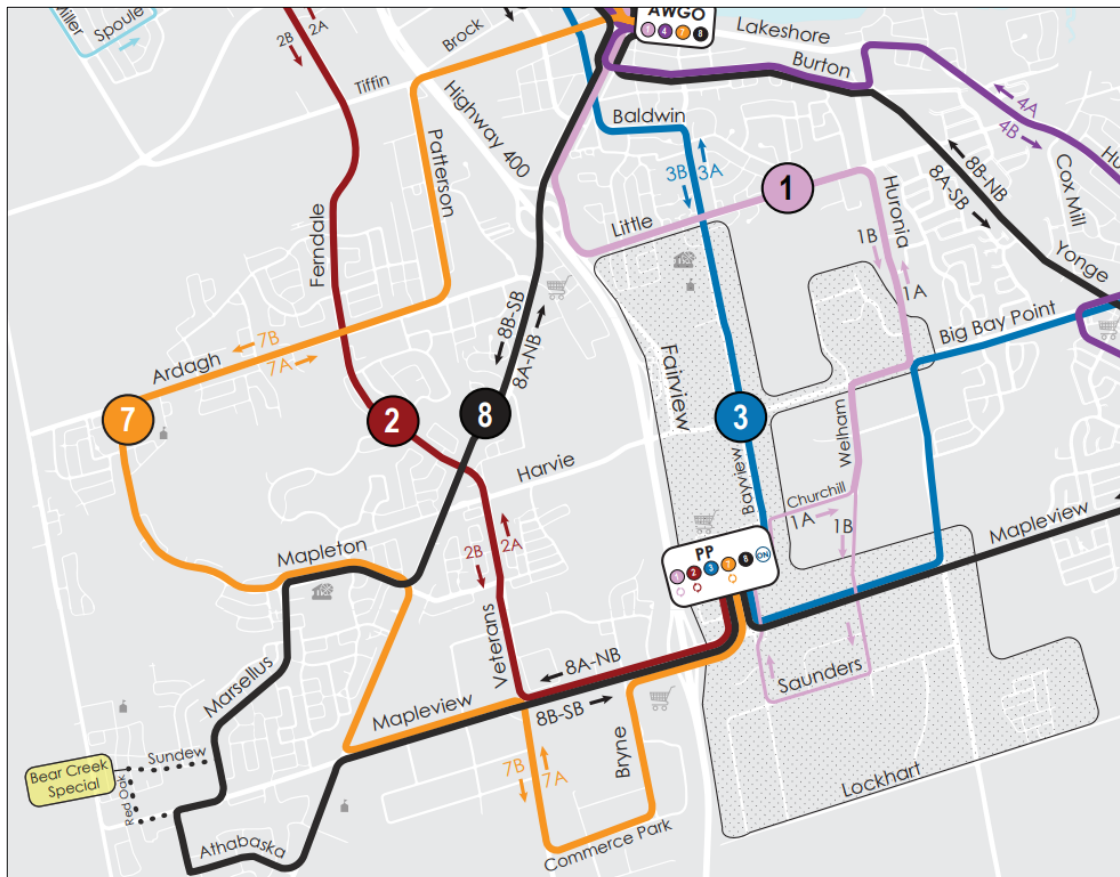


Figure 4 City of Barrie Transit Map

Route #3 offers weekday and weekend service every half hour to an hour depending on the time of day.

Route #1A offers weekday and weekend service every half hour to an hour depending on the time of day.

Route #1B offers weekday and weekend service every half hour to an hour depending on the time of day.

Existing transit stops adjacent to the site include Transit Stop ID #674 (eastbound) located approximately 850 meters south of the proposed site and #124 (southbound) located approximately 900 meters south of the proposed site.

Figure 5 shows the location of the existing transit stops adjacent to the subject site.



Figure 5 *Adjacent Transit Stop Locations*

2.6 Existing Traffic Data

GHD used historical traffic data for each of the study intersections and factored the data to the base 2023 year.

The most recent turning movement count data available from the city is summarized in **Table 1** below and is provided in **Appendix C** along with signal timing cards.

Table 1 Existing Traffic Data Source

Intersection	Date	Source
Big Bay Point Road and Bayview Drive	2019	City of Barrie
Big Bay Point Road and Fairview Road	Projected from 2031 EMME Model Data	City of Barrie
Fairview Road and Little Avenue	2016	City of Barrie
Bayview Drive and Little Avenue	2014	City of Barrie
Big Bay Point Road and Welham Road	2017	City of Barrie
Welham Road and Hamilton Road	2021	OTI

City staff provided growth rates extracted from the City's Strategic EMME model for each of the study area roads to estimate the base 2023 traffic volumes for each intersection. These rates are summarized in **Table 2**.

It is important to note that City staff did not provide growth rate for Hamilton Road in the terms of reference, therefore GHD adopted a 1% growth rate along Hamilton Road for the analysis.

Table 2 City's Strategic Travel Model Compounded Annual Growth Rates to 2023

Street Name	Annual Growth Rate
	Prior to 2031
Fairview Road	1.0%
Bayview Drive	3.4%
Big Bay Point Road	3.2%
Little Avenue	1.2%
Welham Road	1%
Hamilton Road	1%

Figure 6 summarizes the existing traffic volumes for each of the study intersections during the weekday a.m. and p.m. peak hours.

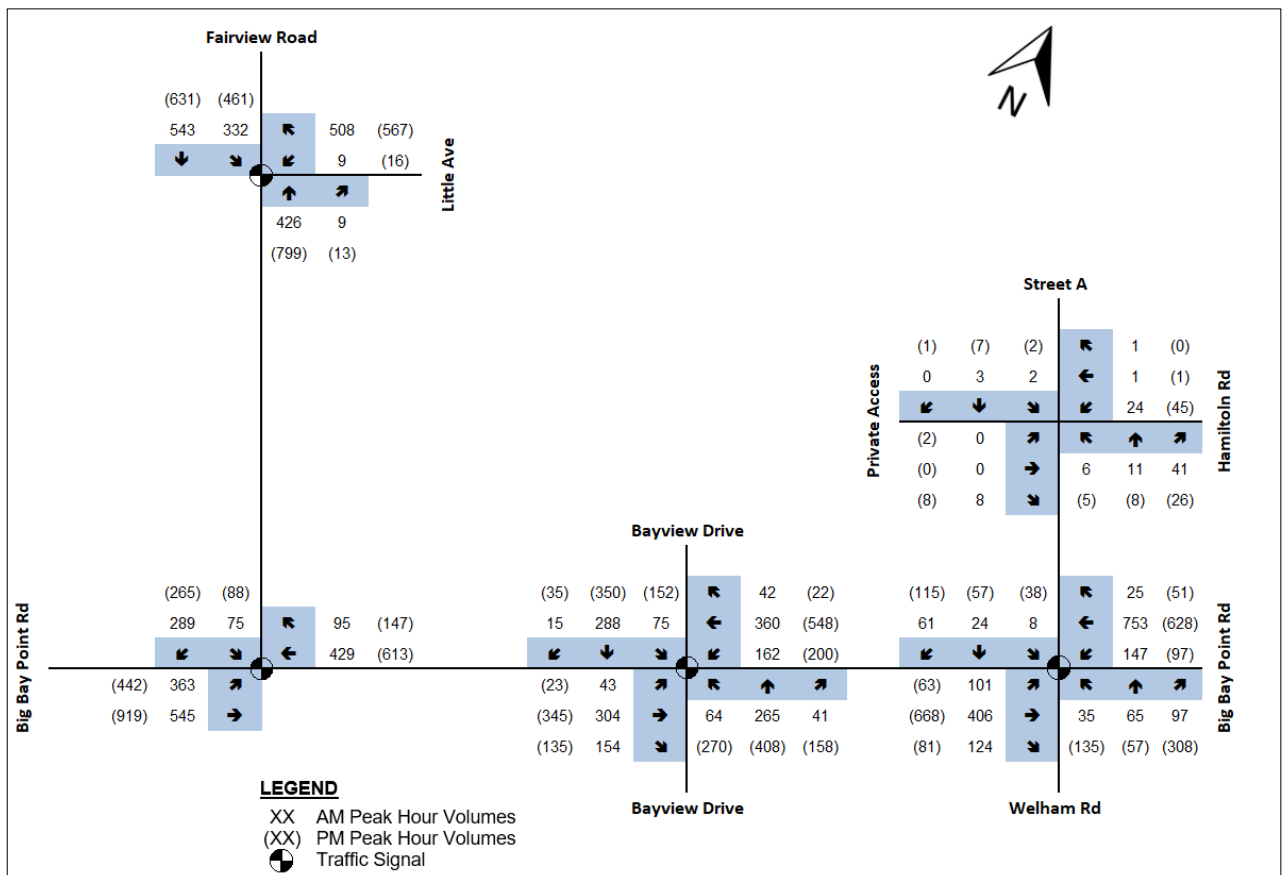


Figure 6 Projected Base 2023 Volumes

3. Future Background Traffic Conditions

3.1 Study Horizon Year

This study has been prepared with an expected build-out year of 2025 for the subject site and for a period of 5 and 10 years post build-out. As a result, the future traffic scenarios include analysis of the 2024 (build-out), 2030 (five years post build-out) and 2035 (10 years post build-out) planning horizons.

3.2 Planned Infrastructure Improvements

3.2.1 Road Improvements

Planned improvement within the study area contained with City of Barrie Transportation Master Plan Final Report dated June 2019 includes the following by 2031:

- Little Avenue widening to a five-lane cross section (two through lanes and a two-way left turn lane)
- Bayview Drive widening to a three-lane cross section (one lane per direction with two-way left turn lane) before 2031 and a five-lane cross section (two lanes per direction with two-way left turn lane)
- Fairview Road widening to a four-lane cross section.

Figure 7 below identifies the planned road improvements within the study area by 2031 from the City's Transportation Master Plan.

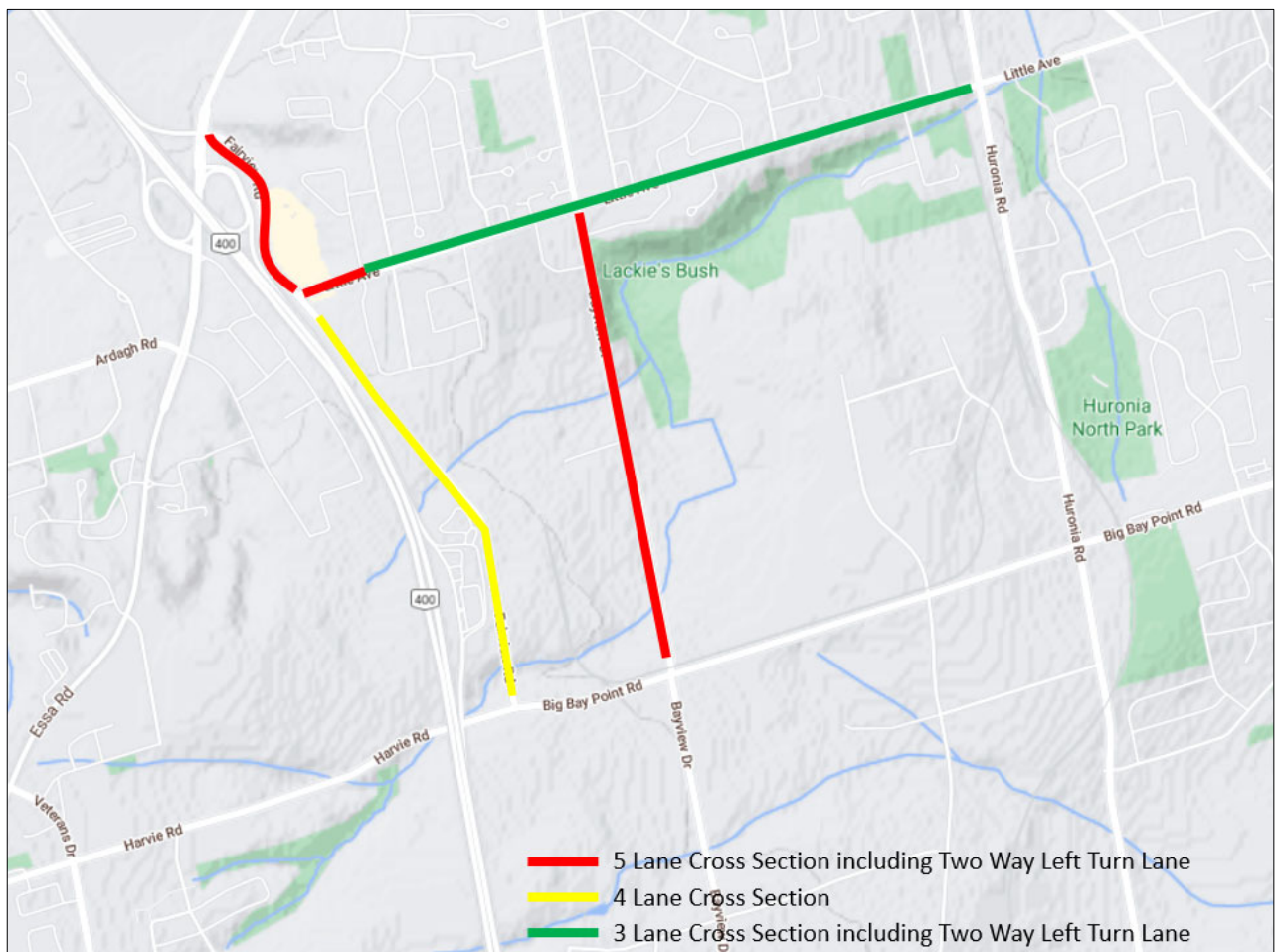


Figure 7 Planned Road Improvements by 2031

3.2.2 Pedestrian Facilities

As per the City of Barrie Transportation Master Plan – Active Transportation Strategy report dated June 2019, the city proposes to construct the following pedestrian facilities:

Short Term – 2019 to 2023

Big Bay Point Road – Sidewalk on one side of the road from Bayview Drive to Welham Road and on both sides of the road from Welham Road to Huronia Road.

Bayview Drive – Sidewalks on both sides of the road from Big Bay Point Road to north of Mollard Crescent and sidewalk on one side of the road north of Mollard Crescent to Little Avenue

Medium Term – 2024 to 2031

Fairview Road – Sidewalks on both sides of the road from Big Bay Point Road to Little Avenue

Long Term– 2032 to 2041

Welham Road – Sidewalks on both sides of the road from Salem Road to North of Hamilton Road.

Hamilton Road – Sidewalks on both sides of the road from Welham Road to Truman Road.

3.2.3 Bicycle Facilities

As per the City of Barrie Transportation Master Plan – Active Transportation Strategy report dated June 2019, the city proposed to construct the following bicycle facilities:

Short Term – 2019 to 2023

Big Bay Point Road – Buffered bike lanes from Bayview Drive to Huronia Road

Bayview Drive – Bike lanes from Big Bay Point Road to Little Avenue

Medium Term – 2024 to 2031

Little Avenue – Buffered bike lanes from Fairview Road to Huronia Road

Fairview Road – Bike lanes from Big Bay Point Road to Little Avenue

Welham Road – Bike lanes from Big Bay Point Road to Salem Road

3.3 Future Background Traffic Growth

City staff provided growth rates to be used in establishing future background traffic volumes at the study intersections. These growth rates have been extracted from the City's EMME model and are summarized in **Table 3** below.

Table 3 City's Strategic Travel Model Compounded Annual Growth Rates (2021 to 2041)

Street Name	Annual Growth Rate	
	Prior to 2031	2031 to 2041
Fairview Road	1.0%	1.4%
Bayview Drive	3.4%	1.5%
Big Bay Point Road	3.2%	3.3%
Little Avenue	1.2%	1.6%
Welham Road	1%	1%
Hamilton Road	1%	1%

1.5 Future Background Developments

Background site generated traffic from the following planned developments have also been reviewed and if necessary, site trips from these developments included in the future background traffic volumes:

- 249 Bayview Drive – three storey residential development with ground floor commercial.
- 80 Big Bay –Industrial Development that consists of 26 individual industrial lots with a total of approximately 637,000 sq.ft of Gross Floor Area (GFA)

Excerpts from each respective Traffic Impact Study are provided in **Appendix D**.

Traffic generated by all other future planned developments near the study are assumed to be included in the projected annual growth rates provided by the City's EMME model.

3.4 Future Background Traffic Volumes

The total future background traffic volumes including corridor growth and background site generated traffic for the 2025, 2030 and 2035 planning horizons are summarized in **Figures 8, 9 and 10 respectively** for the weekday a.m. and p.m. peak hours.

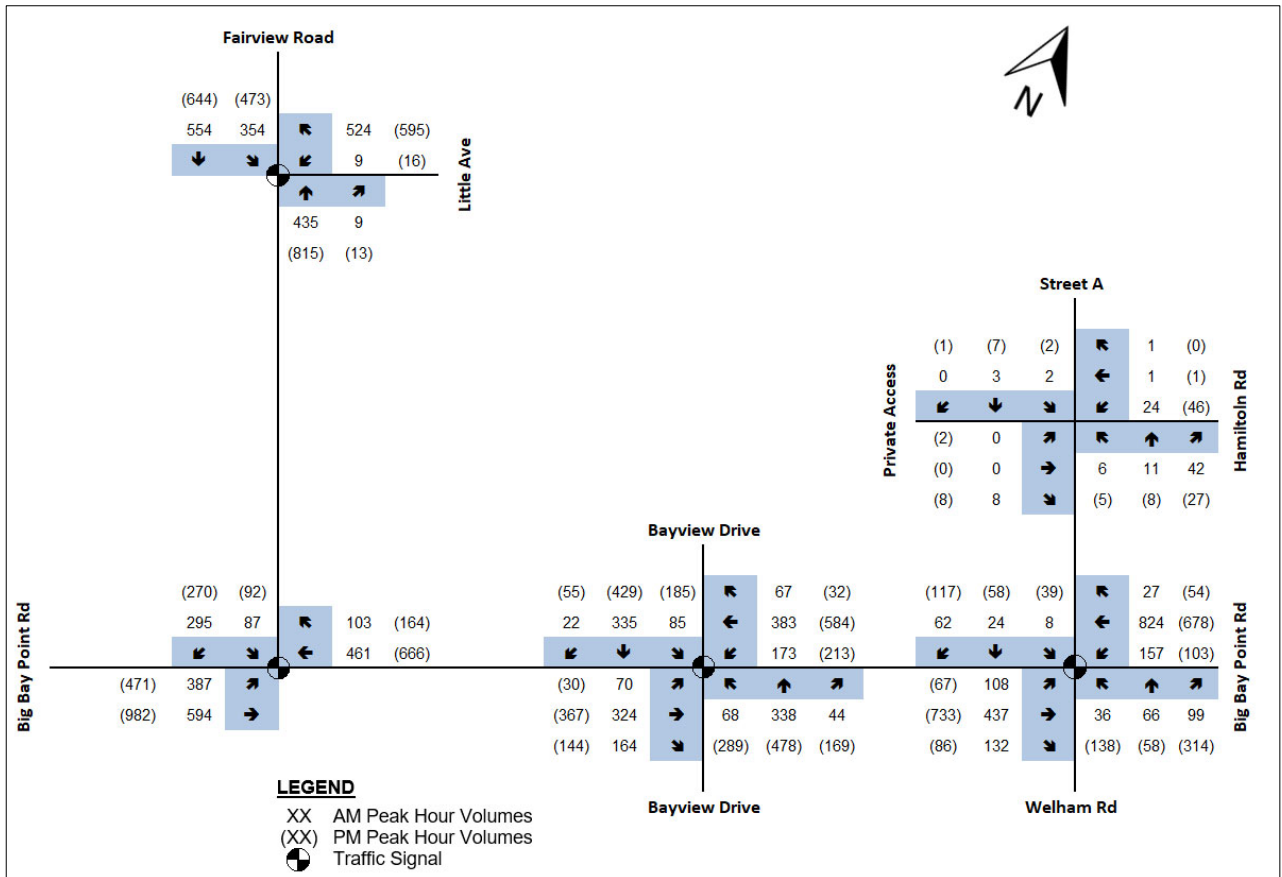


Figure 8 2025 Future Background Volumes

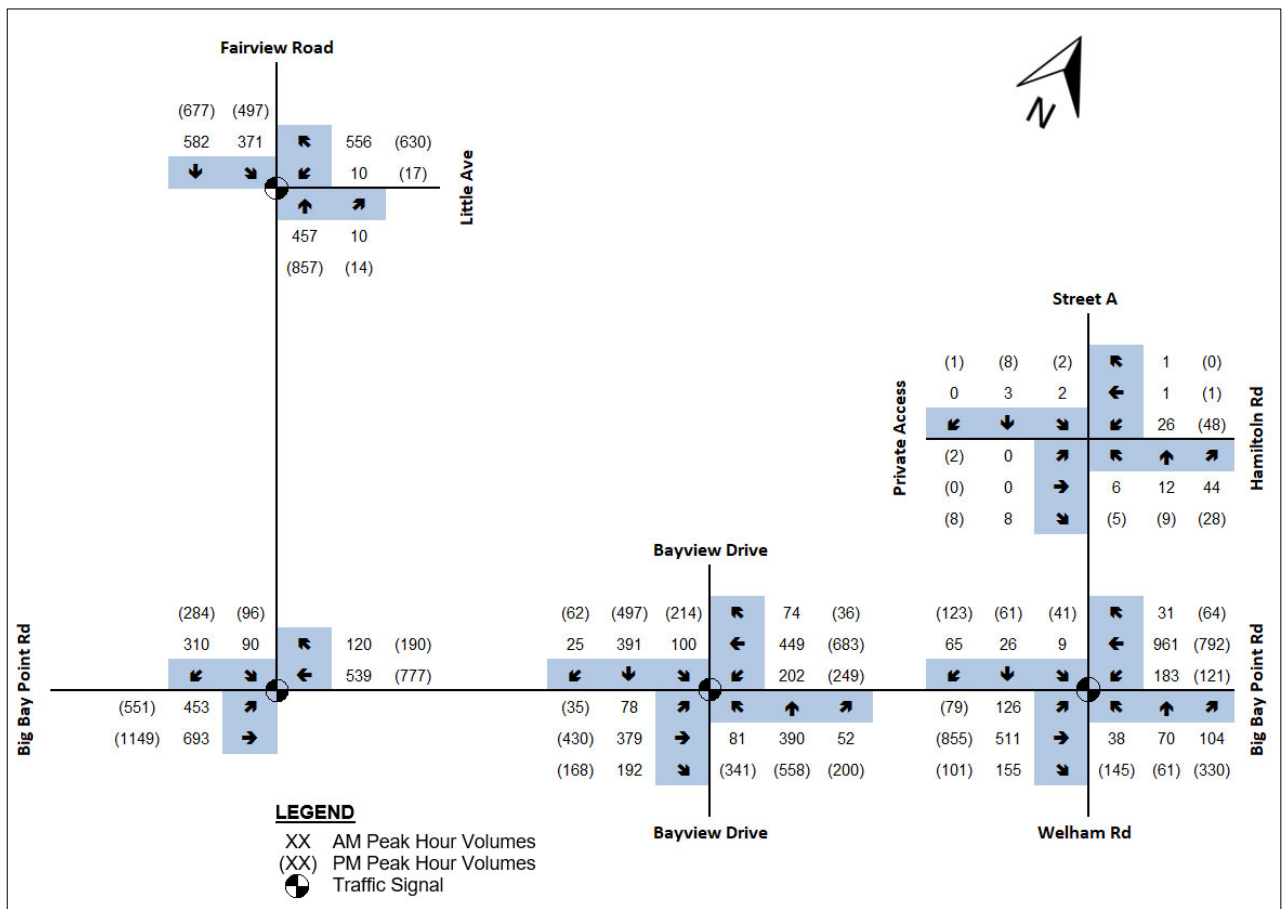


Figure 9 2030 Future Background Volumes

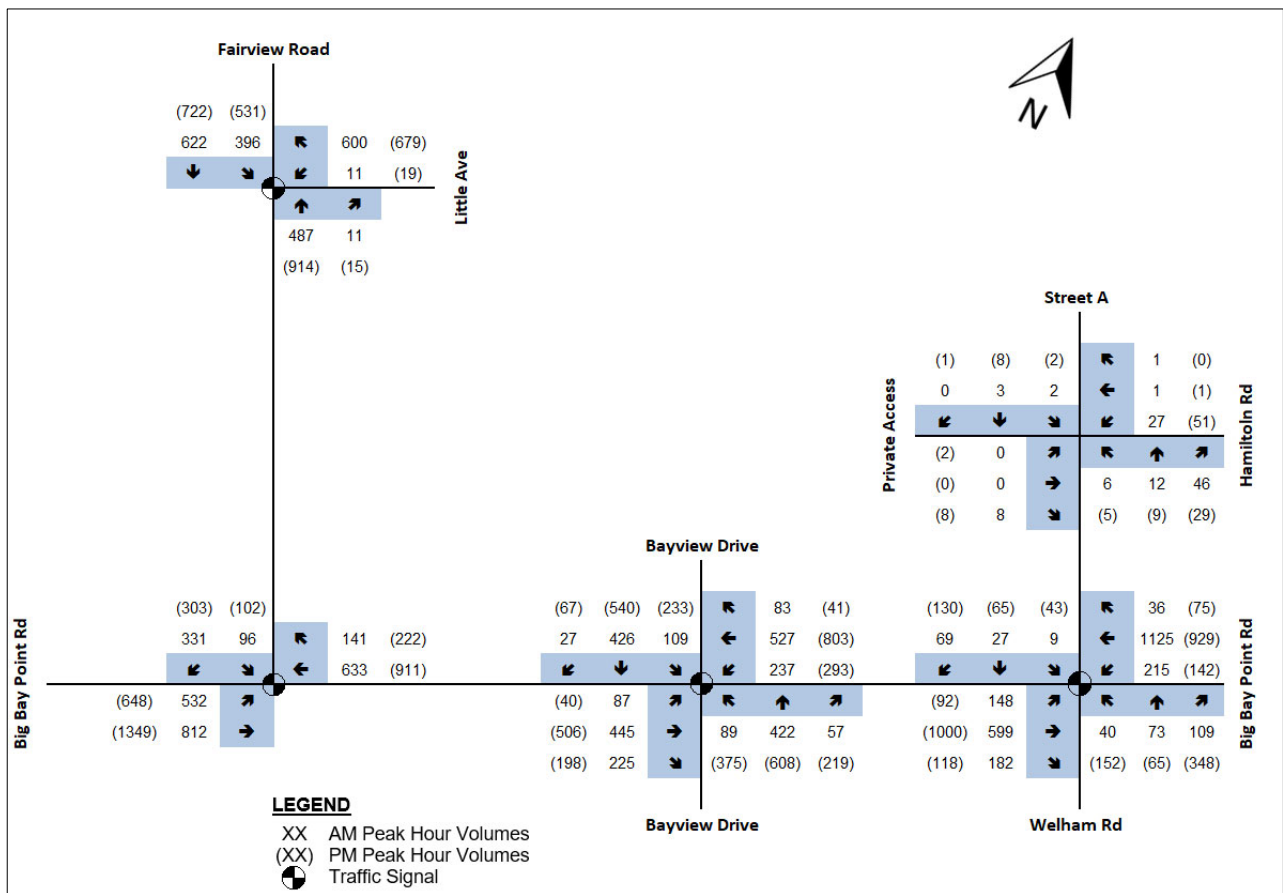


Figure 10 2035 Future Background Volumes

4. Site Generated Traffic

The proposed Draft Plan of Subdivision consists of 1,716,628 sq.ft.(15.948 Hectares) of development area fronting an internal private ring road.

Assuming 60% coverage, the proposed total GFA for the Industrial uses is approximately 1,030,000 sq.ft. for the 20 individual industrial lots.

As per correspondence with city staff, the following breakdown between land uses was used for trip generation calculations:

- 55% of GFA (566,500 sq.ft.) – Light/General Industrial
- 40% of GFA (412,000 sq.ft.) – Warehouse
- 5% of GFA (51,500 sq.ft.) – Self Storage

Site traffic generated by the subject site for the weekday a.m. and p.m. peak hours was estimated by applying the trip rates in the Trip Generation, 11th Edition Manual published by the Institute of Transportation Engineers (ITE). Land Use Code 130 (Industrial Parks), 150 (Warehousing) and 151 (Mini Warehousing) were used.

GHD adopted the estimated site trips based on either the average rate or the fitted curve equation, depending on which approach resulted in a higher number of trips as per the City's Guidelines.

The development generated traffic was sub-divided into two categories consisting of passenger vehicles and heavy vehicles using rates provided by ITE. Trip generation excerpts are provided in **Appendix E**.

As a conservative measure, no transit reduction was applied to the estimated site trips from ITE.

Table 4 Site Trip Generation

Land Use Code	GFA (per 1,000 sq.ft.)		Peak Hour Trip Generation					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Industrial Parks (LUC 130)	567	Total Trip Rates	0.275	0.066	0.341	0.074	0.267	0.341
		Total Trips	156	37	193	42	151	193
		Truck Trip Rates	0.018	0.023	0.041	0.016	0.025	0.041
		Truck Trips	10	13	23	9	14	23
		Passenger Vehicle Trips	146	24	170	33	137	170
Warehousing (LUC 150)	412	Total Trip Rates	0.136	0.041	0.177	0.051	0.133	0.184
		Total Trips	56	17	73	21	55	76
		Truck Trip Rates	0.010	0.009	0.019	0.015	0.014	0.029
		Truck Trips	4	4	8	6	6	12
		Passenger Vehicle Trips	52	13	65	15	49	64
Mini Warehousing (LUC 151)	52	Total Trip Rates	0.058	0.039	0.097	0.078	0.077	0.155
		Total Trips	3	2	5	4	4	8
		Truck Trip Rates	0	0	0	0	0	0
		Truck Trips	0	0	0	0	0	0
		Passenger Vehicle Trips	3	2	5	4	4	8
Total Trips			215	56	271	67	210	277

The proposed development is expected to generate a total of 271 new two-way vehicle trips during the a.m. peak hour consisting of 215 inbound and 56 outbound trips. During the p.m. peak hour, it is expected to generate 277 new two-way vehicle trips consisting of 67 inbound and 210 outbound trips.

4.1 Site Trip Distribution and Assignment

The distribution of site traffic between the subject site through the study area was based on a review of the 2016 TTS data and traffic data at the study intersections.

Upon determining origin and destination points throughout the study area for all inbound and outbound trips, trips were assigned to individual turning movements at the study area intersections based on route choice assignment with consideration for anticipated travel times. **Table 6** below summarizes the site trips distribution within the study area road network for both passenger vehicles and heavy vehicles.

Table 6 Overall Site Trip Distribution

Direction	Distribution Percentage	
	Passenger Vehicles	Heavy Vehicles
To/From the North	55%	20%
To/From the South	20%	60%
To/From the East	15%	10%
To/From the West	10%	10%

The site traffic distribution percentages for the passenger vehicles and heavy vehicles are provided in **11** and **12**, respectively. Additionally, the site generated traffic assignment on the study area road network for the weekday a.m. and p.m. peak hours are provided in **13** and **14** respectively.

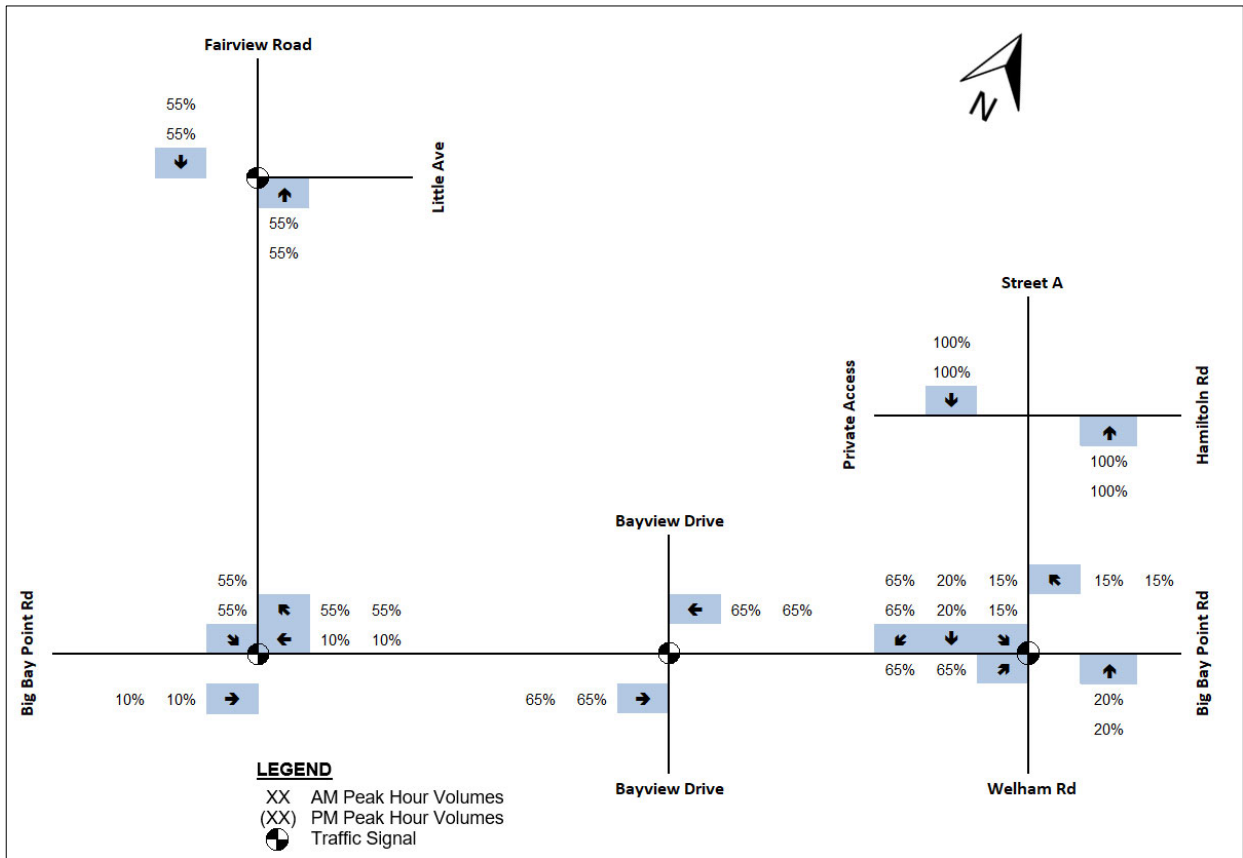


Figure 11 Passenger Vehicle Trip Distribution

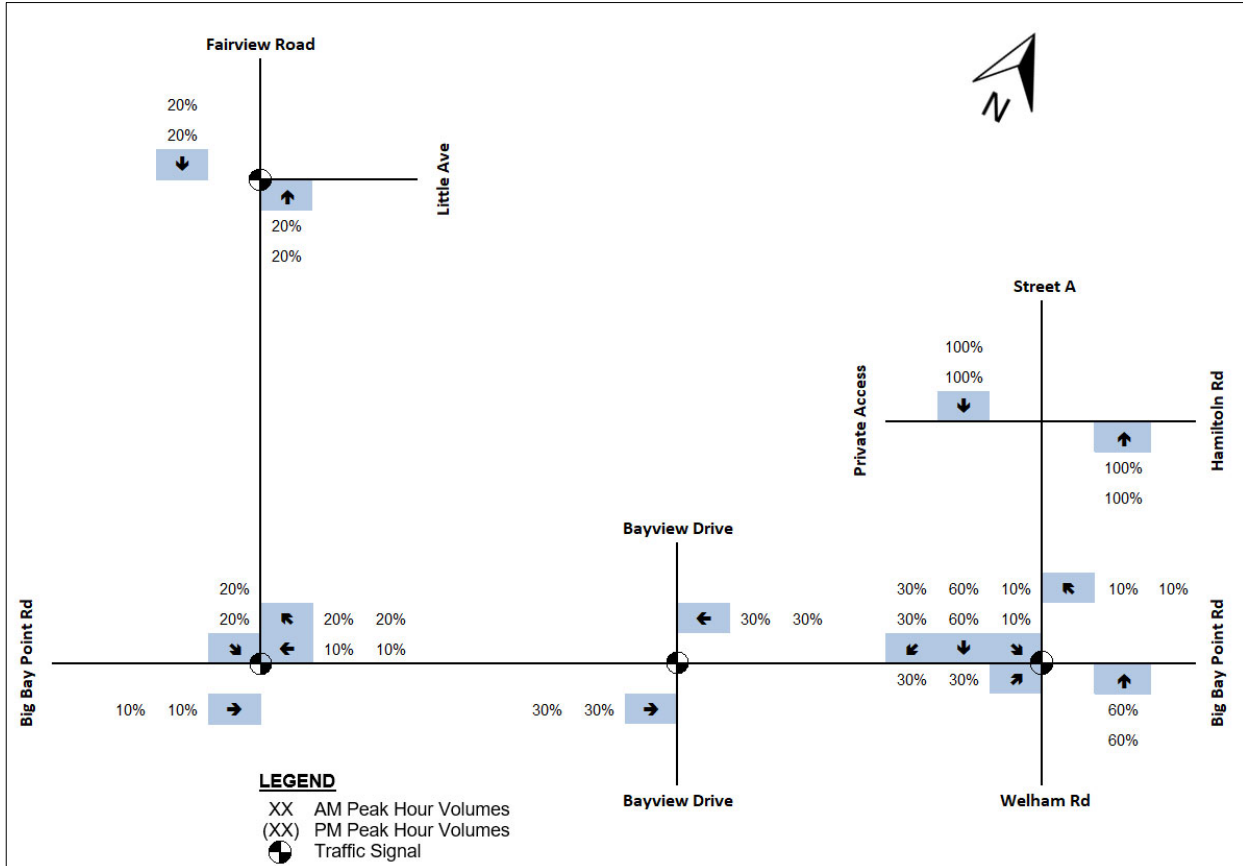


Figure 12 Heavy Vehicle Trip Distribution

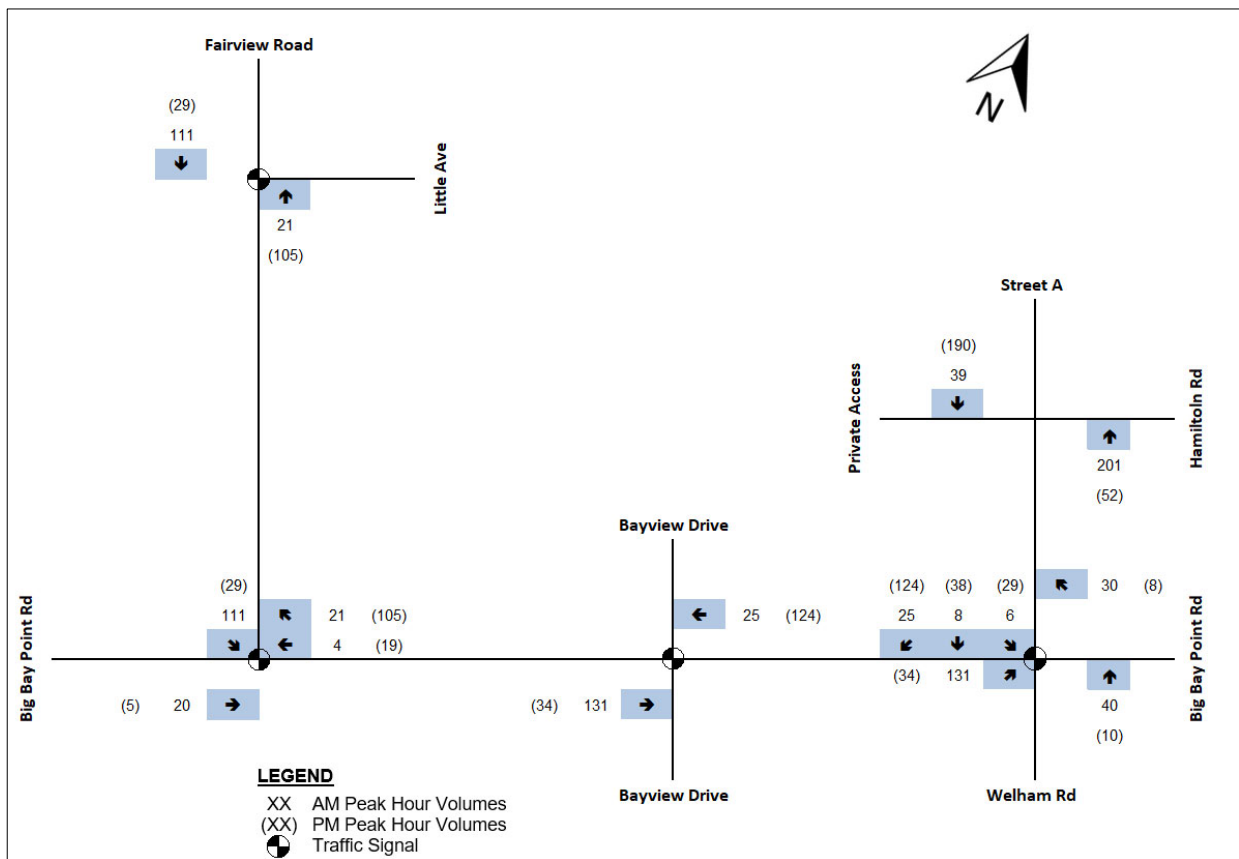


Figure 13 Passenger Vehicle Site Traffic Assignment

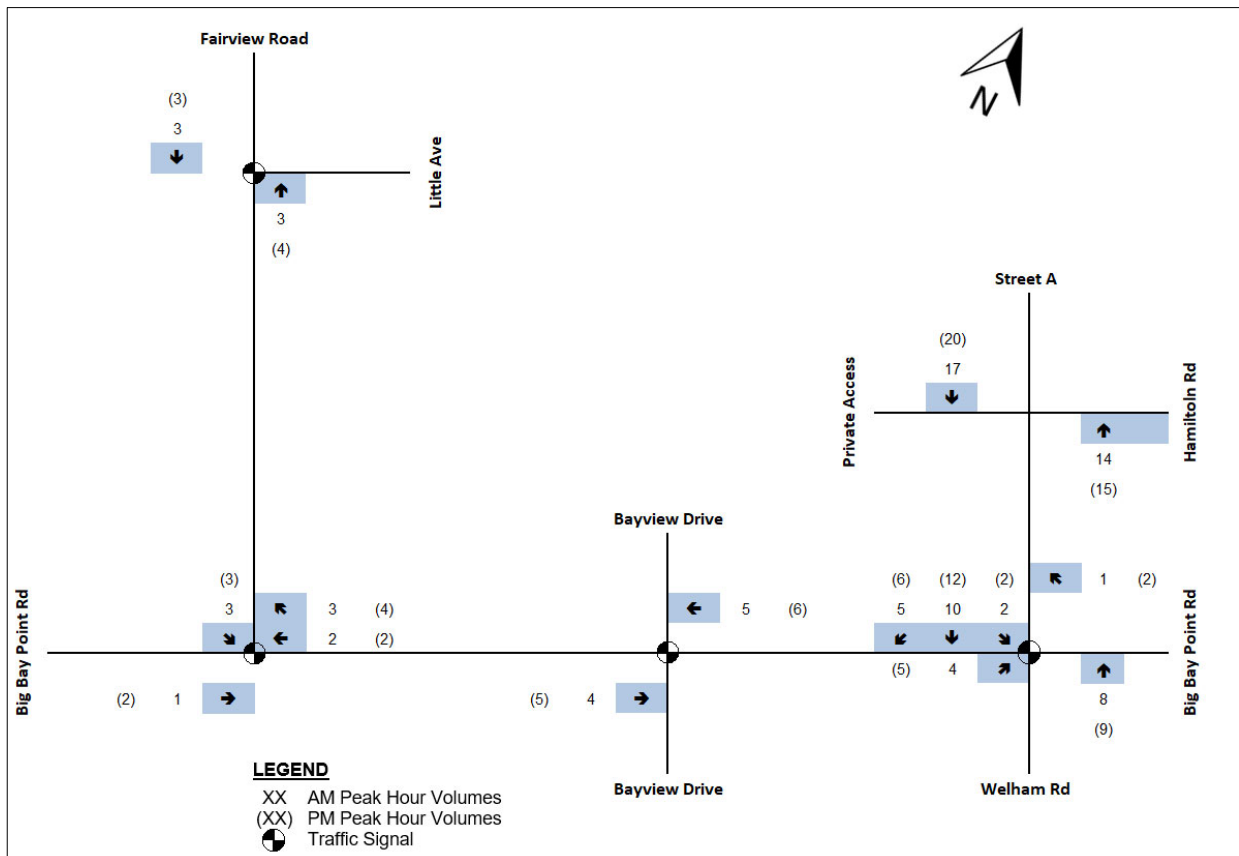


Figure 14 Heavy Vehicle Site Traffic Assignment

5. Future total traffic

5.1 Future Total Traffic

The future total traffic conditions in the weekday a.m. and p.m. peak study hours for each future planning horizon was derived by combining the future background traffic volumes with the corresponding estimates of site trips generation by the proposed residential development.

Figures 15, 16 and 17 summarize the future total traffic volumes for the 2025, 2030 and 2035 planning horizons respectively, for the weekday a.m. and p.m. peak hours.

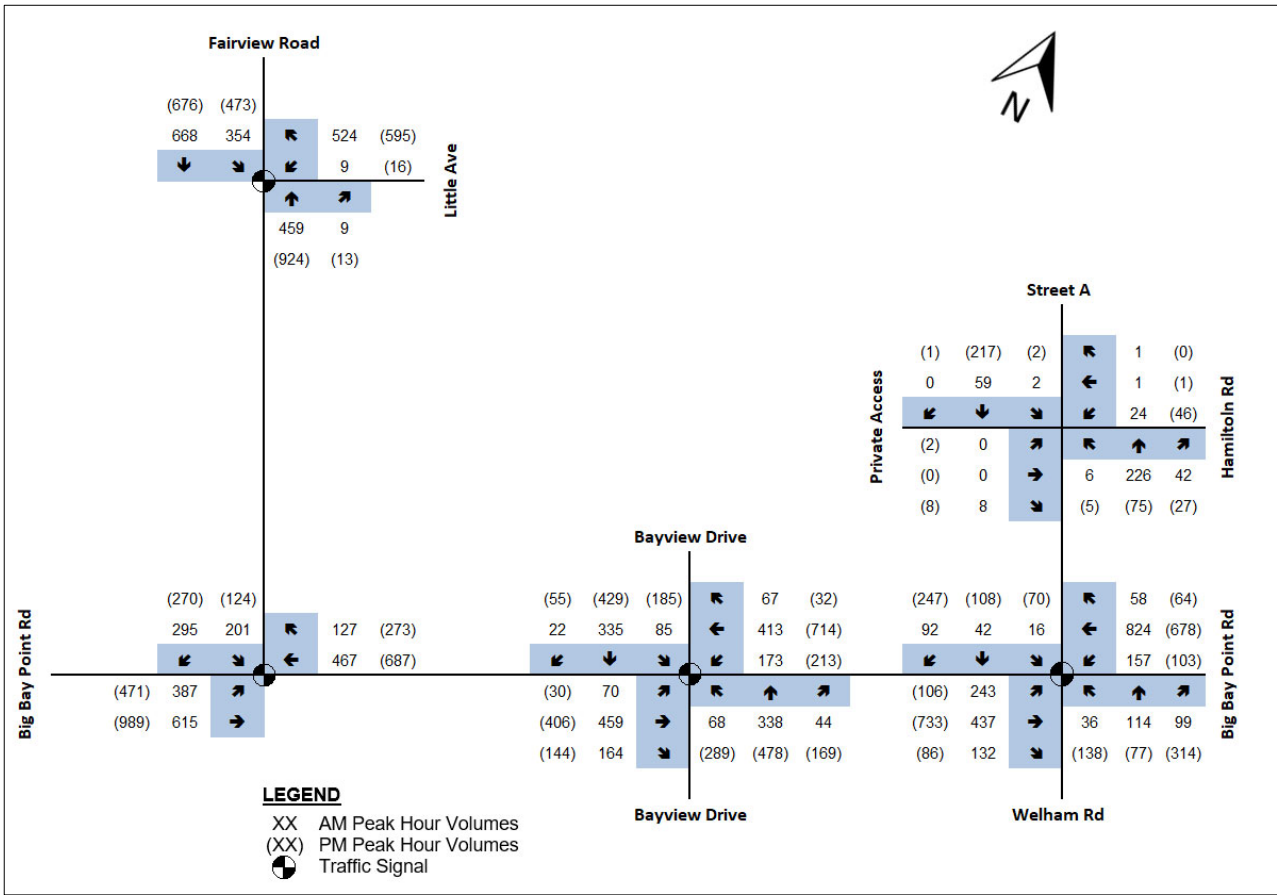


Figure 15 2025 Total Traffic Volumes

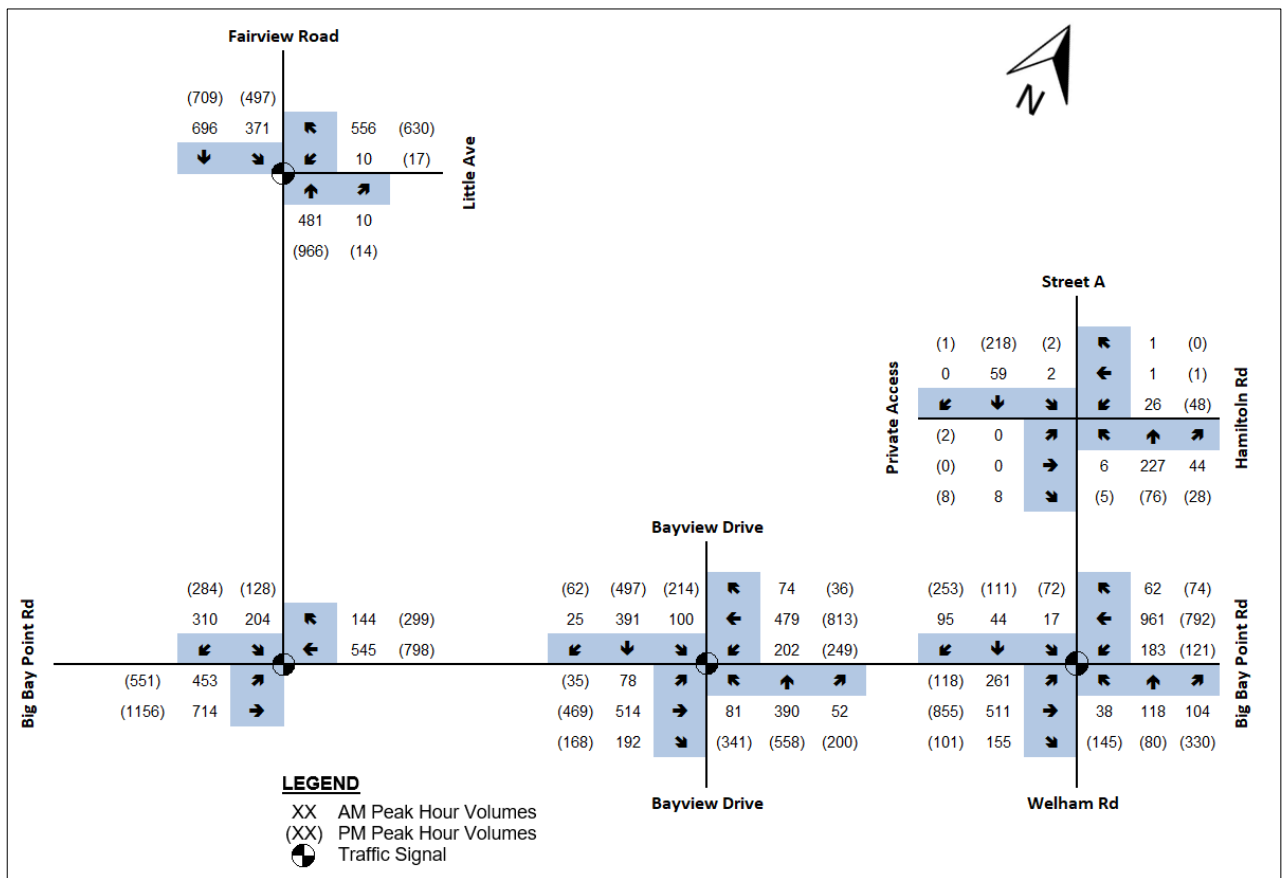


Figure 16 2030 Total Traffic Volumes

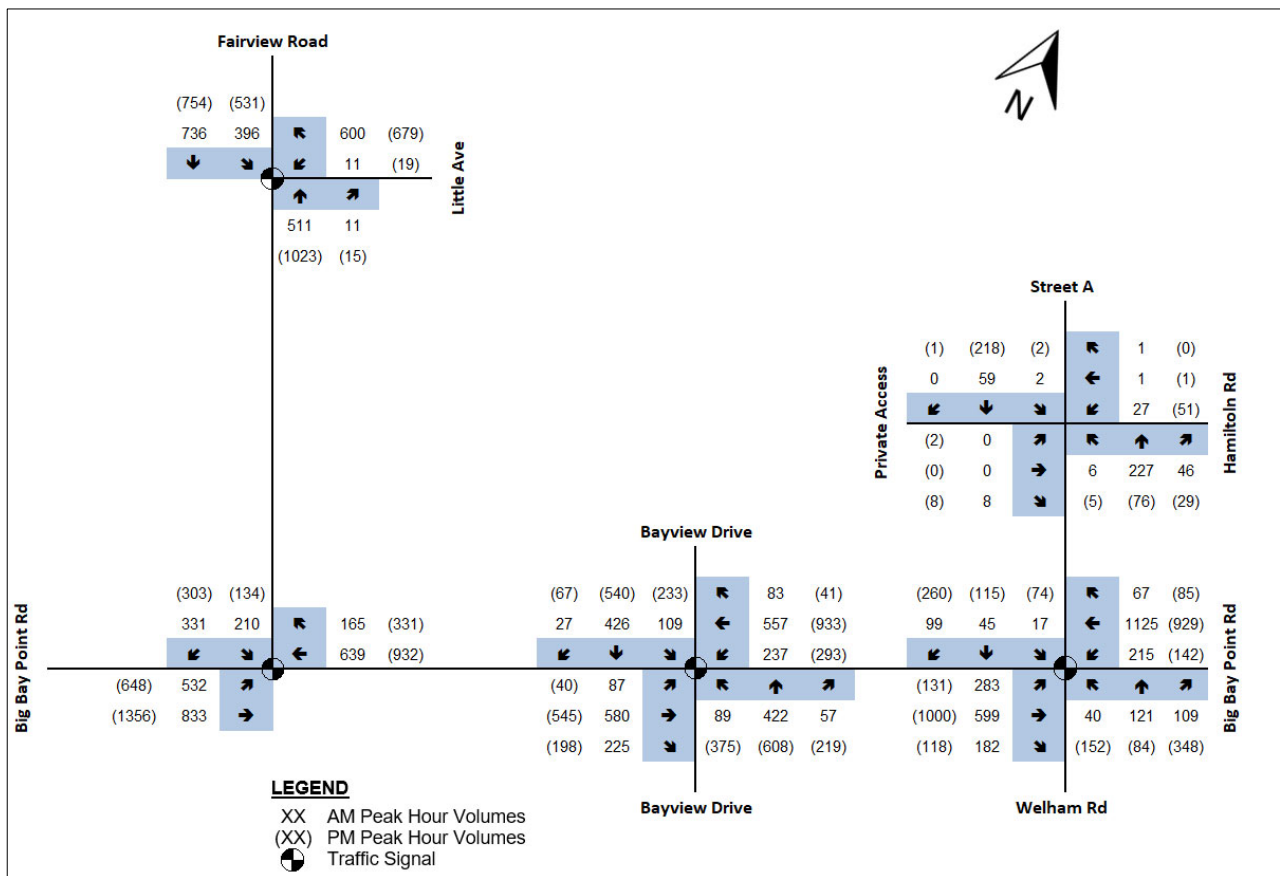


Figure 17 2035 Total Traffic Volumes

6. Intersection Capacity Analysis

The capacity analysis identifies how well the intersections and driveways are operating. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure within the Synchro Version 10 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement.

In accordance with the City of Barrie Traffic Impact Study Guidelines, the analysis includes identification of conditions at signalized intersections where:

- Levels of Service (LOS) for overall intersection operations exceeds LOS D.
- Volume/capacity (v/c) ratios for through movements or shared through/turning movements increased to 0.85 or above.
- V/c ratios for exclusive movements increased to 0.85 or above.
- Where the 50th and 95th percentile queues for an individual movement are projected to exceed available turning lane storage.
- Queues for exclusive left and right turn lanes that are inaccessible due to the through lane queue length

The analysis includes identification of conditions at unsignalized intersections where:

- Level of service based on average delay per vehicle for individual movements exceed LOS E.

- 95th percentile queues for an individual movement are projected to exceed the lesser of 5 vehicles or the available queue storage.

The following tables summarize the HCM 2000 capacity results for the study intersections during the weekday a.m. and p.m. hours under existing 2023 and future background condition in 2025 and future total traffic conditions for the 2025, 2030 and 2035 planning horizons.

The detailed Synchro calculation sheets are provided in **Appendix F**.

Existing signal timing plans were obtained from the city for use in the analysis. A copy of the timing plans is also included in **Appendix C**.

Peak hour factors used in the analysis were based on existing data were available. Where existing traffic data was not available, a default peak hour factor of 0.92 was used. In addition, as per the city's guidelines the minimum peak hour factor utilized for future conditions was 0.92. However, for intersections where the existing peak hour factor was greater than 0.92 the existing peak hour factor was utilized.

6.1 Big Bay Point Road and Bayview Drive

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 7 Capacity Analysis for Big Bay Point Road and Bayview Drive

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2023	Overall: 0.44 (C) 30		Overall: 0.60 (C) 34	
	EBL = 0.11 (B) 20	EBL = 15 m	EBL = 0.08 (C) 22	EBL = 10 m
	EBT = 0.31 (C) 31	EBT = 50 m	EBT = 0.32 (C) 33	EBT = 55 m
	EBR = 0.12 (C) 29	EBR = 15 m	EBR = 0.09 (C) 31	EBR = 15 m
	WBL = 0.4 (C) 24	WBL = 40 m	WBL = 0.45 (C) 26	WBL = 50 m
	WBT = 0.39 (C) 34	WBT = 55 m	WBT = 0.52 (D) 37	WBT = 85 m
	WBR = 0.03 (C) 30	WBR = 5 m	WBR = 0.01 (C) 31	WBR = 0 m
	NBL = 0.21 (C) 25	NBL = 20 m	NBL = 0.6 (C) 26	NBL = 65 m
	NBT = 0.55 (D) 36	NBT = 90 m	NBT = 0.72 (D) 42	NBT = 140 m
	NBR = 0.03 (C) 29	NBR = 0 m	NBR = 0.15 (C) 31	NBR = 25 m
	SBL = 0.26 (C) 24	SBL = 25 m	SBL = 0.51 (C) 28	SBL = 40 m
	SBT = 0.3 (C) 31	SBT = 45 m	SBT = 0.34 (C) 35	SBT = 55 m
	SBR = 0.02 (C) 28	SBR = 0 m	SBR = 0.02 (C) 31	SBR = 0 m
Future Background 2025	Overall: 0.47 (C) 31		Overall: 0.68 (D) 37	
	EBL = 0.16 (B) 20	EBL = 20 m	EBL = 0.11 (C) 22	EBL = 10 m
	EBT = 0.3 (C) 31	EBT = 50 m	EBT = 0.34 (C) 34	EBT = 55 m
	EBR = 0.12 (C) 29	EBR = 20 m	EBR = 0.1 (C) 31	EBR = 15 m
	WBL = 0.38 (C) 24	WBL = 45 m	WBL = 0.48 (C) 26	WBL = 55 m
	WBT = 0.38 (C) 33	WBT = 60 m	WBT = 0.56 (D) 38	WBT = 90 m
	WBR = 0.05 (C) 30	WBR = 10 m	WBR = 0.02 (C) 31	WBR = 0 m
	NBL = 0.21 (C) 25	NBL = 20 m	NBL = 0.69 (C) 30	NBL = 70 m
	NBT = 0.64 (D) 38	NBT = 115 m	NBT = 0.86 (D) 54	NBT = 185 m
	NBR = 0.03 (C) 29	NBR = 5 m	NBR = 0.19 (C) 32	NBR = 30 m
	SBL = 0.3 (C) 24	SBL = 25 m	SBL = 0.73 (D) 38	SBL = 50 m
	SBT = 0.32 (C) 31	SBT = 50 m	SBT = 0.42 (D) 36	SBT = 65 m
	SBR = 0.02 (C) 28	SBR = 0 m	SBR = 0.04 (C) 31	SBR = 5 m

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Future Background 2025 With Lane Improvements	Overall: 0.36 (C) 30 EBL = 0.16 (B) 20 EBT = 0.3 (C) 31 EBR = 0.12 (C) 29 WBL = 0.38 (C) 24 WBT = 0.38 (C) 33 WBR = 0.05 (C) 30 NBL = 0.21 (C) 25 NBTR = 0.38 (C) 33 SBL = 0.25 (C) 23 SBT = 0.32 (C) 31 SBR = 0.02 (C) 28	EBL = 20 m EBT = 50 m EBR = 20 m WBL = 45 m WBT = 60 m WBR = 10 m NBL = 20 m NBTR = 60 m SBL = 25 m SBT = 50 m SBR = 0 m	Overall: 0.62 (C) 34 EBL = 0.11 (C) 22 EBT = 0.34 (C) 34 EBR = 0.1 (C) 31 WBL = 0.48 (C) 26 WBT = 0.56 (D) 38 WBR = 0.02 (C) 31 NBL = 0.69 (C) 30 NBTR = 0.6 (D) 38 SBL = 0.61 (C) 30 SBT = 0.42 (D) 36 SBR = 0.04 (C) 31	EBL = 10 m EBT = 55 m EBR = 15 m WBL = 55 m WBT = 90 m WBR = 0 m NBL = 70 m NBTR = 95 m SBL = 45 m SBT = 65 m SBR = 5 m
Future Total 2025	Overall: 0.42 (C) 31 EBL = 0.19 (C) 21 EBT = 0.43 (C) 33 EBR = 0.12 (C) 29 WBL = 0.46 (C) 25 WBT = 0.42 (C) 35 WBR = 0.06 (C) 30 NBL = 0.21 (C) 26 NBTR = 0.4 (C) 34 SBL = 0.32 (C) 23 SBT = 0.32 (C) 30 SBR = 0.02 (C) 27	EBL = 20 m EBT = 70 m EBR = 20 m WBL = 45 m WBT = 65 m WBR = 10 m NBL = 20 m NBTR = 60 m SBL = 25 m SBT = 50 m SBR = 0 m	Overall: 0.66 (D) 35 EBL = 0.1 (C) 23 EBT = 0.37 (C) 34 EBR = 0.09 (C) 31 WBL = 0.5 (C) 26 WBT = 0.68 (D) 41 WBR = 0.02 (C) 31 NBL = 0.69 (C) 30 NBTR = 0.6 (D) 38 SBL = 0.62 (C) 30 SBT = 0.42 (D) 36 SBR = 0.04 (C) 31	EBL = 10 m EBT = 60 m EBR = 15 m WBL = 55 m WBT = 110 m WBR = 0 m NBL = 70 m NBTR = 95 m SBL = 45 m SBT = 65 m SBR = 5 m
Future Total 2030	Overall: 0.51 (C) 32 EBL = 0.23 (C) 22 EBT = 0.49 (C) 34 EBR = 0.14 (C) 30 WBL = 0.57 (C) 27 WBT = 0.48 (D) 36 WBR = 0.06 (C) 30 NBL = 0.26 (C) 25 NBTR = 0.48 (D) 35 SBL = 0.4 (C) 25 SBT = 0.39 (C) 33 SBR = 0.02 (C) 29	EBL = 25 m EBT = 80 m EBR = 20 m WBL = 50 m WBT = 75 m WBR = 10 m NBL = 25 m NBTR = 70 m SBL = 30 m SBT = 60 m SBR = 0 m	Overall: 0.78 (D) 36 EBL = 0.19 (C) 29 EBT = 0.44 (D) 36 EBR = 0.11 (C) 32 WBL = 0.7 (C) 33 WBT = 0.7 (D) 39 WBR = 0.02 (C) 28 NBL = 0.78 (C) 32 NBTR = 0.67 (D) 39 SBL = 0.72 (C) 34 SBT = 0.49 (D) 37 SBR = 0.04 (C) 31	EBL = 15 m EBT = 70 m EBR = 20 m WBL = 65 m WBT = 125 m WBR = 0 m NBL = 85 m NBTR = 115 m SBL = 50 m SBT = 75 m SBR = 5 m

Future Total 2035	Overall: 0.61 (C) 34		Overall: 0.94 (D) 42	
	EBL = 0.28 (C) 23	EBL = 25 m	EBL = 0.26 (C) 30	EBL = 15 m
	EBT = 0.57 (D) 36	EBT = 95 m	EBT = 0.52 (D) 37	EBT = 85 m
	EBR = 0.16 (C) 31	EBR = 20 m	EBR = 0.13 (C) 32	EBR = 20 m
	WBL = 0.71 (C) 32	WBL = 60 m	WBL = 0.89 (D) 53	WBL = 95 m
	WBT = 0.57 (D) 37	WBT = 90 m	WBT = 0.78 (D) 42	WBT = 145 m
	WBR = 0.07 (C) 31	WBR = 15 m	WBR = 0.03 (C) 28	WBR = 0 m
	NBL = 0.3 (C) 26	NBL = 25 m	NBL = 0.91 (D) 49	NBL = 105 m
	NBTR = 0.52 (D) 36	NBTR = 75 m	NBTR = 0.76 (D) 42	NBTR = 130 m
	SBL = 0.45 (C) 25	SBL = 30 m	SBL = 0.84 (D) 46	SBL = 75 m
	SBT = 0.42 (C) 34	SBT = 65 m	SBT = 0.53 (D) 38	SBT = 85 m
	SBR = 0.02 (C) 29	SBR = 0 m	SBR = 0.05 (C) 32	SBR = 5 m

Under existing 2023 conditions, this signalized intersection is operating with acceptable levels of delay and with all individual movements operating at a reported v/c below critical levels.

Under future background 2025 traffic conditions, the intersection is expected to continue to operate with overall v/c ratios and LOS below critical levels. During both peak hours, all individual movements are expected to operate at a reported v/c ratio below 0.85 except for the northbound through during the p.m. peak hour which is reported to operate with a v/c ratio of 0.86. The northbound through movement would be improved by converting the existing northbound right turn lane to a shared through-right as planned but it is recommended this only be done once updated traffic counts under future conditions confirm the need.

With the planned improvement under the 2025 future background conditions, this intersection is expected to operate with a reported v/c ratio below critical levels for all movements for the a.m. and p.m. peak hours.

With site traffic added under the 2025 total traffic conditions, the overall intersection v/c ratios are expected to increase by 0.06 (0.36 to 0.42) and 0.04 (0.62 to 0.66) in the a.m. and p.m. peak hours respectively, all individual movements are expected to operate below critical levels for both peak hours. Therefore, the operational impact of the added site traffic is minimal and is generally not expected to be identifiable from a driver's perspective.

Under the 2030 future total traffic conditions including the subject site trips, the overall intersection v/c ratios increase by 0.09 and 0.12 in the a.m. and p.m. peak hours resulting in an overall reported v/c ratio of 0.51 (LOS C) during the a.m. peak hour and 0.78 (LOS D) during the p.m. peak hour. This intersection is expected to operate with a reported v/c ratio below critical levels for all individual movements in the a.m. and p.m. peak hour. The increase in v/c ratios in the a.m. and p.m. peak hour are due to the adopted corridor growth and not a result of the subject site.

With addition corridor growth under the 2035 total traffic scenario, the overall intersection v/c ratios are expected to increase by 0.10 (0.51 to 0.61) and 0.16 (0.78 to 0.94) in the a.m. and p.m. peaks respectively, all individual movements are expected to operate below critical levels for the a.m. peak hour. However, in the p.m. peak hour this intersection is expected to operate with couple of movements reporting a v/c ratio above critical levels namely the westbound left at 0.89 LOS D and the northbound left at 0.91 LOS D. Nevertheless, these movements are operating below their theoretical maximum capacity with v/c ratios of less than 1.0.

There are no geometric improvements recommended at this intersection in response to the site traffic generated from the subject development however the timing of planned improvements should be reviewed by the City as development proceeds and corridor growth increases.

The capacity analysis demonstrates that the operational impact of the subject site traffic to this intersection is minimal, with any critical movements reported at this intersection under future traffic conditions a result of the assumed corridor traffic growth.

6.2 Big Bay Point Road and Fairview Road

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 8 Capacity Analysis for Big Bay Point Road and Fairview Road

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2023	Overall: 0.54 (B) 12 EBL = 0.55 (A) 5 EBT = 0.25 (A) 4 WBT = 0.26 (B) 11 WBR = 0.07 (A) 10 SBL = 0.35 (C) 31 SBR = 0.2 (C) 30	EBL = 30 m EBT = 25 m WBT = 30 m WBR = 10 m SBL = 25 m SBR = 20 m	Overall: 0.75 (B) 12 EBL = 0.77 (B) 11 EBT = 0.4 (A) 5 WBT = 0.37 (B) 12 WBR = 0.1 (B) 10 SBL = 0.4 (C) 32 SBR = 0.19 (C) 30	EBL = 45 m EBT = 40 m WBT = 45 m WBR = 10 m SBL = 30 m SBR = 20 m
Future Background 2025	Overall: 0.59 (B) 12 EBL = 0.59 (A) 6 EBT = 0.27 (A) 4 WBT = 0.29 (B) 11 WBR = 0.07 (A) 10 SBL = 0.39 (C) 32 SBR = 0.2 (C) 30	EBL = 35 m EBT = 25 m WBT = 35 m WBR = 10 m SBL = 30 m SBR = 20 m	Overall: 0.73 (B) 13 EBL = 0.75 (B) 11 EBT = 0.41 (A) 4 WBT = 0.44 (B) 16 WBR = 0.11 (B) 14 SBL = 0.44 (D) 36 SBR = 0.19 (C) 34	EBL = 65 m EBT = 45 m WBT = 60 m WBR = 10 m SBL = 30 m SBR = 25 m
Future Total 2025	Overall: 0.68 (B) 15 EBL = 0.64 (A) 9 EBT = 0.29 (A) 6 WBT = 0.31 (B) 13 WBR = 0.09 (B) 12 SBL = 0.67 (D) 37 SBR = 0.2 (C) 29	EBL = 50 m EBT = 35 m WBT = 45 m WBR = 10 m SBL = 55 m SBR = 20 m	Overall: 0.77 (B) 14 EBL = 0.78 (B) 13 EBT = 0.41 (A) 5 WBT = 0.46 (B) 17 WBR = 0.18 (B) 15 SBL = 0.54 (D) 38 SBR = 0.19 (C) 34	EBL = 85 m EBT = 50 m WBT = 65 m WBR = 15 m SBL = 40 m SBR = 25 m
Future Total 2030	Overall: 0.81 (B) 16 EBL = 0.81 (B) 15 EBT = 0.34 (A) 6 WBT = 0.36 (B) 14 WBR = 0.1 (B) 12 SBL = 0.68 (D) 37 SBR = 0.21 (C) 29	EBL = 80 m EBT = 45 m WBT = 50 m WBR = 10 m SBL = 55 m SBR = 20 m	Overall: 0.82 (B) 20 EBL = 0.84 (C) 27 EBT = 0.47 (A) 5 WBT = 0.61 (C) 25 WBR = 0.2 (C) 20 SBL = 0.59 (D) 45 SBR = 0.2 (D) 40	EBL = 140 m EBT = 65 m WBT = 100 m WBR = 20 m SBL = 45 m SBR = 25 m
Future Total 2035	Overall: 0.84 (B) 14 EBL = 0.91 (C) 28 EBT = 0.39 (A) 6 WBT = 0.48 (B) 20 WBR = 0.12 (B) 16 SBL = 0.7 (D) 42 SBR = 0.23 (C) 33	EBL = 130 m EBT = 55 m WBT = 70 m WBR = 15 m SBL = 65 m SBR = 25 m	Overall: 1.02 (C) 30 EBL = 1.06 (E) 78 EBT = 0.55 (A) 6 WBT = 0.72 (C) 28 WBR = 0.22 (C) 21 SBL = 0.6 (D) 46 SBR = 0.21 (D) 40	EBL = 215 m EBT = 85 m WBT = 120 m WBR = 20 m SBL = 50 m SBR = 25 m

Under existing 2023 conditions, this signalized intersection is operating with acceptable levels of delay and with all individual movements operating below critical levels.

Under future background 2025 traffic conditions, this intersection is expected to operate with an overall intersection v/c ratio of 0.59 LOS B in the a.m. peak hour and 0.73 LOS B in the p.m. peak hour. This intersection continues to operate with a reported v/c ratio below critical levels for all individual movements.

Under the 2025 total traffic scenario including the subject site trips, the overall intersection v/c ratios increase by 0.09 resulting in an overall reported v/c ratio of 0.68 (LOS B) during the a.m. peak hour and 0.04 resulting in an overall v/c ratio of 0.77 (LOS B) during the p.m. peak hour. The overall average delay per vehicle is expected to increase by 3 seconds in the a.m. peak hour to 15 seconds and increase by 1 seconds in the p.m. peak hour to 14 seconds. Consequently, the operational impact at this intersection of the added site traffic is minimal.

With additional corridor growth under the 2030 total traffic scenario, this intersection continues to operate with a reported v/c ratio below critical levels for all individual movements. The overall intersection v/c ratios are expected to increase by 0.13 resulting in an overall reported v/c ratio of 0.81 (LOS B) during the a.m. peak hour and 0.05 resulting in an overall v/c ratio of 0.82 (LOS B) during the p.m. peak hour.

Under the 2035 total traffic scenario, the overall intersection v/c ratios are expected to increase by 0.09 during the a.m. peak hour resulting in reported v/c ratio of 0.90 (LOS C) and increase by 0.20 during the p.m. peak hour resulting in an overall v/c ratio of 1.02 (LOS C). The high v/c ratios in the p.m. peak hour are due to the adopted corridor growth and not a result of the subject site.

It is important to note that the cycle length was increased to 120 seconds under the future total 2030 and 2035 conditions for the p.m. peak hour only. The cycle length for the a.m. peak hour remained unchanged under all future conditions.

Based on the projected future traffic volumes at this intersection which were derived from the EMME model data provided by the city, the 95th percentile queue length for the eastbound left turn movement is expected to exceed the existing storage length. Since these volumes are not based on actual traffic data, this intersection should be monitored by the city as traffic volumes increase to ensure these queues can be mitigated.

6.3 Big Bay Point Road and Welham Road

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 9 Capacity Analysis for Big Bay Point Road and Welham Road

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2023	Overall: 0.51 (C) 23		Overall: 0.71 (C) 32	
	EBL = 0.39 (B) 16	EBL = 20 m	EBL = 0.2 (B) 15	EBL = 15 m
	EBTR = 0.42 (C) 22	EBTR = 60 m	EBTR = 0.5 (C) 23	EBTR = 80 m
	WBL = 0.37 (B) 14	WBL = 25 m	WBL = 0.29 (B) 14	WBL = 20 m
	WBTR = 0.59 (C) 24	WBTR = 95 m	WBTR = 0.43 (C) 20	WBTR = 70 m
	NBTLR = 0.37 (C) 27	NBTLR = 50 m	NBTLR = 0.98 (E) 71	NBTLR = 165 m
Future Background 2025	SBTLR = 0.13 (C) 25	SBTLR = 20 m	SBTLR = 0.38 (C) 27	SBTLR = 50 m
	Overall: 0.52 (C) 21		Overall: 0.72 (C) 31	
	EBL = 0.39 (B) 14	EBL = 20 m	EBL = 0.29 (C) 22	EBL = 20 m
	EBTR = 0.39 (B) 19	EBTR = 55 m	EBTR = 0.63 (C) 33	EBTR = 105 m
	WBL = 0.39 (B) 15	WBL = 25 m	WBL = 0.45 (C) 23	WBL = 25 m
	WBTR = 0.6 (C) 23	WBTR = 100 m	WBTR = 0.54 (C) 29	WBTR = 90 m
	NBTLR = 0.38 (C) 28	NBTLR = 50 m	NBTLR = 0.78 (D) 36	NBTLR = 140 m
	SBTLR = 0.13 (C) 25	SBTLR = 20 m	SBTLR = 0.3 (C) 23	SBTLR = 45 m

Future Total 2025	<u>Overall: 0.73 (C) 24</u> EBL = 0.76 (C) 25 EBTR = 0.38 (B) 18 WBL = 0.38 (B) 16 WBTR = 0.66 (C) 26 NBTLR = 0.53 (C) 32 SBTLR = 0.29 (C) 30	EBL = 50 m EBTR = 55 m WBL = 25 m WBTR = 110 m NBTLR = 70 m SBTLR = 35 m	<u>Overall: 0.82 (D) 37</u> EBL = 0.45 (C) 23 EBTR = 0.64 (C) 33 WBL = 0.45 (C) 24 WBTR = 0.57 (C) 30 NBTLR = 0.97 (E) 64 SBTLR = 0.68 (C) 31	EBL = 25 m EBTR = 105 m WBL = 25 m WBTR = 95 m NBTLR = 185 m SBTLR = 110 m
Future Total 2030	<u>Overall: 0.78 (C) 30</u> EBL = 0.82 (D) 44 EBTR = 0.45 (C) 20 WBL = 0.47 (B) 18 WBTR = 0.81 (C) 34 NBTLR = 0.56 (D) 35 SBTLR = 0.32 (C) 33	EBL = 75 m EBTR = 70 m WBL = 30 m WBTR = 150 m NBTLR = 80 m SBTLR = 40 m	<u>Overall: 0.92 (D) 42</u> EBL = 0.6 (C) 28 EBTR = 0.75 (D) 36 WBL = 0.65 (C) 31 WBTR = 0.67 (C) 33 NBTLR = 1.03 (F) 81 SBTLR = 0.71 (C) 32	EBL = 30 m EBTR = 130 m WBL = 30 m WBTR = 115 m NBTLR = 200 m SBTLR = 120 m
Future Total 2035	<u>Overall: 0.85 (D) 36</u> EBL = 0.84 (D) 50 EBTR = 0.52 (C) 21 WBL = 0.59 (B) 19 WBTR = 0.93 (D) 45 NBTLR = 0.62 (D) 39 SBTLR = 0.35 (D) 36	EBL = 90 m EBTR = 85 m WBL = 35 m WBTR = 205 m NBTLR = 90 m SBTLR = 45 m	<u>Overall: 1.05 (D) 52</u> EBL = 0.83 (D) 54 EBTR = 0.87 (D) 43 WBL = 0.92 (E) 76 WBTR = 0.79 (D) 36 NBTLR = 1.09 (F) 102 SBTLR = 0.75 (C) 34	EBL = 50 m EBTR = 160 m WBL = 60 m WBTR = 140 m NBTLR = 215 m SBTLR = 125 m

Under existing 2023 conditions, this signalized intersection is operating with acceptable v/c ratios and LOS and with all individual movements operating below critical levels except for the northbound through shared right and left movements that is expected operate with a reported v/c ratio of 0.98 LOS E during the p.m. peak hour.

Under future 2025 background traffic conditions, the intersection is expected to operate with an overall v/c ratio of 0.52 LOS C in the a.m. peak hour and with a v/c ratio of 0.72 LOS C in the p.m. peak hour. All individual movements are reported to operate with v/c ratios less than 0.85.

It is important to note that the cycle length for the p.m. hour has been increased to 120 seconds under the future background 2025 conditions to allow more green time for the northbound movements.

Under the 2025 total traffic scenario including the subject site trips, the overall intersection v/c ratios increase by 0.21 resulting in an overall reported v/c ratio of 0.73 (LOS C) during the a.m. peak hour and 0.10 resulting in an overall v/c ratio of 0.82 (LOS D) during the p.m. peak hour. The overall average delay per vehicle is expected to increase by 3 seconds in the a.m. peak hour to 24 seconds and increase by 6 seconds in the p.m. peak hour to 37 seconds. Consequently, the operational impact of the added site traffic is minimal.

It is important to note that this intersection is expected to operate with a reported v/c ratio below critical levels for all individual movements except for the northbound through shared left and right movements that is expected to operate with a reported v/c ratio of 0.97. It is important to note that the high v/c ratio for that movement is a result of the high right turn volumes in the p.m. peak hour, this is further supported by existing conditions capacity analysis that shows the northbound movements operating at a v/c ratio of 0.98. The subject site only adds 19 vehicles to the northbound through movement in the p.m. peak hour, and the increase in v/c ratio to 0.97 is primarily due to the 314 northbound right turning volumes that do not include any of the subject development site traffic.

Under future 2030 and 2035 scenarios, the cycle length for the a.m. peak hour was increased to 120 seconds.

With additional corridor growth under the 2030 total traffic scenario, this intersection continues to operate with a reported v/c ratio below critical levels for all individual movements except for the northbound movement in the p.m. peak hour that is expected to operate with a reported v/c ratio of 1.03. The overall intersection v/c ratios are expected to increase by 0.05 resulting in an overall reported v/c ratio of 0.78 (LOS C) during the a.m. peak hour and by 0.10 resulting in an overall v/c ratio of 0.92 (LOS D) during the p.m. peak hour.

Under the 2035 total traffic scenario including continued corridor growth, the overall intersection v/c ratios are expected to increase by 0.07 resulting in an overall reported v/c ratio of 0.85 (LOS D) during the a.m. peak hour and 0.13 resulting in an overall v/c ratio of 1.05 (LOS D) during the p.m. peak hour. Therefore, the operational impact of the subject site traffic is minimal, and the critical movements reported to occur in the 2035 horizon year are a result of the assumed corridor growth and not a result of the subject site traffic.

There are no geometric improvements recommended at this intersection in response to the site traffic generated from the subject development. It is recommended that the city continue to monitor the traffic volumes at this intersection and consider increasing the cycle length if and when warranted to improve capacity.

6.4 Fairview Road and Little Avenue

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 10 Capacity Analysis for Fairview Road and Little Avenue

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2023	Overall: 0.61 (B) 16 WBL = 0.03 (C) 26 WBR = 0.59 (C) 32 NBTR = 0.34 (B) 15 SBL = 0.58 (A) 7 SBT = 0.52 (A) 7	WBL = 5 m WBR = 40 m NBTR = 55 m SBL = 50 m SBT = 100 m	Overall: 0.87 (C) 26 WBL = 0.05 (C) 28 WBR = 0.78 (D) 44 NBTR = 0.63 (C) 24 SBL = 0.86 (C) 30 SBT = 0.57 (A) 9	WBL = 10 m WBR = 75 m NBTR = 100 m SBL = 125 m SBT = 120 m
Future Background 2025	Overall: 0.59 (B) 15 WBL = 0.03 (C) 26 WBR = 0.53 (C) 30 NBTR = 0.33 (B) 14 SBL = 0.57 (A) 7 SBT = 0.5 (A) 7	WBL = 5 m WBR = 45 m NBTR = 50 m SBL = 50 m SBT = 95 m	Overall: 0.88 (C) 27 WBL = 0.05 (C) 29 WBR = 0.77 (D) 45 NBTR = 0.65 (C) 25 SBL = 0.87 (C) 31 SBT = 0.57 (A) 9	WBL = 10 m WBR = 90 m NBTR = 100 m SBL = 120 m SBT = 110 m
Future Total 2025	Overall: 0.63 (B) 16 WBL = 0.03 (C) 26 WBR = 0.56 (C) 31 NBTR = 0.35 (B) 15 SBL = 0.59 (A) 7 SBT = 0.6 (A) 8	WBL = 5 m WBR = 45 m NBTR = 55 m SBL = 55 m SBT = 135 m	Overall: 0.9 (C) 30 WBL = 0.05 (C) 30 WBR = 0.8 (D) 48 NBTR = 0.76 (C) 30 SBL = 0.89 (D) 39 SBT = 0.59 (A) 9	WBL = 10 m WBR = 95 m NBTR = 115 m SBL = 135 m SBT = 115 m
Future Total 2030	Overall: 0.68 (B) 17 WBL = 0.03 (C) 26 WBR = 0.7 (D) 36 NBTR = 0.38 (B) 16 SBL = 0.64 (A) 9 SBT = 0.34 (A) 6	WBL = 5 m WBR = 65 m NBTR = 60 m SBL = 60 m SBT = 55 m	Overall: 0.96 (D) 36 WBL = 0.05 (C) 30 WBR = 0.86 (E) 56 NBTR = 0.82 (C) 34 SBL = 0.96 (D) 54 SBT = 0.33 (A) 7	WBL = 10 m WBR = 105 m NBTR = 125 m SBL = 155 m SBT = 45 m

Future Total 2035	<u>Overall: 0.78 (C) 21</u>		<u>Overall: 0.94 (D) 42</u>	
	WBL = 0.03 (C) 25	WBL = 5 m	WBL = 0.05 (C) 34	WBL = 10 m
	WBR = 0.81 (D) 44	WBR = 90 m	WBR = 0.88 (E) 64	WBR = 125 m
	NBTR = 0.43 (B) 20	NBTR = 65 m	NBTR = 0.92 (D) 48	NBTR = 185 m
	SBL = 0.73 (B) 14	SBL = 65 m	SBL = 0.93 (D) 52	SBL = 190 m
	SBT = 0.37 (A) 8	SBT = 60 m	SBT = 0.34 (A) 8	SBT = 60 m

This intersection was modelled in synchro with the existing southbound through/left movement as an exclusive left turn lane. When using the existing lane configurations into Synchro, the software identified this movement as a defacto left turn lane due to the high left turn volume. Under the existing lane configuration of a shared/left and shared/right turn lane, the existing intersection capacity resulted in the intersection operating above its theoretical capacity under existing conditions.

Under existing 2023 conditions, this signalized intersection is operating with acceptable levels of delay and with all individual movements operating at a reported v/c below 1.0.

Under the future 2025 background traffic conditions, the intersection is expected to continue to operate with an overall v/c ratio of 0.59 LOS B and 0.88 LOS C during the a.m. and p.m. peak hours respectively. All individual movements operating within their theoretical capacity with v/c ratios below 1.0.

With site traffic added under the 2025 total traffic condition, the overall intersection v/c ratio increases by 0.04 for the a.m. peak hour (0.59 to 0.63 LOS B) and by 0.02 in the p.m. peak hour (0.88 to 0.90 LOS C) respectively. Overall delays increase by only 1 second for the a.m. peak and by 3 seconds for the p.m. peak hour. Therefore, the operational impact of the added site traffic is minimal and is generally not expected to be identifiable from a driver's perspective.

With additional corridor growth under the 2030 total traffic scenario, this intersection continues to operate with a reported v/c ratio below critical levels for all individual movements except for the westbound right turning movement and southbound left turning movement in the p.m. peak hour that is expected to operate with reported v/c ratios of 0.86 and 0.96. The overall intersection v/c ratios are expected to increase by 0.05 resulting in an overall reported v/c ratio of 0.68 (LOS B) during the a.m. peak hour and by 0.06 resulting in an overall v/c ratio of 0.96 (LOS D) during the p.m. peak hour.

Under the 2035 total traffic scenario, this intersection continues to operate with a reported v/c ratio below 1.0 for all individual movements. The decrease in the overall v/c ratio in the p.m. peak is due to an increase in cycle length to 120 seconds to provide more capacity and reduce delays.

It should be noted that the westbound approach is reporting elevated v/c ratios above critical levels under the future 2035 horizon years which decreases the amount of green time to the north/south movements on Fairview Road. While not included in the analysis since the timing is unclear, the City's TMP does identify a planned widening of Little Avenue east of Fairview Road to a five-lane cross section with centre left turn lane. This improvement once implemented is expected to resolve these critical movements.

The analysis of future traffic conditions confirms that the operational impact of the subject site traffic is minimal and that critical movements reported to occur in the 2030 and 2035 horizon year are a result of the assumed corridor growth.

There are no geometric improvements recommended at this intersection in response to the site traffic generated from the subject development. It is recommended that the city continue to monitor the traffic volumes at this intersection and consider increasing the cycle length if and when warranted to improve capacity.

6.5 Welham Road/Street A and Hamilton Road

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 11 Capacity Analysis for Welham Road and Hamilton Road

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2023	EBTLR = 0.01 (A) 8 WBTLR = 0.04 (A) 9 NBTLR = 0 (A) 1 SBTLR = 0 (A) 3	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.01 (A) 8 WBTLR = 0.06 (A) 9 NBTLR = 0 (A) 1 SBTLR = 0 (A) 1	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m
Future Background 2025	EBTLR = 0.01 (A) 8 WBTLR = 0.03 (A) 9 NBTLR = 0 (A) 1 SBTLR = 0 (A) 3	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m	EBTLR = 0.01 (A) 8 WBTLR = 0.06 (A) 9 NBTLR = 0 (A) 1 SBTLR = 0 (A) 1	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m
Future Total 2025	EBTLR = 0.01 (A) 9 WBTLR = 0.05 (B) 12 NBTLR = 0 (A) 0 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m	EBTLR = 0.01 (A) 10 WBTLR = 0.09 (B) 12 NBTLR = 0 (A) 0 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m
Future Total 2030	EBTLR = 0.01 (A) 9 WBTLR = 0.05 (B) 12 NBTLR = 0 (A) 0 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m	EBTLR = 0.01 (A) 10 WBTLR = 0.09 (B) 12 NBTLR = 0 (A) 0 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m
Future Total 2035	EBTLR = 0.01 (A) 9 WBTLR = 0.06 (B) 12 NBTLR = 0 (A) 0 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m	EBTLR = 0.01 (A) 10 WBTLR = 0.1 (B) 12 NBTLR = 0 (A) 0 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m

Under existing 2023 traffic conditions the intersection is operating as a four-leg intersection with substantial reserve capacity, acceptable levels of delay, and negligible queuing.

Under all future traffic conditions this intersection is expected to operate with substantial reserve capacity, acceptable levels of delay, and negligible queuing.

7. Conclusions and Recommendations

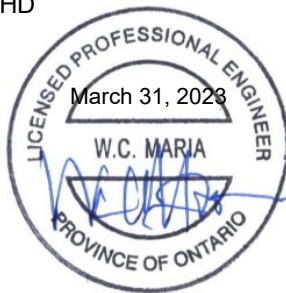
The capacity analysis of the future traffic conditions confirms that the proposed development generated traffic can be accommodated by the existing and planned transportation infrastructure during both the weekday a.m. and p.m. peak hours without significantly impacting the operation of the study intersections. The operational impact of the added site traffic is not expected to be noticeable to motorists travelling through the immediate surrounding road network, and it is not expected to contribute to any significant deterioration of overall network's operational performance.

No geometric improvements beyond those already planned have been recommended in response to the proposed development.

We trust that we have addressed the pertinent transportation matters for this proposed development and please do not hesitate to contact us for further clarification of any point.

Sincerely,

GHD



William Maria, P. Eng.
Transportation Planning Lead

Appendices

Appendix A

Terms of Reference (TOR)

Ameer Al Rijjal

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Monday, March 6, 2023 9:18 AM
To: Ameer Al Rijjal
Subject: RE: 50 Welham
Attachments: RE: 50 Welham Road

Good morning Ameer,

The ROW expansion for Big Bay Point Road has been completed, for additional information please refer to the [project page](#).

I am agreeable that the intersections of Mollard at Bayview and Little at Bayview are no longer required to be reviewed since the access to Bayview Drive is no longer considered.

Regarding the updated draft plan, please find attached the email I have provided to Will regarding some geometric comments.

Thanks.

Justin MacDonald, C.E.T., PTP
Project Delivery – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Ameer Al Rijjal <Ameer.AIRijjal@ghd.com>
Sent: Saturday, March 4, 2023 4:11 PM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>
Subject: 50 Welham

Hi Justin,

The masterplan indicates that the eastbound and westbound on the intersection of Welham/Big Bay is planned for 2023 as per the capital plan. Since most of the improvements for the other intersection were in the 2026 -2031 time frame, we will apply the improvements for the intersection of Welham road for the 2030 horizon year and beyond and not for the 2025 horizon year for a conservative analysis.

Road	Bayview Road	Bayview Drive	2 lanes	TWLT	Capital Plan
Big Bay Point Road	Bayview Drive	Huronia Road	2 lanes	4 lanes + TWLT	Capital Plan
Big Bay Point	Little Avenue	East Avenue	4 lanes	4 lanes + TWLT	2026 - 2031

Also, given that the access that connects to Mollard crescent has been removed from the site plan, the following interactions will be removed from the study since site traffic is not expected to utilize or affect the performance of those intersections in any way. Updated site is plan is attached.

The intersections to not be included in the study anymore are :

- 1.) Mollard Crescent/Bayview.
- 2.) Little Avenue/Bayview

Please let us know if you have any comments.

Ameer

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Ameer Al Rijjal

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Monday, November 8, 2021 3:55 PM
To: Ameer Al Rijjal; Stephen Salis
Subject: RE: TOR-50 Welham

Hi Ameer,

I would recommend under taking counts and I will also look to see if we have general volumes in our road class mapping for these classification as roadways to compare against.

Justin MacDonald, C.E.T.
Senior Transportation Technologist – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Ameer Al Rijjal <Ameer.AIRijjal@ghd.com>
Sent: Monday, November 8, 2021 1:21 PM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>; Stephen Salis <Stephen.Salis@barrie.ca>
Subject: RE: TOR-50 Welham

Thank you for this.

Would you kindly advise if we should do the counts for the following intersections :

- Bayview Drive and Mollard Crescent/Street A (**Counts not available**);
- Welham Road and Hamilton Road (**Counts not available**);

And would you kindly provide us with signal timings for all signalized study area intersections

- Big Bay Point Road and Bayview Drive
- Big Bay Point Road and Welham Road
- Bayview Drive and Little Avenue
- Little Avenue and Fairview Road
- Fairview Road and Big Bay Point Road

Best,

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Thursday, November 4, 2021 9:29 PM
To: Ameer Al Rijjal <Ameer.AIRijjal@ghd.com>
Subject: RE: TOR-50 Welham

Justin MacDonald, C.E.T.
Senior Transportation Technologist – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Ameer Al Rijjal <Ameer.AIRijjal@ghd.com>
Sent: Friday, October 22, 2021 3:18 PM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>
Cc: Will Maria <William.Maria@ghd.com>
Subject: RE: TOR-50 Welham

Good Afternoon Justin,

I would like to follow up on the terms of reference below.

Thanks,

Ameer Al Rijjal

From: Ameer Al Rijjal
Sent: Monday, October 18, 2021 6:29 PM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>
Subject: RE: TOR-50 Welham

Hello Justin,

GHD is pleased to provide the following proposal to provide Transportation Consulting Services in support of the proposed industrial sub-division development located on the lots municipally known as 50 Welham Road in the City of Barrie.

Study Intersections:

- Big Bay Point Road and Bayview Drive (**Counts available year 2019**)
- Bayview Drive and Mollard Crescent/Street A (**Counts not available**);
- Welham Road and Hamilton Road (**Counts not available**);
- Big Bay Point Road and Welham Road (**Counts not available**); 2017 and 2020 attached.
- Bayview Drive and Little Avenue (**Counts available year 2014**) – I have attached the 2020 counts as well.
- Little Avenue and Fairview Road (**Counts available year 2016**)
- Fairview Road and Big Bay Point Road (**Estimated for the Big Bay TIS**)

Traffic Data:

- Please confirm if the counts for the intersections highlighted in red (above) are available. Given the current situation of the covid 19 Pandemic, it is recommended that GHD does not survey at this time

can the City please confirm if there are any historic traffic data available for use in the study for the aforementioned study intersection.

- **Study Peak Hours:** Weekday a.m. and p.m. peak hours to be analyzed.
- **Trip Generation:** Based on latest edition of ITE 10th edition.
- **Trip Distribution:** Based on a review of 2016 TTS , existing travel patterns or a combination of both.
- **Study Horizon Year:** Horizon years will be based on City's Transportation Impact Study requirements (Existing (2021), opening year (2023), 5 year (2028) and 10 year (2033) post build-out.
- **Analysis years**
 - o Existing 2021
 - o Future Background 2023
 - o Future Total 2023
 - o Future Total 2028
 - o Future Total 2033
- **Background Development Traffic:** background Developments with supporting TIS reports to be included in the analysis are:
 - 110 Fairview Road
 - 249 Bayview Drive
 - 80 Big Bay
- **Background Growth Rates:** Growth rates will be consistent with 80 Big Bay TIS as shown in the table below. City to confirm growth rates for Mollard Crescent and Welham Road .

Street Name	Annual Growth Rate	
	Prior to 2031	2031 to 2041
Fairview Road	1.0%	1.4%
Bayview Drive	3.4%	1.5%
Big Bay Point Road	3.2%	3.3%
Little Avenue	1.2%	1.6%
Mollard Crescent	1%	1%
Welham Road .	1%	1%

- **Transportation Network:** City to confirm any planned improvements that should be included with horizon year timeframe.
- **Analysis:** completed using Synchro version 10 following the City of Barry's Guidelines.
 - GHD will review TAC guidelines to complete an access management review for the site accesses and summarize the findings.

Conformity Review of the proposed roadway network ensure it conforms with Transportation Design Manual.

Confirm with proposed development is conforms with the anticipated population and employment forecasts contained in Appendix E of the TMP. Refer to [Infrastructure Master Plans \(barrie.ca\)](#)

- Autoturn analysis of vehicles and truck swept paths will be completed for the site accesses to ensure proper design and on-site circulation.

- TDM to be undertaken as per the city's guidelines.

Complete a signal warrant analysis for the proposed intersection of Mollard Crescent and Bayview Drive.

Your review and comment on the proposed Terms are greatly appreciated.

Thank you,

Ameer Al Rijjal, M.Eng
Transportation Planner

GHD

T: +1 905 752 4300 E: ameer.alrijjal@ghd.com

140 Allstate Parkway Suite 210 Markham Ontario L3R 5Y8 Canada | www.ghd.com

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Ameer Al Rijjal

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Wednesday, March 8, 2023 9:56 AM
To: Will Maria; Ameer Al Rijjal
Subject: RE: 50 Whelham Road

Hi Will – Sorry I should have confirmed the summary table prepared by the co-op student.

		Vehicular Indications				Pedestrian Indications	
Roadway	Direction	Minimum Green	Maximum Green	Amber	All Red	Walk	Flashing Don't Walk
Big Bay Point Road (Main Street)	Advance EB/WB Left Turn	7	12	3	1	-	-
Big Bay Point Road (Main Street)	Eastbound Westbound	45	45	4	2	21	24
Welham Road (Side Street)	Advance Northbound Left Turn	7	12	3	1	-	-
Welham Road (Side Street)	Northbound Southbound	10	20	4	2	7	26

Justin MacDonald, C.E.T., PTP
Project Delivery – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Will Maria <William.Maria@ghd.com>
Sent: Wednesday, March 8, 2023 9:48 AM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>; Ameer Al Rijjal <Ameer.AlRijjal@ghd.com>
Subject: RE: 50 Whelham Road

Okay sorry I was confused by the table when I read Advance Northbound Left turn in the first row, I didn't realize it was for Big Bay.
Does that mean it is an eastbound left turn advance phase?
Then for Welham, the only advance is for the southbound left turn (I assume it is a southbound left/through/right advance phase.
This also confused me because it is the northbound that seems to give us the capacity issues under existing conditions.
I will have Ameer rerun with these timings.
If we still have questions, we can touch based after lunch.
Thanks,

Will

William C. Maria, P.Eng.
Transportation Planning Lead

GHD Ltd.

T: 905 814 4397 | C: 647 229 8541 | F: 905 890 8499 | E: will.maria@ghd.com

Please consider our environment before printing this email

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Wednesday, March 8, 2023 9:44 AM
To: Will Maria <William.Maria@ghd.com>; Ameer Al Rijjal <Ameer.ALRijjal@ghd.com>
Subject: RE: 50 Welham Road

Based on the contract drawings it will remain a shared left/through/right.

Justin MacDonald, C.E.T., PTP
Project Delivery – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Will Maria <William.Maria@ghd.com>
Sent: Wednesday, March 8, 2023 9:35 AM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>; Ameer Al Rijjal <Ameer.ALRijjal@ghd.com>
Subject: RE: 50 Welham Road

Hi Justin, quick question is Welham Road north and south approaches still just a single lane (left through right) or have they been modified recently to include a left turn lane plus through/right?

Will

William C. Maria, P.Eng.
Transportation Planning Lead

GHD Ltd.

T: 905 814 4397 | C: 647 229 8541 | F: 905 890 8499 | E: will.maria@ghd.com
100 Milverton Drive Suite 404, Mississauga, ON L5R 4H1 | www.ghd.com

Please consider our environment before printing this email

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Wednesday, March 8, 2023 9:25 AM
To: Ameer Al Rijjal <Ameer.ALRijjal@ghd.com>
Cc: Will Maria <William.Maria@ghd.com>
Subject: RE: 50 Welham Road

Good morning Ameer and Will,

As per my VM message yesterday the City has implemented updated the existing signals at Welham Road from a 4 phase to an 8 phase cabinet. Hopefully the implementation of the advanced arrows helps mitigated the capacity congestion.

Should you have any questions please give me a call – I am in meetings all morning, but I am free this afternoon.

		Vehicular Indications				Pedestrian Indications	
Roadway	Direction	Minimum Green	Maximum Green	Amber	All Red	Walk	Flashing Don't Walk
Big Bay Point Road (Main Street)	Advance Northbound Left Turn	7	12	3	1	-	-
Big Bay Point Road (Main Street)	Eastbound Westbound	45	45	4	2	21	24
Welham Road (Side Street)	Advance Southbound Left Turn	7	12	3	1	-	-
Welham Road (Side Street)	Northbound Southbound	10	20	4	2	7	26

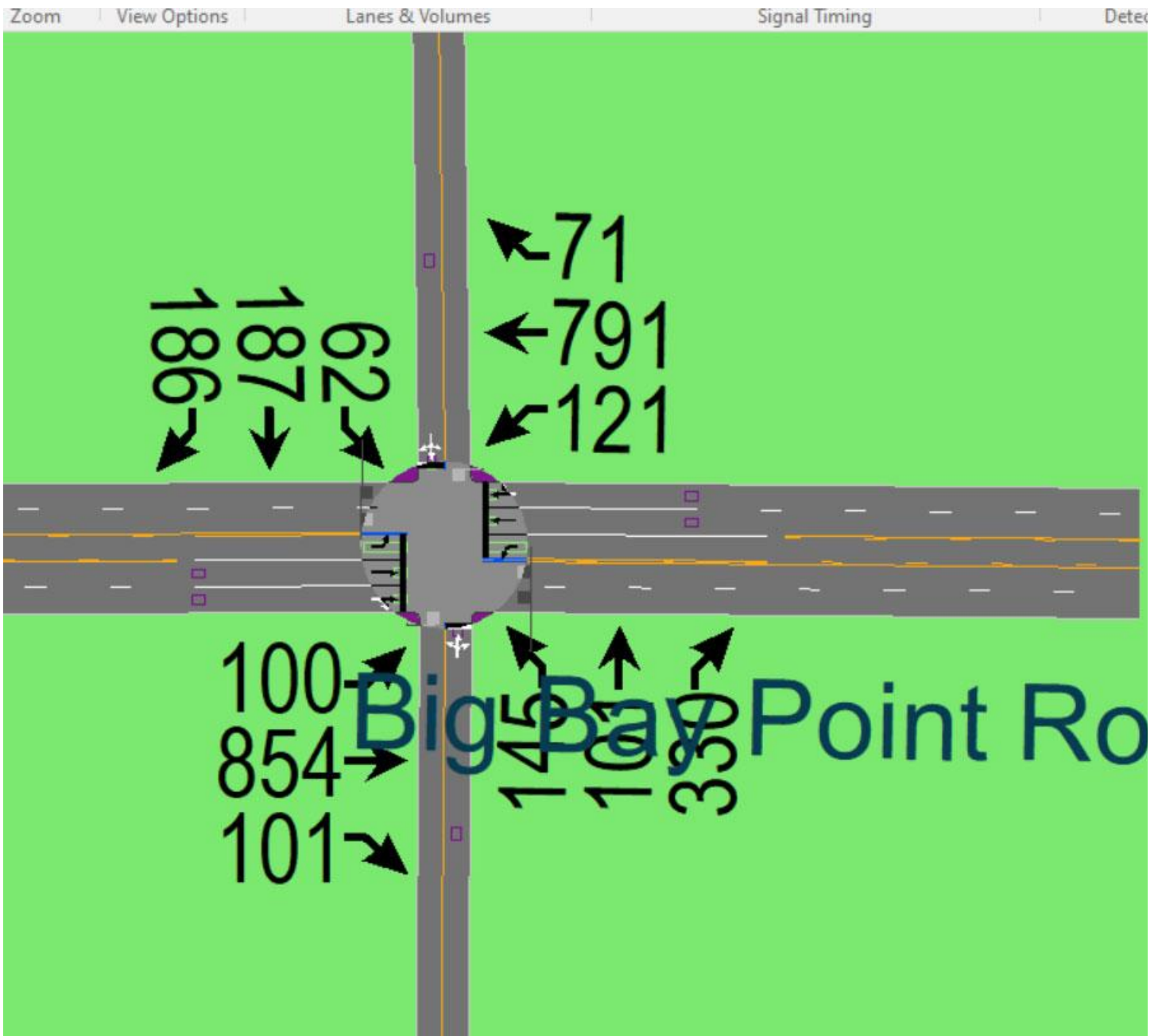
Thanks.

Justin MacDonald, C.E.T., PTP
Project Delivery – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Ameer Al Rijjal <Ameer.ALRijjal@ghd.com>
Sent: Tuesday, March 7, 2023 1:17 PM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>
Subject: RE: 50 Welham Road

Hi Justin,

For Welham/Big Bay intersection, for the pm peak cycle length of 76 seconds, with the current lane configuration , the Northbound movement exceeds capacity, is the City aware of the capacity constraints for the northbound approach? And is there any planned improvements , like adding an northbound exclusive right turn for instance?



From: Justin MacDonald <Justin.MacDonald@barrie.ca>

Sent: Monday, February 6, 2023 11:45 AM

To: Will Maria <William.Maria@ghd.com>

Subject: RE: 50 Whelham Road

Good morning Will,

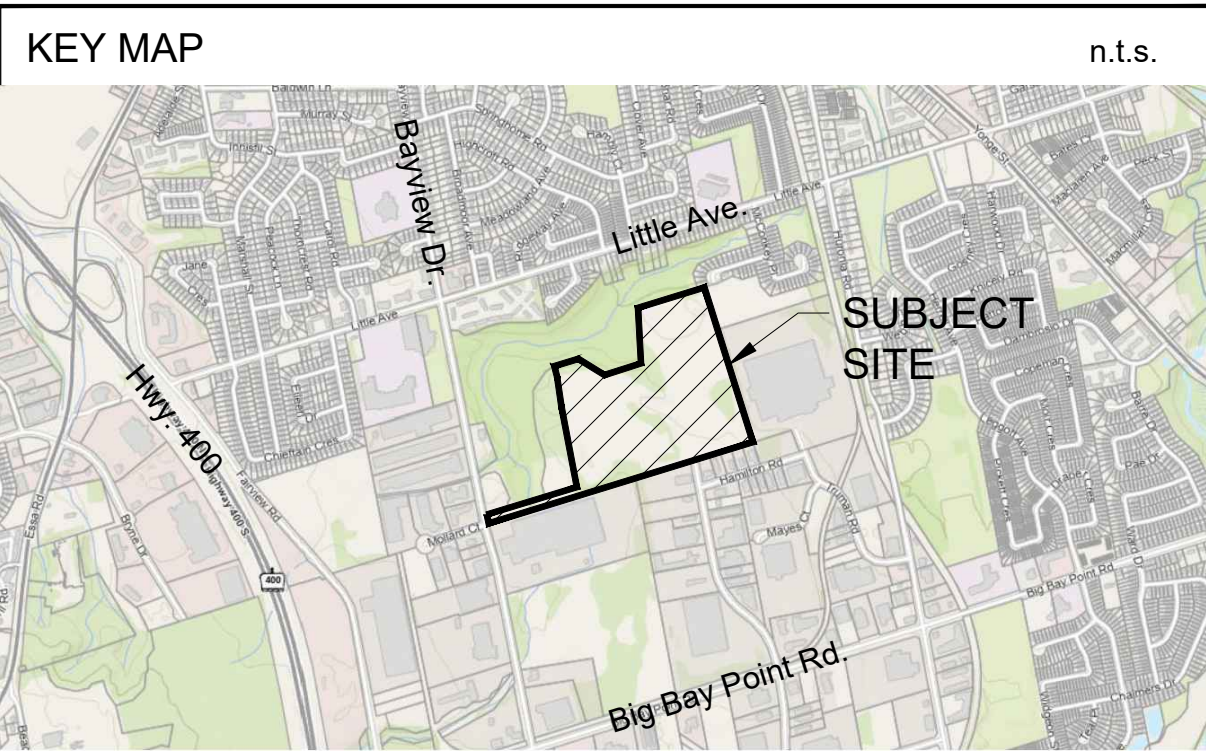
I was away last week and looking to follow up. You are correct, there has been additional discussions regarding local industrial roadways regarding 90 degree bends.

Staff have consultant with 3rd party to gain some feedback and the results of that discussion are as follows.

To address over tracking through 90 degree bends consideration should be made to increase the proposed radii or increase the roadway platform through Street A near Lot 19 and 20. Should the applicant wish to increase the roadway platform please refer to TAC Figure 3.2.9 and Table 3.2.15 for further details.

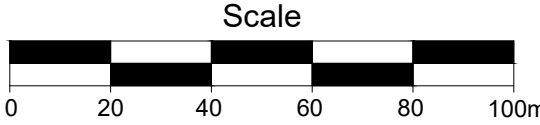
Appendix B

Site Plan



DRAFT PLAN
OF SUBDIVISION

PART OF NORTH HALVES OF LOTS 9 & 10, CONCESSION 13,
(GEOGRAPHIC TOWNSHIP OF INNISFIL),
CITY OF BARRIE,
COUNTY OF SIMCOE



LEGEND
SUBJECT LANDS

OWNER'S CERTIFICATE
I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO
PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS
DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE OWNER'S NAME:

SURVEYOR'S CERTIFICATE
I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED
AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY
AND CORRECTLY SHOWN.

DATE SURVEYOR'S NAME:

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE
PLANNING ACT

- | | |
|------------------|-----------------------------|
| a) SHOWN ON PLAN | g) SHOWN ON PLAN |
| b) SHOWN ON PLAN | h) MUNICIPAL WATER |
| c) SEE KEY PLAN | i) SAND, SILT GLACIAL TILL |
| d) RESIDENTIAL | j) SHOWN ON PLAN |
| e) SHOWN ON PLAN | k) MUNICIPAL WATER & SEWAGE |
| f) SHOWN ON PLAN | l) NONE |

LAND USE STATISTICS			
LAND USE	LOT. / BLK. No.	UNITS	AREA (ha)
Industrial Lots	1 - 20	20	15.948
S.W.M. Pond	21		3.033
S.W.M Pond & Sanitary Easement	22		0.080
Environmental Protection	23		4.391
Streets			2.608
TOTAL	23	20	26.060

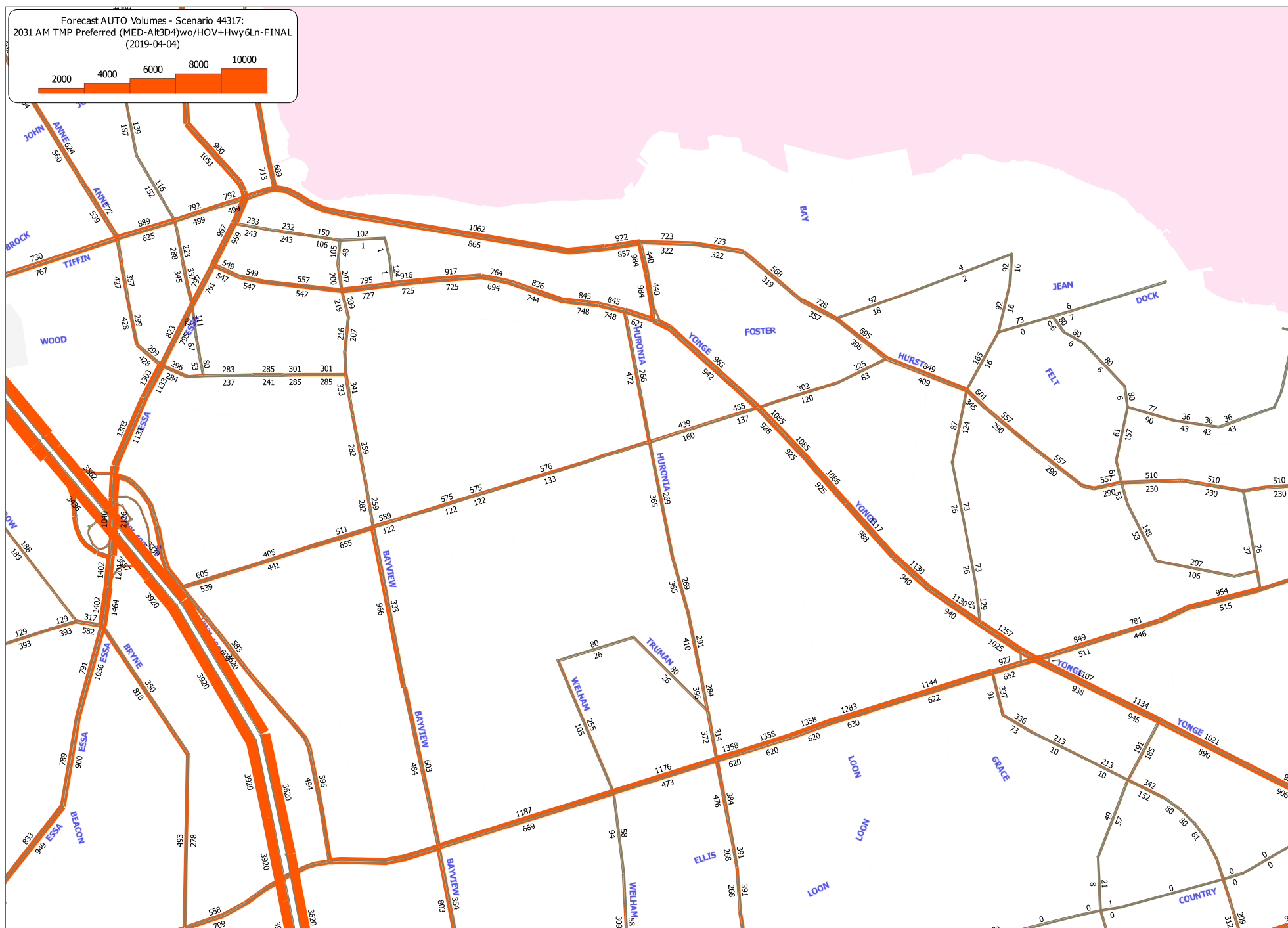
SCHEDULE OF REVISIONS			
No.	Date	Description	By
1	November 4, 2022	Update survey;	A.S.
2	November 22, 2022	Update survey;	A.S.
3	February 7, 2023	Revise D.P.	A.S.

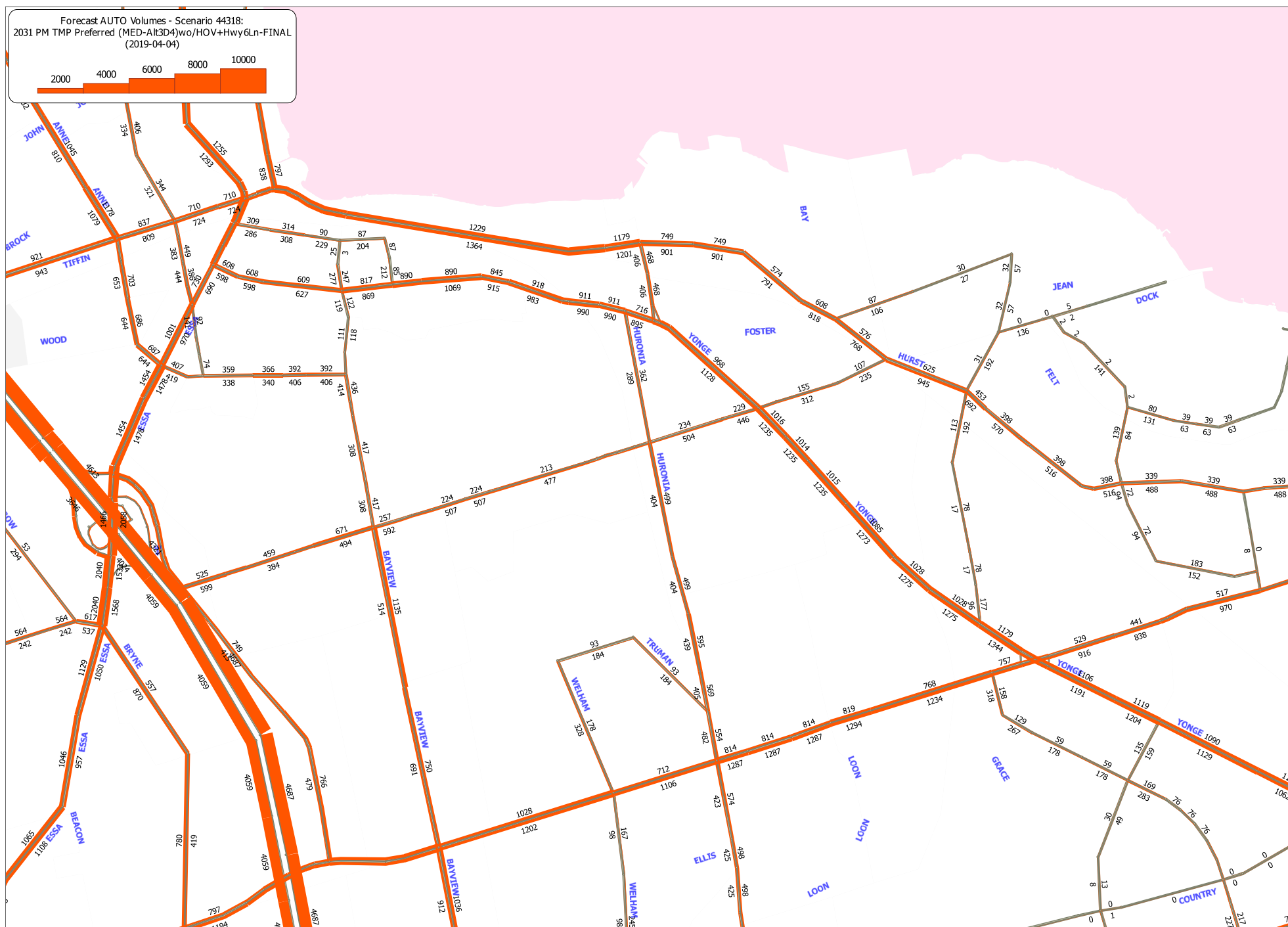
IPS INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

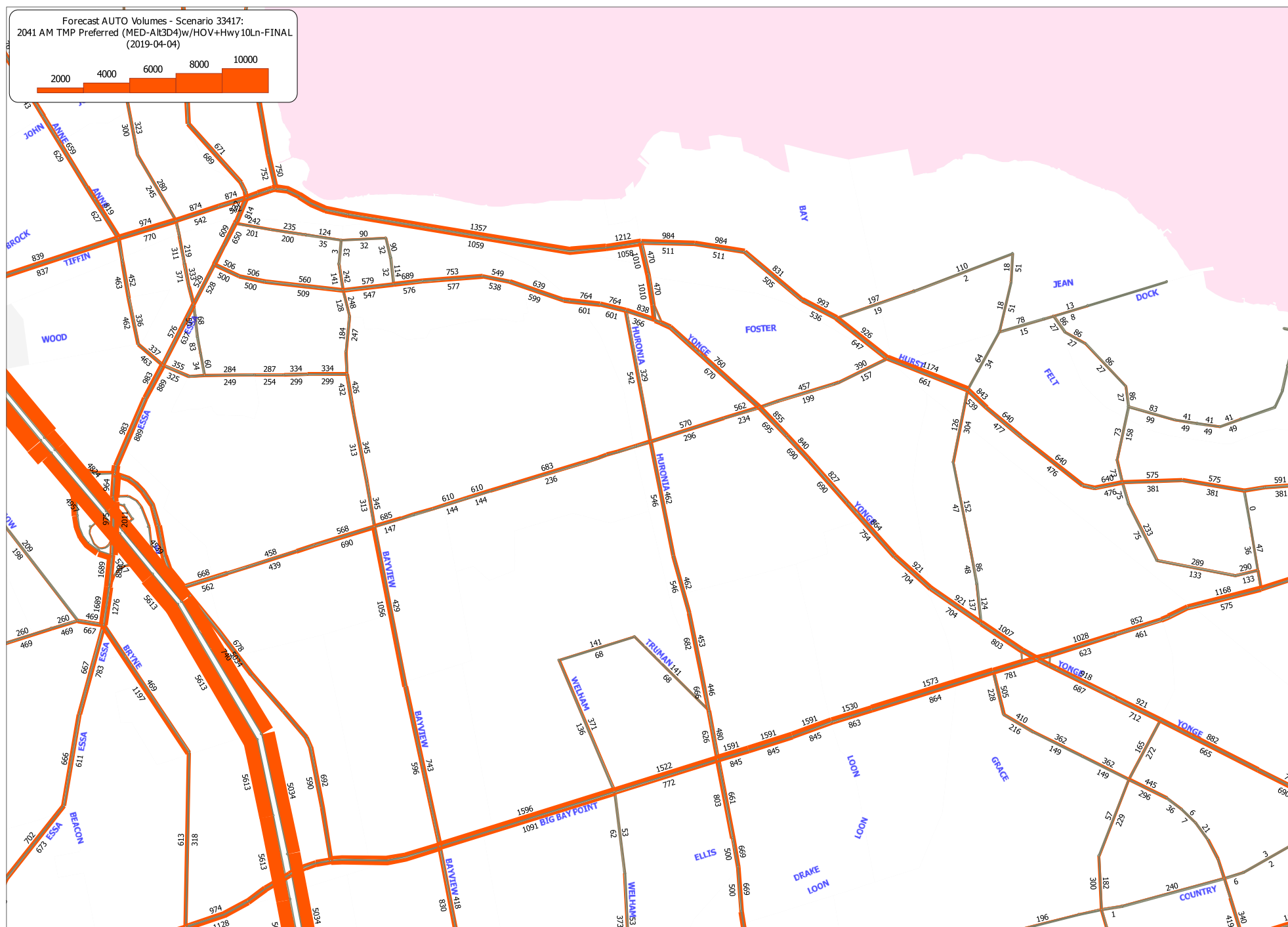
Date:	Sept. 9, 2022	Drawn By:	A.S.
File:	11 - 352	Checked:	K.G.

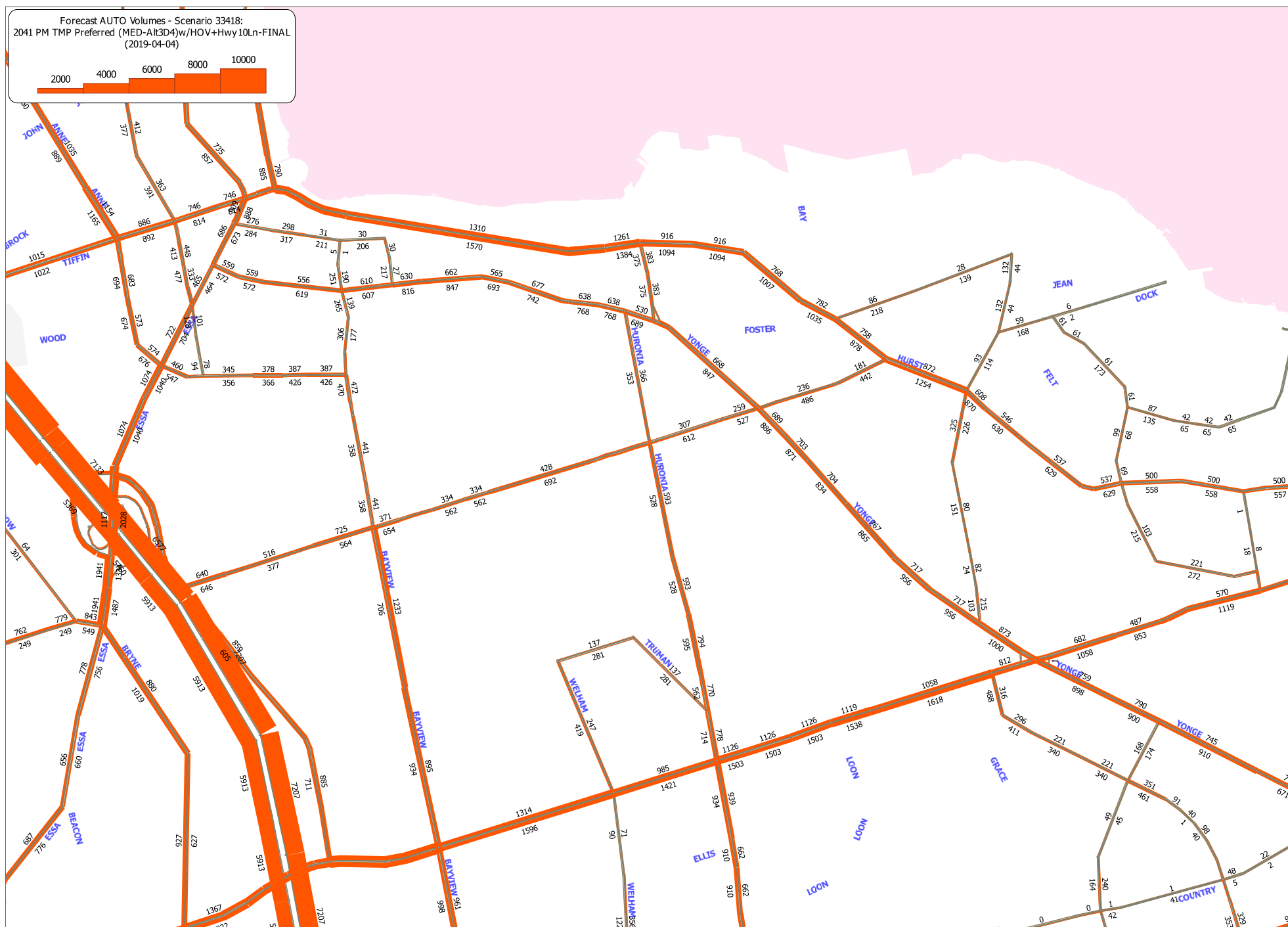
Appendix C

Traffic Data









Trans-Plan Transportation Inc.

Site ID Code:
Intersection Location:
Municipality:
Count Date:
Weather and Temperature:
Surveyor:

Bayview Drive & Big Bay Point Road
Barrie, Ontario
Wednesday March 27, 2019
Sunny, 8 Degrees
TP

AM	NORTH APPROACH										Total	EAST APPROACH										Total	SOUTH APPROACH										Total	WEST APPROACH										Total	Grand Total
	CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds													
	L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R														
7:00	9	36	0	0	1	1	0	0	0	0	47	31	42	5	1	6	1	0	0	0	2	88	5	35	10	2	7	3	0	0	0	0	62	4	39	22	0	1	3	0	0	0	69	266	
7:15	7	43	0	1	3	0	0	0	0	0	54	39	77	3	3	5	0	0	0	0	2	129	5	29	5	4	1	1	0	0	0	0	45	3	40	23	1	2	0	0	0	1	70	298	
7:30	6	65	2	2	4	2	0	0	0	0	81	33	79	4	2	7	4	0	0	0	0	129	9	47	7	3	8	1	0	0	0	7	82	6	53	35	1	6	3	0	0	0	104	396	
7:45	20	60	2	4	10	3	0	1	0	0	100	36	91	17	2	5	1	0	0	0	1	153	7	68	9	1	3	1	0	0	0	7	96	14	82	31	0	5	1	0	0	0	133	482	
8:00	15	58	1	3	2	1	0	0	0	0	80	32	51	1	0	3	0	0	0	0	2	89	13	41	9	8	3	0	0	0	0	0	74	7	52	25	0	3	2	0	0	0	89	332	
8:15	15	45	0	1	8	2	0	0	0	0	71	38	76	10	0	5	0	0	0	0	2	131	13	55	9	2	7	0	0	0	0	0	86	10	64	35	0	3	4	0	0	0	3	119	407
8:30	11	53	1	4	2	2	0	0	0	0	73	35	86	0	2	13	0	0	0	0	4	140	13	39	14	2	2	1	0	0	0	0	71	3	52	26	2	2	3	0	0	0	1	89	373
8:45	17	52	1	2	7	9	0	0	0	0	88	39	81	1	0	8	0	0	0	0	1	130	13	53	12	5	6	0	0	0	0	0	89	5	66	40	1	5	4	0	0	0	1	122	429
MD																																													
11:00	12	66	4	1	3	0	0	0	0	0	86	48	48	1	1	6	0	0	0	0	4	108	30	48	25	4	4	0	0	0	0	0	111	2	41	34	0	2	5	0	0	0	84	389	
11:15	19	57	2	0	2	0	0	0	0	0	80	35	70	6	0	5	0	0	0	0	0	116	15	71	20	2	4	2	0	0	0	0	114	3	42	27	0	5	0	0	0	0	77	387	
11:30	29	74	3	1	4	0	0	0	0	0	111	36	82	4	1	6	0	0	0	0	0	129	27	86	28	3	2	0	0	0	0	0	146	9	35	23	0	2	3	0	0	0	2	74	460
11:45	31	79	3	0	6	1	0	0	0	1	121	49	76	0	0	6	0	0	0	0	2	133	27	58	29	3	5	0	0	0	0	0	122	8	54	30	0	2	5	0	0	0	4	103	479
12:00	20	55	3	6	13	0	0	1	0	5	103	54	73	7	0	6	0	0	0	0	2	142	26	66	28	4	4	0	0	0	0	0	128	5	58	28	3	2	2	0	0	0	10	108	481
12:15	16	73	2	0	12	0	0	0	0	0	103	45	77	4	1	4	0	0	0	0	0	131	27	64	29	3	1	2	0	0	0	0	126	6	50	31	2	6	5	0	0	0	2	102	462
12:30	18	88	6	0	4	1	0	0	0	0	117	56	75	0	1	6	0	0	0	0	0	138	24	72	28	7	7	0	0	0	0	1	139	2	45	27	1	3	6	0	0	0	5	89	483
12:45	12	80	1	2	3	2	0	0	0	0	100	45	68	2	1	6	0	0	0	0	0	122	26	87	29	2	5	1	0	0	0	0	150	3	46	35	3	2	8	0	0	0	2	99	471
13:00	17	69	3	0	3	1	0	0	0	0	93	57	62	9	1	4	0	0	0	0	0	133	36	76	36	1	2	0	0	0	0	1	152	8	37	35	1	4	2	0	0	0	2	89	467
13:15	15	59	2	0	1	2	0	0	0	0	79	33	67	0	1	7	0	0	0	0	1	109	40	65	37	5	2	0	0	0	0	0	149	3	48	32	0	5	4	0	0	0	2	94	431
13:30	29	61	5	1	6	0	0	0	0	0	102	49	75	3	1	4	0	0	0	0	0	132	22	68	22	3	4	0	0	0	0	0	119	3	46	31	1	4	4	0	0	0	2	91	444
13:45	12	54	1	1	4	0	0	0	0	0	72	43	52	5	1	3	0	0	0	0	0	104	22	68	36	4	9	2	0	0	0	0	141	1	50	24	0	10	7	0	0	0	6	98	415
PM																																													
15:00	27	76	2	2	2	0	0	0	0	0	109	30	64	1	3	3	0	0	0	0	0	101	30	72	39	1	9	0	0	0	0	0	151	6	46	31	0	6	5	0	0	0	2	96	457
15:15	22	55	0	1	6	0	0	0	0	0	84	38	68	2	2	2	1	0	0	0	0	113	29	48	26	2	7	0	0	2	0	0	114	1	42	27	3	8	1	0	0	0	2	84	395
15:30	23	69	8	1	6	4	0	0	0	0	111	36	129	7	2	0	1	0	0	0	0	175	42	74	33	4	5	2	0	0	0	0	160	4	46	28	2	8	7	0	0	0	1	96	542
15:45	25	71	5	2	5	0	0	0	0	0	108	38	79	12	0	2	0	0	0	0	1	132	38	70	31	4	5	0	0	0	0	3	151	7	66	30	1	6	4	0	0	0	3	117	508
16:00	43	81	8	2	3	2	0	0	0	1	140	34	140	1	1	5	0	0	0	0	2	183	35	77	26	4	3	1	0	0	0	0	146	4	67	35	2	6	4	0	0	0	1	119	588
16:15	21	67	4	1	2	1	0	0	0	0	96	44	93	5	1	4	0	0	0	0	0	147	41	84	39	3	5	2	0	0	0	1	175	4	78	27	3	4	5	0	0	0	1	122	540
16:30	42	82	6	4	3	1	0	2	0	0	140	44	121	0	1	4	0	0	0	0	0	170	59	75	27	0	6	0	0	1	0	0	168	2	69	35	4	3	2	0	0	0	0	115	593
16:45	28	54	6	1	3	0	0	0	0	0	92	35	104	6	0	2	1	0	0	0	0	148	68	97	35	1	5	0	0	0	0	0	206	5	73	26	0	2	3	0	0	0	0	109	555
17:00	31	88	8	2	4	1	0	0	0	0	134	48	134	3	2	1	0	0	0	0	0	188	55	79	37	0	4	0	0	0	0	0	175	5	84	22	2	1	1	0	0	0	0	115	612
17:15	25	68	8	0	4	1	0	0	0	0	106	46	116	9	0	1	0	0	0	0	2	174	51	88	39	2	3	0	0	0	0	0	183	1	70	29	1	2	1	0	0	0	0	104	567
17:30	25	57	6	0	4	0	0	0	0	0	92	47	54	21	0	1	0	0	0	0	0	123	37	82	39	2	3	0	0	0	0	0	163	1	63	19	0	1	1	0	0	0	0	85	463
17:45	36	66	0	0	1	1	0	0	0	0	104	39	74	19	1	0	0	0	0	0	0	133	31	57	37	0	2	1	0	0	0	0	128	1	74	19	1	4	2	0	0	0	0	101	466



Turning Movement Count Diagram

Intersection: Bayview Drive & Big Bay Point Road

Municipality: Barrie, Ontario

Intersection ID:

Date: Wednesday March 27, 2019

AM Peak Hour: 7:30 to 8:30

Bayview Drive										
North Total 639							East Total 867			
North Entering 332		Cyclists	0	1	0			East Entering 497		
North Receiving 307		Truck	8	24	10			East Receiving 370		
North Peds 0		Cars	5	228	56			East Peds 5		
Big Bay Point Road			↙	↓	↘					
	0	1	37	↗			↗	32	5	0
	0	17	251	→			←	297	20	0
	0	10	126	↘			↘	139	4	0
West Total 828			42	211	34	South Total 856				
West Entering 442			14	21	2	South Entering 324				
West Receiving 386			0	0	0	South Receiving 532				
West Peds 3						South Peds 14				

MD Peak Hour: 11:45 to 12:45

Bayview Drive										
North Total 753							East Total 967			
North Entering 438		Cyclists	0	1	0	East Entering 540				
North Receiving 315		Truck	2	35	6	East Receiving 427				
North Peds 6		Cars	14	295	85	East Peds 4				
Big Bay Point Road	0	6	21	↗			↖	11	0	0
	0	13	207	→			←	301	22	0
	0	18	116	↘			↙	204	2	0
West Total 841				104	260	114	South Total 1185			
West Entering 381			17	17	2	South Entering 514				
West Receiving 460			0	0	0	South Receiving 671				
West Peds 21						South Peds 1				

PM Peak Hour: 16:30 to 17:30

Bayview Drive										
North Total 869				East Total 1253						
North Entering 472		Cyclists	0	2	0	East Entering 678				
North Receiving 397		Truck	3	14	7	East Receiving 575				
North Peds 0		Cars	28	292	126	East Peds 2				
			⬅	↓	➡					
Big Bay Point Road	0	7	13	↗		↖		18	1	0
	0	8	296	➡		⬅		475	8	0
	0	7	112	↘		↙		173	3	0
			⬅	↑	➡					
West Total 1193				233		339		138		South Total 1335
West Entering 443			3	18	0	South Entering 732				
West Receiving 750			0	1	0	South Receiving 603				
West Peds 0						South Peds 0				

Total 8-Hour Count

Bayview Drive										
North Total 5673				East Total 7721						
North Entering 3070		Cyclists	0	4	0	East Entering 4245				
North Receiving 2603		Truck	38	141	45	East Receiving 3476				
North Peds 7		Cars	103	2061	678	East Peds 28				
Big Bay Point Road	0	35	146	↖			↖	168	9	0
	0	125	1778	→			←	2584	140	0
	0	107	922	↘			↘	1312	32	0
West Total 6985				916	2099	830	South Total 8681			
West Entering 3113			91	143	20	South Entering 4102				
West Receiving 3872			0	3	0	South Receiving 4579				
West Peds 53						South Peds 20				

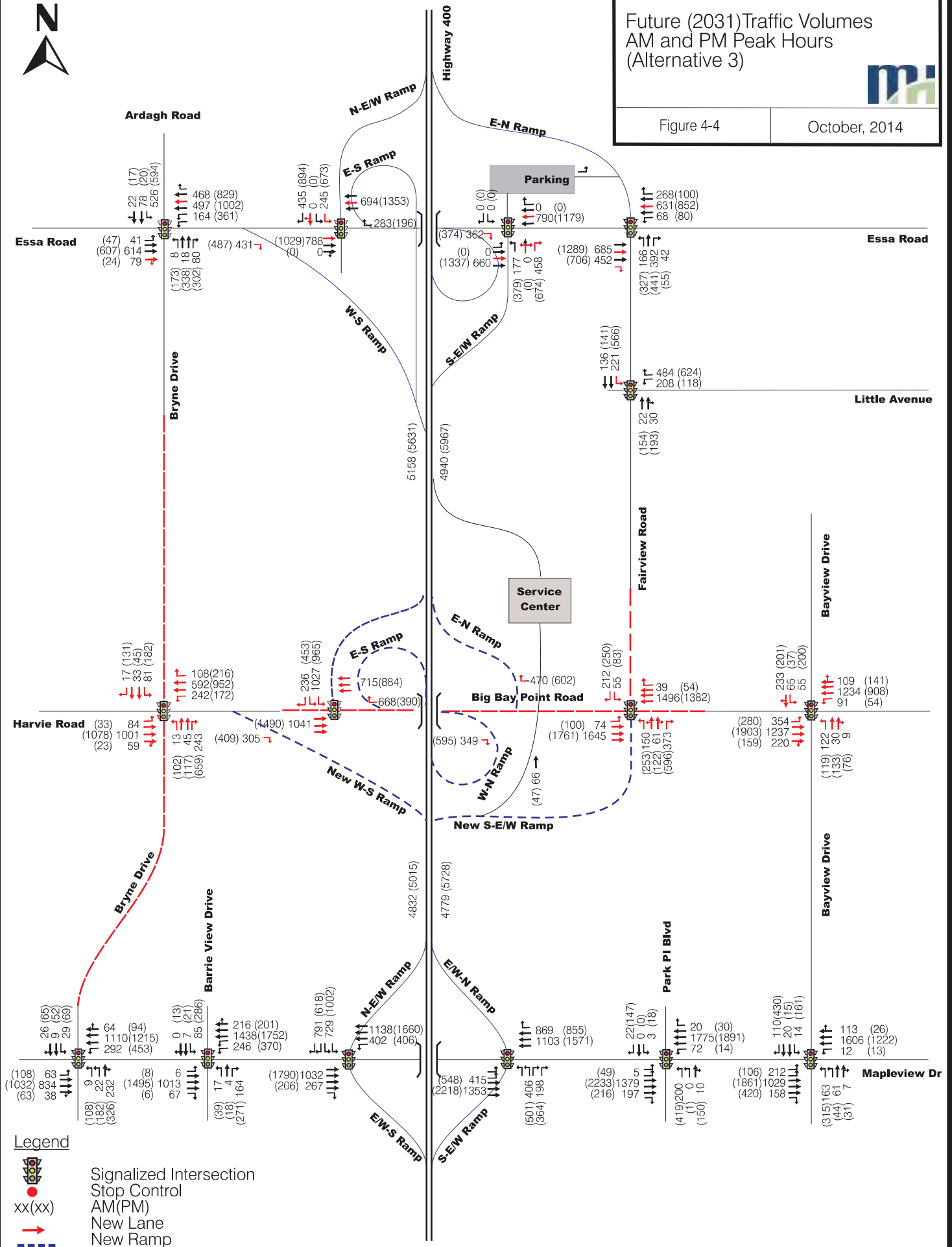


Future (2031) Traffic Volumes
AM and PM Peak Hours
(Alternative 3)



Figure 4-4

October, 2014



Site ID Code:	
Intersection Location:	Little Avenue at Fairview Road
Municipality:	Barrie, Ontario
Count Date:	Wednesday September 14, 2016
Weather and Temperature:	Sunny
Surveyor:	TP

Trans-Plan Transportation Inc.

Site ID Code:

Intersection Location:

Municipality:

Count Date:

Weather and Temperature:

Surveyor:

Big Bay Point Road and Welham Road

Barrie, Ontario

Wednesday 24 May 2017

Clear 17C Degrees

TP

AM	NORTH APPROACH										Total	EAST APPROACH										Total	SOUTH APPROACH										Total	WEST APPROACH										Total	Grand Total
	CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds													
	L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R														
7:00	1	1	4	0	2	4	0	0	0	0	12	26	128	6	1	2	0	0	0	0	0	163	4	5	15	2	2	0	0	0	0	0	28	12	49	9	4	7	0	0	0	0	4	81	284
7:15	4	5	5	0	3	3	0	0	0	0	20	22	130	6	1	4	0	0	0	0	0	163	9	12	15	1	1	2	0	0	0	0	40	18	49	25	1	9	0	0	0	0	0	102	325
7:30	1	6	11	0	1	1	0	0	0	0	20	21	158	3	1	7	0	1	0	0	0	191	5	14	24	1	3	2	0	0	0	0	49	25	69	25	3	8	1	0	0	0	2	131	391
7:45	2	4	12	0	2	7	0	0	0	0	27	34	167	8	0	4	0	0	0	0	0	213	8	19	17	0	2	2	0	0	0	0	48	26	85	31	3	9	1	0	0	0	0	155	443
8:00	4	5	7	0	3	4	0	0	0	2	23	35	150	7	1	2	0	0	0	0	0	195	6	8	22	1	2	0	0	0	0	0	39	12	90	22	3	4	2	0	0	0	2	133	390
8:15	1	2	13	0	0	2	0	0	0	0	18	30	125	3	0	10	0	0	0	0	1	168	11	11	24	1	2	0	0	0	0	0	49	12	65	21	0	6	0	0	0	0	0	104	339
8:30	1	6	8	0	3	7	0	0	0	0	25	27	124	2	4	4	0	0	0	0	0	161	11	11	28	3	3	7	0	0	0	0	63	16	87	6	0	6	3	0	0	0	0	118	367
8:45	6	6	16	1	4	4	0	0	0	0	37	24	109	2	0	2	0	0	0	0	0	137	8	6	23	0	2	2	0	0	0	0	41	18	104	21	1	5	2	0	0	0	0	151	366
MD																																													
11:00	2	3	15	0	1	1	0	0	0	0	22	18	107	7	2	13	0	0	0	0	0	147	10	10	31	0	1	0	0	0	0	0	52	4	114	12	2	3	0	0	0	0	0	135	356
11:15	3	4	8	0	2	3	0	0	0	0	20	21	108	3	1	2	0	0	0	0	0	135	12	6	41	1	1	2	0	0	0	0	63	13	94	7	2	5	2	0	0	0	0	123	341
11:30	5	7	8	1	2	1	0	0	0	0	24	19	134	3	1	6	1	0	1	0	0	165	15	15	43	3	1	2	0	0	0	0	79	11	89	13	2	7	3	0	0	0	1	125	393
11:45	9	18	20	0	0	0	0	0	0	0	47	28	135	3	2	8	0	0	0	0	0	176	18	11	45	1	2	2	0	0	0	0	79	7	114	11	3	4	1	0	0	0	0	140	442
12:00	9	12	14	0	0	5	0	0	0	1	40	14	125	5	2	7	2	0	0	0	2	155	16	15	51	2	4	3	0	0	0	1	91	23	120	12	1	3	0	0	0	0	1	159	445
12:15	5	7	22	0	0	7	0	0	0	0	41	26	106	8	0	7	1	0	0	0	0	148	15	12	41	1	1	3	0	0	0	0	73	13	101	7	1	8	1	0	0	0	0	131	393
12:30	5	12	19	1	1	3	0	0	0	0	41	26	120	8	1	7	0	0	0	0	0	162	14	12	56	1	0	4	0	0	0	0	87	16	110	16	4	4	3	0	0	0	0	153	443
12:45	5	7	15	0	1	5	0	0	0	0	33	26	123	4	0	9	1	0	0	0	0	163	8	16	43	1	0	3	0	0	0	0	71	10	102	18	1	7	2	0	0	0	0	140	407
13:00	8	10	15	0	0	0	0	0	0	0	33	24	119	5	1	5	0	0	0	0	0	154	7	9	34	2	1	2	0	0	0	0	55	11	103	5	2	2	1	0	0	0	0	124	366
13:15	2	7	14	0	1	2	0	1	0	0	27	25	99	7	2	11	1	0	0	0	0	145	13	12	31	2	2	0	0	0	0	0	60	8	103	16	3	2	2	0	0	0	0	134	366
13:30	3	4	17	1	3	0	0	0	0	0	28	19	110	5	1	7	3	0	0	0	0	145	10	3	31	1	2	5	0	0	0	0	52	14	119	11	3	6	4	0	0	0	1	157	382
13:45	0	8	17	0	2	3	0	0	0	0	30	20	100	2	1	6	0	0	1	0	0	130	18	6	34	1	3	3	0	0	0	0	65	16	93	9	2	7	2	0	0	0	0	129	354
PM																																													
15:00	9	8	18	0	3	2	0	0	0	0	40	16	118	3	2	5	0	0	0	0	0	144	11	8	49	1	2	2	0	0	0	0	73	11	147	17	3	0	1	0	0	0	0	179	436
15:15	6	9	18	0	0	0	0	0	0	1	33	21	115	5	3	5	0	0	0	0	0	149	19	16	45	0	3	3	0	0	0	0	86	10	120	9	0	5	4	0	0	0	0	148	416
15:30	1	13	22	0	0	0	0	0	0	1	36	15	135	8	1	10	1	0	0	0	1	170	17	9	49	1	0	0	0	0	0	0	76	17	138	10	3	7	0	0	0	0	0	175	457
15:45	10	18	30	0	0	1	0	0	0	0	59	18	119	13	3	5	2	0	0	0	2	160	25	9	51	1	3	0	0	0	0	0	89	19	125	9	2	5	3	0	0	0	0	163	471
16:00	12	17	21	0	2	3	0	0	0	0	55	19	134	12	2	4	0	0	0	0	1	171	28	8	53	1	1	2	0	0	0	0	93	7	150	17	3	2	4	0	0	0	0	183	502
16:15	12	10	34	0	1	1	0	0	0	0	58	24	119	10	1	5	0	0	0	0	0	159	25	16	60	0	1	0	0	0	0	0	102	12	131	13	1	3	1	0	0	0	0	161	480
16:30	7	13	23	0	0	1	0	0	0	1	44	13	129	6	2	1	1	0	0	0	0	152	39	20	78	1	1	1	0	0	1	0	141	10	135	12	1	2	2	0	0	0	0	162	499
16:45	5	11	24	0	0	1	0	0	0	0	41	18	126	13	1	2	0	0	0	0	0	160	31	6	94	2	1	2	0	0	0	0	136	13	127	16	5	3	2	0	0	0	0	166	503
17:00	2	26	25	0	0	0	0	0	0	0	53	23	117	3	1	4	1	0	0	0	0	149	30	14	58	1	0	0	0	0	0	2	103	14	158	19	1	1	1	0	0	0	0	194	499
17:15	7	7	29	0	1	0	0	0	0	2	44	19	106	11	0	4	0	0	0	0	0	140	21	15	93	1	2	2	0	0	0	0	134	18	130	9	2	0	2	0	0	0	0	161	479
17:30	8	5	11	0	0	1	0	0	0	0	25	23	132	7	0	1	0	0	0	0	0	163	21	17	77	0	0	1	0	0	0	0	116	16	133	10	1	0	1	0	0	0	0	161	465
17:45	8	6	23	0	1	1	0	0	0	0	39	14	126	11	0	1	1	0	0	0	0	153	10	5	67	1	0	1	0	0	0	0	84	17	125	6	2	2	0	0	0	0	0	152	428



Turning Movement Count Diagram

Intersection: Big Bay Point Road and Welham Road

Municipality: Barrie, Ontario

Intersection ID:

Date: Wednesday 24 May 2017

AM Peak Hour: 7:30 to 8:30

Welham Road											
North Total 254						East Total 1202					
North Entering 88	Cyclists	0	0	0		East Entering 767					
North Receiving 166	Truck	14	6	0		East Receiving 435					
North Peds 2	Cars	43	17	8		East Peds 1					
		↙	↓	↘							
Big Bay Point Road	0	9	75	↗		↗	21	0	0		
	0	27	309	→		↖	600	23	0		
	0	4	99	↘		↘	120	2	1		
		↖	↑	↗							
West Total 1236			30	52	87	South Total 434					
West Entering 523		3	9	4		South Entering 185					
West Receiving 713		0	0	0		South Receiving 249					
West Peds 4											
			↖	↑	↗	South Peds 0					

MD Peak Hour: 11:45 to 12:45

Welham Road									
North Total		321				East Total		1339	
North Entering	169	Cyclists	0	0	0	East Entering	641		
North Receiving	152	Truck	15	1	1	East Receiving	698		
North Peds	1	Cars	75	49	28	East Peds	2		
			↙	↓	↘				
Big Bay Point Road	0	9	59	↗	↗	24	3	0	
	0	19	445	→	↖	486	29	0	
	0	5	46	↘	↘	94	5	0	
			↙	↑	↘				
West Total		1256	63	50	193	South Total		530	
West Entering	583		5	7	12	South Entering		330	
West Receiving	673		0	0	0	South Receiving		200	
West Peds	1								

PM Peak Hour: 16:00 to 17:00

Welham Road											
North Total 346						East Total 1522					
North Entering 198	Cyclists	0	0	0		East Entering 642					
North Receiving 148	Truck	6	3	0		East Receiving 880					
North Peds 1	Cars	102	51	36		East Peds 1					
		↙	↓	↘							
Big Bay Point Road	0	10	42	↗		↗	41	1	0		
	0	10	543	→		↖	508	12	0		
	0	9	58	↘		↘	74	6	0		
		↖	↑	↗							
West Total 1427			123	50	285	South Total 673					
West Entering 672		4	4	5		South Entering 472					
West Receiving 755		0	0	1		South Receiving 201					
West Peds 0										South Peds 0	

Total 8-Hour Count

Welham Road									
North Total		2228				East Total		10356	
North Entering	1095	Cyclists	0	1	0	East Entering	5086		
North Receiving	1133	Truck	73	39	4	East Receiving	5270		
North Peds	8	Cars	538	277	163	East Peds	7		
			↙	↓	↘				
Big Bay Point Road	0	65	449	↗	↗	199	15	0	
	0	142	3479	→	↖	3953	170	2	
	0	51	444	↘	↘	708	38	1	
			↖	↑	↗				
West Total		9896		495	356	1423	South Total		3976
West Entering	4630		35	49	58	South Entering	2417		
West Receiving	5266		0	0	1	South Receiving	1559		
West Peds	11								
				↖	↑	↗			
				↖	↑	↗			
				↖	↑	↗			

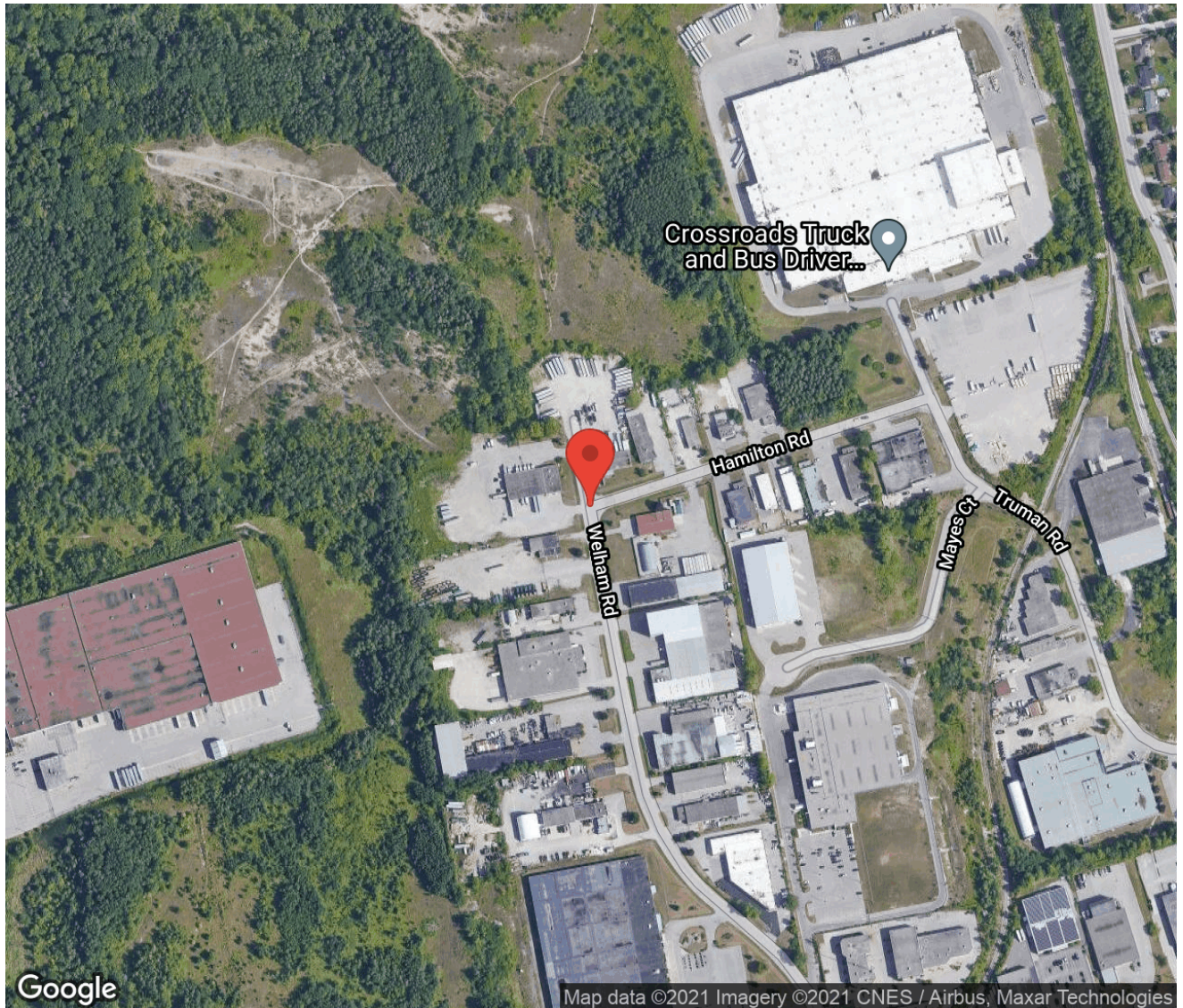
Project #21-238 - GHD

Intersection Count Report

Intersection:	Welham Rd & Hamilton Rd-Commercial Access
Municipality:	Barrie
Count Date:	Nov 16, 2021
Site Code:	2123800002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear

Traffic Count Map

Intersection:	Welham Rd & Hamilton Rd-Commercial Access
Site Code:	2123800002
Municipality:	Barrie
Count Date:	Nov 16, 2021



Traffic Count Summary

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

Welham Rd - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	0	2	0	0	2	0	13	9	34	0	56	1	58
08:00 - 09:00	2	5	0	0	7	0	1	8	33	0	42	0	49
BREAK													
16:00 - 17:00	2	7	1	0	10	0	5	8	25	0	38	0	48
17:00 - 18:00	1	3	0	0	4	0	2	3	24	0	29	1	33
GRAND TOTAL	5	17	1	0	23	0	21	28	116	0	165	2	188

Traffic Count Summary

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

Hamilton Rd - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	13	0	1	0	14	0	0	0	3	0	3	0	17
08:00 - 09:00	23	1	1	0	25	2	1	0	10	0	11	0	36
BREAK													
16:00 - 17:00	44	1	0	0	45	0	2	0	8	0	10	0	55
17:00 - 18:00	23	0	0	0	23	0	0	0	2	0	2	0	25
GRAND TOTAL	103	2	2	0	107	2	3	0	23	0	26	0	133

Traffic Count Data

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

North Approach - Welham Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
08:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:30	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0
08:45	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	1	3	0	0	4	1	4	0	0	5	0	0	0	0	0	0

Traffic Count Data

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

North Approach - Welham Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
16:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:30	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
16:45	2	2	1	0	5	0	0	0	0	0	0	0	0	0	0	0
17:00	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0
17:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	3	10	1	0	14	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	4	13	1	0	18	1	4	0	0	5	0	0	0	0	0	0

Traffic Count Data

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

South Approach - Welham Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	3	1	7	0	11	0	0	0	0	0	0	0	0	0	0	0
07:15	5	1	4	0	10	0	1	1	0	2	0	0	0	0	0	0
07:30	0	0	8	0	8	0	3	0	0	3	0	0	0	0	0	1
07:45	5	3	12	0	20	0	0	2	0	2	0	0	0	0	0	0
08:00	1	3	9	0	13	0	0	1	0	1	0	0	0	0	0	0
08:15	0	2	8	0	10	0	0	3	0	3	0	0	0	0	0	0
08:30	0	1	5	0	6	0	2	0	0	2	0	0	0	0	0	0
08:45	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	14	11	60	0	85	0	6	7	0	13	0	0	0	0	0	1

Traffic Count Data

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

South Approach - Welham Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	2	2	2	0	6	0	0	0	0	0	0	0	0	0	0	0
16:15	0	1	15	0	16	0	0	0	0	0	0	0	0	0	0	0
16:30	2	1	5	0	8	1	2	0	0	3	0	0	0	0	0	0
16:45	0	2	3	0	5	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0
17:15	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0
17:30	2	0	3	0	5	0	0	1	0	1	0	0	0	0	0	0
17:45	0	0	11	0	11	0	2	0	0	2	0	0	0	0	0	1
SUBTOTAL	6	7	48	0	61	1	4	1	0	6	0	0	0	0	0	1
GRAND TOTAL	20	18	108	0	146	1	10	8	0	19	0	0	0	0	0	2

Traffic Count Data

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

East Approach - Hamilton Rd

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

Traffic Count Data

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

East Approach - Hamilton Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	13	0	0	0	13	2	0	0	0	2	0	0	0	0	0	0
16:15	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0
16:30	10	1	0	0	11	0	0	0	0	0	0	0	0	0	0	0
16:45	6	0	0	0	6	1	0	0	0	1	0	0	0	0	0	0
17:00	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
17:15	7	0	0	0	7	1	0	0	0	1	0	0	0	0	0	0
17:30	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
17:45	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	63	1	0	0	64	4	0	0	0	4	0	0	0	0	0	0
GRAND TOTAL	90	2	2	0	94	13	0	0	0	13	0	0	0	0	0	2

Traffic Count Data

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

West Approach - Commercial Access

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
08:00	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
08:45	1	0	0	0	1	0	0	3	0	3	0	0	0	0	0	0
SUBTOTAL	1	0	9	0	10	0	0	4	0	4	0	0	0	0	0	0

Traffic Count Data

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Municipality: Barrie
 Count Date: Nov 16, 2021

West Approach - Commercial Access

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
16:00	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
16:30	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	2	0	10	0	12	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	3	0	19	0	22	0	0	4	0	4	0	0	0	0	0	0

Peak Hour Diagram

Specified Period

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

One Hour Peak

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

Intersection: Welham Rd & Hamilton Rd-Commercial Access
Site Code: 2123800002
Count Date: Nov 16, 2021

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Welham Rd runs N/S

North Approach

	Out	In	Total
	3	10	13
	2	2	4
	0	0	0
	5	12	17

Welham Rd

	0	0	0	0
	0	1	1	0
	0	2	1	0
Totals	0	3	2	0






East Approach

	Out	In	Total
	20	35	55
	6	7	13
	0	0	0
	26	42	68

Commercial Access

				Totals
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	1	7	8






Peds: 0



Peds: 0

Hamilton Rd

Totals			
0	0	0	0
1	1	0	0
1	1	0	0
24	18	6	0






West Approach

	Out	In	Total
	7	7	14
	1	0	1
	0	0	0
	8	7	15

Totals				
	6	11	40	0
	6	9	34	0
	0	2	6	0
	0	0	0	0

Welham Rd

South Approach

	Out	In	Total
	49	27	76
	8	8	16
	0	0	0
	57	35	92

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Count Date: Nov 16, 2021
 Period: 07:00 - 09:00

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

Start Time	North Approach Welham Rd						South Approach Welham Rd						East Approach Hamilton Rd						West Approach Commercial Access						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:45	0	1	0	0	0	1	5	3	14	0	0	22	8	0	1	0	0	9	0	0	1	0	0	1	33
08:00	1	0	0	0	0	1	1	3	10	0	0	14	4	0	0	0	0	4	0	0	3	0	0	3	22
08:15	0	1	0	0	0	1	0	2	11	0	0	13	6	1	0	0	0	7	0	0	3	0	0	3	24
08:30	1	1	0	0	0	2	0	3	5	0	0	8	6	0	0	0	0	6	0	0	1	0	0	1	17
Grand Total	2	3	0	0	0	5	6	11	40	0	0	57	24	1	1	0	0	26	0	0	8	0	0	8	96
Approach %	40	60	0	0	-	-	10.5	19.3	70.2	0	-	-	92.3	3.8	3.8	0	-	-	0	0	100	0	-	-	-
Totals %	2.1	3.1	0	0	-	5.2	6.3	11.5	41.7	0	-	59.4	25	1	1	0	-	27.1	0	0	8.3	0	-	8.3	-
PHF	0.5	0.75	0	0	-	0.63	0.3	0.92	0.71	0	-	0.65	0.75	0.25	0.25	0	-	0.72	0	0	0.67	0	-	0.67	0.73
Cars	1	2	0	0	-	3	6	9	34	0	-	49	18	1	1	0	-	20	0	0	7	0	-	7	79
% Cars	50	66.7	0	0	-	60	100	81.8	85	0	-	86	75	100	100	0	-	76.9	0	0	87.5	0	-	87.5	82.3
Trucks	1	1	0	0	-	2	0	2	6	0	-	8	6	0	0	0	-	6	0	0	1	0	-	1	17
% Trucks	50	33.3	0	0	-	40	0	18.2	15	0	-	14	25	0	0	0	-	23.1	0	0	12.5	0	-	12.5	17.7
Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0
% Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

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

Intersection: Welham Rd & Hamilton Rd-Commercial Access
Site Code: 2123800002
Count Date: Nov 16, 2021

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Welham Rd runs N/S

North Approach

	Out	In	Total
	10	8	18
	0	2	2
	0	0	0
Totals	10	10	20

Welham Rd

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






East Approach

	Out	In	Total
	42	27	69
	3	0	3
	0	0	0
Totals	45	27	72

Commercial Access

				Totals
	0	0	0	0
	0	0	2	2
	0	0	0	0
	0	0	8	8

Peds: 0



Peds: 0

Hamilton Rd

Totals			
	0	0	0
	0	0	0
	1	1	0
	44	41	3

West Approach

	Out	In	Total
	10	6	16
	0	1	1
	0	0	0
Totals	10	7	17

Totals				
	4	6	25	0
	1	2	0	0
	0	0	0	0

Welham Rd

South Approach

	Out	In	Total
	35	56	91
	3	3	6
	0	0	0
Totals	38	59	97

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Welham Rd & Hamilton Rd-Commercial Access
 Site Code: 2123800002
 Count Date: Nov 16, 2021
 Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Welham Rd						South Approach Welham Rd						East Approach Hamilton Rd						West Approach Commercial Access						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	0	2	0	0	0	2	2	2	2	0	0	6	15	0	0	0	0	15	0	0	3	0	0	3	26
16:15	0	1	0	0	0	1	0	1	15	0	0	16	12	0	0	0	0	12	0	0	1	0	0	1	30
16:30	0	2	0	0	0	2	3	3	5	0	0	11	10	1	0	0	0	11	2	0	1	0	0	3	27
16:45	2	2	1	0	0	5	0	2	3	0	0	5	7	0	0	0	0	7	0	0	3	0	0	3	20
Grand Total	2	7	1	0	0	10	5	8	25	0	0	38	44	1	0	0	0	45	2	0	8	0	0	10	103
Approach %	20	70	10	0	-	-	13.2	21.1	65.8	0	-	-	97.8	2.2	0	0	-	-	20	0	80	0	-	-	-
Totals %	1.9	6.8	1	0	-	9.7	4.9	7.8	24.3	0	-	36.9	42.7	1	0	0	-	43.7	1.9	0	7.8	0	-	9.7	-
PHF	0.25	0.88	0.25	0	-	0.5	0.42	0.67	0.42	0	-	0.59	0.73	0.25	0	0	-	0.75	0.25	0	0.67	0	-	0.83	0.86
Cars	2	7	1	0	-	10	4	6	25	0	-	35	41	1	0	0	-	42	2	0	8	0	-	10	97
% Cars	100	100	100	0	-	100	80	75	100	0	-	92.1	93.2	100	0	0	-	93.3	100	0	100	0	-	100	94.2
Trucks	0	0	0	0	-	0	1	2	0	0	-	3	3	0	0	0	-	3	0	0	0	0	-	0	6
% Trucks	0	0	0	0	-	0	20	25	0	0	-	7.9	6.8	0	0	0	-	6.7	0	0	0	0	-	0	5.8
Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0
% Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-

November 29, 2021

File: T07-SI

Justin MacDonald
City of Barrie
70 Collier Street
Barrie, ON L4M 4T5

Dear Mr. MacDonald,

RE: **Traffic Signal Timings**

With respect to your inquiry on November 11, 2021, attached are the Signal Timings for the following intersections:

- Big Bay Point Road and Bayview Drive
- Big Bay Point Road and Welham Road
- Bayview Drive and Little Avenue
- Little Avenue and Fairview Road
- Fairview Road and Big Bay Point Road

Signalized Intersections within the City of Barrie function as a semi-actuated; meaning the signals remain green on the major road/ main street until a vehicle is detected on the minor road/ side street or a pedestrian pushes the pushbutton to activate the pedestrian phase.

Vehicles on the minor road/side street are detected by electromagnetic wires, which are embedded in the pavement on the side street near the painted stop bar. Vehicle presence only on the side street would result in a possible green time of between the minimum and maximum times, as noted, depending on vehicle demand detected.

Pedestrians must push the pedestrian push button to be detected. Pedestrian "Walk" and "Flashing Don't Walk" times on the side street, as noted, would be used in the event that the pedestrian push button was activated.

If you require any further information please feel free to contact me at (705) 739-4220 ext. 4937.

Sincerely,

A handwritten signature in blue ink, reading "Stephen Salis".

Stephen Salis, C.E.T.
Transportation Systems Technologist

Big Bay Point Road & Bayview Drive – FREE PLAN (NO COORDINATION)

Roadway	Direction	Vehicular Indications				Pedestrian Indications	
		Minimum Green	Maximum Green	Amber	All Red	Walk	Flashing Don't Walk
Bayview Drive (main street)	Advanced Northbound Left Turn	7	15	3	1	N/A	N/A
Bayview Drive (main street)	Advanced Southbound Left Turn	7	15	3	1	N/A	N/A
Bayview Drive (main street)	Northbound	40	40	4	2	7	25
Bayview Drive (main street)	Southbound	40	40	4	2	7	25
Big Bay Point Road (side street)	Advanced Eastbound Left Turn	7	15	3	1	N/A	N/A
Big Bay Point Road (side street)	Advanced Westbound Left Turn	7	15	3	1	N/A	N/A
Big Bay Point Road (side street)	Eastbound	40	40	4	2	7	33
Big Bay Point Road (side street)	Westbound	40	40	4	2	7	33

NOTE: All times are recorded in seconds, based on full demand.

Big Bay Point Road & Welham Road – FREE PLAN (NO COORDINATION)

Roadway	Direction	Vehicular Indications				Pedestrian Indications	
		Minimum Green	Maximum Green	Amber	All Red	Walk	Flashing Don't Walk
Big Bay Point Road (main street)	Eastbound	44	44	4	2	28	16
Big Bay Point Road (main street)	Westbound	44	44	4	2	28	16
Welham Road (side street)	Northbound	10	20	4	2	8	12
Welham Road (side street)	Southbound	10	20	4	2	8	12

NOTE: All times are recorded in seconds, based on full demand.

Bayview Drive & Little Avenue – FREE PLAN (NO COORDINATION)

Roadway	Direction	Vehicular Indications				Pedestrian Indications	
		Minimum Green	Maximum Green	Amber	All Red	Walk	Flashing Don't Walk
Little Avenue (main street)	Advanced Eastbound Left Turn	7	10	3	1	N/A	N/A
Little Avenue (main street)	Advanced Westbound Left Turn	7	10	3	1	N/A	N/A
Little Avenue (main street)	Eastbound	44	44	4	2	19	15
Little Avenue (main street)	Westbound	44	44	4	2	19	15
Bayview Drive (side street)	Advanced Northbound Left Turn	10	20	3	1	N/A	N/A
Bayview Drive (side street)	Advanced Southbound Left Turn	7	10	3	1	N/A	N/A
Bayview Drive (side street)	Northbound	10	44	4	2	8	11
Bayview Drive (side street)	Southbound	10	44	4	2	8	11

NOTE: All times are recorded in seconds, based on full demand.

Little Avenue & Fairview Road – FREE PLAN (NO COORDINATION)

Roadway	Direction	Vehicular Indications				Pedestrian Indications	
		Minimum Green	Maximum Green	Amber	All Red	Walk	Flashing Don't Walk
Fairview Road (main street)	Advanced Southbound Left Turn	7	20	3	1	N/A	N/A
Fairview Road (main street)	Northbound/Southbound	34	34	4	2	22	12
Little Avenue (side street)	Westbound	10	30	4	2	9	12

NOTE: All times are recorded in seconds, based on full demand.

Big Bay Point Road & Fairview Road– FREE PLAN (NO COORDINATION)

Roadway	Direction	Vehicular Indications				Pedestrian Indications	
		Minimum Green	Maximum Green	Amber	All Red	Walk	Flashing Don't Walk
Fairview Road (side street)	Northbound	N/A	N/A	N/A	N/A	7	25
Fairview Road (side street)	Southbound	10	40	4	2	7	25
Big Bay Point Road (main street)	Advanced Eastbound Left Turn	7	12	3	1	N/A	N/A
Big Bay Point Road (main street)	Eastbound	40	40	4	2	N/A	N/A
Big Bay Point Road (main street)	Westbound	40	40	4	2	7	33

NOTE: All times are recorded in seconds, based on full demand.

Ameer Al Rijjal

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Wednesday, March 8, 2023 9:56 AM
To: Will Maria; Ameer Al Rijjal
Subject: RE: 50 Whelham Road

Hi Will – Sorry I should have confirmed the summary table prepared by the co-op student.

		Vehicular Indications				Pedestrian Indications	
Roadway	Direction	Minimum Green	Maximum Green	Amber	All Red	Walk	Flashing Don't Walk
Big Bay Point Road (Main Street)	Advance EB/WB Left Turn	7	12	3	1	-	-
Big Bay Point Road (Main Street)	Eastbound Westbound	45	45	4	2	21	24
Welham Road (Side Street)	Advance Northbound Left Turn	7	12	3	1	-	-
Welham Road (Side Street)	Northbound Southbound	10	20	4	2	7	26

Justin MacDonald, C.E.T., PTP
Project Delivery – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Will Maria <William.Maria@ghd.com>
Sent: Wednesday, March 8, 2023 9:48 AM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>; Ameer Al Rijjal <Ameer.AlRijjal@ghd.com>
Subject: RE: 50 Whelham Road

Okay sorry I was confused by the table when I read Advance Northbound Left turn in the first row, I didn't realize it was for Big Bay.
Does that mean it is an eastbound left turn advance phase?
Then for Welham, the only advance is for the southbound left turn (I assume it is a southbound left/through/right advance phase.
This also confused me because it is the northbound that seems to give us the capacity issues under existing conditions.
I will have Ameer rerun with these timings.
If we still have questions, we can touch based after lunch.
Thanks,

Will

William C. Maria, P.Eng.
Transportation Planning Lead

GHD Ltd.

T: 905 814 4397 | C: 647 229 8541 | F: 905 890 8499 | E: will.maria@ghd.com

Please consider our environment before printing this email

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Wednesday, March 8, 2023 9:44 AM
To: Will Maria <William.Maria@ghd.com>; Ameer Al Rijjal <Ameer.ALRijjal@ghd.com>
Subject: RE: 50 Welham Road

Based on the contract drawings it will remain a shared left/through/right.

Justin MacDonald, C.E.T., PTP
Project Delivery – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Will Maria <William.Maria@ghd.com>
Sent: Wednesday, March 8, 2023 9:35 AM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>; Ameer Al Rijjal <Ameer.ALRijjal@ghd.com>
Subject: RE: 50 Welham Road

Hi Justin, quick question is Welham Road north and south approaches still just a single lane (left through right) or have they been modified recently to include a left turn lane plus through/right?

Will

William C. Maria, P.Eng.
Transportation Planning Lead

GHD Ltd.

T: 905 814 4397 | C: 647 229 8541 | F: 905 890 8499 | E: will.maria@ghd.com
100 Milverton Drive Suite 404, Mississauga, ON L5R 4H1 | www.ghd.com

Please consider our environment before printing this email

From: Justin MacDonald <Justin.MacDonald@barrie.ca>
Sent: Wednesday, March 8, 2023 9:25 AM
To: Ameer Al Rijjal <Ameer.ALRijjal@ghd.com>
Cc: Will Maria <William.Maria@ghd.com>
Subject: RE: 50 Welham Road

Good morning Ameer and Will,

As per my VM message yesterday the City has implemented updated the existing signals at Welham Road from a 4 phase to an 8 phase cabinet. Hopefully the implementation of the advanced arrows helps mitigated the capacity congestion.

Should you have any questions please give me a call – I am in meetings all morning, but I am free this afternoon.

		Vehicular Indications				Pedestrian Indications	
Roadway	Direction	Minimum Green	Maximum Green	Amber	All Red	Walk	Flashing Don't Walk
Big Bay Point Road (Main Street)	Advance Northbound Left Turn	7	12	3	1	-	-
Big Bay Point Road (Main Street)	Eastbound Westbound	45	45	4	2	21	24
Welham Road (Side Street)	Advance Southbound Left Turn	7	12	3	1	-	-
Welham Road (Side Street)	Northbound Southbound	10	20	4	2	7	26

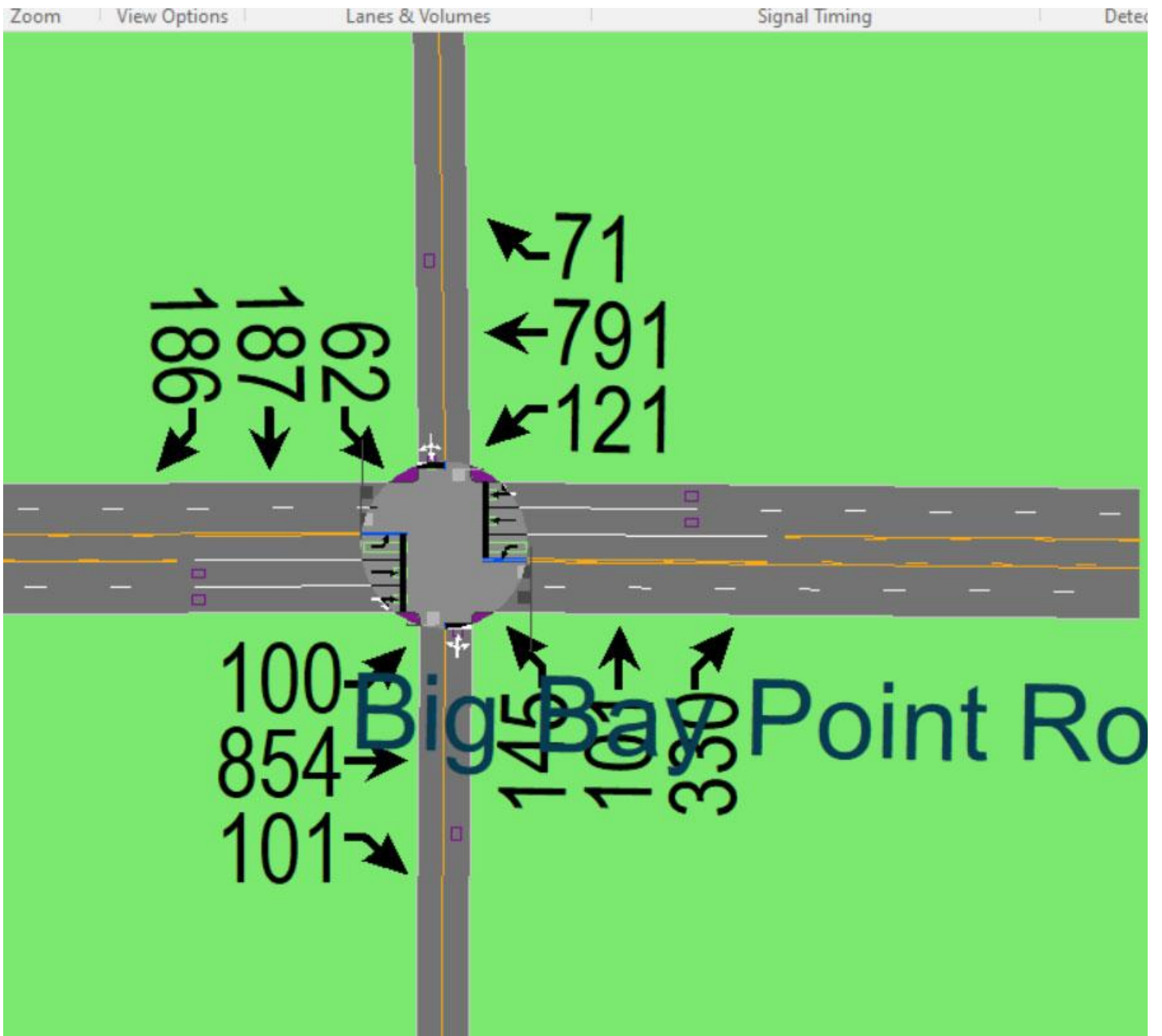
Thanks.

Justin MacDonald, C.E.T., PTP
Project Delivery – Transportation Planning, Development Services
The City of Barrie
Mobile 705-734-8020
Please consider the environment before printing this email.

From: Ameer Al Rijjal <Ameer.ALRijjal@ghd.com>
Sent: Tuesday, March 7, 2023 1:17 PM
To: Justin MacDonald <Justin.MacDonald@barrie.ca>
Subject: RE: 50 Welham Road

Hi Justin,

For Welham/Big Bay intersection, for the pm peak cycle length of 76 seconds, with the current lane configuration , the Northbound movement exceeds capacity, is the City aware of the capacity constraints for the northbound approach? And is there any planned improvements , like adding an northbound exclusive right turn for instance?



From: Justin MacDonald <Justin.MacDonald@barrie.ca>

Sent: Monday, February 6, 2023 11:45 AM

To: Will Maria <William.Maria@ghd.com>

Subject: RE: 50 Whelham Road

Good morning Will,

I was away last week and looking to follow up. You are correct, there has been additional discussions regarding local industrial roadways regarding 90 degree bends.

Staff have consultant with 3rd party to gain some feedback and the results of that discussion are as follows.

To address over tracking through 90 degree bends consideration should be made to increase the proposed radii or increase the roadway platform through Street A near Lot 19 and 20. Should the applicant wish to increase the roadway platform please refer to TAC Figure 3.2.9 and Table 3.2.15 for further details.

Appendix D

Background Developement

Based on Table 2, the subject development is forecast to generate a total of 15 inbound and 27 outbound trips during the a.m. peak hour and 41 inbound and 32 outbound trips during the p.m. peak hour.

As shown in the site plan (Figure 1), all of the site-generated traffic will be serviced by an unsignalized driveway connecting onto Bayview Drive. The driveway is located near the northerly limit of the subject site and approximately 140 m north of the Mollard Court and Bayview Drive intersection.

The site-generated trips related to the proposed development were assigned on the road network based on the existing traffic patterns on Bayview Drive. During the a.m. peak period it is assumed that 60% of the vehicles will head southbound and 40% will travel northbound. The reverse flow has been assumed for the p.m. peak period. **Figure 4.**

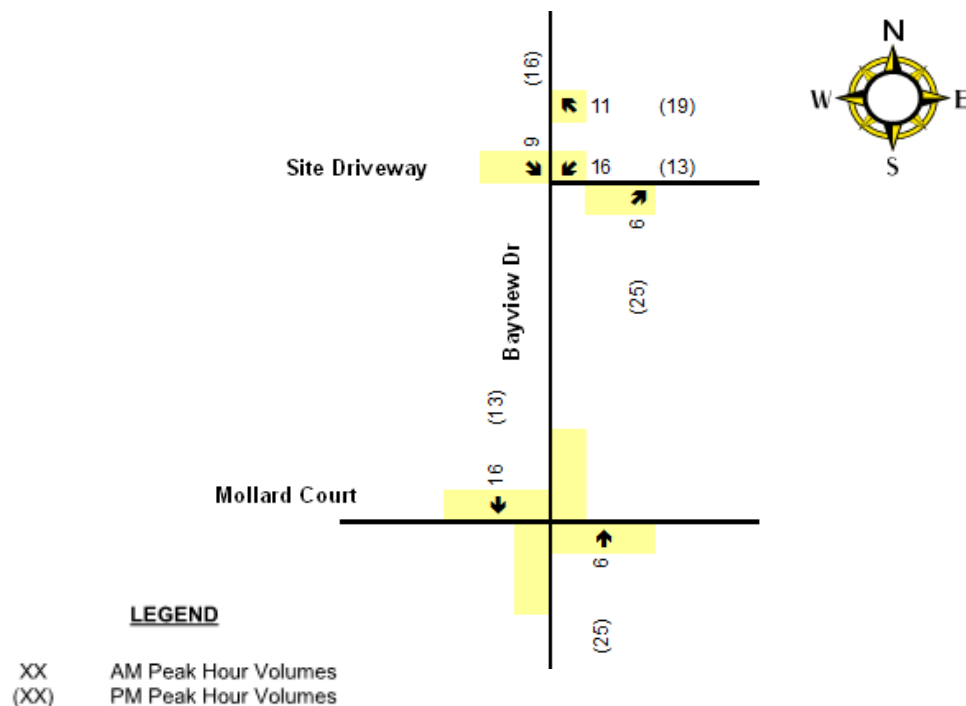


Figure 4: Site-Generated Traffic Volumes

Based on WSP's extensive experience with residential developments of this nature, the magnitude of the site-generated traffic will have minimal impact on the boundary road network. The modest trip generation by the proposed development would be distributed amongst the study road network. To verify this, the site-generated traffic volumes in Figure 4 has been superimposed onto the existing volumes in Figure 3. The resulting volumes are shown in **Figure 5.**

AM Peak

80 BIG BAY

Fairview Road		
Sbd 15		Nbd 4
R	T	L
	0	15
	0	0
L	T	R
0		0
Sbd		Nbd

Bayveiw Dr		
Sbd		Nbd
17		6
R	T	L
0	17	0

4	R	4 Wbd	Wbd 5	L	0
	T			T	0
0	L			15 Ebd	Ebd 15

	0	R	13	Wbd	Little Ave
	0	T			
	13	L	4	Ebd	

	0	0
L	T	R
0	0	
Sbd	Nbd	

5	6	4
L	T	R
44	15	
Sbd	Nbd	
Sbd	Nbd	
44	15	
R	T	L
	44	

--

Mollard Ct	Wbd	0	L	
			T	
	Ebd	0	R	

		R	0	Wbd	Commercial Access/Stre et A
		T			
		L	0	Ebd	

	15	
L	T	R

44		15	
Sbd		Nbd	
44		15	
R	T	L	
0	0	44	

Private Access	Wbd	0
	Ebd	0

Private Access	Wbd	0
	Ebd	0

Welham Rd		
Sbd	Nbd	
0	0	
R	T	L

	R	0 Wbd	Hamilton Rd
	T		
	L	0 Ebd	

Private Entrance	Wbd 0	L	0
		T	0
	Ebd 0	R	0

		15	R	37	Wbd	80 Big Bay Access
		0	T			
		22	L	139	Ebd	

0	0	95
L	T	R

22		95	
Sbd		Nbd	
Sbd		Nbd	
22		95	
R	T	L	
6	11	5	

Fairveiw Road		
Sbd	Nbd	
10	2	
R	T	L
0		10

2	R	6	Wbd	Wbd	6	L	24
4	T					T	0
	L	24	Ebd	Ebd	24	R	0

	22	R	22	Wbd	Wbd	22
	0	T				
	0	L	5	Ebd	Ebd	5

		R	22	Wbd	Big Bay Point Road
	22	T			
		L	5	Ebd	

0	49	0
L	T	R

11	49
Sbd	Nbd

Bayview Drive

L	T	R

0	0
Sbd	Nbd

Welham Rd

Big Bay Point Road	Wbd 4	L	0
		T	14
	Ebd 14	R	

PM Peak

80 BIG BAY

Fairview Road													Bayveiv Dr												
Sbd		Nbd											Sbd		Nbd										
3		14											7		29										
R	T	L											R	T	L										
	0	3											0	7	0										
			14	R	14	Wbd	Wbd	14	L	0				0	R	2	Wbd	Little Ave							
				T				T	0	0				T											
			0	L	3	Ebd	Ebd	3	R	3				2	L	10	Ebd								
	0	0											14	29	10										
L	T	R											L	T	R										
0		0											12		53										
Sbd		Nbd											Sbd		Nbd										
													12		53										
													R	T	L										
														12											
			Mollard Ct		Wbd	0	L							R	0	Wbd	Commercial Access/Sire et A								
					Ebd	0	R								T						L	0	Ebd		
			53																						
			L	T	R																				
					12		53																		
					Sbd		Nbd																		
					12		55																		
					R		T																		
					Wbd		0																		
					Ebd		0																		
					R		T																		
					82		31																		
					82		31																		
					R		T																		
					18		42																		
					0		17																		
					42		17																		
					Sbd		Nbd																		
					Bayview Drive																				
					0		0																		
					Sbd		Nbd																		
					Welham Rd																				

Appendix E

Trip Generation (ITE)

 Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use ITETripGen

TGM Desk Reference

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Support Documents

Add Users

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Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

130



LAND USE GROUP:

(100-199) Industrial

LAND USE :

130 - Industrial Park

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

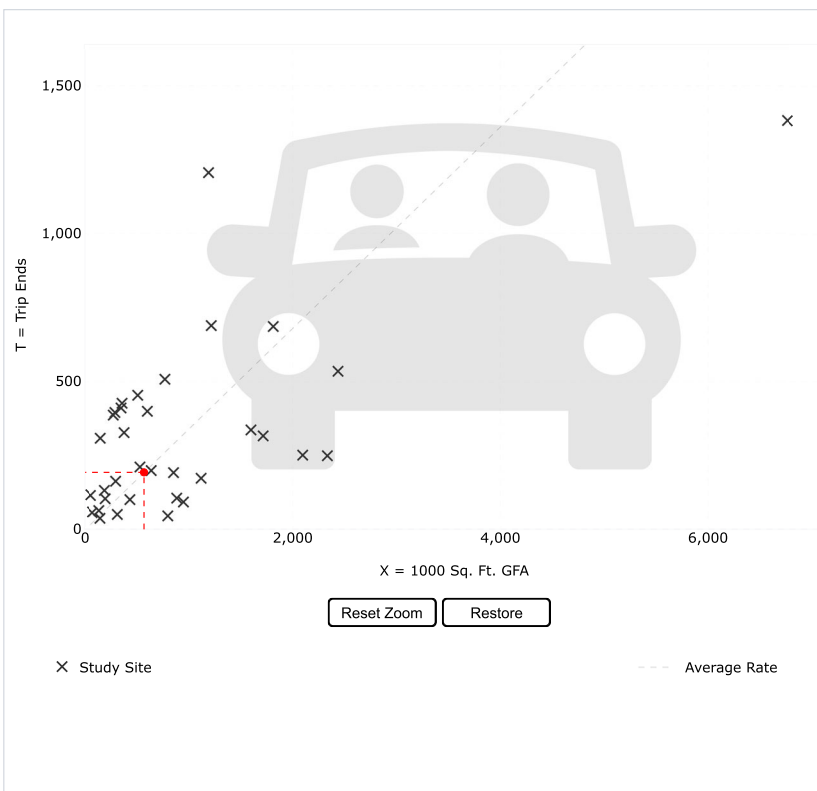
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

567

Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Industrial Park (130) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

34

Avg. 1000 Sq. Ft. GFA:

956

Average Rate:

0.34

Range of Rates:

0.06 - 2.13

Standard Deviation:

0.33

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

81% entering, 19% exiting

Calculated Trip Ends:

Average Rate: 193 (Total), 156 (Entry), 37 (Exit)

Add-ons to do more

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Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

130



LAND USE GROUP:

(100-199) Industrial

LAND USE :

130 - Industrial Park

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

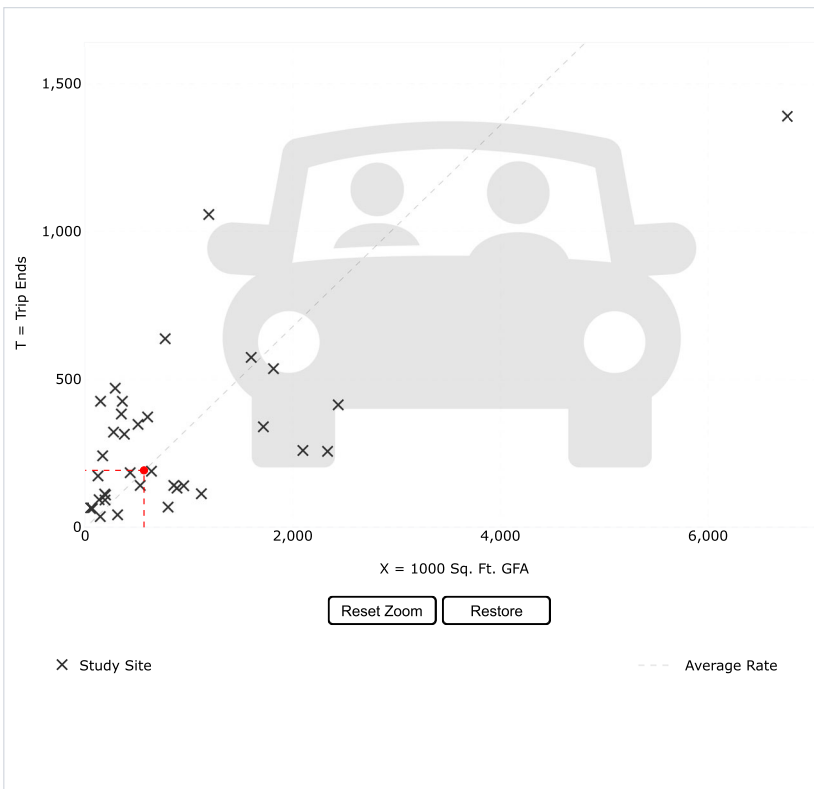
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

567

Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:

Industrial Park (130) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

35

Avg. 1000 Sq. Ft. GFA:

899

Average Rate:

0.34

Range of Rates:

0.09 - 2.85

Standard Deviation:

0.36

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

22% entering, 78% exiting

Calculated Trip Ends:

Average Rate: 193 (Total), 42 (Entry), 151 (Exit)

Add-ons to do more

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DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

130



LAND USE GROUP:

(100-199) Industrial

LAND USE :

130 - Industrial Park

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

Truck

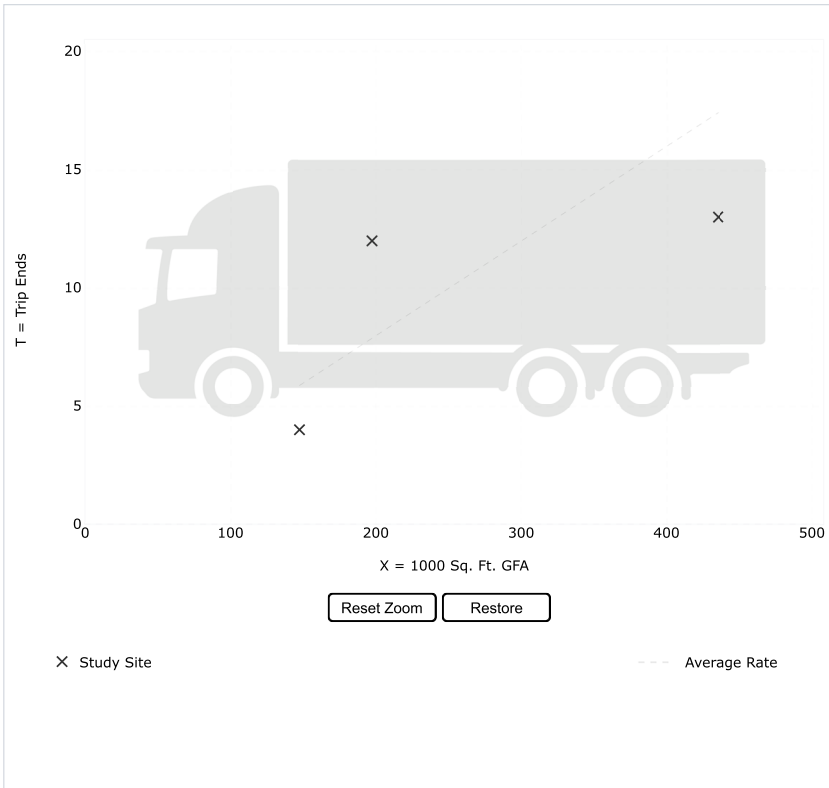
ENTER IV VALUE TO CALCULATE TRIPS:

567

Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Industrial Park (130) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Truck

Number of Studies:

3

Avg. 1000 Sq. Ft. GFA:

260

Average Rate:

0.04

Range of Rates:

0.03 - 0.06

Standard Deviation:

0.02

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

45% entering, 55% exiting

Calculated Trip Ends:

Average Rate: 23 (Total), 10 (Entry), 13 (Exit)

Add-ons to do more

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Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

130



LAND USE GROUP:

(100-199) Industrial

LAND USE :

130 - Industrial Park

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

Truck

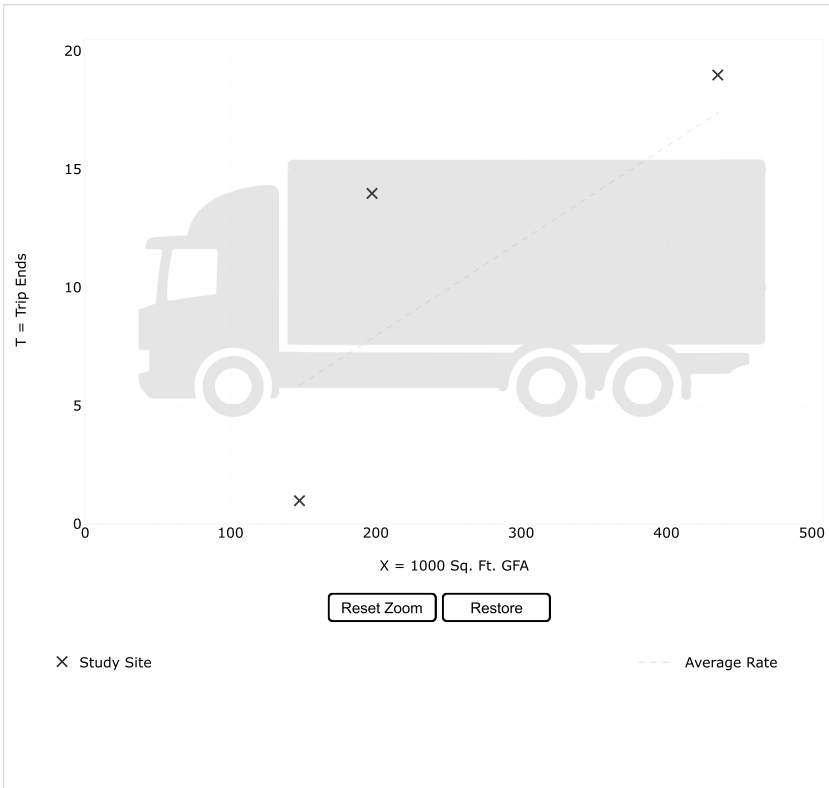
ENTER IV VALUE TO CALCULATE TRIPS:

567

Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Industrial Park (130) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Truck

Number of Studies:

3

Avg. 1000 Sq. Ft. GFA:

260

Average Rate:

0.04

Range of Rates:

0.01 - 0.07

Standard Deviation:

0.03

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

38% entering, 62% exiting

Calculated Trip Ends:

Average Rate: 23 (Total), 9 (Entry), 14 (Exit)

Add-ons to do more

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Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

150



LAND USE GROUP:

(100-199) Industrial

LAND USE :

150 - Warehousing

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

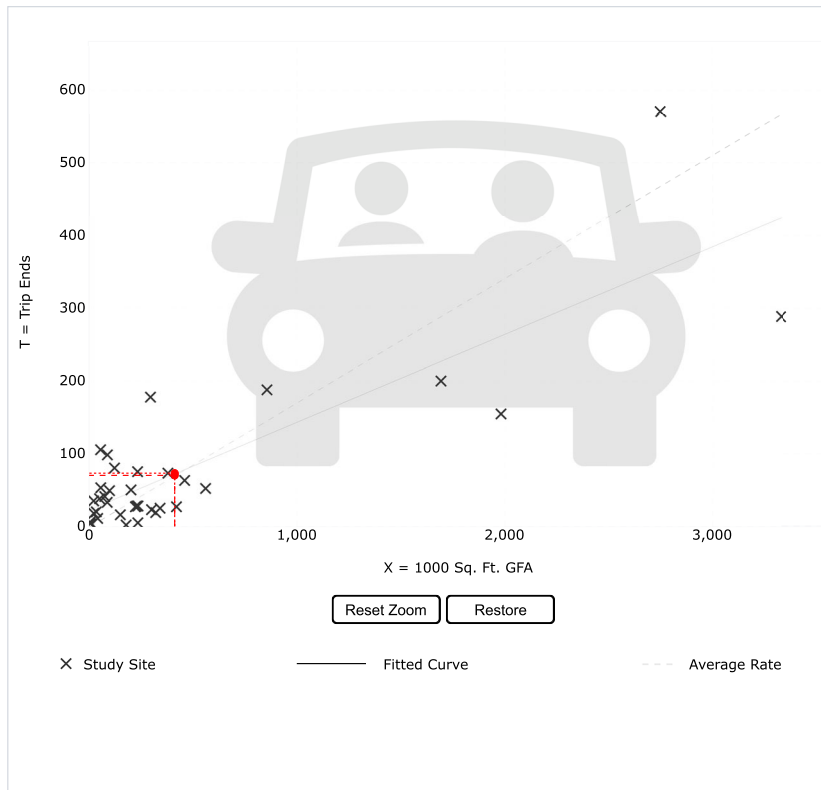
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

412

Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Warehousing (150) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

36

Avg. 1000 Sq. Ft. GFA:

448

Average Rate:

0.17

Range of Rates:

0.02 - 1.93

Standard Deviation:

0.19

Fitted Curve Equation:

 $T = 0.12(X) + 23.62$ R^2 :

0.69

Directional Distribution:

77% entering, 23% exiting

Calculated Trip Ends:

Average Rate: 70 (Total), 54 (Entry), 16 (Exit)

Fitted Curve: 73 (Total), 56 (Entry), 17 (Exit)

Add-ons to do more

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Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

150



LAND USE GROUP:

(100-199) Industrial

LAND USE :

150 - Warehousing

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

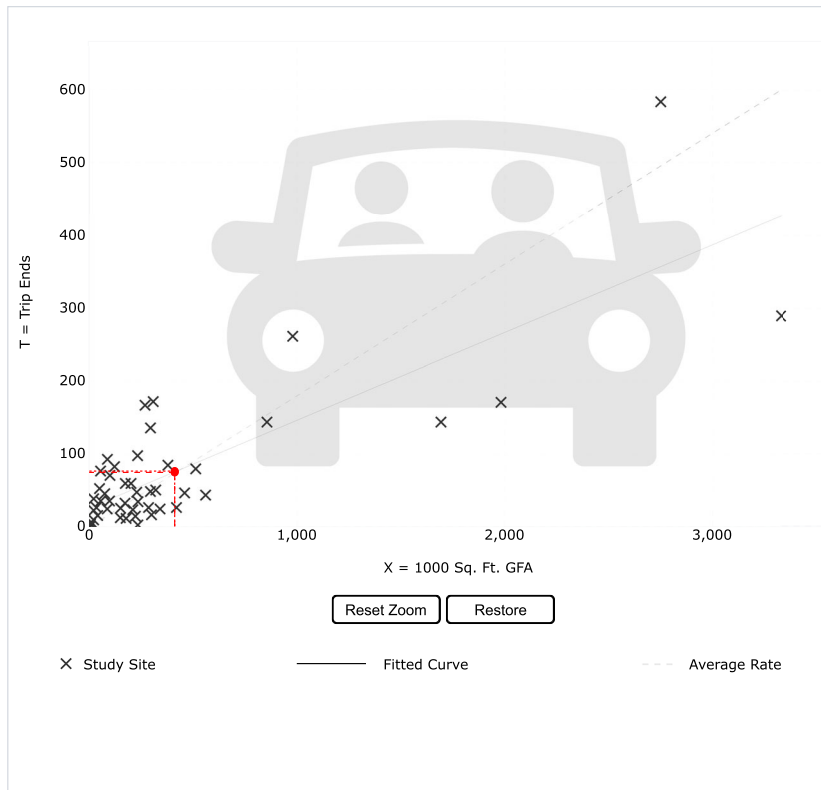
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

412

Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:

Warehousing (150) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

49

Avg. 1000 Sq. Ft. GFA:

400

Average Rate:

0.18

Range of Rates:

0.01 - 1.80

Standard Deviation:

0.18

Fitted Curve Equation:

 $T = 0.12(X) + 26.48$ R^2 :

0.65

Directional Distribution:

28% entering, 72% exiting

Calculated Trip Ends:

Average Rate: 74 (Total), 21 (Entry), 53 (Exit)

Fitted Curve: 76 (Total), 21 (Entry), 55 (Exit)

Add-ons to do more

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Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

150



LAND USE GROUP:

(100-199) Industrial

LAND USE :

150 - Warehousing

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

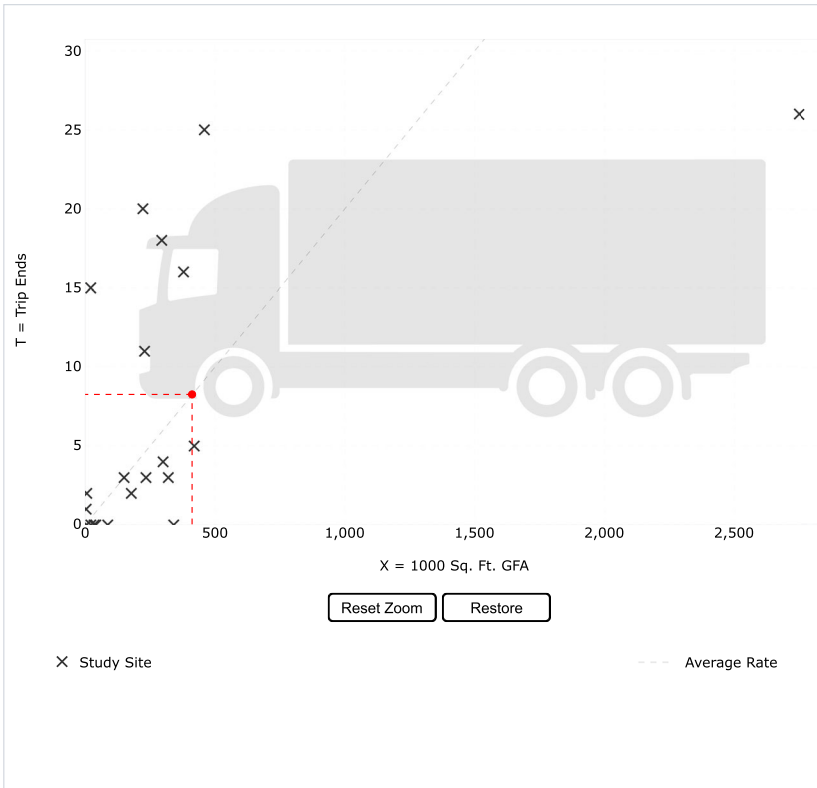
Truck

ENTER IV VALUE TO CALCULATE TRIPS:

412

Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:

Warehousing (150) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Truck

Number of Studies:

21

Avg. 1000 Sq. Ft. GFA:

309

Average Rate:

0.02

Range of Rates:

0.00 - 0.69

Standard Deviation:

0.05

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

52% entering, 48% exiting

Calculated Trip Ends:

Average Rate: 8 (Total), 4 (Entry), 4 (Exit)

Add-ons to do more

Try OTISS Pro

 Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use ITETripGen

TGM Desk Reference

TGM Appendices

Support Documents

Add Users

Comments

Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

150



LAND USE GROUP:

(100-199) Industrial

LAND USE :

150 - Warehousing

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

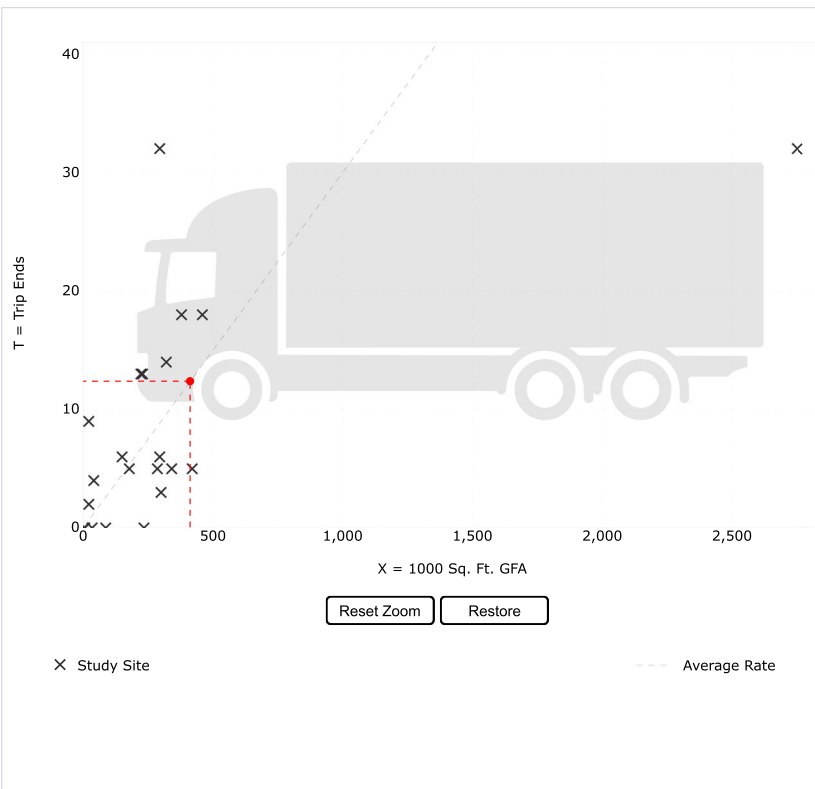
Truck

ENTER IV VALUE TO CALCULATE TRIPS:

412

Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Warehousing (150) [Click for Description and Data Plots](#)

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Truck

Number of Studies:
23

Avg. 1000 Sq. Ft. GFA:
308

Average Rate:
0.03

Range of Rates:
0.00 - 0.42

Standard Deviation:
0.03

Fitted Curve Equation:
Not Given

R²:

Directional Distribution:
52% entering, 48% exiting

Calculated Trip Ends:
Average Rate: 12 (Total), 6 (Entry), 6 (Exit)

Add-ons to do more

Try OTISS Pro

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ITETripGen Web-based App

Graph Look Up

How to Use ITETripGen

TGM Desk Reference

TGM Appendices

Support Documents

Add Users

Comments

Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

151



LAND USE GROUP:

(100-199) Industrial

LAND USE :

151 - Mini-Warehouse

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

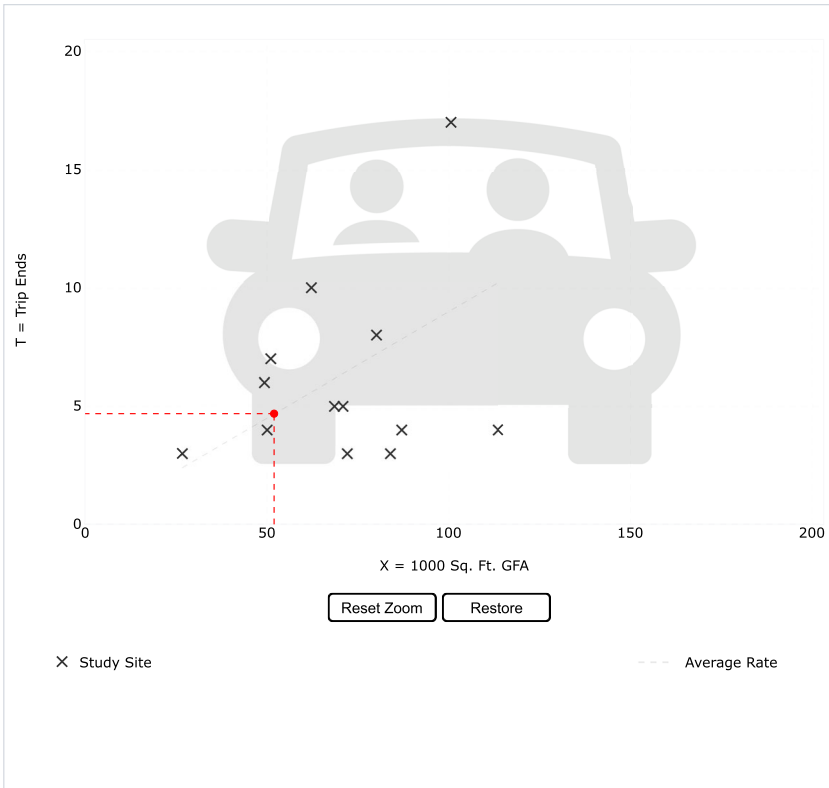
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

52

Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:

Mini-Warehouse (151) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

13

Avg. 1000 Sq. Ft. GFA:

70

Average Rate:

0.09

Range of Rates:

0.04 - 0.17

Standard Deviation:

0.05

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

59% entering, 41% exiting

Calculated Trip Ends:

Average Rate: 5 (Total), 3 (Entry), 2 (Exit)

Add-ons to do more

Try OTISS Pro

 Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use ITETripGen

TGM Desk Reference

TGM Appendices

Support Documents

Add Users

Comments

Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

151



LAND USE GROUP:

(100-199) Industrial

LAND USE :

151 - Mini-Warehouse

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

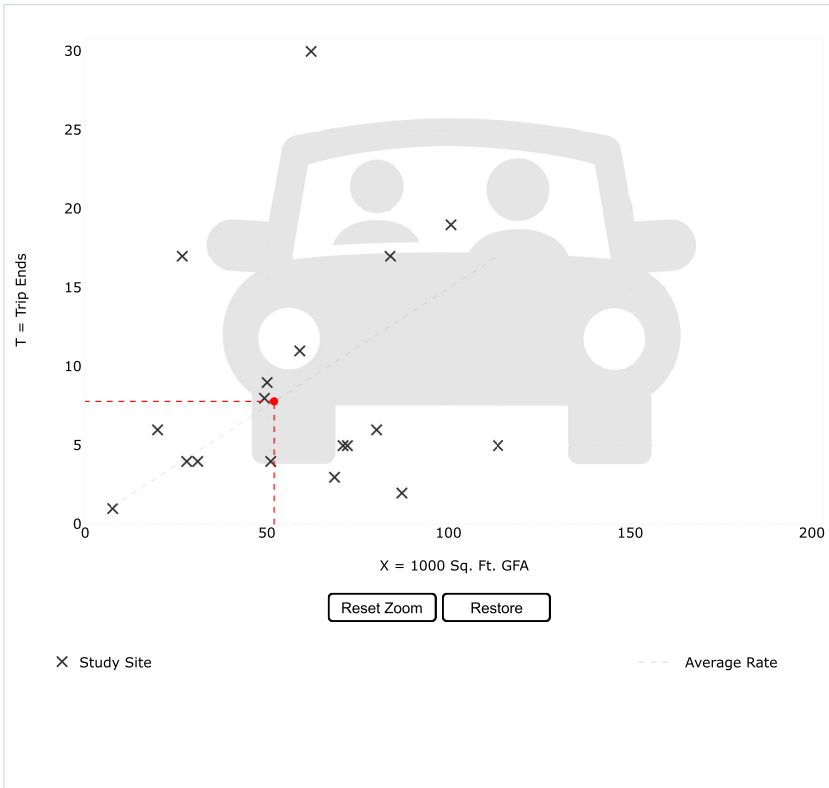
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

52

Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Mini-Warehouse (151) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

18

Avg. 1000 Sq. Ft. GFA:

59

Average Rate:

0.15

Range of Rates:

0.02 - 0.64

Standard Deviation:

0.14

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

47% entering, 53% exiting

Calculated Trip Ends:

Average Rate: 8 (Total), 4 (Entry), 4 (Exit)

Add-ons to do more

Try OTISS Pro

 Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use ITETripGen

TGM Desk Reference

TGM Appendices

Support Documents

Add Users

Comments

Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

151



LAND USE GROUP:

(100-199) Industrial

LAND USE :

151 - Mini-Warehouse

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

Truck

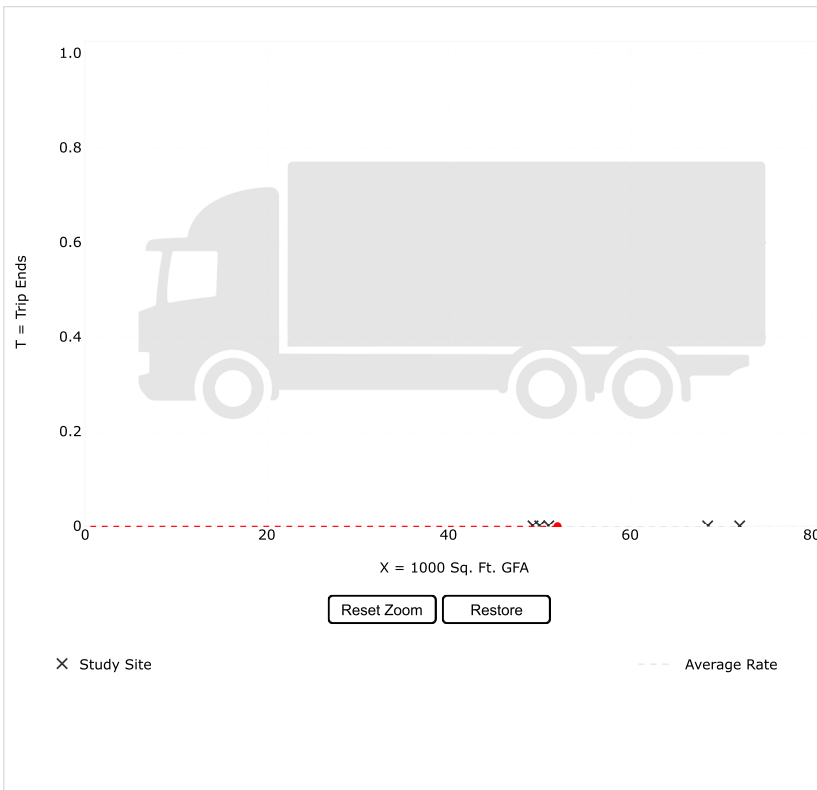
ENTER IV VALUE TO CALCULATE TRIPS:

52

Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Mini-Warehouse (151) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Truck

Number of Studies:

5

Avg. 1000 Sq. Ft. GFA:

58

Average Rate:

0.00

Range of Rates:

0.00 - 0.00

Standard Deviation:

0.00

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

Not available

Calculated Trip Ends:

Add-ons to do more

Try OTISS Pro

 Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use ITETripGen

TGM Desk Reference

TGM Appendices

Support Documents

Add Users

Comments

Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

151



LAND USE GROUP:

(100-199) Industrial

LAND USE :

151 - Mini-Warehouse

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

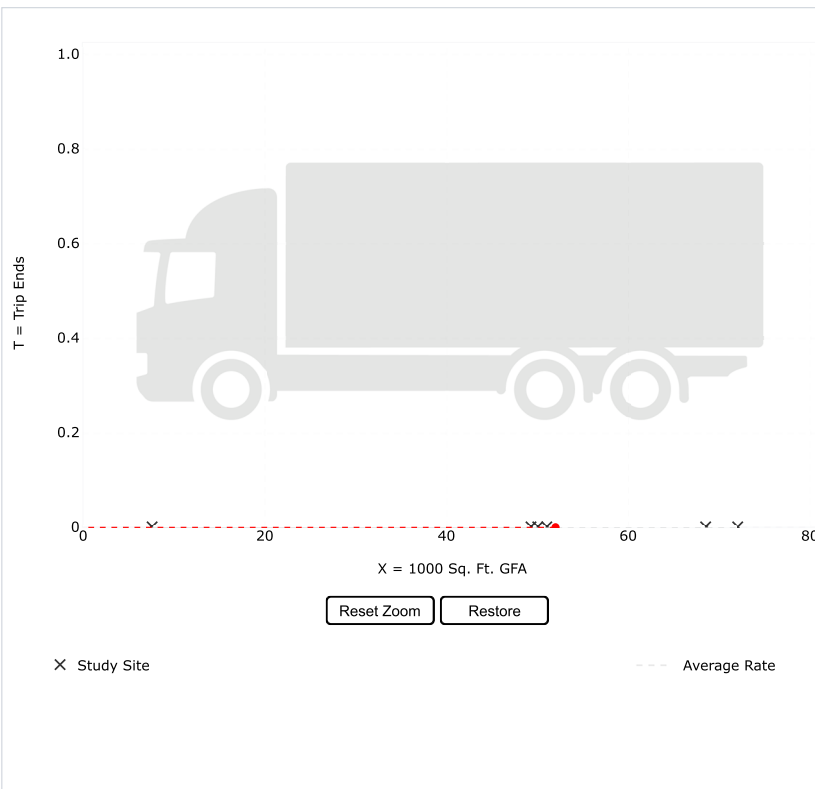
Truck

ENTER IV VALUE TO CALCULATE TRIPS:

52

Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:

Mini-Warehouse (151) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Truck

Number of Studies:

6

Avg. 1000 Sq. Ft. GFA:

50

Average Rate:

0.00

Range of Rates:

0.00 - 0.00

Standard Deviation:

0.00

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

Not available

Calculated Trip Ends:

Add-ons to do more

Try OTISS Pro

Appendix F

Capacity Analysis

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

EX 2023
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	508	426	9	332	543
Future Volume (vph)	9	508	426	9	332	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	0.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850	0.997			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1541	3277	0	1789	1830
Flt Permitted	0.950				0.403	
Satd. Flow (perm)	1825	1541	3277	0	759	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		508	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	6%	11%	13%	2%	5%
Adj. Flow (vph)	10	584	490	10	382	624
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	584	500	0	382	624
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

EX 2023
AM Peak Hour

												
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT						
Permitted Phases	5	5			8							
Detector Phase	5	5	4		3	8						
Switch Phase												
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0						
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0						
Total Split (s)	36.0	36.0	40.0		24.0	64.0						
Total Split (%)	36.0%	36.0%	40.0%		24.0%	64.0%						
Maximum Green (s)	30.0	30.0	34.0		20.0	58.0						
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0						
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0						
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0						
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0						
Lead/Lag			Lag		Lead							
Lead-Lag Optimize?			Yes		Yes							
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0						
Recall Mode	None	None	Max		None	None						
Walk Time (s)	9.0	9.0	22.0			22.0						
Flash Dont Walk (s)	12.0	12.0	12.0			12.0						
Pedestrian Calls (#/hr)	0	0	0			0						
Act Effect Green (s)	14.8	14.8	34.7		53.2	51.2						
Actuated g/C Ratio	0.19	0.19	0.44		0.68	0.65						
v/c Ratio	0.03	0.83	0.34		0.56	0.52						
Control Delay	25.6	16.4	17.3		9.7	10.3						
Queue Delay	0.0	0.0	0.0		0.0	0.0						
Total Delay	25.6	16.4	17.3		9.7	10.3						
LOS	C	B	B		A	B						
Approach Delay	16.6		17.3			10.1						
Approach LOS	B		B			B						

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 78.2

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 13.6

Intersection LOS: B

Intersection Capacity Utilization 69.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

EX 2023

AM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	10	584	500	382	624
v/c Ratio	0.03	0.83	0.34	0.56	0.52
Control Delay	25.6	16.4	17.3	9.7	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	16.4	17.3	9.7	10.3
Queue Length 50th (m)	1.2	9.3	20.5	14.9	33.0
Queue Length 95th (m)	5.0	40.5	51.5	49.9	98.3
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0				
Base Capacity (vph)	714	912	1454	785	1384
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.64	0.34	0.49	0.45
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

1: Fairview Road & Little Ave

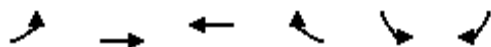
EX 2023

AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			
Traffic Volume (vph)	9	508	426	9	332	543
Future Volume (vph)	9	508	426	9	332	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1541	3277		1789	1830
Flt Permitted	0.95	1.00	1.00		0.40	1.00
Satd. Flow (perm)	1825	1541	3277		760	1830
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	10	584	490	10	382	624
RTOR Reduction (vph)	0	412	1	0	0	0
Lane Group Flow (vph)	10	172	499	0	382	624
Heavy Vehicles (%)	0%	6%	11%	13%	2%	5%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	14.8	14.8	34.8		51.2	51.2
Effective Green, g (s)	14.8	14.8	34.8		51.2	51.2
Actuated g/C Ratio	0.19	0.19	0.45		0.66	0.66
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	346	292	1462		662	1201
v/s Ratio Prot			0.15		0.09	0.34
v/s Ratio Perm	0.01	0.11			0.29	
v/c Ratio	0.03	0.59	0.34		0.58	0.52
Uniform Delay, d1	25.7	28.8	14.1		6.2	7.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	3.2	0.6		1.2	0.4
Delay (s)	25.8	32.0	14.7		7.4	7.4
Level of Service	C	C	B		A	A
Approach Delay (s)	31.9		14.7			7.4
Approach LOS	C		B			A
Intersection Summary						
HCM 2000 Control Delay			16.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			78.0		Sum of lost time (s)	16.0
Intersection Capacity Utilization			69.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

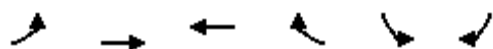
EX 2023
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	363	545	429	95	75	289
Future Volume (vph)	363	545	429	95	75	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3411	3444	1526	1706	1601
Flt Permitted	0.440				0.950	
Satd. Flow (perm)	829	3411	3444	1526	1706	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				103		314
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	6%	7%	7%	2%
Adj. Flow (vph)	395	592	466	103	82	314
Shared Lane Traffic (%)						
Lane Group Flow (vph)	395	592	466	103	82	314
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

EX 2023
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	16.0	62.0	46.0	46.0	46.0	46.0
Total Split (%)	14.8%	57.4%	42.6%	42.6%	42.6%	42.6%
Maximum Green (s)	12.0	56.0	40.0	40.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	57.2	55.2	40.0	40.0	10.7	10.7
Actuated g/C Ratio	0.73	0.71	0.51	0.51	0.14	0.14
v/c Ratio	0.53	0.25	0.26	0.12	0.35	0.64
Control Delay	6.5	4.4	11.4	2.9	35.2	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	4.4	11.4	2.9	35.2	10.6
LOS	A	A	B	A	D	B
Approach Delay		5.2	9.9		15.7	
Approach LOS		A	A		B	

Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 77.9

Natural Cycle: 95

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 8.7

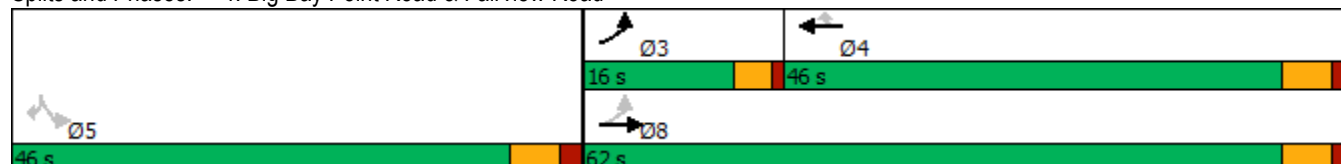
Intersection LOS: A

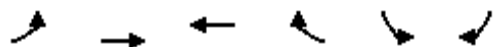
Intersection Capacity Utilization 75.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road



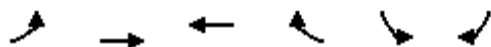


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	395	592	466	103	82	314
v/c Ratio	0.53	0.25	0.26	0.12	0.35	0.64
Control Delay	6.5	4.4	11.4	2.9	35.2	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	4.4	11.4	2.9	35.2	10.6
Queue Length 50th (m)	15.0	12.7	19.0	0.0	11.2	0.0
Queue Length 95th (m)	29.3	21.5	30.5	7.2	23.6	20.7
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	756	2455	1770	834	877	975
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.24	0.26	0.12	0.09	0.32
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

EX 2023
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	363	545	429	95	75	289
Future Volume (vph)	363	545	429	95	75	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3411	3444	1526	1706	1601
Flt Permitted	0.44	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	829	3411	3444	1526	1706	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	395	592	466	103	82	314
RTOR Reduction (vph)	0	0	0	50	0	271
Lane Group Flow (vph)	395	592	466	53	82	43
Heavy Vehicles (%)	2%	7%	6%	7%	7%	2%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	55.1	55.1	40.0	40.0	10.7	10.7
Effective Green, g (s)	55.1	55.1	40.0	40.0	10.7	10.7
Actuated g/C Ratio	0.71	0.71	0.51	0.51	0.14	0.14
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	724	2415	1770	784	234	220
v/s Ratio Prot	c0.08	0.17	0.14			
v/s Ratio Perm	c0.31			0.03	c0.05	0.03
v/c Ratio	0.55	0.25	0.26	0.07	0.35	0.20
Uniform Delay, d1	4.4	4.0	10.6	9.5	30.4	29.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.1	0.0	0.9	0.4
Delay (s)	5.3	4.1	10.7	9.5	31.3	30.2
Level of Service	A	A	B	A	C	C
Approach Delay (s)		4.5	10.5		30.4	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay			11.5		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			77.8		Sum of lost time (s)	16.0
Intersection Capacity Utilization			75.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

EX 2023
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	304	154	162	360	42	64	265	41	75	288	15
Future Volume (vph)	43	304	154	162	360	42	64	265	41	75	288	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	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)	1772	3444	1526	1772	3444	1432	1460	1762	1541	1587	3349	1008
Flt Permitted	0.400			0.515			0.525			0.386		
Satd. Flow (perm)	746	3444	1526	961	3444	1432	807	1762	1541	645	3349	1008
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			183			92			92			92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	6%	7%	3%	6%	14%	25%	9%	6%	15%	9%	62%
Adj. Flow (vph)	51	362	183	193	429	50	76	315	49	89	343	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	362	183	193	429	50	76	315	49	89	343	18
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
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)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

EX 2023
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (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
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
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	Max	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	58.9	42.3	42.3	54.7	40.0	40.0	51.4	40.0	40.0	52.8	42.5	42.5
Actuated g/C Ratio	0.47	0.34	0.34	0.44	0.32	0.32	0.41	0.32	0.32	0.42	0.34	0.34
v/c Ratio	0.11	0.31	0.29	0.38	0.39	0.10	0.20	0.56	0.09	0.26	0.30	0.04
Control Delay	18.0	32.1	5.6	21.2	34.4	1.1	21.5	40.0	0.9	22.2	32.1	0.2
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	18.0	32.1	5.6	21.2	34.4	1.1	21.5	40.0	0.9	22.2	32.1	0.2
LOS	B	C	A	C	C	A	C	D	A	C	C	A
Approach Delay		22.8			28.2			32.4			28.9	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 124.7

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 98.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

 Ø1	 Ø2	 Ø3	 Ø4
19 s	46 s	19 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
19 s	46 s	19 s	46 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	51	362	183	193	429	50	76	315	49	89	343	18
v/c Ratio	0.11	0.31	0.29	0.38	0.39	0.10	0.20	0.56	0.09	0.26	0.30	0.04
Control Delay	18.0	32.1	5.6	21.2	34.4	1.1	21.5	40.0	0.9	22.2	32.1	0.2
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	18.0	32.1	5.6	21.2	34.4	1.1	21.5	40.0	0.9	22.2	32.1	0.2
Queue Length 50th (m)	6.4	34.5	0.0	26.3	42.8	0.0	10.7	63.7	0.0	12.6	33.2	0.0
Queue Length 95th (m)	12.9	46.3	12.7	39.8	54.6	0.3	18.7	87.9	0.0	21.1	43.9	0.0
Internal Link Dist (m)	461.6			675.0			210.9			149.0		
Turn Bay Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Base Capacity (vph)	475	1168	638	536	1104	521	436	565	557	399	1142	404
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	0.11	0.31	0.29	0.36	0.39	0.10	0.17	0.56	0.09	0.22	0.30	0.04
Intersection Summary												

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

EX 2023
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	304	154	162	360	42	64	265	41	75	288	15
Future Volume (vph)	43	304	154	162	360	42	64	265	41	75	288	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	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)	1772	3444	1526	1772	3444	1432	1460	1762	1541	1587	3349	1008
Flt Permitted	0.40	1.00	1.00	0.51	1.00	1.00	0.52	1.00	1.00	0.39	1.00	1.00
Satd. Flow (perm)	747	3444	1526	961	3444	1432	807	1762	1541	645	3349	1008
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	51	362	183	193	429	50	76	315	49	89	343	18
RTOR Reduction (vph)	0	0	121	0	0	34	0	0	33	0	0	12
Lane Group Flow (vph)	51	362	62	193	429	16	76	315	16	89	343	6
Heavy Vehicles (%)	3%	6%	7%	3%	6%	14%	25%	9%	6%	15%	9%	62%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	57.3	42.3	42.3	52.7	40.0	40.0	48.8	40.8	40.8	52.2	42.5	42.5
Effective Green, g (s)	57.3	42.3	42.3	52.7	40.0	40.0	48.8	40.8	40.8	52.2	42.5	42.5
Actuated g/C Ratio	0.46	0.34	0.34	0.42	0.32	0.32	0.39	0.33	0.33	0.42	0.34	0.34
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
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)	463	1160	514	485	1097	456	355	572	500	341	1134	341
v/s Ratio Prot	c0.01	0.11		c0.04	0.12		0.01	c0.18		c0.02	0.10	
v/s Ratio Perm	0.04		0.04	c0.13		0.01	0.07		0.01	0.09		0.01
v/c Ratio	0.11	0.31	0.12	0.40	0.39	0.03	0.21	0.55	0.03	0.26	0.30	0.02
Uniform Delay, d1	19.4	30.8	28.7	23.7	33.3	29.5	24.7	34.8	28.9	23.5	30.6	27.6
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	0.1	0.2	0.1	0.5	0.2	0.0	0.3	1.2	0.0	0.4	0.2	0.0
Delay (s)	19.5	31.0	28.8	24.2	33.5	29.5	25.0	36.0	28.9	23.9	30.7	27.6
Level of Service	B	C	C	C	C	C	C	D	C	C	C	C
Approach Delay (s)		29.3			30.5			33.3			29.3	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			30.5			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			125.5			Sum of lost time (s)				20.0		
Intersection Capacity Utilization			98.1%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

EX 2023
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	406	124	147	753	25	35	65	97	8	24	61
Future Volume (vph)	101	406	124	147	753	25	35	65	97	8	24	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.995			0.934			0.911	
Flt Protected	0.950			0.950				0.991			0.996	
Satd. Flow (prot)	1644	3290	0	1789	3496	0	0	1638	0	0	1416	0
Flt Permitted	0.219			0.349				0.931			0.971	
Satd. Flow (perm)	379	3290	0	657	3496	0	0	1539	0	0	1380	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			4			48			69	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			156.1			212.7			602.2	
Travel Time (s)		50.3			11.2			15.3			43.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	11%	8%	4%	2%	4%	0%	9%	15%	4%	0%	26%	25%
Adj. Flow (vph)	115	461	141	167	856	28	40	74	110	9	27	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	602	0	167	884	0	0	224	0	0	105	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

EX 2023
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		11.0	39.0		26.0	26.0	
Total Split (s)	16.0	51.0		16.0	51.0		16.0	42.0		26.0	26.0	
Total Split (%)	14.7%	46.8%		14.7%	46.8%		14.7%	38.5%		23.9%	23.9%	
Maximum Green (s)	12.0	45.0		12.0	45.0		12.0	36.0		20.0	20.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None		None	None		None	Max		Max	Max	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	56.1	45.0		57.9	45.9			36.0			36.0	
Actuated g/C Ratio	0.52	0.42		0.54	0.43			0.34			0.34	
v/c Ratio	0.38	0.43		0.36	0.59			0.41			0.21	
Control Delay	14.4	21.4		13.3	25.4			24.1			11.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.4	21.4		13.3	25.4			24.1			11.7	
LOS	B	C		B	C			C			B	
Approach Delay		20.3			23.5			24.1			11.7	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 109

Actuated Cycle Length: 107

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 21.9

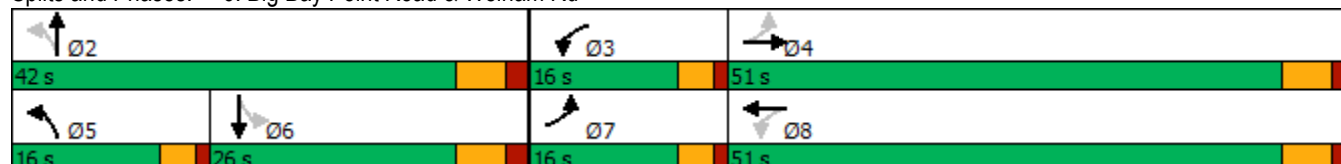
Intersection LOS: C

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd



Queues
6: Big Bay Point Road & Welham Rd

EX 2023
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	115	602	167	884	224	105
v/c Ratio	0.38	0.43	0.36	0.59	0.41	0.21
Control Delay	14.4	21.4	13.3	25.4	24.1	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	21.4	13.3	25.4	24.1	11.7
Queue Length 50th (m)	10.5	42.2	15.6	71.8	27.7	5.1
Queue Length 95th (m)	18.2	56.7	25.0	92.3	48.0	16.7
Internal Link Dist (m)		675.0		132.1	188.7	578.2
Turn Bay Length (m)	40.0		40.0			
Base Capacity (vph)	350	1410	493	1502	549	510
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.43	0.34	0.59	0.41	0.21
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

6: Big Bay Point Road & Welham Rd

EX 2023
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	406	124	147	753	25	35	65	97	8	24	61
Future Volume (vph)	101	406	124	147	753	25	35	65	97	8	24	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.96		1.00	1.00			0.93			0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1644	3290		1789	3497			1638			1416	
Flt Permitted	0.22	1.00		0.35	1.00			0.93			0.97	
Satd. Flow (perm)	378	3290		657	3497			1539			1381	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	115	461	141	167	856	28	40	74	110	9	27	69
RTOR Reduction (vph)	0	26	0	0	2	0	0	32	0	0	46	0
Lane Group Flow (vph)	115	576	0	167	882	0	0	192	0	0	59	0
Heavy Vehicles (%)	11%	8%	4%	2%	4%	0%	9%	15%	4%	0%	26%	25%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	54.1	45.0		55.9	45.9			36.0			36.0	
Effective Green, g (s)	54.1	45.0		55.9	45.9			36.0			36.0	
Actuated g/C Ratio	0.51	0.42		0.52	0.43			0.34			0.34	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	298	1383		449	1500			517			464	
v/s Ratio Prot	0.03	0.18		c0.03	c0.25							
v/s Ratio Perm	0.16			0.16				c0.12			0.04	
v/c Ratio	0.39	0.42		0.37	0.59			0.37			0.13	
Uniform Delay, d1	15.3	21.8		13.8	23.3			26.9			24.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.8	0.2		0.5	0.6			0.5			0.6	
Delay (s)	16.1	22.0		14.4	23.9			27.4			25.2	
Level of Service	B	C		B	C			C			C	
Approach Delay (s)		21.0			22.4			27.4			25.2	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			107.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			76.9%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

EX 2023
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	8	24	1	1	6	11	41	2	3	0
Future Volume (vph)	0	0	8	24	1	1	6	11	41	2	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.865			0.996			0.904				
Flt Protected					0.955			0.995			0.979	
Satd. Flow (prot)	0	1471	0	0	1479	0	0	1515	0	0	1341	0
Flt Permitted					0.955			0.995			0.979	
Satd. Flow (perm)	0	1471	0	0	1479	0	0	1515	0	0	1341	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		147.7			143.6			602.2			118.0	
Travel Time (s)		10.6			10.3			43.4			8.5	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles (%)	0%	0%	13%	25%	0%	0%	0%	18%	15%	50%	33%	0%
Adj. Flow (vph)	0	0	11	33	1	1	8	15	56	3	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	35	0	0	79	0	0	7	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.3%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

EX 2023
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	24	1	1	6	11	41	2	3	0
Future Volume (Veh/h)	0	0	8	24	1	1	6	11	41	2	3	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	0	0	11	33	1	1	8	15	56	3	4	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	70	97	4	80	69	43	4			71		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	70	97	4	80	69	43	4			71		
tC, single (s)	7.1	6.5	6.3	7.3	6.5	6.2	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.7	4.0	3.3	2.2			2.7		
p0 queue free %	100	100	99	96	100	100	100			100		
cM capacity (veh/h)	919	791	1048	842	819	1033	1631			1273		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	35	79	7								
Volume Left	0	33	8	3								
Volume Right	11	1	56	0								
cSH	1048	845	1631	1273								
Volume to Capacity	0.01	0.04	0.00	0.00								
Queue Length 95th (m)	0.2	1.0	0.1	0.1								
Control Delay (s)	8.5	9.4	0.8	3.4								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.5	9.4	0.8	3.4								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			18.3%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FB2025
AM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	524	435	9	354	554
Future Volume (vph)	9	524	435	9	354	554
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	0.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850	0.997			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1541	3277	0	1789	1830
Flt Permitted	0.950				0.415	
Satd. Flow (perm)	1825	1541	3277	0	782	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		515	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	11%	13%	2%	5%
Adj. Flow (vph)	10	570	473	10	385	602
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	570	483	0	385	602
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FB2025
AM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	5	5			8	
Detector Phase	5	5	4		3	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0
Total Split (s)	36.0	36.0	40.0		24.0	64.0
Total Split (%)	36.0%	36.0%	40.0%		24.0%	64.0%
Maximum Green (s)	30.0	30.0	34.0		20.0	58.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	9.0	9.0	22.0			22.0
Flash Dont Walk (s)	12.0	12.0	12.0			12.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effect Green (s)	14.1	14.1	34.6		53.0	51.0
Actuated g/C Ratio	0.18	0.18	0.45		0.69	0.66
v/c Ratio	0.03	0.81	0.33		0.55	0.50
Control Delay	25.9	14.8	16.6		9.1	9.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.9	14.8	16.6		9.1	9.5
LOS	C	B	B		A	A
Approach Delay	15.0		16.6			9.4
Approach LOS	B		B			A

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 77.3

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 12.7

Intersection LOS: B

Intersection Capacity Utilization 70.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

FB2025

AM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	10	570	483	385	602
v/c Ratio	0.03	0.81	0.33	0.55	0.50
Control Delay	25.9	14.8	16.6	9.1	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	14.8	16.6	9.1	9.5
Queue Length 50th (m)	1.2	6.6	19.3	14.5	30.3
Queue Length 95th (m)	5.1	41.7	50.7	50.5	94.9
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0				
Base Capacity (vph)	720	920	1468	801	1397
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.62	0.33	0.48	0.43
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

1: Fairview Road & Little Ave

FB2025

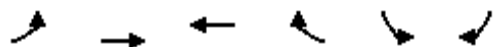
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	524	435	9	354	554
Future Volume (vph)	9	524	435	9	354	554
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1541	3277		1789	1830
Flt Permitted	0.95	1.00	1.00		0.42	1.00
Satd. Flow (perm)	1825	1541	3277		782	1830
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	570	473	10	385	602
RTOR Reduction (vph)	0	421	1	0	0	0
Lane Group Flow (vph)	10	149	482	0	385	602
Heavy Vehicles (%)	0%	6%	11%	13%	2%	5%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	14.1	14.1	34.7		51.0	51.0
Effective Green, g (s)	14.1	14.1	34.7		51.0	51.0
Actuated g/C Ratio	0.18	0.18	0.45		0.66	0.66
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	333	281	1474		677	1210
v/s Ratio Prot			0.15		0.09	0.33
v/s Ratio Perm	0.01	0.10			0.29	
v/c Ratio	0.03	0.53	0.33		0.57	0.50
Uniform Delay, d1	25.9	28.5	13.7		5.9	6.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	1.9	0.6		1.1	0.3
Delay (s)	25.9	30.4	14.3		7.0	6.9
Level of Service	C	C	B		A	A
Approach Delay (s)	30.4		14.3			6.9
Approach LOS	C		B			A
Intersection Summary						
HCM 2000 Control Delay			15.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.59			
Actuated Cycle Length (s)			77.1		Sum of lost time (s)	16.0
Intersection Capacity Utilization			70.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings

4: Big Bay Point Road & Fairview Road

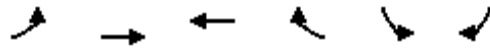
FB2025
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	387	593	460	103	86	295
Future Volume (vph)	387	593	460	103	86	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3411	3444	1526	1706	1601
Flt Permitted	0.420				0.950	
Satd. Flow (perm)	791	3411	3444	1526	1706	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				112		321
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	6%	7%	7%	2%
Adj. Flow (vph)	421	645	500	112	93	321
Shared Lane Traffic (%)						
Lane Group Flow (vph)	421	645	500	112	93	321
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

FB2025
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	16.0	62.0	46.0	46.0	46.0	46.0
Total Split (%)	14.8%	57.4%	42.6%	42.6%	42.6%	42.6%
Maximum Green (s)	12.0	56.0	40.0	40.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	57.7	55.7	40.0	40.0	10.9	10.9
Actuated g/C Ratio	0.73	0.71	0.51	0.51	0.14	0.14
v/c Ratio	0.58	0.27	0.29	0.13	0.40	0.64
Control Delay	7.2	4.5	11.9	2.8	36.3	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	4.5	11.9	2.8	36.3	10.6
LOS	A	A	B	A	D	B
Approach Delay		5.6	10.2		16.4	
Approach LOS		A	B		B	

Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 78.6

Natural Cycle: 95

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 9.1

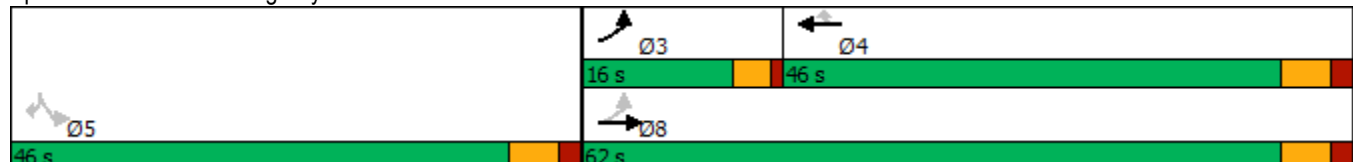
Intersection LOS: A

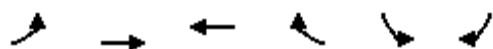
Intersection Capacity Utilization 76.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	421	645	500	112	93	321
v/c Ratio	0.58	0.27	0.29	0.13	0.40	0.64
Control Delay	7.2	4.5	11.9	2.8	36.3	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	4.5	11.9	2.8	36.3	10.6
Queue Length 50th (m)	16.3	14.1	20.7	0.0	12.9	0.0
Queue Length 95th (m)	32.1	23.9	32.9	7.5	26.0	20.9
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	733	2429	1752	831	867	972
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.27	0.29	0.13	0.11	0.33
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

FB2025
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	387	593	460	103	86	295
Future Volume (vph)	387	593	460	103	86	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3411	3444	1526	1706	1601
Flt Permitted	0.42	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	790	3411	3444	1526	1706	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	421	645	500	112	93	321
RTOR Reduction (vph)	0	0	0	55	0	277
Lane Group Flow (vph)	421	645	500	57	93	44
Heavy Vehicles (%)	2%	7%	6%	7%	7%	2%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	55.8	55.8	40.1	40.1	10.9	10.9
Effective Green, g (s)	55.8	55.8	40.1	40.1	10.9	10.9
Actuated g/C Ratio	0.71	0.71	0.51	0.51	0.14	0.14
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	708	2418	1754	777	236	221
v/s Ratio Prot	c0.09	0.19	0.15			
v/s Ratio Perm	c0.33			0.04	c0.05	0.03
v/c Ratio	0.59	0.27	0.29	0.07	0.39	0.20
Uniform Delay, d1	4.6	4.1	11.1	9.8	30.9	30.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.1	0.1	0.0	1.1	0.5
Delay (s)	6.0	4.2	11.2	9.9	32.0	30.5
Level of Service	A	A	B	A	C	C
Approach Delay (s)		4.9	10.9		30.8	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay			11.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.59			
Actuated Cycle Length (s)			78.7		Sum of lost time (s)	16.0
Intersection Capacity Utilization			76.4%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FB2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	324	164	173	383	67	68	337	44	84	335	21
Future Volume (vph)	69	324	164	173	383	67	68	337	44	84	335	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	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)	1772	3444	1526	1772	3444	1432	1460	1762	1541	1587	3349	1008
Flt Permitted	0.409			0.525			0.509			0.320		
Satd. Flow (perm)	763	3444	1526	979	3444	1432	782	1762	1541	535	3349	1008
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			178			92			92			92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
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
Heavy Vehicles (%)	3%	6%	7%	3%	6%	14%	25%	9%	6%	15%	9%	62%
Adj. Flow (vph)	75	352	178	188	416	73	74	366	48	91	364	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	352	178	188	416	73	74	366	48	91	364	23
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
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)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings

5: Bayview Drive & Big Bay Point Road

FB2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (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
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
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	Max	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	59.0	42.4	42.4	54.6	40.0	40.0	51.3	40.0	40.0	53.1	42.7	42.7
Actuated g/C Ratio	0.47	0.34	0.34	0.44	0.32	0.32	0.41	0.32	0.32	0.43	0.34	0.34
v/c Ratio	0.16	0.30	0.28	0.37	0.38	0.14	0.20	0.65	0.09	0.29	0.32	0.06
Control Delay	18.5	32.0	5.7	21.1	34.3	4.3	21.5	43.1	0.7	22.8	32.2	0.3
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	18.5	32.0	5.7	21.1	34.3	4.3	21.5	43.1	0.7	22.8	32.2	0.3
LOS	B	C	A	C	C	A	C	D	A	C	C	A
Approach Delay		22.6			27.4			35.7			28.9	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 124.8

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 28.2

Intersection LOS: C

Intersection Capacity Utilization 98.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

 Ø1	 Ø2	 Ø3	 Ø4
19 s	46 s	19 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
19 s	46 s	19 s	46 s



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	352	178	188	416	73	74	366	48	91	364	23
v/c Ratio	0.16	0.30	0.28	0.37	0.38	0.14	0.20	0.65	0.09	0.29	0.32	0.06
Control Delay	18.5	32.0	5.7	21.1	34.3	4.3	21.5	43.1	0.7	22.8	32.2	0.3
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	18.5	32.0	5.7	21.1	34.3	4.3	21.5	43.1	0.7	22.8	32.2	0.3
Queue Length 50th (m)	9.6	33.4	0.0	25.6	41.4	0.0	10.4	76.8	0.0	12.8	35.4	0.0
Queue Length 95th (m)	19.0	48.8	16.0	42.3	57.6	7.3	19.6	114.3	0.9	23.2	50.2	0.0
Internal Link Dist (m)	461.6				675.0		210.9				149.0	
Turn Bay Length (m)	105.0			55.0	105.0			55.0	105.0			55.0
Base Capacity (vph)	482	1171	636	542	1104	521	428	564	556	364	1146	405
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	0.16	0.30	0.28	0.35	0.38	0.14	0.17	0.65	0.09	0.25	0.32	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FB2025
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	69	324	164	173	383	67	68	337	44	84	335	21
Future Volume (vph)	69	324	164	173	383	67	68	337	44	84	335	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	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)	1772	3444	1526	1772	3444	1432	1460	1762	1541	1587	3349	1008
Flt Permitted	0.41	1.00	1.00	0.53	1.00	1.00	0.51	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	764	3444	1526	980	3444	1432	782	1762	1541	535	3349	1008
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	352	178	188	416	73	74	366	48	91	364	23
RTOR Reduction (vph)	0	0	118	0	0	50	0	0	32	0	0	15
Lane Group Flow (vph)	75	352	60	188	416	23	74	366	16	91	364	8
Heavy Vehicles (%)	3%	6%	7%	3%	6%	14%	25%	9%	6%	15%	9%	62%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	57.4	42.4	42.4	52.6	40.0	40.0	48.7	40.8	40.8	52.5	42.7	42.7
Effective Green, g (s)	57.4	42.4	42.4	52.6	40.0	40.0	48.7	40.8	40.8	52.5	42.7	42.7
Actuated g/C Ratio	0.46	0.34	0.34	0.42	0.32	0.32	0.39	0.32	0.32	0.42	0.34	0.34
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
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)	469	1162	515	489	1096	456	345	572	500	305	1138	342
v/s Ratio Prot	c0.02	0.10		c0.04	0.12		0.01	c0.21		c0.02	0.11	
v/s Ratio Perm	0.05		0.04	c0.12		0.02	0.07		0.01	0.10		0.01
v/c Ratio	0.16	0.30	0.12	0.38	0.38	0.05	0.21	0.64	0.03	0.30	0.32	0.02
Uniform Delay, d1	19.6	30.7	28.7	23.7	33.2	29.7	24.8	36.1	28.9	23.9	30.7	27.6
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	0.2	0.1	0.1	0.5	0.2	0.0	0.3	2.4	0.0	0.6	0.2	0.0
Delay (s)	19.8	30.8	28.8	24.2	33.4	29.7	25.1	38.5	28.9	24.5	30.9	27.6
Level of Service	B	C	C	C	C	C	C	D	C	C	C	C
Approach Delay (s)		28.9			30.5			35.5			29.5	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			30.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			125.6			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			98.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

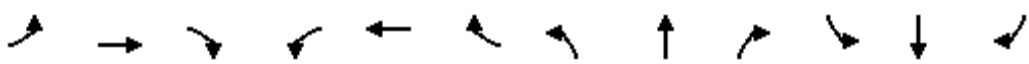
Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FB2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	436	132	157	824	27	36	66	99	8	24	62
Future Volume (vph)	108	436	132	157	824	27	36	66	99	8	24	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.995			0.933			0.911	
Flt Protected	0.950			0.950				0.991			0.996	
Satd. Flow (prot)	1644	3290	0	1789	3496	0	0	1637	0	0	1417	0
Flt Permitted	0.193			0.379				0.932			0.970	
Satd. Flow (perm)	334	3290	0	714	3496	0	0	1540	0	0	1380	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			4			46			67	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			156.1			212.7			602.2	
Travel Time (s)		50.3			11.2			15.3			43.4	
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
Heavy Vehicles (%)	11%	8%	4%	2%	4%	0%	9%	15%	4%	0%	26%	25%
Adj. Flow (vph)	117	474	143	171	896	29	39	72	108	9	26	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	117	617	0	171	925	0	0	219	0	0	102	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FB2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		11.0	39.0		26.0	26.0	
Total Split (s)	19.0	59.0		11.0	51.0		11.0	39.0		28.0	28.0	
Total Split (%)	17.4%	54.1%		10.1%	46.8%		10.1%	35.8%		25.7%	25.7%	
Maximum Green (s)	15.0	53.0		7.0	45.0		7.0	33.0		22.0	22.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None		None	None		None	Max		Max	Max	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	58.0	47.1		54.0	45.0			33.0			33.0	
Actuated g/C Ratio	0.56	0.46		0.52	0.44			0.32			0.32	
v/c Ratio	0.39	0.40		0.38	0.61			0.42			0.21	
Control Delay	13.5	17.8		13.0	24.5			24.7			12.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.5	17.8		13.0	24.5			24.7			12.1	
LOS	B	B		B	C			C			B	
Approach Delay		17.1			22.7			24.7			12.1	
Approach LOS		B			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 109

Actuated Cycle Length: 103.1

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 20.5

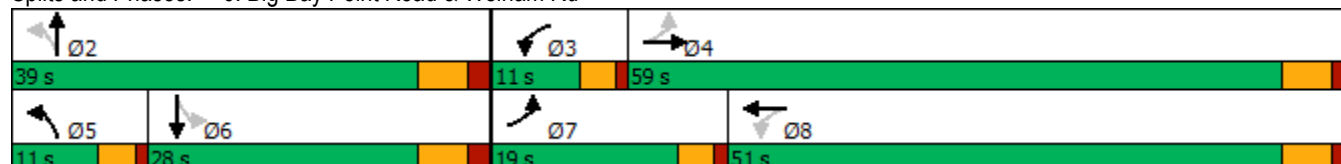
Intersection LOS: C

Intersection Capacity Utilization 77.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd



Queues
6: Big Bay Point Road & Welham Rd

FB2025
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	117	617	171	925	219	102
v/c Ratio	0.39	0.40	0.38	0.61	0.42	0.21
Control Delay	13.5	17.8	13.0	24.5	24.7	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	17.8	13.0	24.5	24.7	12.1
Queue Length 50th (m)	9.8	38.2	14.8	72.2	26.5	4.9
Queue Length 95th (m)	17.7	51.7	24.5	96.8	49.2	17.2
Internal Link Dist (m)		675.0		132.1	188.7	578.2
Turn Bay Length (m)	40.0		40.0			
Base Capacity (vph)	385	1716	447	1528	524	487
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.36	0.38	0.61	0.42	0.21
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

6: Big Bay Point Road & Welham Rd

FB2025
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	436	132	157	824	27	36	66	99	8	24	62
Future Volume (vph)	108	436	132	157	824	27	36	66	99	8	24	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.97		1.00	1.00			0.93			0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1644	3290		1789	3497			1638			1417	
Flt Permitted	0.19	1.00		0.38	1.00			0.93			0.97	
Satd. Flow (perm)	334	3290		714	3497			1540			1381	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	474	143	171	896	29	39	72	108	9	26	67
RTOR Reduction (vph)	0	28	0	0	2	0	0	31	0	0	46	0
Lane Group Flow (vph)	117	589	0	171	923	0	0	188	0	0	56	0
Heavy Vehicles (%)	11%	8%	4%	2%	4%	0%	9%	15%	4%	0%	26%	25%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	56.2	47.1		52.0	45.0			33.0			33.0	
Effective Green, g (s)	56.2	47.1		52.0	45.0			33.0			33.0	
Actuated g/C Ratio	0.55	0.46		0.50	0.44			0.32			0.32	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	297	1502		433	1526			492			442	
v/s Ratio Prot	c0.03	0.18		0.03	c0.26							
v/s Ratio Perm	0.18			0.17				c0.12			0.04	
v/c Ratio	0.39	0.39		0.39	0.60			0.38			0.13	
Uniform Delay, d1	13.4	18.5		14.1	22.2			27.1			24.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.9	0.2		0.6	0.7			0.5			0.6	
Delay (s)	14.3	18.7		14.7	22.9			27.6			25.4	
Level of Service	B	B		B	C			C			C	
Approach Delay (s)		18.0			21.6			27.6			25.4	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			21.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			103.1			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			77.7%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

FB2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	8	24	1	1	6	11	42	2	3	0
Future Volume (vph)	0	0	8	24	1	1	6	11	42	2	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt	0.865				0.995		0.904					
Flt Protected					0.956		0.995		0.980			
Satd. Flow (prot)	0	1471	0	0	1483	0	0	1517	0	0	1347	0
Flt Permitted					0.956		0.995		0.980			
Satd. Flow (perm)	0	1471	0	0	1483	0	0	1517	0	0	1347	0
Link Speed (k/h)	50				50				50			
Link Distance (m)	147.7				143.6				602.2			
Travel Time (s)	10.6				10.3				43.4			
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
Heavy Vehicles (%)	0%	0%	13%	25%	0%	0%	0%	18%	15%	50%	33%	0%
Adj. Flow (vph)	0	0	9	26	1	1	7	12	46	2	3	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	28	0	0	65	0	0	5	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				0.0			
Link Offset(m)	0.0				0.0				0.0			
Crosswalk Width(m)	1.6				1.6				1.6			
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control	Stop				Stop		Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.4%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

FB2025
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	24	1	1	6	11	42	2	3	0
Future Volume (Veh/h)	0	0	8	24	1	1	6	11	42	2	3	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	9	26	1	1	7	12	46	2	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	58	79	3	65	56	35	3			58		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	58	79	3	65	56	35	3			58		
tC, single (s)	7.1	6.5	6.3	7.3	6.5	6.2	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.7	4.0	3.3	2.2			2.7		
p0 queue free %	100	100	99	97	100	100	100			100		
cM capacity (veh/h)	938	810	1050	864	834	1044	1632			1289		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	28	65	5								
Volume Left	0	26	7	2								
Volume Right	9	1	46	0								
cSH	1050	868	1632	1289								
Volume to Capacity	0.01	0.03	0.00	0.00								
Queue Length 95th (m)	0.2	0.8	0.1	0.0								
Control Delay (s)	8.5	9.3	0.8	3.1								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.5	9.3	0.8	3.1								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			18.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FB2025 - With Planned Improvements

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	324	164	173	383	67	68	337	44	84	335	21
Future Volume (vph)	69	324	164	173	383	67	68	337	44	84	335	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.983				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	3444	1526	1772	3444	1432	1460	3302	0	1587	3349	1008
Flt Permitted	0.409			0.525			0.509			0.419		
Satd. Flow (perm)	763	3444	1526	979	3444	1432	782	3302	0	700	3349	1008
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			178			92		11				92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
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
Heavy Vehicles (%)	3%	6%	7%	3%	6%	14%	25%	9%	6%	15%	9%	62%
Adj. Flow (vph)	75	352	178	188	416	73	74	366	48	91	364	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	352	178	188	416	73	74	414	0	91	364	23
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
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
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
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
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
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
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
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
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FB2025 - With Planned Improvements

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0		7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0		11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0		19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%		14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	Max	None	None	None	None	None	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0			25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	59.0	42.4	42.4	54.6	40.0	40.0	51.3	40.0		53.1	42.7	42.7
Actuated g/C Ratio	0.47	0.34	0.34	0.44	0.32	0.32	0.41	0.32		0.43	0.34	0.34
v/c Ratio	0.16	0.30	0.28	0.37	0.38	0.14	0.20	0.39		0.25	0.32	0.06
Control Delay	18.5	32.0	5.7	21.1	34.3	4.3	21.5	33.6		22.0	32.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	18.5	32.0	5.7	21.1	34.3	4.3	21.5	33.6		22.0	32.2	0.3
LOS	B	C	A	C	C	A	C	C		C	C	A
Approach Delay		22.6			27.4			31.8			28.8	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 124.8

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 27.3

Intersection LOS: C

Intersection Capacity Utilization 98.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

			
Ø1	Ø2	Ø3	Ø4
19 s	46 s	19 s	46 s
			
Ø5	Ø6	Ø7	Ø8
19 s	46 s	19 s	46 s

Queues

FB2025 - With Planned Improvements

5: Bayview Drive & Big Bay Point Road

AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	75	352	178	188	416	73	74	414	91	364	23
v/c Ratio	0.16	0.30	0.28	0.37	0.38	0.14	0.20	0.39	0.25	0.32	0.06
Control Delay	18.5	32.0	5.7	21.1	34.3	4.3	21.5	33.6	22.0	32.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	32.0	5.7	21.1	34.3	4.3	21.5	33.6	22.0	32.2	0.3
Queue Length 50th (m)	9.6	33.4	0.0	25.6	41.4	0.0	10.4	40.2	12.8	35.4	0.0
Queue Length 95th (m)	19.0	48.8	16.0	42.3	57.6	7.3	19.6	56.6	23.2	50.2	0.0
Internal Link Dist (m)	461.6			675.0			210.9			149.0	
Turn Bay Length (m)	105.0		55.0	105.0		55.0	105.0		105.0		55.0
Base Capacity (vph)	482	1171	636	542	1104	521	428	1065	418	1146	405
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.30	0.28	0.35	0.38	0.14	0.17	0.39	0.22	0.32	0.06
Intersection Summary											

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FB2025 - With Planned Improvements

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	324	164	173	383	67	68	337	44	84	335	21
Future Volume (vph)	69	324	164	173	383	67	68	337	44	84	335	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1772	3444	1526	1772	3444	1432	1460	3301		1587	3349	1008
Flt Permitted	0.41	1.00	1.00	0.53	1.00	1.00	0.51	1.00		0.42	1.00	1.00
Satd. Flow (perm)	764	3444	1526	980	3444	1432	782	3301		700	3349	1008
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	352	178	188	416	73	74	366	48	91	364	23
RTOR Reduction (vph)	0	0	118	0	0	50	0	7	0	0	0	15
Lane Group Flow (vph)	75	352	60	188	416	23	74	407	0	91	364	8
Heavy Vehicles (%)	3%	6%	7%	3%	6%	14%	25%	9%	6%	15%	9%	62%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	57.4	42.4	42.4	52.6	40.0	40.0	48.7	40.8		52.5	42.7	42.7
Effective Green, g (s)	57.4	42.4	42.4	52.6	40.0	40.0	48.7	40.8		52.5	42.7	42.7
Actuated g/C Ratio	0.46	0.34	0.34	0.42	0.32	0.32	0.39	0.32		0.42	0.34	0.34
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
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
Lane Grp Cap (vph)	469	1162	515	489	1096	456	345	1072		361	1138	342
v/s Ratio Prot	c0.02	0.10		c0.04	0.12		0.01	c0.12		c0.02	0.11	
v/s Ratio Perm	0.05		0.04	c0.12		0.02	0.07			0.09		0.01
v/c Ratio	0.16	0.30	0.12	0.38	0.38	0.05	0.21	0.38		0.25	0.32	0.02
Uniform Delay, d1	19.6	30.7	28.7	23.7	33.2	29.7	24.8	32.6		22.8	30.7	27.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.1	0.5	0.2	0.0	0.3	0.2		0.4	0.2	0.0
Delay (s)	19.8	30.8	28.8	24.2	33.4	29.7	25.1	32.9		23.2	30.9	27.6
Level of Service	B	C	C	C	C	C	C	C		C	C	C
Approach Delay (s)		28.9			30.5			31.7			29.2	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			30.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			125.6			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			98.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2025
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	524	459	9	354	668
Future Volume (vph)	9	524	459	9	354	668
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	0.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850	0.997			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1541	3277	0	1772	1830
Flt Permitted	0.950				0.399	
Satd. Flow (perm)	1825	1541	3277	0	744	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		504	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	11%	13%	3%	5%
Adj. Flow (vph)	10	570	499	10	385	726
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	570	509	0	385	726
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2025
AM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	5	5			8	
Detector Phase	5	5	4		3	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0
Total Split (s)	36.0	36.0	40.0		24.0	64.0
Total Split (%)	36.0%	36.0%	40.0%		24.0%	64.0%
Maximum Green (s)	30.0	30.0	34.0		20.0	58.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	9.0	9.0	22.0			22.0
Flash Dont Walk (s)	12.0	12.0	12.0			12.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effect Green (s)	14.4	14.4	34.7		53.2	51.2
Actuated g/C Ratio	0.19	0.19	0.45		0.68	0.66
v/c Ratio	0.03	0.82	0.35		0.57	0.60
Control Delay	25.7	15.6	17.1		9.7	11.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.7	15.6	17.1		9.7	11.6
LOS	C	B	B		A	B
Approach Delay	15.7		17.1			10.9
Approach LOS	B		B			B

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 77.8

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 13.6

Intersection LOS: B

Intersection Capacity Utilization 70.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

FT2025

AM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	10	570	509	385	726
v/c Ratio	0.03	0.82	0.35	0.57	0.60
Control Delay	25.7	15.6	17.1	9.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	15.6	17.1	9.7	11.6
Queue Length 50th (m)	1.2	8.0	20.6	14.6	40.7
Queue Length 95th (m)	5.1	44.5	54.3	52.2	131.1
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0				
Base Capacity (vph)	717	911	1460	778	1390
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.63	0.35	0.49	0.52
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

1: Fairview Road & Little Ave

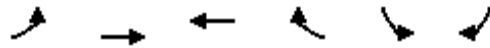
FT2025

AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	524	459	9	354	668
Future Volume (vph)	9	524	459	9	354	668
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1541	3278		1772	1830
Flt Permitted	0.95	1.00	1.00		0.40	1.00
Satd. Flow (perm)	1825	1541	3278		744	1830
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	570	499	10	385	726
RTOR Reduction (vph)	0	410	1	0	0	0
Lane Group Flow (vph)	10	160	508	0	385	726
Heavy Vehicles (%)	0%	6%	11%	13%	3%	5%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	14.4	14.4	34.8		51.2	51.2
Effective Green, g (s)	14.4	14.4	34.8		51.2	51.2
Actuated g/C Ratio	0.19	0.19	0.45		0.66	0.66
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	338	285	1470		655	1207
v/s Ratio Prot			0.15		0.09	c0.40
v/s Ratio Perm	0.01	c0.10			0.29	
v/c Ratio	0.03	0.56	0.35		0.59	0.60
Uniform Delay, d1	25.9	28.7	14.0		6.1	7.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	2.4	0.6		1.4	0.9
Delay (s)	25.9	31.1	14.6		7.4	8.3
Level of Service	C	C	B		A	A
Approach Delay (s)	31.0		14.6			8.0
Approach LOS	C		B			A
Intersection Summary						
HCM 2000 Control Delay			15.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			77.6		Sum of lost time (s)	16.0
Intersection Capacity Utilization			70.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

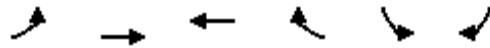
FT2025
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	387	614	466	127	200	295
Future Volume (vph)	387	614	466	127	200	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3411	3411	1512	1722	1601
Flt Permitted	0.406				0.950	
Satd. Flow (perm)	765	3411	3411	1512	1722	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				138		321
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	7%	8%	6%	2%
Adj. Flow (vph)	421	667	507	138	217	321
Shared Lane Traffic (%)						
Lane Group Flow (vph)	421	667	507	138	217	321
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

FT2025
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	16.0	62.0	46.0	46.0	46.0	46.0
Total Split (%)	14.8%	57.4%	42.6%	42.6%	42.6%	42.6%
Maximum Green (s)	12.0	56.0	40.0	40.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	58.0	55.9	40.1	40.1	15.8	15.8
Actuated g/C Ratio	0.69	0.67	0.48	0.48	0.19	0.19
v/c Ratio	0.63	0.29	0.31	0.17	0.67	0.57
Control Delay	10.7	6.7	14.8	3.4	42.0	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	6.7	14.8	3.4	42.0	7.9
LOS	B	A	B	A	D	A
Approach Delay		8.2	12.3		21.6	
Approach LOS		A	B		C	

Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 83.8

Natural Cycle: 95

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 12.6

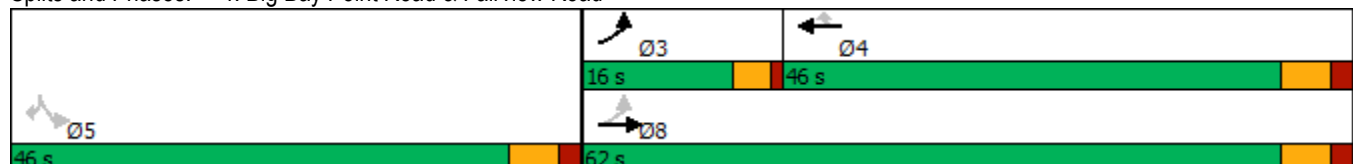
Intersection LOS: B

Intersection Capacity Utilization 79.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	421	667	507	138	217	321
v/c Ratio	0.63	0.29	0.31	0.17	0.67	0.57
Control Delay	10.7	6.7	14.8	3.4	42.0	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	6.7	14.8	3.4	42.0	7.9
Queue Length 50th (m)	22.8	20.0	24.9	0.0	32.5	0.0
Queue Length 95th (m)	47.6	35.9	41.3	9.7	53.9	19.1
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	676	2286	1633	796	824	933
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.29	0.31	0.17	0.26	0.34
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

FT2025
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	387	614	466	127	200	295
Future Volume (vph)	387	614	466	127	200	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3411	3411	1512	1722	1601
Flt Permitted	0.41	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	766	3411	3411	1512	1722	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	421	667	507	138	217	321
RTOR Reduction (vph)	0	0	0	72	0	260
Lane Group Flow (vph)	421	667	507	66	217	61
Heavy Vehicles (%)	2%	7%	7%	8%	6%	2%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	55.9	55.9	40.1	40.1	15.8	15.8
Effective Green, g (s)	55.9	55.9	40.1	40.1	15.8	15.8
Actuated g/C Ratio	0.67	0.67	0.48	0.48	0.19	0.19
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	655	2278	1634	724	325	302
v/s Ratio Prot	c0.09	0.20	0.15			
v/s Ratio Perm	c0.34			0.04	c0.13	0.04
v/c Ratio	0.64	0.29	0.31	0.09	0.67	0.20
Uniform Delay, d1	6.4	5.7	13.3	11.9	31.5	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.1	0.1	0.1	5.1	0.3
Delay (s)	8.6	5.8	13.4	11.9	36.6	29.0
Level of Service	A	A	B	B	D	C
Approach Delay (s)		6.9	13.1		32.1	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay			14.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			83.7		Sum of lost time (s)	16.0
Intersection Capacity Utilization			79.2%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	459	164	173	413	67	68	337	44	84	335	21
Future Volume (vph)	69	459	164	173	413	67	68	337	44	84	335	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.983				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	3476	1526	1772	3411	1256	1460	3124	0	1225	3318	1396
Flt Permitted	0.382			0.398			0.526			0.405		
Satd. Flow (perm)	622	3476	1526	742	3411	1256	808	3124	0	522	3318	1396
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			178			92		11				92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
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
Heavy Vehicles (%)	18%	5%	7%	3%	7%	30%	25%	16%	6%	49%	10%	17%
Adj. Flow (vph)	75	499	178	188	449	73	74	366	48	91	364	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	499	178	188	449	73	74	414	0	91	364	23
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
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
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
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
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
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
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
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
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0		7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0		11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0		19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%		14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	Max	None	None	None	None	None	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0			25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	59.0	42.4	42.4	54.7	40.0	40.0	51.3	40.0		55.7	44.1	44.1
Actuated g/C Ratio	0.47	0.34	0.34	0.43	0.32	0.32	0.41	0.32		0.44	0.35	0.35
v/c Ratio	0.19	0.43	0.28	0.44	0.42	0.16	0.20	0.41		0.31	0.31	0.04
Control Delay	19.6	34.7	5.8	23.1	35.7	4.6	21.3	34.8		23.3	31.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.6	34.7	5.8	23.1	35.7	4.6	21.3	34.8		23.3	31.9	0.1
LOS	B	C	A	C	D	A	C	C		C	C	A
Approach Delay		26.4			29.1			32.8			28.7	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 126.2

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 28.9

Intersection LOS: C

Intersection Capacity Utilization 98.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

 Ø1	 Ø2	 Ø3	 Ø4
19 s	46 s	19 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
19 s	46 s	19 s	46 s

5: Bayview Drive & Big Bay Point Road

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	75	499	178	188	449	73	74	414	91	364	23
v/c Ratio	0.19	0.43	0.28	0.44	0.42	0.16	0.20	0.41	0.31	0.31	0.04
Control Delay	19.6	34.7	5.8	23.1	35.7	4.6	21.3	34.8	23.3	31.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	34.7	5.8	23.1	35.7	4.6	21.3	34.8	23.3	31.9	0.1
Queue Length 50th (m)	9.9	50.7	0.0	26.3	46.0	0.0	10.4	41.3	13.1	35.4	0.0
Queue Length 95th (m)	19.7	70.8	16.2	43.5	63.7	7.4	19.5	58.4	24.0	50.2	0.0
Internal Link Dist (m)	461.6				675.0		210.9		149.0		
Turn Bay Length (m)	105.0		55.0	105.0		55.0	105.0		105.0		55.0
Base Capacity (vph)	400	1168	630	458	1081	461	435	998	318	1159	547
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.43	0.28	0.41	0.42	0.16	0.17	0.41	0.29	0.31	0.04
Intersection Summary											

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FT2025
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	459	164	173	413	67	68	337	44	84	335	21
Future Volume (vph)	69	459	164	173	413	67	68	337	44	84	335	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1547	3476	1526	1772	3411	1256	1460	3123		1225	3318	1396
Flt Permitted	0.38	1.00	1.00	0.40	1.00	1.00	0.53	1.00		0.40	1.00	1.00
Satd. Flow (perm)	621	3476	1526	743	3411	1256	808	3123		522	3318	1396
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	499	178	188	449	73	74	366	48	91	364	23
RTOR Reduction (vph)	0	0	119	0	0	50	0	7	0	0	0	15
Lane Group Flow (vph)	75	499	59	188	449	23	74	407	0	91	364	8
Heavy Vehicles (%)	18%	5%	7%	3%	7%	30%	25%	16%	6%	49%	10%	17%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	57.4	42.4	42.4	52.6	40.0	40.0	48.8	40.9		55.2	44.1	44.1
Effective Green, g (s)	57.4	42.4	42.4	52.6	40.0	40.0	48.8	40.9		55.2	44.1	44.1
Actuated g/C Ratio	0.45	0.33	0.33	0.41	0.31	0.31	0.38	0.32		0.43	0.35	0.35
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
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
Lane Grp Cap (vph)	390	1160	509	409	1074	395	351	1005		288	1152	484
v/s Ratio Prot	c0.02	0.14		c0.05	0.13		0.01	c0.13		c0.03	0.11	
v/s Ratio Perm	0.06		0.04	c0.14		0.02	0.07			0.11		0.01
v/c Ratio	0.19	0.43	0.12	0.46	0.42	0.06	0.21	0.40		0.32	0.32	0.02
Uniform Delay, d1	20.4	32.9	29.3	24.6	34.3	30.4	25.4	33.6		22.3	30.4	27.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	0.1	0.8	0.3	0.1	0.3	0.3		0.6	0.2	0.0
Delay (s)	20.7	33.2	29.4	25.4	34.6	30.4	25.7	33.8		22.9	30.5	27.2
Level of Service	C	C	C	C	C	C	C	C		C	C	C
Approach Delay (s)		31.0			31.7			32.6			28.9	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			31.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			127.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			98.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	436	132	157	824	58	36	114	99	16	42	92
Future Volume (vph)	243	436	132	157	824	58	36	114	99	16	42	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.990			0.946			0.917	
Flt Protected	0.950			0.950				0.993			0.995	
Satd. Flow (prot)	1722	3290	0	1789	3448	0	0	1637	0	0	1393	0
Flt Permitted	0.163			0.418				0.934			0.951	
Satd. Flow (perm)	295	3290	0	787	3448	0	0	1540	0	0	1331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			8			31			66	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			156.1			212.7			602.2	
Travel Time (s)		50.3			11.2			15.3			43.4	
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
Heavy Vehicles (%)	6%	8%	4%	2%	5%	2%	9%	16%	4%	13%	39%	22%
Adj. Flow (vph)	264	474	143	171	896	63	39	124	108	17	46	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	264	617	0	171	959	0	0	271	0	0	163	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		11.0	39.0		26.0	26.0	
Total Split (s)	19.0	59.0		11.0	51.0		11.0	39.0		28.0	28.0	
Total Split (%)	17.4%	54.1%		10.1%	46.8%		10.1%	35.8%		25.7%	25.7%	
Maximum Green (s)	15.0	53.0		7.0	45.0		7.0	33.0		22.0	22.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None		None	None		None	Max		Max	Max	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	64.1	51.4		54.0	45.0			33.0			33.0	
Actuated g/C Ratio	0.60	0.48		0.50	0.42			0.31			0.31	
v/c Ratio	0.75	0.39		0.37	0.66			0.55			0.36	
Control Delay	26.9	17.1		12.9	27.8			32.5			19.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	26.9	17.1		12.9	27.8			32.5			19.8	
LOS	C	B		B	C			C			B	
Approach Delay		20.0			25.5			32.5			19.8	
Approach LOS		B			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 109

Actuated Cycle Length: 107.4

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 23.9

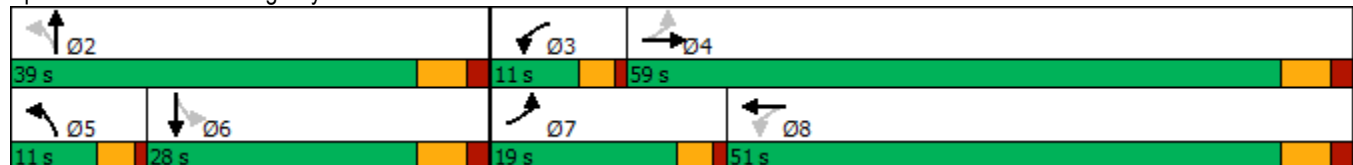
Intersection LOS: C

Intersection Capacity Utilization 84.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd





Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	264	617	171	959	271	163
v/c Ratio	0.75	0.39	0.37	0.66	0.55	0.36
Control Delay	26.9	17.1	12.9	27.8	32.5	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	17.1	12.9	27.8	32.5	19.8
Queue Length 50th (m)	24.3	38.2	14.8	84.4	42.4	15.4
Queue Length 95th (m)	#49.1	51.4	24.5	107.0	69.0	33.8
Internal Link Dist (m)		675.0		132.1	188.7	578.2
Turn Bay Length (m)	40.0		40.0			
Base Capacity (vph)	376	1649	461	1450	494	454
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.37	0.37	0.66	0.55	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: Big Bay Point Road & Welham Rd

FT2025
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	436	132	157	824	58	36	114	99	16	42	92
Future Volume (vph)	243	436	132	157	824	58	36	114	99	16	42	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.97		1.00	0.99			0.95			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1722	3290		1789	3449			1638			1393	
Flt Permitted	0.16	1.00		0.42	1.00			0.93			0.95	
Satd. Flow (perm)	295	3290		787	3449			1540			1332	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	474	143	171	896	63	39	124	108	17	46	100
RTOR Reduction (vph)	0	27	0	0	5	0	0	21	0	0	46	0
Lane Group Flow (vph)	264	590	0	171	954	0	0	250	0	0	117	0
Heavy Vehicles (%)	6%	8%	4%	2%	5%	2%	9%	16%	4%	13%	39%	22%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	62.4	51.4		52.0	45.0			33.0			33.0	
Effective Green, g (s)	62.4	51.4		52.0	45.0			33.0			33.0	
Actuated g/C Ratio	0.58	0.48		0.48	0.42			0.31			0.31	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	349	1574		446	1445			473			409	
v/s Ratio Prot	c0.09	0.18		0.02	0.28							
v/s Ratio Perm	c0.35			0.16				c0.16			0.09	
v/c Ratio	0.76	0.38		0.38	0.66			0.53			0.29	
Uniform Delay, d1	15.7	17.8		15.8	25.1			30.8			28.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	9.0	0.2		0.6	1.1			1.1			1.8	
Delay (s)	24.7	17.9		16.3	26.2			31.8			30.0	
Level of Service	C	B		B	C			C			C	
Approach Delay (s)		20.0			24.7			31.8			30.0	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			24.1			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			107.4			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			84.8%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2025
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	8	24	1	1	6	226	42	2	59	0
Future Volume (vph)	0	0	8	24	1	1	6	226	42	2	59	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.865			0.995			0.979				
Flt Protected					0.956			0.999			0.998	
Satd. Flow (prot)	0	1471	0	0	1483	0	0	1739	0	0	1457	0
Flt Permitted					0.956			0.999			0.998	
Satd. Flow (perm)	0	1471	0	0	1483	0	0	1739	0	0	1457	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		147.7			143.6			602.2			118.0	
Travel Time (s)		10.6			10.3			43.4			8.5	
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
Heavy Vehicles (%)	0%	0%	13%	25%	0%	0%	0%	7%	15%	50%	31%	0%
Adj. Flow (vph)	0	0	9	26	1	1	7	246	46	2	64	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	28	0	0	299	0	0	66	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	31.7%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2025
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	24	1	1	6	226	42	2	59	0
Future Volume (Veh/h)	0	0	8	24	1	1	6	226	42	2	59	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	9	26	1	1	7	246	46	2	64	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	352	374	64	360	351	269	64			292		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	352	374	64	360	351	269	64			292		
tC, single (s)	7.1	6.5	6.3	7.3	6.5	6.2	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.7	4.0	3.3	2.2			2.7		
p0 queue free %	100	100	99	95	100	100	100			100		
cM capacity (veh/h)	602	556	970	547	573	775	1551			1040		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	28	299	66								
Volume Left	0	26	7	2								
Volume Right	9	1	46	0								
cSH	970	554	1551	1040								
Volume to Capacity	0.01	0.05	0.00	0.00								
Queue Length 95th (m)	0.2	1.2	0.1	0.0								
Control Delay (s)	8.7	11.8	0.2	0.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	8.7	11.8	0.2	0.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			31.7%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2030
AM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	556	481	10	371	696
Future Volume (vph)	10	556	481	10	371	696
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.997			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1541	3277	0	1772	3476
Flt Permitted	0.950				0.378	
Satd. Flow (perm)	1825	1541	3277	0	705	3476
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		483	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	11%	13%	3%	5%
Adj. Flow (vph)	11	604	523	11	403	757
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	604	534	0	403	757
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2030
AM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	5	5			8	
Detector Phase	5	5	4		3	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0
Total Split (s)	37.0	37.0	40.0		23.0	63.0
Total Split (%)	37.0%	37.0%	40.0%		23.0%	63.0%
Maximum Green (s)	31.0	31.0	34.0		19.0	57.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	9.0	9.0	22.0			22.0
Flash Dont Walk (s)	12.0	12.0	12.0			12.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	16.5	16.5	34.7		54.0	51.9
Actuated g/C Ratio	0.20	0.20	0.43		0.67	0.64
v/c Ratio	0.03	0.86	0.38		0.62	0.34
Control Delay	25.1	20.5	18.9		11.7	8.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.1	20.5	18.9		11.7	8.1
LOS	C	C	B		B	A
Approach Delay	20.6		18.9			9.3
Approach LOS	C		B			A

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 80.7

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 14.5

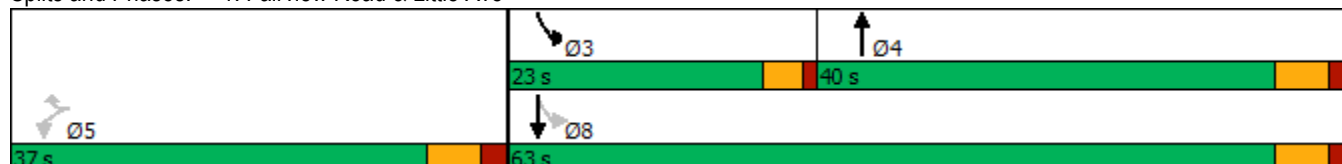
Intersection LOS: B

Intersection Capacity Utilization 72.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

FT2030

AM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	11	604	534	403	757
v/c Ratio	0.03	0.86	0.38	0.62	0.34
Control Delay	25.1	20.5	18.9	11.7	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	20.5	18.9	11.7	8.1
Queue Length 50th (m)	1.3	15.7	25.6	19.8	21.4
Queue Length 95th (m)	5.4	61.5	57.6	57.6	51.8
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0			50.0	
Base Capacity (vph)	715	897	1410	727	2506
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.02	0.67	0.38	0.55	0.30
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

1: Fairview Road & Little Ave

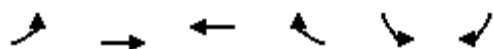
FT2030

AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	556	481	10	371	696
Future Volume (vph)	10	556	481	10	371	696
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1541	3277		1772	3476
Flt Permitted	0.95	1.00	1.00		0.38	1.00
Satd. Flow (perm)	1825	1541	3277		705	3476
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	604	523	11	403	757
RTOR Reduction (vph)	0	384	1	0	0	0
Lane Group Flow (vph)	11	220	533	0	403	757
Heavy Vehicles (%)	0%	6%	11%	13%	3%	5%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	16.5	16.5	34.7		51.9	51.9
Effective Green, g (s)	16.5	16.5	34.7		51.9	51.9
Actuated g/C Ratio	0.21	0.21	0.43		0.65	0.65
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	374	316	1414		630	2243
v/s Ratio Prot			0.16		c0.10	0.22
v/s Ratio Perm	0.01	c0.14			c0.31	
v/c Ratio	0.03	0.70	0.38		0.64	0.34
Uniform Delay, d1	25.5	29.6	15.5		7.0	6.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	6.5	0.8		2.1	0.1
Delay (s)	25.6	36.2	16.3		9.2	6.5
Level of Service	C	D	B		A	A
Approach Delay (s)	36.0		16.3			7.5
Approach LOS	D		B			A
Intersection Summary						
HCM 2000 Control Delay			17.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			80.4		Sum of lost time (s)	16.0
Intersection Capacity Utilization			72.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

FT2030
AM Peak Hour

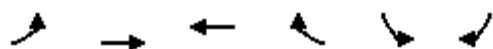


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	453	713	544	144	203	310
Future Volume (vph)	453	713	544	144	203	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3411	3411	1512	1722	1601
Flt Permitted	0.359				0.950	
Satd. Flow (perm)	676	3411	3411	1512	1722	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				157		337
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	7%	8%	6%	2%
Adj. Flow (vph)	492	775	591	157	221	337
Shared Lane Traffic (%)						
Lane Group Flow (vph)	492	775	591	157	221	337
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings

4: Big Bay Point Road & Fairview Road

FT2030
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	16.0	62.0	46.0	46.0	46.0	46.0
Total Split (%)	14.8%	57.4%	42.6%	42.6%	42.6%	42.6%
Maximum Green (s)	12.0	56.0	40.0	40.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	58.1	56.1	40.1	40.1	16.0	16.0
Actuated g/C Ratio	0.69	0.67	0.48	0.48	0.19	0.19
v/c Ratio	0.79	0.34	0.36	0.20	0.67	0.58
Control Delay	18.4	7.1	15.5	3.3	42.2	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	7.1	15.5	3.3	42.2	7.9
LOS	B	A	B	A	D	A
Approach Delay		11.5	12.9		21.5	
Approach LOS		B	B		C	

Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 84.2

Natural Cycle: 95

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 14.1

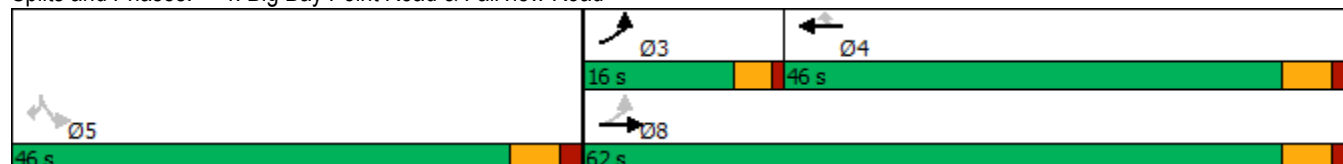
Intersection LOS: B

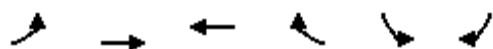
Intersection Capacity Utilization 83.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	492	775	591	157	221	337
v/c Ratio	0.79	0.34	0.36	0.20	0.67	0.58
Control Delay	18.4	7.1	15.5	3.3	42.2	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	7.1	15.5	3.3	42.2	7.9
Queue Length 50th (m)	28.4	24.3	30.0	0.0	33.2	0.0
Queue Length 95th (m)	#76.6	43.2	49.0	10.2	55.1	19.6
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	625	2274	1624	802	820	938
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.34	0.36	0.20	0.27	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

FT2030
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	453	713	544	144	203	310
Future Volume (vph)	453	713	544	144	203	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3411	3411	1512	1722	1601
Flt Permitted	0.36	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	676	3411	3411	1512	1722	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	492	775	591	157	221	337
RTOR Reduction (vph)	0	0	0	82	0	273
Lane Group Flow (vph)	492	775	591	75	221	64
Heavy Vehicles (%)	2%	7%	7%	8%	6%	2%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	56.1	56.1	40.1	40.1	16.0	16.0
Effective Green, g (s)	56.1	56.1	40.1	40.1	16.0	16.0
Actuated g/C Ratio	0.67	0.67	0.48	0.48	0.19	0.19
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	609	2275	1626	720	327	304
v/s Ratio Prot	c0.12	0.23	0.17			
v/s Ratio Perm	c0.42			0.05	c0.13	0.04
v/c Ratio	0.81	0.34	0.36	0.10	0.68	0.21
Uniform Delay, d1	7.2	6.0	13.9	12.1	31.6	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.8	0.1	0.1	0.1	5.4	0.3
Delay (s)	15.0	6.1	14.1	12.2	37.1	29.1
Level of Service	B	A	B	B	D	C
Approach Delay (s)		9.6	13.7		32.2	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay			15.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.81			
Actuated Cycle Length (s)			84.1		Sum of lost time (s)	16.0
Intersection Capacity Utilization			83.0%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2030
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	514	192	202	479	74	81	389	52	99	391	24
Future Volume (vph)	77	514	192	202	479	74	81	389	52	99	391	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	3476	1526	1772	3411	1256	1460	3122	0	1225	3318	1396
Flt Permitted	0.335			0.342			0.452			0.363		
Satd. Flow (perm)	545	3476	1526	638	3411	1256	695	3122	0	468	3318	1396
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			209			92		12				92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
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
Heavy Vehicles (%)	18%	5%	7%	3%	7%	30%	25%	16%	6%	49%	10%	17%
Adj. Flow (vph)	84	559	209	220	521	80	88	423	57	108	425	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	559	209	220	521	80	88	480	0	108	425	26
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
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
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
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
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
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
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
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
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2030
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0		7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0		11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0		19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%		14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	Max	None	None	None	None	None	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0			25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	58.4	41.6	41.6	55.5	40.0	40.0	52.0	40.0		55.9	42.0	42.0
Actuated g/C Ratio	0.46	0.33	0.33	0.44	0.31	0.31	0.41	0.31		0.44	0.33	0.33
v/c Ratio	0.23	0.49	0.33	0.55	0.49	0.17	0.26	0.48		0.39	0.39	0.05
Control Delay	20.5	36.7	5.8	25.9	37.3	5.8	22.0	36.5		24.9	34.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	20.5	36.7	5.8	25.9	37.3	5.8	22.0	36.5		24.9	34.2	0.2
LOS	C	D	A	C	D	A	C	D		C	C	A
Approach Delay		27.5			31.2			34.3			30.8	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 127

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 30.6

Intersection LOS: C

Intersection Capacity Utilization 100.4%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

 Ø1	 Ø2	 Ø3	 Ø4
19 s	46 s	19 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
19 s	46 s	19 s	46 s

5: Bayview Drive & Big Bay Point Road

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	84	559	209	220	521	80	88	480	108	425	26
v/c Ratio	0.23	0.49	0.33	0.55	0.49	0.17	0.26	0.48	0.39	0.39	0.05
Control Delay	20.5	36.7	5.8	25.9	37.3	5.8	22.0	36.5	24.9	34.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	36.7	5.8	25.9	37.3	5.8	22.0	36.5	24.9	34.2	0.2
Queue Length 50th (m)	11.3	60.0	0.0	32.0	55.5	0.0	12.5	49.8	15.8	42.7	0.0
Queue Length 95th (m)	21.6	80.1	17.4	50.6	74.5	9.1	22.6	68.3	27.7	59.4	0.0
Internal Link Dist (m)	461.6				675.0		210.9		149.0		
Turn Bay Length (m)	105.0			55.0	105.0			55.0	105.0		
Base Capacity (vph)	368	1138	640	420	1074	458	398	992	301	1096	523
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.49	0.33	0.52	0.49	0.17	0.22	0.48	0.36	0.39	0.05
Intersection Summary											

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FT2030
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	514	192	202	479	74	81	389	52	99	391	24
Future Volume (vph)	77	514	192	202	479	74	81	389	52	99	391	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1547	3476	1526	1772	3411	1256	1460	3123		1225	3318	1396
Flt Permitted	0.34	1.00	1.00	0.34	1.00	1.00	0.45	1.00		0.36	1.00	1.00
Satd. Flow (perm)	546	3476	1526	638	3411	1256	694	3123		468	3318	1396
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	559	209	220	521	80	88	423	57	108	425	26
RTOR Reduction (vph)	0	0	140	0	0	55	0	8	0	0	0	17
Lane Group Flow (vph)	84	559	69	220	521	25	88	472	0	108	425	9
Heavy Vehicles (%)	18%	5%	7%	3%	7%	30%	25%	16%	6%	49%	10%	17%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	56.6	41.6	41.6	53.4	40.0	40.0	50.0	40.0		53.8	41.9	41.9
Effective Green, g (s)	56.6	41.6	41.6	53.4	40.0	40.0	50.0	40.0		53.8	41.9	41.9
Actuated g/C Ratio	0.45	0.33	0.33	0.42	0.32	0.32	0.39	0.32		0.42	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
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
Lane Grp Cap (vph)	361	1139	500	388	1075	395	333	984		269	1095	460
v/s Ratio Prot	c0.03	0.16		c0.06	0.15		0.02	c0.15		c0.04	0.13	
v/s Ratio Perm	0.08		0.04	c0.18		0.02	0.08			0.13		0.01
v/c Ratio	0.23	0.49	0.14	0.57	0.48	0.06	0.26	0.48		0.40	0.39	0.02
Uniform Delay, d1	21.1	34.2	30.0	24.7	35.1	30.4	24.9	35.1		23.6	32.7	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.1	1.9	0.3	0.1	0.4	0.4		1.0	0.2	0.0
Delay (s)	21.5	34.5	30.1	26.6	35.5	30.4	25.3	35.4		24.6	32.9	28.7
Level of Service	C	C	C	C	D	C	C	D		C	C	C
Approach Delay (s)		32.1			32.6			33.9			31.1	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay		32.4			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		126.9			Sum of lost time (s)			20.0				
Intersection Capacity Utilization		100.4%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2030
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	510	155	183	961	62	38	118	104	17	44	95
Future Volume (vph)	261	510	155	183	961	62	38	118	104	17	44	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.991			0.946			0.918	
Flt Protected	0.950			0.950				0.993			0.995	
Satd. Flow (prot)	1722	3290	0	1789	3451	0	0	1638	0	0	1394	0
Flt Permitted	0.095			0.365				0.931			0.948	
Satd. Flow (perm)	172	3290	0	687	3451	0	0	1536	0	0	1328	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			6			28			59	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			156.1			212.7			602.2	
Travel Time (s)		50.3			11.2			15.3			43.4	
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
Heavy Vehicles (%)	6%	8%	4%	2%	5%	2%	9%	16%	4%	13%	39%	22%
Adj. Flow (vph)	284	554	168	199	1045	67	41	128	113	18	48	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	722	0	199	1112	0	0	282	0	0	169	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2030
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		11.0	39.0		26.0	26.0	
Total Split (s)	26.0	65.0		14.0	53.0		11.0	41.0		30.0	30.0	
Total Split (%)	21.7%	54.2%		11.7%	44.2%		9.2%	34.2%		25.0%	25.0%	
Maximum Green (s)	22.0	59.0		10.0	47.0		7.0	35.0		24.0	24.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None		None	None		None	Max		Max	Max	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	70.1	54.7		57.6	46.0			35.1			35.1	
Actuated g/C Ratio	0.61	0.47		0.50	0.40			0.30			0.30	
v/c Ratio	0.81	0.46		0.46	0.81			0.58			0.38	
Control Delay	44.2	19.8		14.7	36.6			36.9			24.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	44.2	19.8		14.7	36.6			36.9			24.0	
LOS	D	B		B	D			D			C	
Approach Delay		26.7			33.3			36.9			24.0	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 115.4

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 30.7

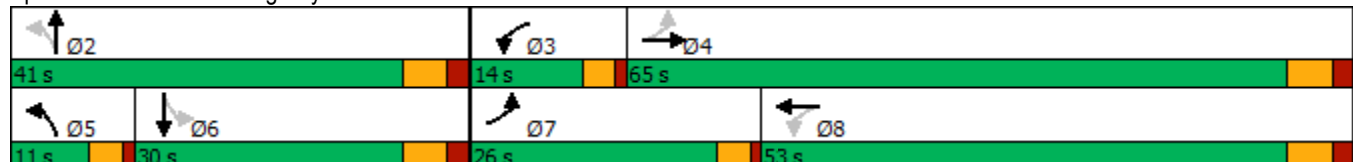
Intersection LOS: C

Intersection Capacity Utilization 86.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd



Queues
6: Big Bay Point Road & Welham Rd

FT2030
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	284	722	199	1112	282	169
v/c Ratio	0.81	0.46	0.46	0.81	0.58	0.38
Control Delay	44.2	19.8	14.7	36.6	36.9	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	19.8	14.7	36.6	36.9	24.0
Queue Length 50th (m)	42.7	52.4	18.5	118.9	49.9	19.5
Queue Length 95th (m)	#73.8	67.7	28.9	149.0	80.5	40.1
Internal Link Dist (m)		675.0		132.1	188.7	578.2
Turn Bay Length (m)	40.0		40.0			
Base Capacity (vph)	400	1708	441	1411	486	444
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.42	0.45	0.79	0.58	0.38

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

6: Big Bay Point Road & Welham Rd

FT2030
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	510	155	183	961	62	38	118	104	17	44	95
Future Volume (vph)	261	510	155	183	961	62	38	118	104	17	44	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.97		1.00	0.99			0.95			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1722	3290		1789	3451			1637			1393	
Flt Permitted	0.10	1.00		0.36	1.00			0.93			0.95	
Satd. Flow (perm)	172	3290		687	3451			1535			1328	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	554	168	199	1045	67	41	128	113	18	48	103
RTOR Reduction (vph)	0	25	0	0	4	0	0	19	0	0	41	0
Lane Group Flow (vph)	284	697	0	199	1108	0	0	263	0	0	128	0
Heavy Vehicles (%)	6%	8%	4%	2%	5%	2%	9%	16%	4%	13%	39%	22%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	68.3	54.7		55.6	46.0			35.1			35.1	
Effective Green, g (s)	68.3	54.7		55.6	46.0			35.1			35.1	
Actuated g/C Ratio	0.59	0.47		0.48	0.40			0.30			0.30	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	347	1559		422	1375			466			403	
v/s Ratio Prot	c0.13	0.21		0.04	0.32							
v/s Ratio Perm	c0.35			0.19				c0.17			0.10	
v/c Ratio	0.82	0.45		0.47	0.81			0.56			0.32	
Uniform Delay, d1	29.8	20.3		17.4	30.7			33.7			30.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	13.9	0.2		0.8	3.6			1.6			2.1	
Delay (s)	43.7	20.5		18.3	34.3			35.3			33.0	
Level of Service	D	C		B	C			D			C	
Approach Delay (s)		27.0			31.9			35.3			33.0	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			30.5			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			115.4			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			86.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2030
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	8	26	1	1	6	227	44	2	59	0
Future Volume (vph)	0	0	8	26	1	1	6	227	44	2	59	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.865			0.995			0.979				
Flt Protected					0.955			0.999			0.998	
Satd. Flow (prot)	0	1471	0	0	1480	0	0	1738	0	0	1457	0
Flt Permitted					0.955			0.999			0.998	
Satd. Flow (perm)	0	1471	0	0	1480	0	0	1738	0	0	1457	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		147.7			143.6			602.2			118.0	
Travel Time (s)		10.6			10.3			43.4			8.5	
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
Heavy Vehicles (%)	0%	0%	13%	25%	0%	0%	0%	7%	15%	50%	31%	0%
Adj. Flow (vph)	0	0	9	28	1	1	7	247	48	2	64	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	30	0	0	302	0	0	66	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.0%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2030
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	26	1	1	6	227	44	2	59	0
Future Volume (Veh/h)	0	0	8	26	1	1	6	227	44	2	59	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	9	28	1	1	7	247	48	2	64	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	354	377	64	362	353	271	64			295		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	354	377	64	362	353	271	64			295		
tC, single (s)	7.1	6.5	6.3	7.3	6.5	6.2	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.7	4.0	3.3	2.2			2.7		
p0 queue free %	100	100	99	95	100	100	100			100		
cM capacity (veh/h)	600	554	970	546	572	773	1551			1037		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	30	302	66								
Volume Left	0	28	7	2								
Volume Right	9	1	48	0								
cSH	970	552	1551	1037								
Volume to Capacity	0.01	0.05	0.00	0.00								
Queue Length 95th (m)	0.2	1.3	0.1	0.0								
Control Delay (s)	8.7	11.9	0.2	0.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	8.7	11.9	0.2	0.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			32.0%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2035
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	600	511	11	396	736
Future Volume (vph)	11	600	511	11	396	736
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.997			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1541	3277	0	1772	3476
Flt Permitted	0.950				0.345	
Satd. Flow (perm)	1825	1541	3277	0	643	3476
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		460	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	11%	13%	3%	5%
Adj. Flow (vph)	12	652	555	12	430	800
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	652	567	0	430	800
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2035
AM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	5	5			8	
Detector Phase	5	5	4		3	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0
Total Split (s)	38.0	38.0	40.0		22.0	62.0
Total Split (%)	38.0%	38.0%	40.0%		22.0%	62.0%
Maximum Green (s)	32.0	32.0	34.0		18.0	56.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	9.0	9.0	22.0			22.0
Flash Dont Walk (s)	12.0	12.0	12.0			12.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	21.0	21.0	34.7		55.5	53.5
Actuated g/C Ratio	0.24	0.24	0.40		0.64	0.62
v/c Ratio	0.03	0.90	0.43		0.71	0.37
Control Delay	23.9	26.7	22.4		16.8	10.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	23.9	26.7	22.4		16.8	10.1
LOS	C	C	C		B	B
Approach Delay	26.7		22.4			12.5
Approach LOS	C		C			B

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 86.7

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 18.6

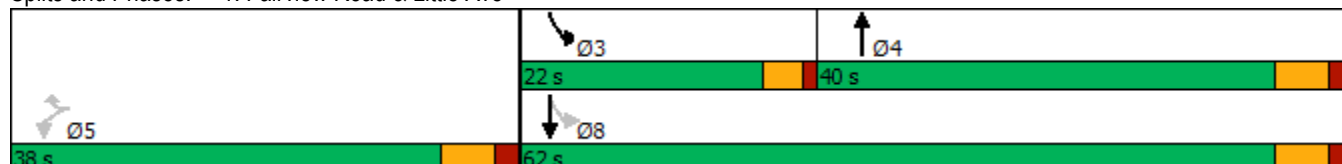
Intersection LOS: B

Intersection Capacity Utilization 75.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

FT2035

AM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	12	652	567	430	800
v/c Ratio	0.03	0.90	0.43	0.71	0.37
Control Delay	23.9	26.7	22.4	16.8	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	26.7	22.4	16.8	10.1
Queue Length 50th (m)	1.5	32.5	36.3	30.6	31.7
Queue Length 95th (m)	5.5	#89.7	61.5	64.3	56.8
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0			50.0	
Base Capacity (vph)	687	867	1312	651	2291
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.02	0.75	0.43	0.66	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Fairview Road & Little Ave

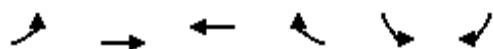
FT2035

AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	600	511	11	396	736
Future Volume (vph)	11	600	511	11	396	736
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1541	3277		1772	3476
Flt Permitted	0.95	1.00	1.00		0.35	1.00
Satd. Flow (perm)	1825	1541	3277		644	3476
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	652	555	12	430	800
RTOR Reduction (vph)	0	348	1	0	0	0
Lane Group Flow (vph)	12	304	566	0	430	800
Heavy Vehicles (%)	0%	6%	11%	13%	3%	5%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	21.0	21.0	34.8		53.5	53.5
Effective Green, g (s)	21.0	21.0	34.8		53.5	53.5
Actuated g/C Ratio	0.24	0.24	0.40		0.62	0.62
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	443	374	1318		590	2149
v/s Ratio Prot			0.17		c0.12	0.23
v/s Ratio Perm	0.01	c0.20			c0.33	
v/c Ratio	0.03	0.81	0.43		0.73	0.37
Uniform Delay, d1	25.0	30.9	18.7		9.1	8.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	12.6	1.0		4.5	0.1
Delay (s)	25.0	43.5	19.7		13.6	8.3
Level of Service	C	D	B		B	A
Approach Delay (s)	43.1		19.7			10.2
Approach LOS	D		B			B
Intersection Summary						
HCM 2000 Control Delay			21.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			86.5		Sum of lost time (s)	16.0
Intersection Capacity Utilization			75.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

FT2035
AM Peak Hour

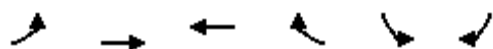


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	532	832	638	165	209	331
Future Volume (vph)	532	832	638	165	209	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				0.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3411	3411	1512	1722	1601
Flt Permitted	0.286				0.950	
Satd. Flow (perm)	539	3411	3411	1512	1722	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				179		360
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	7%	8%	6%	2%
Adj. Flow (vph)	578	904	693	179	227	360
Shared Lane Traffic (%)						
Lane Group Flow (vph)	578	904	693	179	227	360
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings

4: Big Bay Point Road & Fairview Road

FT2035
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	24.0	70.0	46.0	46.0	38.0	38.0
Total Split (%)	22.2%	64.8%	42.6%	42.6%	35.2%	35.2%
Maximum Green (s)	20.0	64.0	40.0	40.0	32.0	32.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	66.2	64.2	40.1	40.1	17.6	17.6
Actuated g/C Ratio	0.71	0.68	0.43	0.43	0.19	0.19
v/c Ratio	0.89	0.39	0.48	0.24	0.70	0.61
Control Delay	29.4	7.6	21.4	3.9	47.6	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	7.6	21.4	3.9	47.6	8.3
LOS	C	A	C	A	D	A
Approach Delay		16.1	17.8		23.5	
Approach LOS		B	B		C	

Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 93.8

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 18.1

Intersection LOS: B

Intersection Capacity Utilization 87.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road



4: Big Bay Point Road & Fairview Road

AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	578	904	693	179	227	360
v/c Ratio	0.89	0.39	0.48	0.24	0.70	0.61
Control Delay	29.4	7.6	21.4	3.9	47.6	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	7.6	21.4	3.9	47.6	8.3
Queue Length 50th (m)	44.3	32.1	45.8	0.0	38.7	0.0
Queue Length 95th (m)	#128.0	55.5	70.7	12.6	61.9	21.4
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	647	2333	1458	748	588	784
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.39	0.48	0.24	0.39	0.46

Intersection Summary

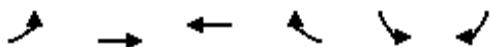
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

FT2035
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	532	832	638	165	209	331
Future Volume (vph)	532	832	638	165	209	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3411	3411	1512	1722	1601
Flt Permitted	0.29	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	538	3411	3411	1512	1722	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	578	904	693	179	227	360
RTOR Reduction (vph)	0	0	0	102	0	292
Lane Group Flow (vph)	578	904	693	77	227	68
Heavy Vehicles (%)	2%	7%	7%	8%	6%	2%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	64.2	64.2	40.1	40.1	17.6	17.6
Effective Green, g (s)	64.2	64.2	40.1	40.1	17.6	17.6
Actuated g/C Ratio	0.68	0.68	0.43	0.43	0.19	0.19
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	636	2334	1458	646	323	300
v/s Ratio Prot	c0.19	0.27	0.20			
v/s Ratio Perm	c0.43			0.05	c0.13	0.04
v/c Ratio	0.91	0.39	0.48	0.12	0.70	0.23
Uniform Delay, d1	11.6	6.4	19.3	16.2	35.7	32.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.8	0.1	0.2	0.1	6.8	0.4
Delay (s)	28.4	6.5	19.5	16.3	42.4	32.7
Level of Service	C	A	B	B	D	C
Approach Delay (s)		15.0	18.9		36.5	
Approach LOS		B	B		D	
Intersection Summary						
HCM 2000 Control Delay			20.4		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90			
Actuated Cycle Length (s)			93.8		Sum of lost time (s)	16.0
Intersection Capacity Utilization			87.7%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2035
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	580	225	237	557	83	89	421	57	108	426	26
Future Volume (vph)	86	580	225	237	557	83	89	421	57	108	426	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1547	3476	1526	1772	3411	1256	1460	3122	0	1225	3318	1396
Flt Permitted	0.282			0.282			0.421			0.332		
Satd. Flow (perm)	459	3476	1526	526	3411	1256	647	3122	0	428	3318	1396
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			243			92		12				92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
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
Heavy Vehicles (%)	18%	5%	7%	3%	7%	30%	25%	16%	6%	49%	10%	17%
Adj. Flow (vph)	93	630	245	258	605	90	97	458	62	117	463	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	630	245	258	605	90	97	520	0	117	463	28
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
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
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
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
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
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
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
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
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2035
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0		7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0		11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0		19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%		14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	Max	None	None	None	None	None	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0			25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	57.9	40.9	40.9	56.1	40.0	40.0	52.4	40.0		56.3	42.0	42.0
Actuated g/C Ratio	0.45	0.32	0.32	0.44	0.31	0.31	0.41	0.31		0.44	0.33	0.33
v/c Ratio	0.28	0.56	0.37	0.70	0.56	0.20	0.29	0.53		0.44	0.42	0.05
Control Delay	21.3	38.8	5.9	32.3	39.2	7.2	22.5	37.7		26.1	35.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	21.3	38.8	5.9	32.3	39.2	7.2	22.5	37.7		26.1	35.1	0.2
LOS	C	D	A	C	D	A	C	D		C	D	A
Approach Delay		28.8			34.3			35.3			31.8	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 127.4

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 32.3

Intersection LOS: C

Intersection Capacity Utilization 102.4%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

 Ø1	 Ø2	 Ø3	 Ø4
19 s	46 s	19 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
19 s	46 s	19 s	46 s

5: Bayview Drive & Big Bay Point Road

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	93	630	245	258	605	90	97	520	117	463	28
v/c Ratio	0.28	0.56	0.37	0.70	0.56	0.20	0.29	0.53	0.44	0.42	0.05
Control Delay	21.3	38.8	5.9	32.3	39.2	7.2	22.5	37.7	26.1	35.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	38.8	5.9	32.3	39.2	7.2	22.5	37.7	26.1	35.1	0.2
Queue Length 50th (m)	12.7	70.1	0.4	38.9	67.0	0.0	13.8	55.4	17.2	47.4	0.0
Queue Length 95th (m)	23.4	91.0	18.8	59.5	87.6	11.8	24.6	74.3	29.9	65.4	0.0
Internal Link Dist (m)	461.6				675.0		210.9		149.0		
Turn Bay Length (m)	105.0		55.0	105.0		55.0	105.0		105.0		55.0
Base Capacity (vph)	336	1116	654	382	1071	457	382	988	287	1092	521
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.56	0.37	0.68	0.56	0.20	0.25	0.53	0.41	0.42	0.05
Intersection Summary											

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FT2035
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	86	580	225	237	557	83	89	421	57	108	426	26
Future Volume (vph)	86	580	225	237	557	83	89	421	57	108	426	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1547	3476	1526	1772	3411	1256	1460	3122		1225	3318	1396
Flt Permitted	0.28	1.00	1.00	0.28	1.00	1.00	0.42	1.00		0.33	1.00	1.00
Satd. Flow (perm)	458	3476	1526	527	3411	1256	646	3122		428	3318	1396
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	630	245	258	605	90	97	458	62	117	463	28
RTOR Reduction (vph)	0	0	165	0	0	62	0	8	0	0	0	19
Lane Group Flow (vph)	93	630	80	258	605	28	97	512	0	117	463	9
Heavy Vehicles (%)	18%	5%	7%	3%	7%	30%	25%	16%	6%	49%	10%	17%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	55.9	40.9	40.9	54.1	40.0	40.0	50.4	40.0		54.4	42.0	42.0
Effective Green, g (s)	55.9	40.9	40.9	54.1	40.0	40.0	50.4	40.0		54.4	42.0	42.0
Actuated g/C Ratio	0.44	0.32	0.32	0.42	0.31	0.31	0.40	0.31		0.43	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
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
Lane Grp Cap (vph)	329	1115	489	361	1070	394	322	980		260	1093	460
v/s Ratio Prot	0.03	0.18		c0.08	0.18		0.02	c0.16		c0.04	0.14	
v/s Ratio Perm	0.09		0.05	c0.22		0.02	0.09			0.15		0.01
v/c Ratio	0.28	0.57	0.16	0.71	0.57	0.07	0.30	0.52		0.45	0.42	0.02
Uniform Delay, d1	22.2	35.9	31.0	25.6	36.5	30.7	25.1	35.9		23.8	33.3	28.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.7	0.2	6.6	0.7	0.1	0.5	0.5		1.2	0.3	0.0
Delay (s)	22.7	36.5	31.2	32.2	37.1	30.7	25.6	36.4		25.0	33.5	28.8
Level of Service	C	D	C	C	D	C	C	D		C	C	C
Approach Delay (s)		33.8			35.2			34.7			31.7	
Approach LOS		C			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			34.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			127.4			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			102.4%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2035
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	598	182	215	1125	67	40	121	109	17	45	99
Future Volume (vph)	283	598	182	215	1125	67	40	121	109	17	45	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.992			0.946			0.917	
Flt Protected	0.950			0.950				0.993			0.995	
Satd. Flow (prot)	1722	3290	0	1789	3454	0	0	1639	0	0	1393	0
Flt Permitted	0.079			0.303				0.932			0.952	
Satd. Flow (perm)	143	3290	0	571	3454	0	0	1538	0	0	1333	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			6			28			59	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			156.1			212.7			602.2	
Travel Time (s)		50.3			11.2			15.3			43.4	
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
Heavy Vehicles (%)	6%	8%	4%	2%	5%	2%	9%	16%	4%	13%	39%	22%
Adj. Flow (vph)	308	650	198	234	1223	73	43	132	118	18	49	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	308	848	0	234	1296	0	0	293	0	0	175	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2035
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		11.0	39.0		26.0	26.0	
Total Split (s)	28.0	65.0		16.0	53.0		11.0	39.0		28.0	28.0	
Total Split (%)	23.3%	54.2%		13.3%	44.2%		9.2%	32.5%		23.3%	23.3%	
Maximum Green (s)	24.0	59.0		12.0	47.0		7.0	33.0		22.0	22.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None		None	None		None	Max		Max	Max	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	73.2	56.2		59.7	46.7			33.1			33.1	
Actuated g/C Ratio	0.63	0.48		0.51	0.40			0.28			0.28	
v/c Ratio	0.83	0.53		0.57	0.93			0.64			0.42	
Control Delay	49.4	20.9		16.8	46.8			41.1			26.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	49.4	20.9		16.8	46.8			41.1			26.3	
LOS	D	C		B	D			D			C	
Approach Delay		28.5			42.2			41.1			26.3	
Approach LOS		C			D			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 116.3

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 36.2

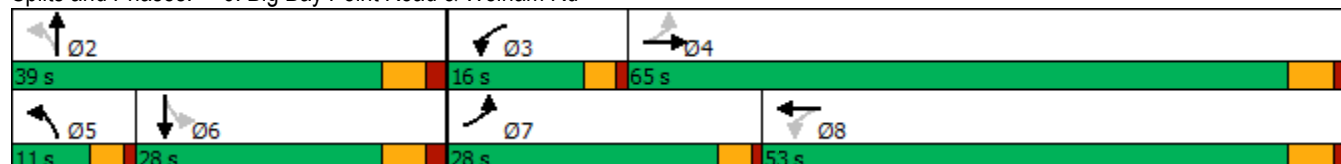
Intersection LOS: D

Intersection Capacity Utilization 89.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd



Queues
6: Big Bay Point Road & Welham Rd

FT2035
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	308	848	234	1296	293	175
v/c Ratio	0.83	0.53	0.57	0.93	0.64	0.42
Control Delay	49.4	20.9	16.8	46.8	41.1	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.4	20.9	16.8	46.8	41.1	26.3
Queue Length 50th (m)	51.8	65.3	21.0	151.6	54.9	21.7
Queue Length 95th (m)	#89.6	83.1	32.2	#201.0	86.1	43.0
Internal Link Dist (m)		675.0		132.1	188.7	578.2
Turn Bay Length (m)	40.0		40.0			
Base Capacity (vph)	416	1695	424	1401	457	421
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.50	0.55	0.93	0.64	0.42

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

6: Big Bay Point Road & Welham Rd

FT2035
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	598	182	215	1125	67	40	121	109	17	45	99
Future Volume (vph)	283	598	182	215	1125	67	40	121	109	17	45	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.96		1.00	0.99			0.95			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1722	3290		1789	3452			1637			1392	
Flt Permitted	0.08	1.00		0.30	1.00			0.93			0.95	
Satd. Flow (perm)	143	3290		571	3452			1538			1333	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	308	650	198	234	1223	73	43	132	118	18	49	108
RTOR Reduction (vph)	0	24	0	0	4	0	0	20	0	0	42	0
Lane Group Flow (vph)	308	824	0	234	1292	0	0	273	0	0	133	0
Heavy Vehicles (%)	6%	8%	4%	2%	5%	2%	9%	16%	4%	13%	39%	22%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	71.3	56.3		57.7	46.7			33.1			33.1	
Effective Green, g (s)	71.3	56.3		57.7	46.7			33.1			33.1	
Actuated g/C Ratio	0.61	0.48		0.50	0.40			0.28			0.28	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	367	1591		398	1384			437			379	
v/s Ratio Prot	c0.15	0.25		0.06	c0.37							
v/s Ratio Perm	0.37			0.24				c0.18			0.10	
v/c Ratio	0.84	0.52		0.59	0.93			0.62			0.35	
Uniform Delay, d1	34.2	20.7		17.1	33.4			36.2			33.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	15.4	0.3		2.2	11.7			2.8			2.5	
Delay (s)	49.5	21.0		19.4	45.1			39.0			35.6	
Level of Service	D	C		B	D			D			D	
Approach Delay (s)		28.6			41.1			39.0			35.6	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			36.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			116.4			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			89.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2035
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	8	27	1	1	6	227	46	2	59	0
Future Volume (vph)	0	0	8	27	1	1	6	227	46	2	59	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt	0.865				0.996		0.978					
Flt Protected					0.955		0.999				0.998	
Satd. Flow (prot)	0	1471	0	0	1481	0	0	1735	0	0	1457	0
Flt Permitted					0.955		0.999				0.998	
Satd. Flow (perm)	0	1471	0	0	1481	0	0	1735	0	0	1457	0
Link Speed (k/h)	50				50		50				50	
Link Distance (m)	147.7				143.6		602.2				118.0	
Travel Time (s)	10.6				10.3		43.4				8.5	
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
Heavy Vehicles (%)	0%	0%	13%	25%	0%	0%	0%	7%	15%	50%	31%	0%
Adj. Flow (vph)	0	0	9	29	1	1	7	247	50	2	64	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	31	0	0	304	0	0	66	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		0.0				0.0	
Link Offset(m)	0.0				0.0		0.0				0.0	
Crosswalk Width(m)	1.6				1.6		1.6				1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control	Stop				Stop		Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.2%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2035
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	27	1	1	6	227	46	2	59	0
Future Volume (Veh/h)	0	0	8	27	1	1	6	227	46	2	59	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	9	29	1	1	7	247	50	2	64	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	356	379	64	363	354	272	64			297		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	356	379	64	363	354	272	64			297		
tC, single (s)	7.1	6.5	6.3	7.3	6.5	6.2	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.7	4.0	3.3	2.2			2.7		
p0 queue free %	100	100	99	95	100	100	100			100		
cM capacity (veh/h)	599	553	970	545	571	772	1551			1035		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	31	304	66								
Volume Left	0	29	7	2								
Volume Right	9	1	50	0								
cSH	970	551	1551	1035								
Volume to Capacity	0.01	0.06	0.00	0.00								
Queue Length 95th (m)	0.2	1.4	0.1	0.0								
Control Delay (s)	8.7	11.9	0.2	0.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	8.7	11.9	0.2	0.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			32.2%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

EX 2023
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	567	799	13	461	631
Future Volume (vph)	16	567	799	13	461	631
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	0.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1570	3472	0	1761	1764
Flt Permitted	0.950				0.195	
Satd. Flow (perm)	1825	1570	3472	0	361	1764
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		429	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Adj. Flow (vph)	17	591	832	14	480	657
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	591	846	0	480	657
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.03
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

EX 2023
PM Peak Hour

												
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT						
Protected Phases			4		3	8						
Permitted Phases	5	5			8							
Detector Phase	5	5	4		3	8						
Switch Phase												
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0						
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0						
Total Split (s)	36.0	36.0	40.0		24.0	64.0						
Total Split (%)	36.0%	36.0%	40.0%		24.0%	64.0%						
Maximum Green (s)	30.0	30.0	34.0		20.0	58.0						
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0						
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0						
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0						
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0						
Lead/Lag			Lag		Lead							
Lead-Lag Optimize?			Yes		Yes							
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0						
Recall Mode	None	None	Max		None	None						
Walk Time (s)	9.0	9.0	22.0			22.0						
Flash Dont Walk (s)	12.0	12.0	12.0			12.0						
Pedestrian Calls (#/hr)	0	0	0			0						
Act Effect Green (s)	18.3	18.3	34.3		60.4	58.4						
Actuated g/C Ratio	0.21	0.21	0.39		0.68	0.66						
v/c Ratio	0.05	0.89	0.63		0.85	0.57						
Control Delay	26.4	26.1	26.0		31.8	12.3						
Queue Delay	0.0	0.0	0.0		0.0	0.0						
Total Delay	26.4	26.1	26.0		31.8	12.3						
LOS	C	C	C		C	B						
Approach Delay	26.1		26.0			20.6						
Approach LOS	C		C			C						

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 88.8

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 23.6

Intersection LOS: C

Intersection Capacity Utilization 75.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

EX 2023

PM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	17	591	846	480	657
v/c Ratio	0.05	0.89	0.63	0.85	0.57
Control Delay	26.4	26.1	26.0	31.8	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	26.1	26.0	31.8	12.3
Queue Length 50th (m)	2.3	26.4	59.0	43.9	52.2
Queue Length 95th (m)	7.2	72.0	96.1	#123.8	116.5
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0				
Base Capacity (vph)	621	817	1340	563	1160
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.72	0.63	0.85	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

1: Fairview Road & Little Ave

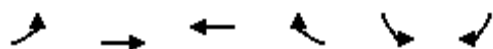
EX 2023

PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	567	799	13	461	631
Future Volume (vph)	16	567	799	13	461	631
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1570	3470		1761	1764
Flt Permitted	0.95	1.00	1.00		0.20	1.00
Satd. Flow (perm)	1825	1570	3470		362	1764
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	17	591	832	14	480	657
RTOR Reduction (vph)	0	340	1	0	0	0
Lane Group Flow (vph)	17	251	845	0	480	657
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	18.3	18.3	34.3		58.4	58.4
Effective Green, g (s)	18.3	18.3	34.3		58.4	58.4
Actuated g/C Ratio	0.21	0.21	0.39		0.66	0.66
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	376	323	1341		555	1161
v/s Ratio Prot			0.24		c0.20	0.37
v/s Ratio Perm	0.01	c0.16			c0.37	
v/c Ratio	0.05	0.78	0.63		0.86	0.57
Uniform Delay, d1	28.2	33.3	22.1		16.3	8.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	11.1	2.3		13.2	0.6
Delay (s)	28.3	44.3	24.3		29.6	8.9
Level of Service	C	D	C		C	A
Approach Delay (s)	43.9		24.3			17.6
Approach LOS	D		C			B
Intersection Summary						
HCM 2000 Control Delay			26.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			88.7		Sum of lost time (s)	16.0
Intersection Capacity Utilization			75.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

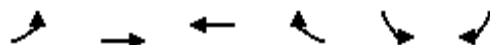
EX 2023
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	442	919	613	147	88	265
Future Volume (vph)	442	919	613	147	88	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				2.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3544	3579	1601	1755	1555
Flt Permitted	0.332				0.950	
Satd. Flow (perm)	625	3544	3579	1601	1755	1555
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				160		288
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	5%
Adj. Flow (vph)	480	999	666	160	96	288
Shared Lane Traffic (%)						
Lane Group Flow (vph)	480	999	666	160	96	288
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

EX 2023
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	16.0	62.0	46.0	46.0	46.0	46.0
Total Split (%)	14.8%	57.4%	42.6%	42.6%	42.6%	42.6%
Maximum Green (s)	12.0	56.0	40.0	40.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	58.0	56.0	40.0	40.0	10.8	10.8
Actuated g/C Ratio	0.74	0.71	0.51	0.51	0.14	0.14
v/c Ratio	0.75	0.40	0.37	0.18	0.40	0.62
Control Delay	13.2	5.3	12.6	2.5	36.3	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	5.3	12.6	2.5	36.3	10.8
LOS	B	A	B	A	D	B
Approach Delay		7.8	10.7		17.2	
Approach LOS		A	B		B	

Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 78.8

Natural Cycle: 95

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 10.0

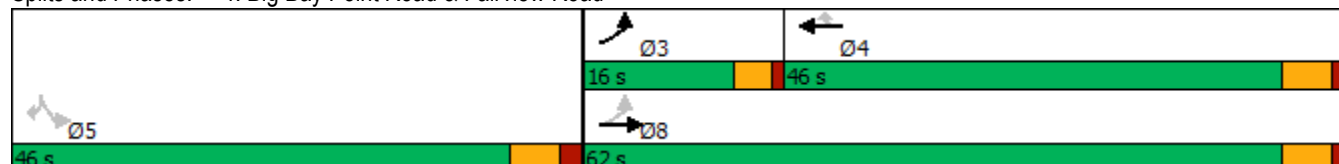
Intersection LOS: B

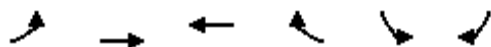
Intersection Capacity Utilization 79.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	480	999	666	160	96	288
v/c Ratio	0.75	0.40	0.37	0.18	0.40	0.62
Control Delay	13.2	5.3	12.6	2.5	36.3	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	5.3	12.6	2.5	36.3	10.8
Queue Length 50th (m)	19.4	24.7	29.1	0.0	13.3	0.0
Queue Length 95th (m)	#43.0	39.3	43.8	8.7	26.8	20.1
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	637	2518	1816	891	891	931
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.40	0.37	0.18	0.11	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

EX 2023
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	442	919	613	147	88	265
Future Volume (vph)	442	919	613	147	88	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3544	3579	1601	1755	1555
Flt Permitted	0.33	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	625	3544	3579	1601	1755	1555
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	480	999	666	160	96	288
RTOR Reduction (vph)	0	0	0	79	0	249
Lane Group Flow (vph)	480	999	666	81	96	39
Heavy Vehicles (%)	2%	3%	2%	2%	4%	5%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	56.0	56.0	40.0	40.0	10.8	10.8
Effective Green, g (s)	56.0	56.0	40.0	40.0	10.8	10.8
Actuated g/C Ratio	0.71	0.71	0.51	0.51	0.14	0.14
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	621	2518	1816	812	240	213
v/s Ratio Prot	c0.12	0.28	0.19			
v/s Ratio Perm	c0.43			0.05	c0.05	0.03
v/c Ratio	0.77	0.40	0.37	0.10	0.40	0.19
Uniform Delay, d1	5.5	4.6	11.7	10.1	31.0	30.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9	0.1	0.1	0.1	1.1	0.4
Delay (s)	11.4	4.7	11.9	10.1	32.1	30.5
Level of Service	B	A	B	B	C	C
Approach Delay (s)		6.9	11.5		30.9	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay			11.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			78.8		Sum of lost time (s)	16.0
Intersection Capacity Utilization			79.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

EX 2023
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	345	135	200	548	22	270	408	158	152	350	35
Future Volume (vph)	23	345	135	200	548	22	270	408	158	152	350	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	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)	1352	3544	1541	1789	3579	1555	1807	1830	1633	1738	3476	1484
Flt Permitted	0.291			0.497			0.443			0.269		
Satd. Flow (perm)	414	3544	1541	936	3579	1555	843	1830	1633	492	3476	1484
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142			92			127			92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	35%	3%	6%	2%	2%	5%	1%	5%	0%	5%	5%	10%
Adj. Flow (vph)	24	363	142	211	577	23	284	429	166	160	368	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	363	142	211	577	23	284	429	166	160	368	37
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
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)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

EX 2023
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (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
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
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	Max	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	58.3	41.5	41.5	55.4	40.0	40.0	58.8	42.3	42.3	54.2	40.0	40.0
Actuated g/C Ratio	0.45	0.32	0.32	0.43	0.31	0.31	0.45	0.33	0.33	0.42	0.31	0.31
v/c Ratio	0.08	0.32	0.24	0.43	0.52	0.04	0.58	0.72	0.27	0.50	0.34	0.07
Control Delay	19.5	34.7	6.2	23.9	39.0	0.1	27.6	46.9	10.7	26.1	35.8	0.3
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	19.5	34.7	6.2	23.9	39.0	0.1	27.6	46.9	10.7	26.1	35.8	0.3
LOS	B	C	A	C	D	A	C	D	B	C	D	A
Approach Delay		26.4			34.0			33.8			30.7	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 129.5

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 31.8

Intersection LOS: C

Intersection Capacity Utilization 109.4%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

 Ø1	 Ø2	 Ø3	 Ø4
19 s	46 s	19 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
19 s	46 s	19 s	46 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	24	363	142	211	577	23	284	429	166	160	368	37
v/c Ratio	0.08	0.32	0.24	0.43	0.52	0.04	0.58	0.72	0.27	0.50	0.34	0.07
Control Delay	19.5	34.7	6.2	23.9	39.0	0.1	27.6	46.9	10.7	26.1	35.8	0.3
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	19.5	34.7	6.2	23.9	39.0	0.1	27.6	46.9	10.7	26.1	35.8	0.3
Queue Length 50th (m)	3.3	37.6	0.0	31.8	64.2	0.0	44.8	96.3	6.9	23.4	38.4	0.0
Queue Length 95th (m)	8.2	51.2	14.8	48.5	82.2	0.0	65.6	138.4	23.9	37.4	52.1	0.0
Internal Link Dist (m)	461.6				675.0				210.9		149.0	
Turn Bay Length (m)	105.0			55.0	105.0			55.0	105.0			55.0
Base Capacity (vph)	295	1137	590	510	1105	544	494	598	619	360	1073	522
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	0.08	0.32	0.24	0.41	0.52	0.04	0.57	0.72	0.27	0.44	0.34	0.07
Intersection Summary												

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

EX 2023
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	345	135	200	548	22	270	408	158	152	350	35
Future Volume (vph)	23	345	135	200	548	22	270	408	158	152	350	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	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)	1352	3544	1541	1789	3579	1555	1807	1830	1633	1738	3476	1484
Flt Permitted	0.29	1.00	1.00	0.50	1.00	1.00	0.44	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	414	3544	1541	937	3579	1555	843	1830	1633	493	3476	1484
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	24	363	142	211	577	23	284	429	166	160	368	37
RTOR Reduction (vph)	0	0	96	0	0	16	0	0	86	0	0	26
Lane Group Flow (vph)	24	363	46	211	577	7	284	429	80	160	368	11
Heavy Vehicles (%)	35%	3%	6%	2%	2%	5%	1%	5%	0%	5%	5%	10%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	56.6	41.6	41.6	53.4	40.0	40.0	56.8	42.3	42.3	52.2	40.0	40.0
Effective Green, g (s)	56.6	41.6	41.6	53.4	40.0	40.0	56.8	42.3	42.3	52.2	40.0	40.0
Actuated g/C Ratio	0.44	0.32	0.32	0.41	0.31	0.31	0.44	0.33	0.33	0.40	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
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)	289	1138	495	474	1105	480	477	597	533	316	1073	458
v/s Ratio Prot	c0.01	0.10		c0.05	c0.16		c0.07	c0.23		0.05	0.11	
v/s Ratio Perm	0.03		0.03	0.14		0.00	0.19		0.05	0.16		0.01
v/c Ratio	0.08	0.32	0.09	0.45	0.52	0.01	0.60	0.72	0.15	0.51	0.34	0.02
Uniform Delay, d1	21.7	33.2	30.7	25.4	36.9	31.1	24.5	38.4	30.9	27.1	34.6	31.2
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	0.1	0.2	0.1	0.7	0.4	0.0	2.0	4.1	0.1	1.3	0.2	0.0
Delay (s)	21.8	33.4	30.8	26.1	37.3	31.1	26.5	42.5	31.0	28.4	34.8	31.2
Level of Service	C	C	C	C	D	C	C	D	C	C	C	C
Approach Delay (s)		32.2			34.2			35.2			32.7	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			33.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			129.5			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			109.4%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

EX 2023
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	668	81	97	628	51	135	57	308	38	57	115
Future Volume (vph)	63	668	81	97	628	51	135	57	308	38	57	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.989			0.917			0.926	
Flt Protected	0.950			0.950				0.987			0.991	
Satd. Flow (prot)	1534	3481	0	1690	3539	0	0	1691	0	0	1675	0
Flt Permitted	0.331			0.259				0.805			0.825	
Satd. Flow (perm)	534	3481	0	461	3539	0	0	1379	0	0	1394	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			9			79			49	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			98.1			153.3			601.6	
Travel Time (s)		50.3			7.1			11.0			43.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	19%	2%	13%	8%	2%	2%	3%	7%	2%	2%	6%	6%
Adj. Flow (vph)	64	682	83	99	641	52	138	58	314	39	58	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	765	0	99	693	0	0	510	0	0	214	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

EX 2023
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		16.0	39.0		26.0	26.0	
Total Split (s)	16.0	51.0		16.0	51.0		16.0	42.0		26.0	26.0	
Total Split (%)	14.7%	46.8%		14.7%	46.8%		14.7%	38.5%		23.9%	23.9%	
Maximum Green (s)	12.0	45.0		12.0	45.0		12.0	36.0		20.0	20.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	Max		None	None		None	Max		None	None	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	54.8	45.0		57.0	47.9			36.0			36.0	
Actuated g/C Ratio	0.52	0.43		0.54	0.45			0.34			0.34	
v/c Ratio	0.18	0.51		0.28	0.43			0.98			0.42	
Control Delay	11.8	23.4		12.9	21.0			64.5			23.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.8	23.4		12.9	21.0			64.5			23.6	
LOS	B	C		B	C			E			C	
Approach Delay		22.5			20.0			64.5			23.6	
Approach LOS		C			B			E			C	

Intersection Summary

Area Type: Other

Cycle Length: 109

Actuated Cycle Length: 105.5

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 30.9

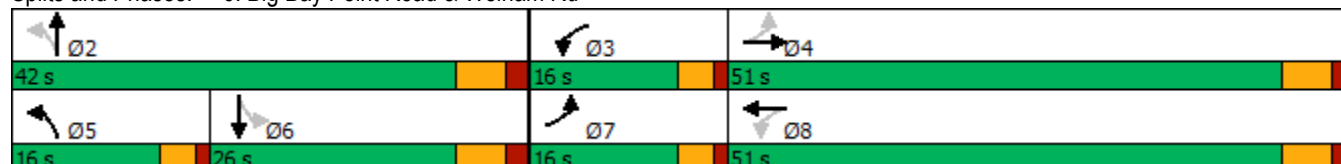
Intersection LOS: C

Intersection Capacity Utilization 102.8%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd





Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	64	765	99	693	510	214
v/c Ratio	0.18	0.51	0.28	0.43	0.98	0.42
Control Delay	11.8	23.4	12.9	21.0	64.5	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	23.4	12.9	21.0	64.5	23.6
Queue Length 50th (m)	5.6	57.8	8.9	50.5	89.8	25.3
Queue Length 95th (m)	11.6	78.0	16.5	68.1	#162.8	47.5
Internal Link Dist (m)		675.0		74.1	129.3	577.6
Turn Bay Length (m)	30.0		40.0			
Base Capacity (vph)	410	1493	398	1612	522	507
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.51	0.25	0.43	0.98	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: Big Bay Point Road & Welham Rd

EX 2023
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	668	81	97	628	51	135	57	308	38	57	115
Future Volume (vph)	63	668	81	97	628	51	135	57	308	38	57	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.92			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1534	3480		1690	3538			1690			1675	
Flt Permitted	0.33	1.00		0.26	1.00			0.81			0.83	
Satd. Flow (perm)	534	3480		462	3538			1379			1395	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	64	682	83	99	641	52	138	58	314	39	58	117
RTOR Reduction (vph)	0	9	0	0	5	0	0	52	0	0	32	0
Lane Group Flow (vph)	64	756	0	99	688	0	0	458	0	0	182	0
Heavy Vehicles (%)	19%	2%	13%	8%	2%	2%	3%	7%	2%	2%	6%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	52.2	45.8		56.4	47.9			36.0			36.0	
Effective Green, g (s)	52.2	45.8		56.4	47.9			36.0			36.0	
Actuated g/C Ratio	0.49	0.43		0.53	0.45			0.34			0.34	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	322	1499		343	1594			467			472	
v/s Ratio Prot	0.01	c0.22		c0.02	0.19							
v/s Ratio Perm	0.09			0.13				c0.33			0.13	
v/c Ratio	0.20	0.50		0.29	0.43			0.98			0.38	
Uniform Delay, d1	14.6	22.0		13.5	19.9			34.8			26.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	1.2		0.5	0.2			36.4			0.5	
Delay (s)	14.9	23.2		13.9	20.1			71.2			27.3	
Level of Service	B	C		B	C			E			C	
Approach Delay (s)		22.6			19.3			71.2			27.3	
Approach LOS		C			B			E			C	
Intersection Summary												
HCM 2000 Control Delay			32.5			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			106.3			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			102.8%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

EX 2023
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	8	45	1	0	5	8	26	2	7	1
Future Volume (vph)	2	0	8	45	1	0	5	8	26	2	7	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.890						0.910			0.988	
Flt Protected		0.991			0.953			0.993			0.991	
Satd. Flow (prot)	0	1661	0	0	1713	0	0	1593	0	0	1844	0
Flt Permitted		0.991			0.953			0.993			0.991	
Satd. Flow (perm)	0	1661	0	0	1713	0	0	1593	0	0	1844	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			104.3			601.6			96.7	
Travel Time (s)		8.0			7.5			43.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	7%	2%	2%	20%	25%	2%	2%	2%	2%
Adj. Flow (vph)	2	0	9	52	1	0	6	9	30	2	8	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	53	0	0	45	0	0	11	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	19.2%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

EX 2023
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	45	1	0	5	8	26	2	7	1
Future Volume (Veh/h)	2	0	8	45	1	0	5	8	26	2	7	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	2	0	9	52	1	0	6	9	30	2	8	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	49	64	8	58	49	24	9			39		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	49	64	8	58	49	24	9			39		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	99	94	100	100	100			100		
cM capacity (veh/h)	947	823	1073	915	838	1052	1501			1571		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	53	45	11								
Volume Left	2	52	6	2								
Volume Right	9	0	30	1								
cSH	1048	914	1501	1571								
Volume to Capacity	0.01	0.06	0.00	0.00								
Queue Length 95th (m)	0.2	1.4	0.1	0.0								
Control Delay (s)	8.5	9.2	1.0	1.3								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.5	9.2	1.0	1.3								
Approach LOS	A	A										
Intersection Summary												
Average Delay	5.3											
Intersection Capacity Utilization	19.2%			ICU Level of Service					A			
Analysis Period (min)	15											

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FB2025
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	595	815	13	473	644
Future Volume (vph)	16	595	815	13	473	644
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	0.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1570	3472	0	1761	1764
Flt Permitted	0.950				0.186	
Satd. Flow (perm)	1825	1570	3472	0	345	1764
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		473	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Adj. Flow (vph)	17	620	849	14	493	671
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	620	863	0	493	671
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.03
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FB2025
PM Peak Hour

												
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT						
Protected Phases			4		3	8						
Permitted Phases	5	5			8							
Detector Phase	5	5	4		3	8						
Switch Phase												
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0						
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0						
Total Split (s)	32.0	32.0	40.0		28.0	68.0						
Total Split (%)	32.0%	32.0%	40.0%		28.0%	68.0%						
Maximum Green (s)	26.0	26.0	34.0		24.0	62.0						
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0						
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0						
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0						
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0						
Lead/Lag			Lag		Lead							
Lead-Lag Optimize?			Yes		Yes							
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0						
Recall Mode	None	None	Max		None	None						
Walk Time (s)	9.0	9.0	22.0			22.0						
Flash Dont Walk (s)	12.0	12.0	12.0			12.0						
Pedestrian Calls (#/hr)	0	0	0			0						
Act Effect Green (s)	18.0	18.0	34.4		62.0	60.0						
Actuated g/C Ratio	0.20	0.20	0.38		0.69	0.67						
v/c Ratio	0.05	0.90	0.65		0.86	0.57						
Control Delay	28.6	25.9	27.4		32.4	11.7						
Queue Delay	0.0	0.0	0.0		0.0	0.0						
Total Delay	28.6	25.9	27.4		32.4	11.7						
LOS	C	C	C		C	B						
Approach Delay	26.0		27.4			20.5						
Approach LOS	C		C			C						

Intersection Summary

Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 90.1	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

FB2025

PM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	17	620	863	493	671
v/c Ratio	0.05	0.90	0.65	0.86	0.57
Control Delay	28.6	25.9	27.4	32.4	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	25.9	27.4	32.4	11.7
Queue Length 50th (m)	2.5	25.1	67.0	50.2	56.5
Queue Length 95th (m)	7.7	#88.5	98.5	#117.8	107.0
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0				
Base Capacity (vph)	533	793	1328	619	1229
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.78	0.65	0.80	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Fairview Road & Little Ave

FB2025

PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	595	815	13	473	644
Future Volume (vph)	16	595	815	13	473	644
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1570	3471		1761	1764
Flt Permitted	0.95	1.00	1.00		0.19	1.00
Satd. Flow (perm)	1825	1570	3471		344	1764
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	17	620	849	14	493	671
RTOR Reduction (vph)	0	378	1	0	0	0
Lane Group Flow (vph)	17	242	862	0	493	671
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	18.0	18.0	34.5		60.0	60.0
Effective Green, g (s)	18.0	18.0	34.5		60.0	60.0
Actuated g/C Ratio	0.20	0.20	0.38		0.67	0.67
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	365	314	1330		567	1176
v/s Ratio Prot			0.25		c0.21	0.38
v/s Ratio Perm	0.01	c0.15			c0.37	
v/c Ratio	0.05	0.77	0.65		0.87	0.57
Uniform Delay, d1	29.1	34.0	22.8		17.6	8.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	10.8	2.5		13.4	0.7
Delay (s)	29.1	44.8	25.2		31.0	8.7
Level of Service	C	D	C		C	A
Approach Delay (s)	44.4		25.2			18.2
Approach LOS	D		C			B

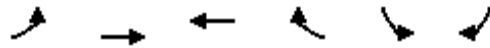
Intersection Summary

HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

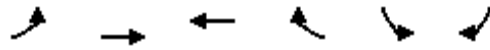
FB2025
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	471	982	665	163	92	270
Future Volume (vph)	471	982	665	163	92	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				2.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3544	3579	1601	1755	1555
Flt Permitted	0.286				0.950	
Satd. Flow (perm)	539	3544	3579	1601	1755	1555
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				177		293
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	5%
Adj. Flow (vph)	512	1067	723	177	100	293
Shared Lane Traffic (%)						
Lane Group Flow (vph)	512	1067	723	177	100	293
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

FB2025
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	24.0	70.0	46.0	46.0	38.0	38.0
Total Split (%)	22.2%	64.8%	42.6%	42.6%	35.2%	35.2%
Maximum Green (s)	20.0	64.0	40.0	40.0	32.0	32.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	66.0	64.0	40.0	40.0	11.2	11.2
Actuated g/C Ratio	0.76	0.73	0.46	0.46	0.13	0.13
v/c Ratio	0.74	0.41	0.44	0.21	0.44	0.64
Control Delay	13.6	5.1	17.3	3.1	41.7	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	5.1	17.3	3.1	41.7	11.7
LOS	B	A	B	A	D	B
Approach Delay		7.9	14.5		19.3	
Approach LOS		A	B		B	

Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 87.2

Natural Cycle: 95

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 11.5

Intersection LOS: B

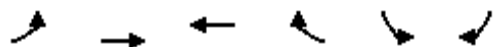
Intersection Capacity Utilization 81.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	512	1067	723	177	100	293
v/c Ratio	0.74	0.41	0.44	0.21	0.44	0.64
Control Delay	13.6	5.1	17.3	3.1	41.7	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	5.1	17.3	3.1	41.7	11.7
Queue Length 50th (m)	21.5	27.5	40.4	0.0	15.7	0.0
Queue Length 95th (m)	#62.3	44.2	59.2	10.7	30.4	21.6
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	694	2603	1643	830	644	756
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.41	0.44	0.21	0.16	0.39

Intersection Summary

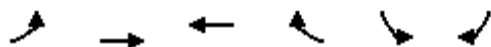
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

FB2025
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	471	982	665	163	92	270
Future Volume (vph)	471	982	665	163	92	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3544	3579	1601	1755	1555
Flt Permitted	0.29	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	539	3544	3579	1601	1755	1555
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	512	1067	723	177	100	293
RTOR Reduction (vph)	0	0	0	96	0	255
Lane Group Flow (vph)	512	1067	723	81	100	38
Heavy Vehicles (%)	2%	3%	2%	2%	4%	5%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	64.0	64.0	40.1	40.1	11.2	11.2
Effective Green, g (s)	64.0	64.0	40.1	40.1	11.2	11.2
Actuated g/C Ratio	0.73	0.73	0.46	0.46	0.13	0.13
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	680	2601	1645	736	225	199
v/s Ratio Prot	c0.17	0.30	0.20			
v/s Ratio Perm	c0.38			0.05	c0.06	0.02
v/c Ratio	0.75	0.41	0.44	0.11	0.44	0.19
Uniform Delay, d1	6.6	4.4	15.9	13.4	35.1	33.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.1	0.2	0.1	1.4	0.5
Delay (s)	11.4	4.5	16.1	13.5	36.5	34.4
Level of Service	B	A	B	B	D	C
Approach Delay (s)		6.7	15.6		34.9	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay			13.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			87.2		Sum of lost time (s)	16.0
Intersection Capacity Utilization			81.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FB2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	367	144	213	584	31	289	477	169	184	428	55
Future Volume (vph)	29	367	144	213	584	31	289	477	169	184	428	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	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)	1352	3544	1541	1789	3579	1555	1807	1830	1633	1738	3476	1484
Flt Permitted	0.267			0.472			0.384			0.159		
Satd. Flow (perm)	380	3544	1541	889	3579	1555	730	1830	1633	291	3476	1484
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			152			92			117			92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	35%	3%	6%	2%	2%	5%	1%	5%	0%	5%	5%	10%
Adj. Flow (vph)	31	386	152	224	615	33	304	502	178	194	451	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	386	152	224	615	33	304	502	178	194	451	58
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
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)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
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)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FB2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (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
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
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	Max	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	58.2	41.3	41.3	55.7	40.0	40.0	58.1	41.4	41.4	55.3	40.0	40.0
Actuated g/C Ratio	0.45	0.32	0.32	0.43	0.31	0.31	0.45	0.32	0.32	0.43	0.31	0.31
v/c Ratio	0.11	0.34	0.26	0.47	0.56	0.06	0.68	0.86	0.30	0.71	0.42	0.11
Control Delay	19.9	35.3	6.1	24.6	39.8	0.2	31.5	57.7	13.8	37.0	37.2	2.3
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	19.9	35.3	6.1	24.6	39.8	0.2	31.5	57.7	13.8	37.0	37.2	2.3
LOS	B	D	A	C	D	A	C	E	B	D	D	A
Approach Delay		26.6			34.4			41.7			34.3	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 129.7

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 35.2

Intersection LOS: D

Intersection Capacity Utilization 111.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

			
Ø1	Ø2	Ø3	Ø4
19 s	46 s	19 s	46 s
			
Ø5	Ø6	Ø7	Ø8
19 s	46 s	19 s	46 s



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	386	152	224	615	33	304	502	178	194	451	58
v/c Ratio	0.11	0.34	0.26	0.47	0.56	0.06	0.68	0.86	0.30	0.71	0.42	0.11
Control Delay	19.9	35.3	6.1	24.6	39.8	0.2	31.5	57.7	13.8	37.0	37.2	2.3
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	19.9	35.3	6.1	24.6	39.8	0.2	31.5	57.7	13.8	37.0	37.2	2.3
Queue Length 50th (m)	4.2	40.4	0.0	34.1	69.3	0.0	48.6	121.7	11.2	29.1	48.3	0.0
Queue Length 95th (m)	10.0	54.3	15.2	51.6	88.1	0.0	70.6	#183.3	29.4	47.1	63.8	3.6
Internal Link Dist (m)		461.6			675.0			210.9			149.0	
Turn Bay Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Base Capacity (vph)	282	1127	594	494	1104	543	451	584	600	295	1072	521
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	0.11	0.34	0.26	0.45	0.56	0.06	0.67	0.86	0.30	0.66	0.42	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FB2025
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	367	144	213	584	31	289	477	169	184	428	55
Future Volume (vph)	29	367	144	213	584	31	289	477	169	184	428	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	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)	1352	3544	1541	1789	3579	1555	1807	1830	1633	1738	3476	1484
Flt Permitted	0.27	1.00	1.00	0.47	1.00	1.00	0.38	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	380	3544	1541	889	3579	1555	731	1830	1633	290	3476	1484
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	31	386	152	224	615	33	304	502	178	194	451	58
RTOR Reduction (vph)	0	0	104	0	0	23	0	0	80	0	0	40
Lane Group Flow (vph)	31	386	48	224	615	10	304	502	98	194	451	18
Heavy Vehicles (%)	35%	3%	6%	2%	2%	5%	1%	5%	0%	5%	5%	10%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	56.3	41.3	41.3	53.7	40.0	40.0	56.1	41.4	41.4	53.3	40.0	40.0
Effective Green, g (s)	56.3	41.3	41.3	53.7	40.0	40.0	56.1	41.4	41.4	53.3	40.0	40.0
Actuated g/C Ratio	0.43	0.32	0.32	0.41	0.31	0.31	0.43	0.32	0.32	0.41	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
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)	277	1128	490	463	1103	479	438	584	521	267	1072	457
v/s Ratio Prot	0.01	0.11		c0.05	c0.17		c0.08	c0.27		0.07	0.13	
v/s Ratio Perm	0.04		0.03	0.15		0.01	0.22		0.06	0.22		0.01
v/c Ratio	0.11	0.34	0.10	0.48	0.56	0.02	0.69	0.86	0.19	0.73	0.42	0.04
Uniform Delay, d1	22.2	33.8	31.1	25.5	37.5	31.2	25.7	41.4	32.0	28.9	35.6	31.4
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	0.2	0.2	0.1	0.8	0.6	0.0	4.7	12.0	0.2	9.5	0.3	0.0
Delay (s)	22.3	34.0	31.2	26.3	38.1	31.2	30.4	53.5	32.2	38.3	35.9	31.4
Level of Service	C	C	C	C	D	C	C	D	C	D	D	C
Approach Delay (s)		32.6			34.8			42.5			36.2	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	129.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FB2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	732	86	103	677	54	138	58	314	39	58	117
Future Volume (vph)	67	732	86	103	677	54	138	58	314	39	58	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.989			0.917			0.926	
Flt Protected	0.950			0.950				0.987			0.991	
Satd. Flow (prot)	1534	3482	0	1690	3539	0	0	1691	0	0	1675	0
Flt Permitted	0.263			0.197				0.818			0.852	
Satd. Flow (perm)	425	3482	0	350	3539	0	0	1401	0	0	1440	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			8			85			52	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			98.1			153.3			601.6	
Travel Time (s)		50.3			7.1			11.0			43.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	19%	2%	13%	8%	2%	2%	3%	7%	2%	2%	6%	6%
Adj. Flow (vph)	68	747	88	105	691	55	141	59	320	40	59	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	835	0	105	746	0	0	520	0	0	218	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FB2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		16.0	39.0		26.0	26.0	
Total Split (s)	11.0	51.0		11.0	51.0		16.0	58.0		42.0	42.0	
Total Split (%)	9.2%	42.5%		9.2%	42.5%		13.3%	48.3%		35.0%	35.0%	
Maximum Green (s)	7.0	45.0		7.0	45.0		12.0	52.0		36.0	36.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	Max		None	None		None	Max		None	None	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	54.0	45.0		54.8	47.2			52.0			52.0	
Actuated g/C Ratio	0.45	0.38		0.46	0.39			0.43			0.43	
v/c Ratio	0.27	0.64		0.44	0.53			0.79			0.33	
Control Delay	19.7	33.0		23.4	30.0			34.8			18.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.7	33.0		23.4	30.0			34.8			18.5	
LOS	B	C		C	C			C			B	
Approach Delay		32.0			29.2			34.8			18.5	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 30.4

Intersection LOS: C

Intersection Capacity Utilization 103.6%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd

 Ø2		 Ø3	 Ø4
58 s		11 s	51 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	42 s	11 s	51 s

Queues
6: Big Bay Point Road & Welham Rd

FB2025
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	68	835	105	746	520	218
v/c Ratio	0.27	0.64	0.44	0.53	0.79	0.33
Control Delay	19.7	33.0	23.4	30.0	34.8	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	33.0	23.4	30.0	34.8	18.5
Queue Length 50th (m)	8.4	82.9	13.3	71.6	88.9	24.8
Queue Length 95th (m)	16.5	104.0	23.4	90.6	137.3	43.4
Internal Link Dist (m)		675.0		74.1	129.3	577.6
Turn Bay Length (m)	30.0		40.0			
Base Capacity (vph)	255	1313	237	1397	655	653
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.64	0.44	0.53	0.79	0.33
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

6: Big Bay Point Road & Welham Rd

FB2025
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	732	86	103	677	54	138	58	314	39	58	117
Future Volume (vph)	67	732	86	103	677	54	138	58	314	39	58	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.92			0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1534	3482		1690	3539			1690			1675	
Flt Permitted	0.26	1.00		0.20	1.00			0.82			0.85	
Satd. Flow (perm)	424	3482		351	3539			1401			1440	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	68	747	88	105	691	55	141	59	320	40	59	119
RTOR Reduction (vph)	0	7	0	0	5	0	0	48	0	0	30	0
Lane Group Flow (vph)	68	828	0	105	741	0	0	472	0	0	188	0
Heavy Vehicles (%)	19%	2%	13%	8%	2%	2%	3%	7%	2%	2%	6%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	51.4	45.8		54.2	47.2			52.0			52.0	
Effective Green, g (s)	51.4	45.8		54.2	47.2			52.0			52.0	
Actuated g/C Ratio	0.43	0.38		0.45	0.39			0.43			0.43	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	231	1320		235	1382			603			619	
v/s Ratio Prot	0.01	c0.24		c0.03	0.21							
v/s Ratio Perm	0.11			0.17				c0.34			0.13	
v/c Ratio	0.29	0.63		0.45	0.54			0.78			0.30	
Uniform Delay, d1	21.7	30.5		21.5	28.4			29.5			22.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.7	2.3		1.4	0.4			6.5			0.3	
Delay (s)	22.4	32.8		22.9	28.8			36.1			22.8	
Level of Service	C	C		C	C			D			C	
Approach Delay (s)		32.0			28.0			36.1			22.8	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			30.7			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			120.8			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			103.6%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

FB2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	8	46	1	0	5	8	27	2	7	1
Future Volume (vph)	2	0	8	46	1	0	5	8	27	2	7	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.890						0.909			0.988	
Flt Protected		0.991			0.953			0.994			0.991	
Satd. Flow (prot)	0	1661	0	0	1713	0	0	1594	0	0	1844	0
Flt Permitted		0.991			0.953			0.994			0.991	
Satd. Flow (perm)	0	1661	0	0	1713	0	0	1594	0	0	1844	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			104.3			601.6			96.7	
Travel Time (s)		8.0			7.5			43.3			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	7%	2%	2%	20%	25%	2%	2%	2%	2%
Adj. Flow (vph)	2	0	9	50	1	0	5	9	29	2	8	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	51	0	0	43	0	0	11	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	19.3%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

FB2025
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	46	1	0	5	8	27	2	7	1
Future Volume (Veh/h)	2	0	8	46	1	0	5	8	27	2	7	1
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	9	50	1	0	5	9	29	2	8	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	46	60	8	55	46	24	9			38		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	46	60	8	55	46	24	9			38		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	99	95	100	100	100			100		
cM capacity (veh/h)	951	827	1073	919	841	1053	1501			1572		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	51	43	11								
Volume Left	2	50	5	2								
Volume Right	9	0	29	1								
cSH	1049	918	1501	1572								
Volume to Capacity	0.01	0.06	0.00	0.00								
Queue Length 95th (m)	0.2	1.3	0.1	0.0								
Control Delay (s)	8.5	9.2	0.9	1.3								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.5	9.2	0.9	1.3								
Approach LOS	A	A										
Intersection Summary												
Average Delay	5.3											
Intersection Capacity Utilization	19.3%			ICU Level of Service					A			
Analysis Period (min)	15											

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FB2025 - Lane Planned Improvements

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	367	144	213	584	31	289	477	169	184	428	55
Future Volume (vph)	29	367	144	213	584	31	289	477	169	184	428	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.961				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1352	3544	1541	1789	3579	1555	1807	3383	0	1738	3476	1484
Flt Permitted	0.267			0.472			0.383			0.252		
Satd. Flow (perm)	380	3544	1541	889	3579	1555	729	3383	0	461	3476	1484
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			152			92			40			92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	35%	3%	6%	2%	2%	5%	1%	5%	0%	5%	5%	10%
Adj. Flow (vph)	31	386	152	224	615	33	304	502	178	194	451	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	386	152	224	615	33	304	680	0	194	451	58
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
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
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
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
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
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
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
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
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FB2025 - Lane Planned Improvements

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0		7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0		11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0		19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%		14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	Max	None	None	None	None	None	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0			25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	58.2	41.3	41.3	55.7	40.0	40.0	58.2	41.5		55.2	40.0	40.0
Actuated g/C Ratio	0.45	0.32	0.32	0.43	0.31	0.31	0.45	0.32		0.43	0.31	0.31
v/c Ratio	0.11	0.34	0.26	0.47	0.56	0.06	0.68	0.61		0.60	0.42	0.11
Control Delay	19.9	35.3	6.1	24.6	39.8	0.2	31.5	38.1		28.9	37.2	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.9	35.3	6.1	24.6	39.8	0.2	31.5	38.1		28.9	37.2	2.3
LOS	B	D	A	C	D	A	C	D		C	D	A
Approach Delay		26.6			34.4			36.1			32.0	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 129.7

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 33.0

Intersection LOS: C

Intersection Capacity Utilization 111.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

 Ø1	 Ø2	 Ø3	 Ø4
19 s	46 s	19 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
19 s	46 s	19 s	46 s

Queues

FB2025 - Lane Planned Improvements

5: Bayview Drive & Big Bay Point Road

PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	31	386	152	224	615	33	304	680	194	451	58
v/c Ratio	0.11	0.34	0.26	0.47	0.56	0.06	0.68	0.61	0.60	0.42	0.11
Control Delay	19.9	35.3	6.1	24.6	39.8	0.2	31.5	38.1	28.9	37.2	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	35.3	6.1	24.6	39.8	0.2	31.5	38.1	28.9	37.2	2.3
Queue Length 50th (m)	4.2	40.4	0.0	34.1	69.3	0.0	48.6	73.5	29.1	48.3	0.0
Queue Length 95th (m)	10.0	54.3	15.2	51.6	88.1	0.0	70.6	94.9	45.1	63.8	3.6
Internal Link Dist (m)	461.6			675.0			210.9			149.0	
Turn Bay Length (m)	105.0		55.0	105.0		55.0	105.0		105.0		55.0
Base Capacity (vph)	282	1127	594	494	1104	543	452	1108	350	1072	521
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.34	0.26	0.45	0.56	0.06	0.67	0.61	0.55	0.42	0.11
Intersection Summary											

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FB2025 - Lane Planned Improvements

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	367	144	213	584	31	289	477	169	184	428	55
Future Volume (vph)	29	367	144	213	584	31	289	477	169	184	428	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1352	3544	1541	1789	3579	1555	1807	3382		1738	3476	1484
Flt Permitted	0.27	1.00	1.00	0.47	1.00	1.00	0.38	1.00		0.25	1.00	1.00
Satd. Flow (perm)	380	3544	1541	889	3579	1555	729	3382		461	3476	1484
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	31	386	152	224	615	33	304	502	178	194	451	58
RTOR Reduction (vph)	0	0	104	0	0	23	0	27	0	0	0	40
Lane Group Flow (vph)	31	386	48	224	615	10	304	653	0	194	451	18
Heavy Vehicles (%)	35%	3%	6%	2%	2%	5%	1%	5%	0%	5%	5%	10%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	56.3	41.3	41.3	53.7	40.0	40.0	56.2	41.5		53.2	40.0	40.0
Effective Green, g (s)	56.3	41.3	41.3	53.7	40.0	40.0	56.2	41.5		53.2	40.0	40.0
Actuated g/C Ratio	0.43	0.32	0.32	0.41	0.31	0.31	0.43	0.32		0.41	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
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
Lane Grp Cap (vph)	277	1128	490	463	1103	479	438	1082		319	1072	457
v/s Ratio Prot	0.01	0.11		c0.05	c0.17		c0.08	0.19		0.06	0.13	
v/s Ratio Perm	0.04		0.03	0.15		0.01	c0.22			0.19		0.01
v/c Ratio	0.11	0.34	0.10	0.48	0.56	0.02	0.69	0.60		0.61	0.42	0.04
Uniform Delay, d1	22.2	33.8	31.1	25.5	37.5	31.2	25.6	37.2		26.5	35.6	31.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.1	0.8	0.6	0.0	4.7	1.0		3.3	0.3	0.0
Delay (s)	22.3	34.0	31.2	26.3	38.1	31.2	30.3	38.1		29.8	35.9	31.4
Level of Service	C	C	C	C	D	C	C	D		C	D	C
Approach Delay (s)		32.6			34.8			35.7			33.8	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			34.5									C
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			129.7							20.0		
Intersection Capacity Utilization			111.1%									H
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2025
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	595	924	13	473	676
Future Volume (vph)	16	595	924	13	473	676
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	0.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1570	3472	0	1761	1764
Flt Permitted	0.950				0.129	
Satd. Flow (perm)	1825	1570	3472	0	239	1764
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		465	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Adj. Flow (vph)	17	620	963	14	493	704
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	620	977	0	493	704
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.03
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2025
PM Peak Hour

	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Detector Phase	5	5	4		3	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0
Total Split (s)	32.0	32.0	40.0		28.0	68.0
Total Split (%)	32.0%	32.0%	40.0%		28.0%	68.0%
Maximum Green (s)	26.0	26.0	34.0		24.0	62.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	9.0	9.0	22.0			22.0
Flash Dont Walk (s)	12.0	12.0	12.0			12.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effect Green (s)	18.4	18.4	34.2		64.2	62.2
Actuated g/C Ratio	0.20	0.20	0.37		0.69	0.67
v/c Ratio	0.05	0.91	0.76		0.88	0.60
Control Delay	28.6	27.6	31.6		40.9	12.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	28.6	27.6	31.6		40.9	12.3
LOS	C	C	C		D	B
Approach Delay	27.6		31.6			24.0
Approach LOS	C		C			C

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 92.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 27.5

Intersection LOS: C

Intersection Capacity Utilization 76.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

FT2025

PM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	17	620	977	493	704
v/c Ratio	0.05	0.91	0.76	0.88	0.60
Control Delay	28.6	27.6	31.6	40.9	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	27.6	31.6	40.9	12.3
Queue Length 50th (m)	2.5	27.2	80.6	63.8	63.1
Queue Length 95th (m)	7.7	#91.0	115.4	#135.7	115.7
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0				
Base Capacity (vph)	514	776	1280	561	1185
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.80	0.76	0.88	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Fairview Road & Little Ave

FT2025

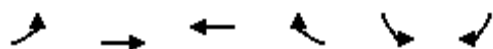
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	595	924	13	473	676
Future Volume (vph)	16	595	924	13	473	676
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1570	3471		1761	1764
Flt Permitted	0.95	1.00	1.00		0.13	1.00
Satd. Flow (perm)	1825	1570	3471		240	1764
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	17	620	962	14	493	704
RTOR Reduction (vph)	0	373	1	0	0	0
Lane Group Flow (vph)	17	247	976	0	493	704
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	18.4	18.4	34.2		62.2	62.2
Effective Green, g (s)	18.4	18.4	34.2		62.2	62.2
Actuated g/C Ratio	0.20	0.20	0.37		0.67	0.67
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	362	311	1281		555	1184
v/s Ratio Prot			0.28		0.23	0.40
v/s Ratio Perm	0.01	0.16			0.37	
v/c Ratio	0.05	0.80	0.76		0.89	0.59
Uniform Delay, d1	30.0	35.3	25.6		22.9	8.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	13.1	4.3		15.8	0.8
Delay (s)	30.1	48.4	29.9		38.7	9.1
Level of Service	C	D	C		D	A
Approach Delay (s)	47.9		29.9			21.3
Approach LOS	D		C			C
Intersection Summary						
HCM 2000 Control Delay			30.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90			
Actuated Cycle Length (s)			92.6		Sum of lost time (s)	16.0
Intersection Capacity Utilization			76.2%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings

4: Big Bay Point Road & Fairview Road

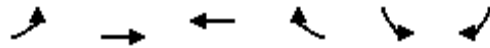
FT2025
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	471	989	686	272	124	270
Future Volume (vph)	471	989	686	272	124	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				2.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3579	3579	1601	1789	1585
Flt Permitted	0.272				0.950	
Satd. Flow (perm)	512	3579	3579	1601	1789	1585
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				296		293
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	512	1075	746	296	135	293
Shared Lane Traffic (%)						
Lane Group Flow (vph)	512	1075	746	296	135	293
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

FT2025
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	24.0	70.0	46.0	46.0	38.0	38.0
Total Split (%)	22.2%	64.8%	42.6%	42.6%	35.2%	35.2%
Maximum Green (s)	20.0	64.0	40.0	40.0	32.0	32.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag		Lag	
Lead-Lag Optimize?	Yes		Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	66.0	64.0	40.0	40.0	12.4	12.4
Actuated g/C Ratio	0.75	0.72	0.45	0.45	0.14	0.14
v/c Ratio	0.76	0.41	0.46	0.33	0.54	0.62
Control Delay	16.1	5.6	18.2	3.1	43.7	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	5.6	18.2	3.1	43.7	10.6
LOS	B	A	B	A	D	B
Approach Delay		9.0	13.9		21.0	
Approach LOS		A	B		C	

Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 88.4

Natural Cycle: 105

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 12.4

Intersection LOS: B

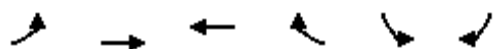
Intersection Capacity Utilization 81.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	512	1075	746	296	135	293
v/c Ratio	0.76	0.41	0.46	0.33	0.54	0.62
Control Delay	16.1	5.6	18.2	3.1	43.7	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	5.6	18.2	3.1	43.7	10.6
Queue Length 50th (m)	24.1	30.6	43.8	0.0	21.6	0.0
Queue Length 95th (m)	#81.1	49.3	64.2	13.9	38.8	21.0
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	671	2591	1619	886	647	760
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.41	0.46	0.33	0.21	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

FT2025
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	471	989	686	272	124	270
Future Volume (vph)	471	989	686	272	124	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3579	3579	1601	1789	1585
Flt Permitted	0.27	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	513	3579	3579	1601	1789	1585
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	512	1075	746	296	135	293
RTOR Reduction (vph)	0	0	0	162	0	252
Lane Group Flow (vph)	512	1075	746	134	135	41
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	64.0	64.0	40.0	40.0	12.4	12.4
Effective Green, g (s)	64.0	64.0	40.0	40.0	12.4	12.4
Actuated g/C Ratio	0.72	0.72	0.45	0.45	0.14	0.14
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	660	2591	1619	724	250	222
v/s Ratio Prot	c0.18	0.30	0.21			
v/s Ratio Perm	c0.39			0.08	c0.08	0.03
v/c Ratio	0.78	0.41	0.46	0.18	0.54	0.19
Uniform Delay, d1	7.6	4.8	16.7	14.5	35.3	33.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	0.1	0.2	0.1	2.4	0.4
Delay (s)	13.3	4.9	16.9	14.6	37.7	33.9
Level of Service	B	A	B	B	D	C
Approach Delay (s)		7.6	16.3		35.1	
Approach LOS		A	B		D	
Intersection Summary						
HCM 2000 Control Delay			14.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.77			
Actuated Cycle Length (s)			88.4		Sum of lost time (s)	16.0
Intersection Capacity Utilization			81.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	406	144	213	714	31	289	477	169	184	428	55
Future Volume (vph)	29	406	144	213	714	31	289	477	169	184	428	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.961				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1706	3614	1633	1825	3614	1601	1825	3432	0	1722	3476	1526
Flt Permitted	0.184			0.436			0.383			0.252		
Satd. Flow (perm)	330	3614	1633	838	3614	1601	736	3432	0	457	3476	1526
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			152			92		40				92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	1%	0%	0%	1%	2%	0%	3%	0%	6%	5%	7%
Adj. Flow (vph)	31	427	152	224	752	33	304	502	178	194	451	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	427	152	224	752	33	304	680	0	194	451	58
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
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
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
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
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
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
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
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
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0		7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0		11.0	46.0	46.0
Total Split (s)	19.0	46.0	46.0	19.0	46.0	46.0	19.0	46.0		19.0	46.0	46.0
Total Split (%)	14.6%	35.4%	35.4%	14.6%	35.4%	35.4%	14.6%	35.4%		14.6%	35.4%	35.4%
Maximum Green (s)	15.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	Max	None	None	None	None	None	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0			25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	58.2	41.3	41.3	55.7	40.0	40.0	58.1	41.4		55.2	40.0	40.0
Actuated g/C Ratio	0.45	0.32	0.32	0.43	0.31	0.31	0.45	0.32		0.43	0.31	0.31
v/c Ratio	0.10	0.37	0.24	0.48	0.67	0.06	0.67	0.61		0.60	0.42	0.11
Control Delay	19.6	35.7	6.0	24.8	42.8	0.2	31.1	37.9		29.2	37.2	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.6	35.7	6.0	24.8	42.8	0.2	31.1	37.9		29.2	37.2	2.3
LOS	B	D	A	C	D	A	C	D		C	D	A
Approach Delay		27.5			37.4			35.8			32.1	
Approach LOS		C			D			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 129.7

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 34.0

Intersection LOS: C

Intersection Capacity Utilization 111.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road

 Ø1	 Ø2	 Ø3	 Ø4
19 s	46 s	19 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
19 s	46 s	19 s	46 s

5: Bayview Drive & Big Bay Point Road

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	31	427	152	224	752	33	304	680	194	451	58
v/c Ratio	0.10	0.37	0.24	0.48	0.67	0.06	0.67	0.61	0.60	0.42	0.11
Control Delay	19.6	35.7	6.0	24.8	42.8	0.2	31.1	37.9	29.2	37.2	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	35.7	6.0	24.8	42.8	0.2	31.1	37.9	29.2	37.2	2.3
Queue Length 50th (m)	4.2	45.2	0.0	34.0	88.6	0.0	48.5	73.4	29.1	48.3	0.0
Queue Length 95th (m)	9.9	59.9	15.1	51.4	110.3	0.0	70.4	94.5	45.2	63.8	3.6
Internal Link Dist (m)	461.6				675.0		210.9		149.0		
Turn Bay Length (m)	105.0		55.0	105.0		55.0	105.0		105.0		55.0
Base Capacity (vph)	307	1152	623	482	1115	557	456	1123	347	1072	534
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.37	0.24	0.46	0.67	0.06	0.67	0.61	0.56	0.42	0.11
Intersection Summary											

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FT2025
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	29	406	144	213	714	31	289	477	169	184	428	55
Future Volume (vph)	29	406	144	213	714	31	289	477	169	184	428	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1706	3614	1633	1825	3614	1601	1825	3431		1722	3476	1526
Flt Permitted	0.18	1.00	1.00	0.44	1.00	1.00	0.38	1.00		0.25	1.00	1.00
Satd. Flow (perm)	330	3614	1633	838	3614	1601	737	3431		456	3476	1526
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	31	427	152	224	752	33	304	502	178	194	451	58
RTOR Reduction (vph)	0	0	104	0	0	23	0	27	0	0	0	40
Lane Group Flow (vph)	31	427	48	224	752	10	304	653	0	194	451	18
Heavy Vehicles (%)	7%	1%	0%	0%	1%	2%	0%	3%	0%	6%	5%	7%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	56.3	41.3	41.3	53.7	40.0	40.0	56.2	41.5		53.2	40.0	40.0
Effective Green, g (s)	56.3	41.3	41.3	53.7	40.0	40.0	56.2	41.5		53.2	40.0	40.0
Actuated g/C Ratio	0.43	0.32	0.32	0.41	0.31	0.31	0.43	0.32		0.41	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
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
Lane Grp Cap (vph)	302	1150	519	451	1114	493	442	1097		315	1072	470
v/s Ratio Prot	0.01	0.12		c0.05	c0.21		c0.08	0.19		0.06	0.13	
v/s Ratio Perm	0.03		0.03	0.15		0.01	c0.22			0.19		0.01
v/c Ratio	0.10	0.37	0.09	0.50	0.68	0.02	0.69	0.60		0.62	0.42	0.04
Uniform Delay, d1	22.9	34.2	31.0	25.5	39.2	31.2	25.5	37.0		26.5	35.6	31.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.1	0.9	1.6	0.0	4.4	0.9		3.6	0.3	0.0
Delay (s)	23.0	34.4	31.1	26.4	40.8	31.2	29.9	37.9		30.1	35.9	31.4
Level of Service	C	C	C	C	D	C	C	D		C	D	C
Approach Delay (s)		33.0			37.3			35.4			33.9	
Approach LOS		C			D			D			C	
Intersection Summary												
HCM 2000 Control Delay			35.2				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			129.7				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			111.1%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	732	86	103	677	64	138	77	314	70	108	247
Future Volume (vph)	106	732	86	103	677	64	138	77	314	70	108	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.987			0.920			0.921	
Flt Protected	0.950			0.950				0.987			0.992	
Satd. Flow (prot)	1560	3452	0	1690	3492	0	0	1670	0	0	1641	0
Flt Permitted	0.241			0.201				0.700			0.815	
Satd. Flow (perm)	396	3452	0	358	3492	0	0	1184	0	0	1348	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			9			77			60	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			98.1			153.3			601.6	
Travel Time (s)		50.3			7.1			11.0			43.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	17%	3%	13%	8%	3%	5%	3%	17%	2%	3%	14%	5%
Adj. Flow (vph)	108	747	88	105	691	65	141	79	320	71	110	252
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	835	0	105	756	0	0	540	0	0	433	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		16.0	39.0		26.0	26.0	
Total Split (s)	11.0	51.0		11.0	51.0		16.0	58.0		42.0	42.0	
Total Split (%)	9.2%	42.5%		9.2%	42.5%		13.3%	48.3%		35.0%	35.0%	
Maximum Green (s)	7.0	45.0		7.0	45.0		12.0	52.0		36.0	36.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	Max		None	None		None	Max		None	None	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	54.0	45.0		54.0	45.0			52.0			52.0	
Actuated g/C Ratio	0.45	0.38		0.45	0.38			0.43			0.43	
v/c Ratio	0.44	0.64		0.44	0.57			0.97			0.70	
Control Delay	23.5	33.1		23.3	31.6			61.1			30.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	23.5	33.1		23.3	31.6			61.1			30.8	
LOS	C	C		C	C			E			C	
Approach Delay		32.0			30.6			61.1			30.8	
Approach LOS		C			C			E			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 37.1

Intersection LOS: D

Intersection Capacity Utilization 106.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd

 Ø2	 Ø3	 Ø4
58 s	11 s	51 s
 Ø5	 Ø7	 Ø8
16 s	11 s	51 s
 Ø6		
42 s		

Queues
6: Big Bay Point Road & Welham Rd

FT2025
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	108	835	105	756	540	433
v/c Ratio	0.44	0.64	0.44	0.57	0.97	0.70
Control Delay	23.5	33.1	23.3	31.6	61.1	30.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	33.1	23.3	31.6	61.1	30.8
Queue Length 50th (m)	13.7	83.1	13.3	73.0	109.6	70.9
Queue Length 95th (m)	24.4	104.4	23.4	92.5	#183.8	110.0
Internal Link Dist (m)		675.0		74.1	129.3	577.6
Turn Bay Length (m)	30.0		40.0			
Base Capacity (vph)	246	1302	238	1315	556	618
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.64	0.44	0.57	0.97	0.70

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

6: Big Bay Point Road & Welham Rd

FT2025
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	732	86	103	677	64	138	77	314	70	108	247
Future Volume (vph)	106	732	86	103	677	64	138	77	314	70	108	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.92			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1560	3452		1690	3492			1670			1642	
Flt Permitted	0.24	1.00		0.20	1.00			0.70			0.81	
Satd. Flow (perm)	396	3452		357	3492			1185			1348	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	108	747	88	105	691	65	141	79	320	71	110	252
RTOR Reduction (vph)	0	8	0	0	6	0	0	44	0	0	34	0
Lane Group Flow (vph)	108	828	0	105	750	0	0	496	0	0	399	0
Heavy Vehicles (%)	17%	3%	13%	8%	3%	5%	3%	17%	2%	3%	14%	5%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	52.0	45.0		52.0	45.0			52.0			52.0	
Effective Green, g (s)	52.0	45.0		52.0	45.0			52.0			52.0	
Actuated g/C Ratio	0.43	0.38		0.43	0.38			0.43			0.43	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	239	1294		232	1309			513			584	
v/s Ratio Prot	0.03	c0.24		c0.03	0.21							
v/s Ratio Perm	0.17			0.17				c0.42			0.30	
v/c Ratio	0.45	0.64		0.45	0.57			0.97			0.68	
Uniform Delay, d1	21.9	30.8		22.2	29.9			33.2			27.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.4	2.4		1.4	0.6			31.2			3.3	
Delay (s)	23.2	33.3		23.6	30.5			64.4			30.7	
Level of Service	C	C		C	C			E			C	
Approach Delay (s)		32.1			29.6			64.4			30.7	
Approach LOS		C			C			E			C	
Intersection Summary												
HCM 2000 Control Delay			37.4			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			106.5%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2025
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	8	46	1	0	5	75	27	2	217	1
Future Volume (vph)	2	0	8	46	1	0	5	75	27	2	217	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.890						0.966			0.999	
Flt Protected		0.991			0.953			0.998				
Satd. Flow (prot)	0	1661	0	0	1713	0	0	1556	0	0	1762	0
Flt Permitted		0.991			0.953			0.998				
Satd. Flow (perm)	0	1661	0	0	1713	0	0	1556	0	0	1762	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			104.3			601.6			96.7	
Travel Time (s)		8.0			7.5			43.3			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	7%	2%	2%	20%	25%	2%	2%	9%	2%
Adj. Flow (vph)	2	0	9	50	1	0	5	82	29	2	236	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	51	0	0	116	0	0	239	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	28.1%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2025
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	46	1	0	5	75	27	2	217	1
Future Volume (Veh/h)	2	0	8	46	1	0	5	75	27	2	217	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	9	50	1	0	5	82	29	2	236	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	348	362	236	356	348	96	237			111		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	348	362	236	356	348	96	237			111		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	99	91	100	100	100			100		
cM capacity (veh/h)	604	563	802	581	573	960	1231			1479		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	51	116	239								
Volume Left	2	50	5	2								
Volume Right	9	0	29	1								
cSH	757	581	1231	1479								
Volume to Capacity	0.01	0.09	0.00	0.00								
Queue Length 95th (m)	0.3	2.2	0.1	0.0								
Control Delay (s)	9.8	11.8	0.4	0.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.8	11.8	0.4	0.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			28.1%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2030
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	630	966	14	497	709
Future Volume (vph)	17	630	966	14	497	709
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1570	3472	0	1761	3414
Flt Permitted	0.950				0.105	
Satd. Flow (perm)	1825	1570	3472	0	195	3414
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		473	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Adj. Flow (vph)	18	656	1006	15	518	739
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	656	1021	0	518	739
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						Yes
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2030
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Detector Phase	5	5	4		3	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0
Total Split (s)	31.0	31.0	40.0		29.0	69.0
Total Split (%)	31.0%	31.0%	40.0%		29.0%	69.0%
Maximum Green (s)	25.0	25.0	34.0		25.0	63.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	9.0	9.0	22.0			22.0
Flash Dont Walk (s)	12.0	12.0	12.0			12.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	19.9	19.9	34.1		65.3	63.3
Actuated g/C Ratio	0.21	0.21	0.36		0.69	0.66
v/c Ratio	0.05	0.93	0.82		0.95	0.33
Control Delay	29.1	32.3	35.3		54.8	8.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	29.1	32.3	35.3		54.8	8.0
LOS	C	C	D		D	A
Approach Delay	32.2		35.3			27.3
Approach LOS	C		D			C

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 95.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 31.2

Intersection LOS: C

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

FT2030

PM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	18	656	1021	518	739
v/c Ratio	0.05	0.93	0.82	0.95	0.33
Control Delay	29.1	32.3	35.3	54.8	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	32.3	35.3	54.8	8.0
Queue Length 50th (m)	2.7	35.6	95.4	82.8	32.0
Queue Length 95th (m)	8.1	#105.9	#125.8	#151.0	42.5
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0			50.0	
Base Capacity (vph)	481	762	1246	546	2268
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.86	0.82	0.95	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Fairview Road & Little Ave

FT2030

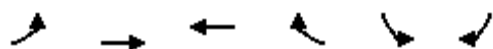
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	630	966	14	497	709
Future Volume (vph)	17	630	966	14	497	709
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1570	3471		1761	3414
Flt Permitted	0.95	1.00	1.00		0.10	1.00
Satd. Flow (perm)	1825	1570	3471		194	3414
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	18	656	1006	15	518	739
RTOR Reduction (vph)	0	374	1	0	0	0
Lane Group Flow (vph)	18	282	1020	0	518	739
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	19.9	19.9	34.2		63.3	63.3
Effective Green, g (s)	19.9	19.9	34.2		63.3	63.3
Actuated g/C Ratio	0.21	0.21	0.36		0.66	0.66
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	381	328	1246		542	2270
v/s Ratio Prot			0.29		0.25	0.22
v/s Ratio Perm	0.01	0.18			0.38	
v/c Ratio	0.05	0.86	0.82		0.96	0.33
Uniform Delay, d1	30.1	36.3	27.7		26.8	6.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	19.5	6.1		27.6	0.1
Delay (s)	30.1	55.8	33.7		54.4	6.9
Level of Service	C	E	C		D	A
Approach Delay (s)	55.1		33.7			26.5
Approach LOS	E		C			C
Intersection Summary						
HCM 2000 Control Delay			35.5		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.96			
Actuated Cycle Length (s)			95.2		Sum of lost time (s)	16.0
Intersection Capacity Utilization			77.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings

4: Big Bay Point Road & Fairview Road

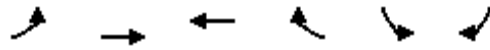
FT2030
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	551	1156	797	298	128	284
Future Volume (vph)	551	1156	797	298	128	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				2.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3579	3579	1601	1789	1585
Flt Permitted	0.188				0.950	
Satd. Flow (perm)	354	3579	3579	1601	1789	1585
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				324		309
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	599	1257	866	324	139	309
Shared Lane Traffic (%)						
Lane Group Flow (vph)	599	1257	866	324	139	309
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

FT2030
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	36.0	82.0	46.0	46.0	38.0	38.0
Total Split (%)	30.0%	68.3%	38.3%	38.3%	31.7%	31.7%
Maximum Green (s)	32.0	76.0	40.0	40.0	32.0	32.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	78.1	76.0	40.0	40.0	13.4	13.4
Actuated g/C Ratio	0.77	0.75	0.39	0.39	0.13	0.13
v/c Ratio	0.83	0.47	0.61	0.39	0.59	0.65
Control Delay	27.8	5.9	27.3	4.0	51.8	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	5.9	27.3	4.0	51.8	11.5
LOS	C	A	C	A	D	B
Approach Delay		13.0	20.9		24.0	
Approach LOS		B	C		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 101.5

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 17.1

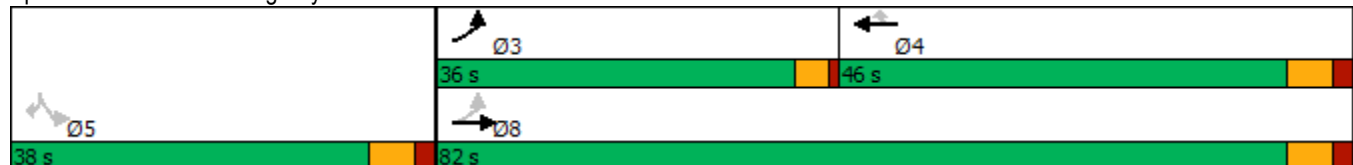
Intersection LOS: B

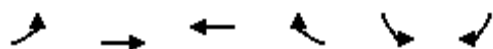
Intersection Capacity Utilization 85.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	599	1257	866	324	139	309
v/c Ratio	0.83	0.47	0.61	0.39	0.59	0.65
Control Delay	27.8	5.9	27.3	4.0	51.8	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	5.9	27.3	4.0	51.8	11.5
Queue Length 50th (m)	68.2	41.1	70.0	0.0	26.1	0.0
Queue Length 95th (m)	#140.8	64.8	97.2	16.8	45.0	23.2
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	724	2681	1411	827	564	711
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.47	0.61	0.39	0.25	0.43

Intersection Summary

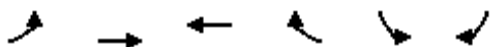
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

FT2030
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	551	1156	797	298	128	284
Future Volume (vph)	551	1156	797	298	128	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3579	3579	1601	1789	1585
Flt Permitted	0.19	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	353	3579	3579	1601	1789	1585
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	599	1257	866	324	139	309
RTOR Reduction (vph)	0	0	0	196	0	268
Lane Group Flow (vph)	599	1257	866	128	139	41
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	76.1	76.1	40.1	40.1	13.4	13.4
Effective Green, g (s)	76.1	76.1	40.1	40.1	13.4	13.4
Actuated g/C Ratio	0.75	0.75	0.40	0.40	0.13	0.13
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	717	2683	1413	632	236	209
v/s Ratio Prot	c0.26	0.35	0.24			
v/s Ratio Perm	c0.36			0.08	c0.08	0.03
v/c Ratio	0.84	0.47	0.61	0.20	0.59	0.20
Uniform Delay, d1	18.7	4.9	24.5	20.2	41.5	39.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.3	0.1	0.8	0.2	3.7	0.5
Delay (s)	27.1	5.0	25.3	20.3	45.2	39.7
Level of Service	C	A	C	C	D	D
Approach Delay (s)		12.1	24.0		41.4	
Approach LOS		B	C		D	
Intersection Summary						
HCM 2000 Control Delay			19.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.82			
Actuated Cycle Length (s)			101.5		Sum of lost time (s)	16.0
Intersection Capacity Utilization			85.5%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2030
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	469	168	249	813	35	341	557	200	213	496	62
Future Volume (vph)	34	469	168	249	813	35	341	557	200	213	496	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.960				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1706	3614	1633	1825	3614	1601	1825	3428	0	1722	3476	1526
Flt Permitted	0.178			0.331			0.319			0.201		
Satd. Flow (perm)	320	3614	1633	636	3614	1601	613	3428	0	364	3476	1526
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177			92		41				92
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	1%	0%	0%	1%	2%	0%	3%	0%	6%	5%	7%
Adj. Flow (vph)	36	494	177	262	856	37	359	586	211	224	522	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	494	177	262	856	37	359	797	0	224	522	65
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
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
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
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
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
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
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
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
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2030
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0		7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0		11.0	46.0	46.0
Total Split (s)	11.0	46.0	46.0	15.0	50.0	50.0	23.0	46.0		23.0	46.0	46.0
Total Split (%)	8.5%	35.4%	35.4%	11.5%	38.5%	38.5%	17.7%	35.4%		17.7%	35.4%	35.4%
Maximum Green (s)	7.0	40.0	40.0	11.0	44.0	44.0	19.0	40.0		19.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	Max	None	None	None	None	None	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0			25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	49.0	40.0	40.0	57.0	44.0	44.0	62.8	43.1		57.1	40.0	40.0
Actuated g/C Ratio	0.38	0.31	0.31	0.44	0.34	0.34	0.49	0.33		0.44	0.31	0.31
v/c Ratio	0.18	0.44	0.28	0.69	0.70	0.06	0.77	0.68		0.70	0.49	0.12
Control Delay	23.5	37.3	5.8	35.1	40.6	0.2	33.1	39.2		31.8	38.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	23.5	37.3	5.8	35.1	40.6	0.2	33.1	39.2		31.8	38.2	3.1
LOS	C	D	A	D	D	A	C	D		C	D	A
Approach Delay		28.7			38.0			37.3			33.6	
Approach LOS		C			D			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 129.2

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 35.2

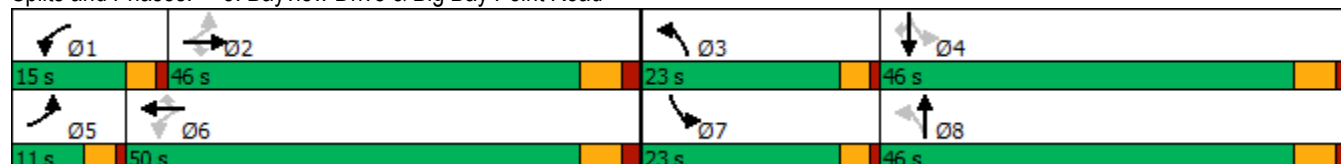
Intersection LOS: D

Intersection Capacity Utilization 116.0%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	36	494	177	262	856	37	359	797	224	522	65
v/c Ratio	0.18	0.44	0.28	0.69	0.70	0.06	0.77	0.68	0.70	0.49	0.12
Control Delay	23.5	37.3	5.8	35.1	40.6	0.2	33.1	39.2	31.8	38.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	37.3	5.8	35.1	40.6	0.2	33.1	39.2	31.8	38.2	3.1
Queue Length 50th (m)	5.2	53.4	0.0	43.3	99.7	0.0	55.7	87.4	32.1	57.4	0.0
Queue Length 95th (m)	11.7	69.4	16.1	63.9	122.5	0.0	#81.3	114.7	48.8	74.3	5.4
Internal Link Dist (m)	461.6			675.0			210.9			149.0	
Turn Bay Length (m)	105.0		55.0	105.0		55.0	105.0		105.0		55.0
Base Capacity (vph)	196	1119	628	382	1231	605	476	1169	371	1076	536
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.44	0.28	0.69	0.70	0.06	0.75	0.68	0.60	0.49	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FT2030
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	34	469	168	249	813	35	341	557	200	213	496	62
Future Volume (vph)	34	469	168	249	813	35	341	557	200	213	496	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1706	3614	1633	1825	3614	1601	1825	3430		1722	3476	1526
Flt Permitted	0.18	1.00	1.00	0.33	1.00	1.00	0.32	1.00		0.20	1.00	1.00
Satd. Flow (perm)	320	3614	1633	637	3614	1601	612	3430		364	3476	1526
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	36	494	177	262	856	37	359	586	211	224	522	65
RTOR Reduction (vph)	0	0	122	0	0	24	0	27	0	0	0	45
Lane Group Flow (vph)	36	494	55	262	856	13	359	770	0	224	522	20
Heavy Vehicles (%)	7%	1%	0%	0%	1%	2%	0%	3%	0%	6%	5%	7%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	47.0	40.0	40.0	55.0	44.0	44.0	61.3	43.1		55.1	40.0	40.0
Effective Green, g (s)	47.0	40.0	40.0	55.0	44.0	44.0	61.3	43.1		55.1	40.0	40.0
Actuated g/C Ratio	0.36	0.31	0.31	0.43	0.34	0.34	0.47	0.33		0.43	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
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
Lane Grp Cap (vph)	191	1118	505	372	1230	545	461	1144		313	1076	472
v/s Ratio Prot	0.01	0.14		c0.06	0.24		c0.11	0.22		0.08	0.15	
v/s Ratio Perm	0.06		0.03	c0.24		0.01	c0.26			0.22		0.01
v/c Ratio	0.19	0.44	0.11	0.70	0.70	0.02	0.78	0.67		0.72	0.49	0.04
Uniform Delay, d1	28.1	35.7	31.9	27.1	36.8	28.3	23.3	37.0		26.2	36.2	31.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3	0.1	6.0	1.7	0.0	8.1	1.6		7.6	0.3	0.0
Delay (s)	28.6	36.0	32.0	33.1	38.6	28.3	31.5	38.6		33.7	36.6	31.2
Level of Service	C	D	C	C	D	C	C	D		C	D	C
Approach Delay (s)		34.6			37.0			36.4			35.4	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			36.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			129.2			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			116.0%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2030
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	854	101	121	791	74	145	80	330	72	111	253
Future Volume (vph)	118	854	101	121	791	74	145	80	330	72	111	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.987			0.920			0.922	
Flt Protected	0.950			0.950				0.987			0.992	
Satd. Flow (prot)	1560	3452	0	1690	3492	0	0	1670	0	0	1643	0
Flt Permitted	0.178			0.138				0.695			0.804	
Satd. Flow (perm)	292	3452	0	245	3492	0	0	1176	0	0	1331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			9			78			59	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			98.1			153.3			601.6	
Travel Time (s)		50.3			7.1			11.0			43.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	17%	3%	13%	8%	3%	5%	3%	17%	2%	3%	14%	5%
Adj. Flow (vph)	120	871	103	123	807	76	148	82	337	73	113	258
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	974	0	123	883	0	0	567	0	0	444	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2030
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		16.0	39.0		26.0	26.0	
Total Split (s)	11.0	51.0		11.0	51.0		16.0	58.0		42.0	42.0	
Total Split (%)	9.2%	42.5%		9.2%	42.5%		13.3%	48.3%		35.0%	35.0%	
Maximum Green (s)	7.0	45.0		7.0	45.0		12.0	52.0		36.0	36.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	Max		None	None		None	Max		None	None	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	54.0	45.0		54.0	45.0			52.0			52.0	
Actuated g/C Ratio	0.45	0.38		0.45	0.38			0.43			0.43	
v/c Ratio	0.59	0.75		0.63	0.67			1.03			0.73	
Control Delay	30.4	36.5		33.7	34.1			74.8			32.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	30.4	36.5		33.7	34.1			74.8			32.4	
LOS	C	D		C	C			E			C	
Approach Delay		35.8			34.0			74.8			32.4	
Approach LOS		D			C			E			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 41.9

Intersection LOS: D

Intersection Capacity Utilization 109.8%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd

 Ø2		 Ø3	 Ø4
58 s		11 s	51 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	42 s	11 s	51 s

Queues
6: Big Bay Point Road & Welham Rd

FT2030
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	120	974	123	883	567	444
v/c Ratio	0.59	0.75	0.63	0.67	1.03	0.73
Control Delay	30.4	36.5	33.7	34.1	74.8	32.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	36.5	33.7	34.1	74.8	32.4
Queue Length 50th (m)	15.4	102.7	15.7	89.6	~131.1	74.5
Queue Length 95th (m)	26.7	127.3	#28.7	111.8	#199.3	116.1
Internal Link Dist (m)		675.0		74.1	129.3	577.6
Turn Bay Length (m)	30.0		40.0			
Base Capacity (vph)	205	1302	194	1315	553	610
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.75	0.63	0.67	1.03	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.

HCM Signalized Intersection Capacity Analysis

6: Big Bay Point Road & Welham Rd

FT2030
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	854	101	121	791	74	145	80	330	72	111	253
Future Volume (vph)	118	854	101	121	791	74	145	80	330	72	111	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.92			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1560	3452		1690	3492			1670			1642	
Flt Permitted	0.18	1.00		0.14	1.00			0.69			0.80	
Satd. Flow (perm)	292	3452		246	3492			1175			1331	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	120	871	103	123	807	76	148	82	337	73	113	258
RTOR Reduction (vph)	0	8	0	0	6	0	0	44	0	0	33	0
Lane Group Flow (vph)	120	967	0	123	877	0	0	523	0	0	411	0
Heavy Vehicles (%)	17%	3%	13%	8%	3%	5%	3%	17%	2%	3%	14%	5%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	52.0	45.0		52.0	45.0			52.0			52.0	
Effective Green, g (s)	52.0	45.0		52.0	45.0			52.0			52.0	
Actuated g/C Ratio	0.43	0.38		0.43	0.38			0.43			0.43	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	200	1294		190	1309			509			576	
v/s Ratio Prot	0.03	c0.28		c0.04	0.25							
v/s Ratio Perm	0.22			0.24				c0.44			0.31	
v/c Ratio	0.60	0.75		0.65	0.67			1.03			0.71	
Uniform Delay, d1	23.1	32.6		23.9	31.3			34.0			27.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	4.8	4.0		7.4	1.4			47.0			4.2	
Delay (s)	27.8	36.5		31.3	32.7			81.0			32.0	
Level of Service	C	D		C	C			F			C	
Approach Delay (s)		35.6			32.5			81.0			32.0	
Approach LOS		D			C			F			C	
Intersection Summary												
HCM 2000 Control Delay			42.4			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			109.8%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2030
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	8	48	1	0	5	76	28	2	218	1
Future Volume (vph)	2	0	8	48	1	0	5	76	28	2	218	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.890						0.966			0.999	
Flt Protected		0.991			0.953			0.998				
Satd. Flow (prot)	0	1661	0	0	1713	0	0	1557	0	0	1762	0
Flt Permitted		0.991			0.953			0.998				
Satd. Flow (perm)	0	1661	0	0	1713	0	0	1557	0	0	1762	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			104.3			601.6			96.7	
Travel Time (s)		8.0			7.5			43.3			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	7%	2%	2%	20%	25%	2%	2%	9%	2%
Adj. Flow (vph)	2	0	9	52	1	0	5	83	30	2	237	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	53	0	0	118	0	0	240	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	28.3%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2030
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	48	1	0	5	76	28	2	218	1
Future Volume (Veh/h)	2	0	8	48	1	0	5	76	28	2	218	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	9	52	1	0	5	83	30	2	237	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	350	364	238	358	350	98	238			113		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	350	364	238	358	350	98	238			113		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	99	91	100	100	100			100		
cM capacity (veh/h)	601	561	801	579	571	958	1230			1476		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	53	118	240								
Volume Left	2	52	5	2								
Volume Right	9	0	30	1								
cSH	756	579	1230	1476								
Volume to Capacity	0.01	0.09	0.00	0.00								
Queue Length 95th (m)	0.3	2.3	0.1	0.0								
Control Delay (s)	9.8	11.8	0.4	0.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.8	11.8	0.4	0.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			28.3%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2035
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	679	1023	15	531	754
Future Volume (vph)	19	679	1023	15	531	754
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	35.0				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1825	1570	3472	0	1761	3414
Flt Permitted	0.950				0.097	
Satd. Flow (perm)	1825	1570	3472	0	180	3414
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		519	1			
Link Speed (k/h)	50		50			50
Link Distance (m)	489.6		1407.2			78.1
Travel Time (s)	35.3		101.3			5.6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Adj. Flow (vph)	20	707	1066	16	553	785
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	707	1082	0	553	785
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						Yes
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.01
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA

Lanes, Volumes, Timings
1: Fairview Road & Little Ave

FT2035
PM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Detector Phase	5	5	4		3	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	34.0		7.0	34.0
Minimum Split (s)	27.0	27.0	40.0		11.0	40.0
Total Split (s)	40.0	40.0	43.0		37.0	80.0
Total Split (%)	33.3%	33.3%	35.8%		30.8%	66.7%
Maximum Green (s)	34.0	34.0	37.0		33.0	74.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	9.0	9.0	22.0			22.0
Flash Dont Walk (s)	12.0	12.0	12.0			12.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effect Green (s)	24.1	24.1	37.3		76.6	74.6
Actuated g/C Ratio	0.22	0.22	0.34		0.69	0.67
v/c Ratio	0.05	0.95	0.93		0.92	0.34
Control Delay	32.3	33.5	50.7		53.0	9.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	32.3	33.5	50.7		53.0	9.4
LOS	C	C	D		D	A
Approach Delay	33.4		50.7			27.4
Approach LOS	C		D			C

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 110.8

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 36.8

Intersection LOS: D

Intersection Capacity Utilization 80.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Fairview Road & Little Ave



Queues

1: Fairview Road & Little Ave

FT2035

PM Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	20	707	1082	553	785
v/c Ratio	0.05	0.95	0.93	0.92	0.34
Control Delay	32.3	33.5	50.7	53.0	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	33.5	50.7	53.0	9.4
Queue Length 50th (m)	3.4	46.0	122.8	102.8	37.7
Queue Length 95th (m)	9.4	#123.4	#182.3	#188.0	57.0
Internal Link Dist (m)	465.6		1383.2		54.1
Turn Bay Length (m)	15.0			50.0	
Base Capacity (vph)	564	843	1168	598	2297
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.84	0.93	0.92	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Fairview Road & Little Ave

FT2035

PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	679	1023	15	531	754
Future Volume (vph)	19	679	1023	15	531	754
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1825	1570	3471		1761	3414
Flt Permitted	0.95	1.00	1.00		0.10	1.00
Satd. Flow (perm)	1825	1570	3471		179	3414
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	20	707	1066	16	553	785
RTOR Reduction (vph)	0	406	1	0	0	0
Lane Group Flow (vph)	20	301	1081	0	553	785
Heavy Vehicles (%)	0%	4%	5%	0%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	4	9
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			4		3	8
Permitted Phases	5	5			8	
Actuated Green, G (s)	24.1	24.1	37.4		74.6	74.6
Effective Green, g (s)	24.1	24.1	37.4		74.6	74.6
Actuated g/C Ratio	0.22	0.22	0.34		0.67	0.67
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	397	341	1172		595	2300
v/s Ratio Prot			0.31		0.28	0.23
v/s Ratio Perm	0.01	0.19			0.35	
v/c Ratio	0.05	0.88	0.92		0.93	0.34
Uniform Delay, d1	34.2	41.9	35.3		30.7	7.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	22.5	13.3		20.9	0.1
Delay (s)	34.3	64.4	48.5		51.6	7.7
Level of Service	C	E	D		D	A
Approach Delay (s)	63.6		48.5			25.9
Approach LOS	E		D			C

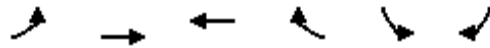
Intersection Summary

HCM 2000 Control Delay	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	110.7	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

Lanes, Volumes, Timings
4: Big Bay Point Road & Fairview Road

FT2035
PM Peak Hour

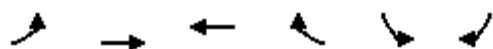


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	648	1356	931	330	134	303
Future Volume (vph)	648	1356	931	330	134	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			120.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	65.0				2.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	3579	3579	1601	1789	1585
Flt Permitted	0.129				0.950	
Satd. Flow (perm)	243	3579	3579	1601	1789	1585
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				359		329
Link Speed (k/h)		50	50		50	
Link Distance (m)		479.3	485.6		1407.2	
Travel Time (s)		34.5	35.0		101.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	704	1474	1012	359	146	329
Shared Lane Traffic (%)						
Lane Group Flow (vph)	704	1474	1012	359	146	329
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			

Lanes, Volumes, Timings

4: Big Bay Point Road & Fairview Road

FT2035
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	8			4	5	5
Detector Phase	3	8	4	4	5	5
Switch Phase						
Minimum Initial (s)	7.0	40.0	40.0	40.0	10.0	10.0
Minimum Split (s)	11.0	46.0	46.0	46.0	38.0	38.0
Total Split (s)	36.0	82.0	46.0	46.0	38.0	38.0
Total Split (%)	30.0%	68.3%	38.3%	38.3%	31.7%	31.7%
Maximum Green (s)	32.0	76.0	40.0	40.0	32.0	32.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			33.0	33.0	25.0	25.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	78.1	76.1	40.0	40.0	13.8	13.8
Actuated g/C Ratio	0.77	0.75	0.39	0.39	0.14	0.14
v/c Ratio	1.05	0.55	0.72	0.42	0.60	0.66
Control Delay	74.0	6.8	30.2	4.1	52.2	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.0	6.8	30.2	4.1	52.2	11.4
LOS	E	A	C	A	D	B
Approach Delay		28.6	23.4		23.9	
Approach LOS		C	C		C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 101.9

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 26.2

Intersection LOS: C

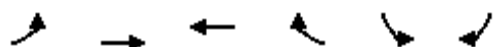
Intersection Capacity Utilization 90.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Big Bay Point Road & Fairview Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	704	1474	1012	359	146	329
v/c Ratio	1.05	0.55	0.72	0.42	0.60	0.66
Control Delay	74.0	6.8	30.2	4.1	52.2	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.0	6.8	30.2	4.1	52.2	11.4
Queue Length 50th (m)	~127.8	54.4	87.1	0.0	27.5	0.0
Queue Length 95th (m)	#213.4	85.5	119.7	17.8	46.9	24.0
Internal Link Dist (m)		455.3	461.6		1383.2	
Turn Bay Length (m)	120.0			120.0		
Base Capacity (vph)	672	2672	1406	846	562	723
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.55	0.72	0.42	0.26	0.46

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

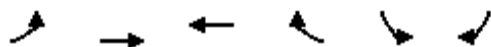
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Big Bay Point Road & Fairview Road

FT2035
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	648	1356	931	330	134	303
Future Volume (vph)	648	1356	931	330	134	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	3579	3579	1601	1789	1585
Flt Permitted	0.13	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	243	3579	3579	1601	1789	1585
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	704	1474	1012	359	146	329
RTOR Reduction (vph)	0	0	0	218	0	284
Lane Group Flow (vph)	704	1474	1012	141	146	45
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	3	8	4			
Permitted Phases	8			4	5	5
Actuated Green, G (s)	76.1	76.1	40.1	40.1	13.8	13.8
Effective Green, g (s)	76.1	76.1	40.1	40.1	13.8	13.8
Actuated g/C Ratio	0.75	0.75	0.39	0.39	0.14	0.14
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	666	2672	1408	630	242	214
v/s Ratio Prot	c0.33	0.41	0.28			
v/s Ratio Perm	c0.46			0.09	c0.08	0.03
v/c Ratio	1.06	0.55	0.72	0.22	0.60	0.21
Uniform Delay, d1	26.7	5.6	26.1	20.6	41.5	39.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	50.9	0.2	1.8	0.2	4.2	0.5
Delay (s)	77.6	5.8	27.9	20.7	45.7	39.7
Level of Service	E	A	C	C	D	D
Approach Delay (s)		29.0	26.0		41.5	
Approach LOS		C	C		D	
Intersection Summary						
HCM 2000 Control Delay			29.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			1.02			
Actuated Cycle Length (s)			101.9		Sum of lost time (s)	16.0
Intersection Capacity Utilization			90.9%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2035
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	545	198	293	933	40	375	607	219	232	539	67
Future Volume (vph)	39	545	198	293	933	40	375	607	219	232	539	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	105.0		55.0	105.0		55.0	105.0		55.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	65.0			65.0			65.0			65.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850			0.850		0.960				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1706	3614	1633	1825	3614	1601	1825	3429	0	1722	3476	1526
Flt Permitted	0.122			0.276			0.292			0.150		
Satd. Flow (perm)	219	3614	1633	530	3614	1601	561	3429	0	272	3476	1526
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208			92		41				126
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		485.6			699.0			234.9			173.0	
Travel Time (s)		35.0			50.3			16.9			12.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	1%	0%	0%	1%	2%	0%	3%	0%	6%	5%	7%
Adj. Flow (vph)	41	574	208	308	982	42	395	639	231	244	567	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	574	208	308	982	42	395	870	0	244	567	71
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
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
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
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
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
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
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
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
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	

Lanes, Volumes, Timings
5: Bayview Drive & Big Bay Point Road

FT2035
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	40.0	40.0	7.0	40.0	40.0	7.0	40.0		7.0	40.0	40.0
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	46.0		11.0	46.0	46.0
Total Split (s)	11.0	46.0	46.0	16.0	51.0	51.0	22.0	47.0		21.0	46.0	46.0
Total Split (%)	8.5%	35.4%	35.4%	12.3%	39.2%	39.2%	16.9%	36.2%		16.2%	35.4%	35.4%
Maximum Green (s)	7.0	40.0	40.0	12.0	45.0	45.0	18.0	41.0		17.0	40.0	40.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	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
Recall Mode	Max	None	None	None	None	None	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		33.0	33.0		33.0	33.0		25.0			25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	49.0	40.0	40.0	58.0	45.0	45.0	62.0	42.3		57.7	40.0	40.0
Actuated g/C Ratio	0.38	0.31	0.31	0.45	0.35	0.35	0.48	0.33		0.44	0.31	0.31
v/c Ratio	0.25	0.52	0.32	0.87	0.78	0.07	0.89	0.76		0.83	0.53	0.13
Control Delay	24.8	39.0	5.7	50.8	43.6	0.2	47.3	42.8		47.8	39.4	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	24.8	39.0	5.7	50.8	43.6	0.2	47.3	42.8		47.8	39.4	0.6
LOS	C	D	A	D	D	A	D	D		D	D	A
Approach Delay		29.9			43.9			44.2			38.6	
Approach LOS		C			D			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Natural Cycle: 115

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 40.2

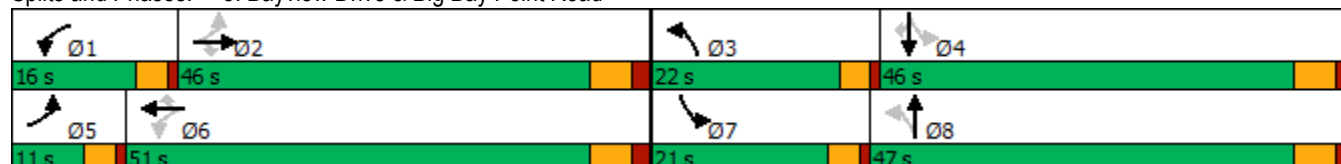
Intersection LOS: D

Intersection Capacity Utilization 120.3%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 5: Bayview Drive & Big Bay Point Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	41	574	208	308	982	42	395	870	244	567	71
v/c Ratio	0.25	0.52	0.32	0.87	0.78	0.07	0.89	0.76	0.83	0.53	0.13
Control Delay	24.8	39.0	5.7	50.8	43.6	0.2	47.3	42.8	47.8	39.4	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	39.0	5.7	50.8	43.6	0.2	47.3	42.8	47.8	39.4	0.6
Queue Length 50th (m)	5.9	63.6	0.0	51.7	118.4	0.0	63.9	102.1	36.1	63.3	0.0
Queue Length 95th (m)	12.6	81.5	17.3	#93.5	143.9	0.0	#103.6	126.8	#74.3	81.2	0.7
Internal Link Dist (m)		461.6			675.0			210.9		149.0	
Turn Bay Length (m)	105.0		55.0	105.0		55.0	105.0		105.0		55.0
Base Capacity (vph)	162	1112	646	356	1251	614	442	1144	313	1069	556
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.52	0.32	0.87	0.78	0.07	0.89	0.76	0.78	0.53	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

5: Bayview Drive & Big Bay Point Road

FT2035
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	545	198	293	933	40	375	607	219	232	539	67
Future Volume (vph)	39	545	198	293	933	40	375	607	219	232	539	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1706	3614	1633	1825	3614	1601	1825	3429		1722	3476	1526
Flt Permitted	0.12	1.00	1.00	0.28	1.00	1.00	0.29	1.00		0.15	1.00	1.00
Satd. Flow (perm)	220	3614	1633	530	3614	1601	561	3429		271	3476	1526
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	574	208	308	982	42	395	639	231	244	567	71
RTOR Reduction (vph)	0	0	144	0	0	27	0	28	0	0	0	49
Lane Group Flow (vph)	41	574	64	308	982	15	395	842	0	244	567	22
Heavy Vehicles (%)	7%	1%	0%	0%	1%	2%	0%	3%	0%	6%	5%	7%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	47.0	40.0	40.0	56.0	45.0	45.0	60.3	42.3		55.7	40.0	40.0
Effective Green, g (s)	47.0	40.0	40.0	56.0	45.0	45.0	60.3	42.3		55.7	40.0	40.0
Actuated g/C Ratio	0.36	0.31	0.31	0.43	0.35	0.35	0.46	0.33		0.43	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
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
Lane Grp Cap (vph)	159	1112	502	347	1251	554	435	1115		291	1069	469
v/s Ratio Prot	0.01	0.16		c0.08	0.27		c0.13	0.25		0.10	0.16	
v/s Ratio Perm	0.08		0.04	c0.30		0.01	c0.30			0.26		0.01
v/c Ratio	0.26	0.52	0.13	0.89	0.78	0.03	0.91	0.76		0.84	0.53	0.05
Uniform Delay, d1	29.4	37.0	32.4	30.2	38.2	28.0	26.3	39.2		27.8	37.2	31.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	0.4	0.1	22.8	3.3	0.0	22.3	3.0		18.6	0.5	0.0
Delay (s)	30.3	37.4	32.5	53.0	41.5	28.1	48.6	42.2		46.4	37.7	31.6
Level of Service	C	D	C	D	D	C	D	D		D	D	C
Approach Delay (s)		35.8			43.7			44.2			39.6	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			41.5									D
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			130.0								20.0	
Intersection Capacity Utilization			120.3%									H
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2035
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	999	118	142	928	85	152	84	348	74	115	260
Future Volume (vph)	131	999	118	142	928	85	152	84	348	74	115	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.987			0.920			0.922	
Flt Protected	0.950			0.950				0.987			0.992	
Satd. Flow (prot)	1560	3452	0	1690	3492	0	0	1671	0	0	1643	0
Flt Permitted	0.114			0.089				0.689			0.792	
Satd. Flow (perm)	187	3452	0	158	3492	0	0	1166	0	0	1311	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			9			78			59	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		699.0			98.1			153.3			601.6	
Travel Time (s)		50.3			7.1			11.0			43.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	17%	3%	13%	8%	3%	5%	3%	17%	2%	3%	14%	5%
Adj. Flow (vph)	134	1019	120	145	947	87	155	86	355	76	117	265
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	1139	0	145	1034	0	0	596	0	0	458	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	

Lanes, Volumes, Timings
6: Big Bay Point Road & Welham Rd

FT2035
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	45.0		7.0	45.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	51.0		11.0	51.0		16.0	39.0		26.0	26.0	
Total Split (s)	11.0	51.0		11.0	51.0		16.0	58.0		42.0	42.0	
Total Split (%)	9.2%	42.5%		9.2%	42.5%		13.3%	48.3%		35.0%	35.0%	
Maximum Green (s)	7.0	45.0		7.0	45.0		12.0	52.0		36.0	36.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	Max		None	None		None	Max		None	None	
Walk Time (s)		21.0			21.0			7.0		7.0	7.0	
Flash Dont Walk (s)		24.0			24.0			26.0		12.0	12.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effect Green (s)	54.0	45.0		54.0	45.0			52.0			52.0	
Actuated g/C Ratio	0.45	0.38		0.45	0.38			0.43			0.43	
v/c Ratio	0.82	0.87		0.91	0.79			1.09			0.76	
Control Delay	56.3	43.4		74.7	38.2			93.2			34.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	56.3	43.4		74.7	38.2			93.2			34.6	
LOS	E	D		E	D			F			C	
Approach Delay		44.7			42.6			93.2			34.6	
Approach LOS		D			D			F			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 50.9

Intersection LOS: D

Intersection Capacity Utilization 113.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: Big Bay Point Road & Welham Rd

 Ø2		 Ø3	 Ø4
58 s		11 s	51 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	42 s	11 s	51 s

Queues
6: Big Bay Point Road & Welham Rd

FT2035
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	134	1139	145	1034	596	458
v/c Ratio	0.82	0.87	0.91	0.79	1.09	0.76
Control Delay	56.3	43.4	74.7	38.2	93.2	34.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.3	43.4	74.7	38.2	93.2	34.6
Queue Length 50th (m)	17.3	128.8	18.8	111.5	~146.6	79.2
Queue Length 95th (m)	#46.5	158.1	#57.3	137.5	#215.4	123.5
Internal Link Dist (m)		675.0		74.1	129.3	577.6
Turn Bay Length (m)	30.0		40.0			
Base Capacity (vph)	164	1302	160	1315	549	601
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.87	0.91	0.79	1.09	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

6: Big Bay Point Road & Welham Rd

FT2035
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	999	118	142	928	85	152	84	348	74	115	260
Future Volume (vph)	131	999	118	142	928	85	152	84	348	74	115	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.92			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1560	3452		1690	3493			1670			1642	
Flt Permitted	0.11	1.00		0.09	1.00			0.69			0.79	
Satd. Flow (perm)	187	3452		158	3493			1165			1311	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	134	1019	120	145	947	87	155	86	355	76	117	265
RTOR Reduction (vph)	0	8	0	0	6	0	0	44	0	0	33	0
Lane Group Flow (vph)	134	1132	0	145	1028	0	0	552	0	0	425	0
Heavy Vehicles (%)	17%	3%	13%	8%	3%	5%	3%	17%	2%	3%	14%	5%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	52.0	45.0		52.0	45.0			52.0			52.0	
Effective Green, g (s)	52.0	45.0		52.0	45.0			52.0			52.0	
Actuated g/C Ratio	0.43	0.38		0.43	0.38			0.43			0.43	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	161	1294		157	1309			504			568	
v/s Ratio Prot	0.05	0.33		c0.05	0.29							
v/s Ratio Perm	0.31			c0.34				c0.47			0.32	
v/c Ratio	0.83	0.87		0.92	0.79			1.09			0.75	
Uniform Delay, d1	25.2	34.9		26.8	33.2			34.0			28.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	29.1	8.4		49.5	3.2			68.4			5.3	
Delay (s)	54.4	43.3		76.3	36.4			102.4			33.8	
Level of Service	D	D		E	D			F			C	
Approach Delay (s)		44.5			41.3			102.4			33.8	
Approach LOS		D			D			F			C	
Intersection Summary												
HCM 2000 Control Delay			51.9			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			113.6%			ICU Level of Service					H	
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2035
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	8	51	1	0	5	76	29	2	218	1
Future Volume (vph)	2	0	8	51	1	0	5	76	29	2	218	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.890						0.964			0.999	
Flt Protected		0.991			0.953			0.998				
Satd. Flow (prot)	0	1661	0	0	1712	0	0	1558	0	0	1762	0
Flt Permitted		0.991			0.953			0.998				
Satd. Flow (perm)	0	1661	0	0	1712	0	0	1558	0	0	1762	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			104.3			601.6			96.7	
Travel Time (s)		8.0			7.5			43.3			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	7%	2%	2%	20%	25%	2%	2%	9%	2%
Adj. Flow (vph)	2	0	9	55	1	0	5	83	32	2	237	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	56	0	0	120	0	0	240	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	28.4%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

7: Welham Rd/Site Access & Private Access/Hamilton Rd

FT2035
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	51	1	0	5	76	29	2	218	1
Future Volume (Veh/h)	2	0	8	51	1	0	5	76	29	2	218	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	9	55	1	0	5	83	32	2	237	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	351	366	238	360	351	99	238			115		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	351	366	238	360	351	99	238			115		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	99	90	100	100	100			100		
cM capacity (veh/h)	600	559	801	578	570	957	1230			1474		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	56	120	240								
Volume Left	2	55	5	2								
Volume Right	9	0	32	1								
cSH	755	578	1230	1474								
Volume to Capacity	0.01	0.10	0.00	0.00								
Queue Length 95th (m)	0.3	2.4	0.1	0.0								
Control Delay (s)	9.8	11.9	0.4	0.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.8	11.9	0.4	0.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay	2.0											
Intersection Capacity Utilization	28.4%			ICU Level of Service					A			
Analysis Period (min)	15											