



Traffic Impact Study

Green Ginger Phase 2

Green Ginger Developments Inc. & Clear Day
Investments Ltd.

April 16, 2024

Executive summary

GHD is pleased to provide the following updated Traffic Impact Study in support of the Draft Plan of Subdivision and Zoning By-Law Amendment for the proposed residential development located west of Trafalgar Road in the North Oakville East Secondary Plan in the Town of Oakville.

This study represents an update to the previously submitted Traffic Impact Study prepared by GHD dated May 2023 in response to comments received from the Region and the Town.

This report determines the site related traffic and subsequent traffic related impacts on the adjacent road network during the weekday a.m. and p.m. peak hours. These impacts are based on the projected future background traffic and road network conditions derived for a 2027 and 2032 future planning horizon year.

The proposed draft plan of subdivision prepared by Malone Given Parsons, dated March 2023 consists of a series of townhouses and urban core blocks. The residential units and commercial retail space are broken down as follows:

- 506 townhouse units, including 15 “condo townhouse” units
- 10 mid-rise buildings with a total of 1,879 residential units
- 8 high-rise buildings with a total of 2,521 residential units and 27,496 square feet of conceptual retail GFA

Parking for the subject site will be provided based on a site-specific Zoning By-law that amends Zoning By-law 2009-189 to require Apartment Buildings or Mixed-Use Buildings to provide a minimum of 0.15 parking spaces per dwelling unit for visitors and 1.0 parking spaces per 30 sq.m. of leasable non-residential floor area.

The site has been divided into six phases (Phases 2A, 2B, 2C, 2D, 2E, and 2F). Phases 2A, 2B, 2C, and 2D are anticipated to be built out within the 2027 horizon year, and consists of the follow:

- 491 townhouse units
- The 1,260 mid-rise units located to the west of Street “A”

The full build-out of the site will be completed within the 2032 horizon year, and consists of the following:

- 15 “condo townhouse” units
- The remaining 619 mid-rise units located east of Street “A”
- All 2,471 high-rise units
- All 27,496 ft² of the conceptual retail space

Access to the proposed subdivision from the regional arterial roads is proposed via Threshing Mill Boulevard, Wheat Boom Drive and Ernest Appelbe Boulevard.

The proposed subdivision is expected to generate a total of 1,558 new two-way trips consisting of 396 inbound and 1,162 outbound trips during weekday a.m. peak hour and 1,682 new two-way trips consisting of 1,015 inbound and 667 outbound trips during the weekday p.m. peak hour.

Under the Future Total 2027 and 2032 scenarios, the intersection of Dundas Street East and Trafalgar Road is reported to operate near or above capacity during both peak hours. This is expected to improve as transit modal splits increase throughout the Town and once the construction of William Halton Parkway is completed providing an alternate east/west route to Dundas Street through the Town.

The intersections of Threshing Mill Boulevard at Trafalgar Road and Wheat Boom Drive at Trafalgar Road will have the west approaches in operation once the first sub-phases of the development are completed. These intersections are expected to operate with acceptable v/c ratios and delays under future traffic scenarios. A northbound left-turn auxiliary phase has been introduced at both intersections to reduce the overall and individual approach v/c ratios.

The proposed deviation from the North Oakville Secondary Plan which contemplated a right-in/out driveway from the subject site between Wheat Boom Drive and Threshing Mill Boulevard and one north of Threshing Mill Boulevard has

been assessed by assigning all site trips southbound right turns and eastbound right turns to the signalized intersections of Trafalgar Road with Wheat Boom Drive and Threshing Mill Boulevard.

The capacity analysis of the future total traffic scenario at both intersections confirms that the projected volume of right turns added to both of these intersections will not negatively impact the operations of either intersection in particular the eastbound shared through/right turn movement. The SimTraffic analysis reports the eastbound shared through/right-turn movement to have a 95th percentile queue length of 87 metres during the a.m. peak hour and 68 metres during the p.m. peak hour at Threshing Mill Boulevard. At Wheat Boom Drive, the eastbound shared through/right turn is reported to have a 95th percentile queue length of 74 metres during the a.m. peak hour and 51 metres during the p.m. peak hour. With approximately 100 metres spacing proposed between Trafalgar Road and Street A along both collector roads, the reported 95th percentile queue lengths for the eastbound approaches at both Threshing Mill Boulevard and Wheat Boom Drive for the 2032 total traffic scenario are not shown to extend from Trafalgar Road back to the first intersection of Street A.

Under future traffic conditions, the signal timings for all signalized intersections along Trafalgar Road and Dundas Street East were optimized to reduce v/c ratios and delays.

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

Sincerely,

GHD



Rafael Andrenacci, B.Eng

Transportation Planner



William Maria, P. Eng.

Transportation Planning Lead

Contents

1. Introduction	1
1.1 Retainer and Objective	1
1.2 Study Team	1
2. Site Characteristics	2
2.1 Study Area	2
2.2 Proposed Development Content	3
2.3 Proposed Parking Supply	3
3. Existing Conditions	5
3.1 Existing Road Network	5
3.2 Pedestrian and Bicycle Routes	5
3.3 Transit Services	5
3.4 Existing Traffic Data	6
4. Future Background Traffic	7
4.1 Study Horizon Year	7
4.2 Future Road Network Improvements	7
4.3 Corridor Growth	8
4.4 Background Development Traffic	8
4.5 Future Background Traffic Volumes	11
5. Site Generated Traffic	14
5.1 Site Traffic Generation	14
5.2 Zone Breakdown	16
5.3 Trip Generation Per Zone	18
5.4 Site Traffic Distribution and Assignment	19
6. Future Total Traffic	22
7. Capacity Analysis	24
7.1 Trafalgar Road and Dundas Street East	25
7.2 Trafalgar Road and Wheat Boom Drive	27
7.3 Trafalgar Road and Threshing Mill Boulevard	29
7.4 Dundas Street East and Ernest Appelbe Boulevard	30
7.5 Ernest Appelbe Boulevard and Wheat Boom Drive	33
7.6 Ernest Appelbe Boulevard and Threshing Mill Boulevard	34
8. Proposed Road Network Deviation from Secondary Plan	34
9. Roadway Elements	35
9.1 Traffic Calming Measures	35
9.2 Active Transportation and Trail Connectivity	36
9.3 Transit Facilities Plan	38
10. November 1st, 2021 Pre-Consultation Form Staff Comments	39

Table Index

Table 1	Background Development Traffic	10
Table 2	Estimated Site Trips.....	15
Table 3	Phase Breakdown per Zone	17
Table 4	Dwelling Unit Count per Zone (Total)	17
Table 5	Dwelling Unit Count per Zone (2027 - Phase 2A, 2B, 2C, 2D).....	17
Table 6	Dwelling Unit Count per Zone (2032 - 2E, 2F)	18
Table 7	Estimated Site Trips –2027.....	18
Table 8	Estimated Site Trips – 2032.....	18
Table 9	Trip Generation per Zone	19
Table 10	Trips Distribution	20
Table 11	Capacity analysis of Trafalgar Road and Dundas Street East	25
Table 12	Capacity analysis of Trafalgar Road and Wheat Boom Drive	27
Table 13	Capacity analysis of Trafalgar Road and Threshing Mill Boulevard.....	29
Table 14	Capacity analysis of Dundas Street East and Ernest Appelbe Boulevard	30
Table 15	Capacity analysis of Ernest Appelbe Boulevard and Wheat Boom Drive	33
Table 16	Capacity analysis of Ernest Appelbe Boulevard and Threshing Mill Boulevard	34

Figure Index

Figure 1	Site Location	2
Figure 2	Draft Plan of Subdivision	4
Figure 3	Projected 2022 Existing Traffic Volumes	6
Figure 4	Future Lane Configuration	7
Figure 5	Proposed HOV Lane Locations	8
Figure 6	Background Development Locations	9
Figure 7	Total Background Development Site Traffic	11
Figure 8	2027 Future Background Traffic Volumes	12
Figure 9	2032 Future Background Traffic Volumes	13
Figure 10	Green Ginger 2 Phasing Plan.....	14
Figure 11	Zone Breakdown.....	16
Figure 12	Total Phase 1 Site Trips – 2027	20
Figure 13	Total Phase 2 Site Trips – 2032	21
Figure 14	Total Site Trips.....	22
Figure 15	2027 Future Total Traffic Volumes	23
Figure 16	2032 Future Total Traffic Volumes	24
Figure 17	Proposed Traffic Calming Measure Locations.....	36
Figure 18	Proposed Pedestrian and Cycling Facilities	37
Figure 19	Transit Facilities Plan.....	38

Appendices

Appendix A	Terms of Reference
Appendix B	Traffic Data
Appendix C	Synchro Outputs
Appendix D	Background Developments
Appendix E	Transportation Tomorrow Survey 2016

1. Introduction

1.1 Retainer and Objective

GHD Limited was retained by Green Ginger Developments Inc. Clear Day Investments Inc. to prepare a Transportation Impact Study in support of the Draft Plan of Subdivision and Zoning By-Law Amendment of a proposed subdivision located on part of Lots 13 and 14, Concession 1 within the North Oakville Secondary Plan Area in the Town of Oakville.

The site location is illustrated in **Figure 1**.

The purpose of this study is to:

- Establish baseline traffic conditions for the study area in 2022 and determine future background operating conditions for a future planning horizon in 2027 and 2032.
- Utilize Institute of Transportation Engineer's (ITE) Trip Generation data and first principles to estimate the site trips generated by the proposed development and distribute the traffic to the adjacent road network.
- Determine future operating traffic conditions during the weekday peak periods through intersection capacity analysis.
- Prepare a Transit Facilities Plan for the proposed subdivision.

1.2 Study Team

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

- William Maria, P. Eng., Transportation Planning Lead
- Rafael Andrenacci, B.Eng., Transportation Planner



Figure 1 Site Location

2. Site Characteristics

2.1 Study Area

Based on the approved Terms of Reference for the study provided in **Appendix A**, the following intersections were included in the study area:

- Trafalgar Road and Dundas Street East
- Trafalgar Road and Wheat Boom Drive
- Trafalgar Road and Threshing Mill Boulevard
- Dundas Street East and Ernest Appelbe Boulevard
- Wheat Boom Drive and Ernest Appelbe Boulevard
- Threshing Mill Boulevard and Ernest Appelbe Boulevard

2.2 Proposed Development Content

A draft plan of subdivision was prepared by Malone Given Parsons, dated March 2023 and is shown in **Figure 2**. The proposed subdivision consists of the following characteristics:

- 506 townhouse units
- 10 mid-rise buildings with a total of 1,879 residential units
- 8 high-rise buildings with a total of 2,521 residential units and 27,496 square feet of conceptual retail GFA

The draft plan of subdivision is divided into six phases: 2A, 2B, 2C, 2D, 2E, and 2F. Phases 2A to 2D are anticipated to be built-out by the 2027 horizon year and will consist of 491 townhouse units and 1,260 of the mid-rise unit. The full build-out of the site with the two remaining phases will occur within the 2032 horizon year and will consist of the 15 “condominium townhouse units”, the remaining 619 mid-rise dwelling units, the 2,521 high-rise units and the 27,496 square feet of conceptual retail GFA.

Access to the proposed subdivision from the surrounding regional arterial roads is proposed via Threshing Mill Boulevard, Wheat Boom Drive and Ernest Appelbe Boulevard.

2.3 Proposed Parking Supply

Parking for the proposed development will be provided to satisfy the requirements set out in a site-specific Zoning By-law 2024-X to amend Zoning By-law 2009-189. The parking requirements for each land use is as follows:

Townhouse dwelling units

Parking for the townhouse units will be provided based on the North Oakville Zoning By-law 2009-189 as set out in Section 5, Table 5.1 A. The minimum requirement is as follows:

- Townhouse dwellings (for lands within the Trafalgar Urban Core)
 - 1 parking space per dwelling unit, minimum
 - 2 parking spaces per dwelling unit, maximum

Apartment Buildings or Mixed-Use Buildings

The resident parking for the mid-rise and high-rise dwelling units will also be provided based on the North Oakville Zoning By-law 2009-189 as set out in Section 5, Table 5.1 A. The minimum requirement is as follows:

- Apartment – 4 storeys or less and Apartment – More than 4 storeys
 - Up to 1.25 parking spaces per dwelling unit

Apartment Buildings or Mixed-Use Buildings, visitors and non-residential GFA

Visitor parking for the mid-rise and high-rise dwelling units as well as the non-residential GFA will be provided based on the site-specific Zoning By-law sought for the subject site. The site-specific By-law will generally be consistent with recently approved rates for nearby developments and is as follows:

- 0.15 parking spaces per dwelling unit, visitors
- 1.0 parking spaces per 30 m² of leasable non-residential floor area

Minimum number of designated accessible parking spaces for residential uses

- 1% of total number of parking spaces provided

The proposed parking rates contained in the site-specific Zoning By-law are consistent with recently approved development nearby and will be supported through a variety of Transportation Demand Management measures that will be detailed through the Site Plan Application submissions for individual developments.

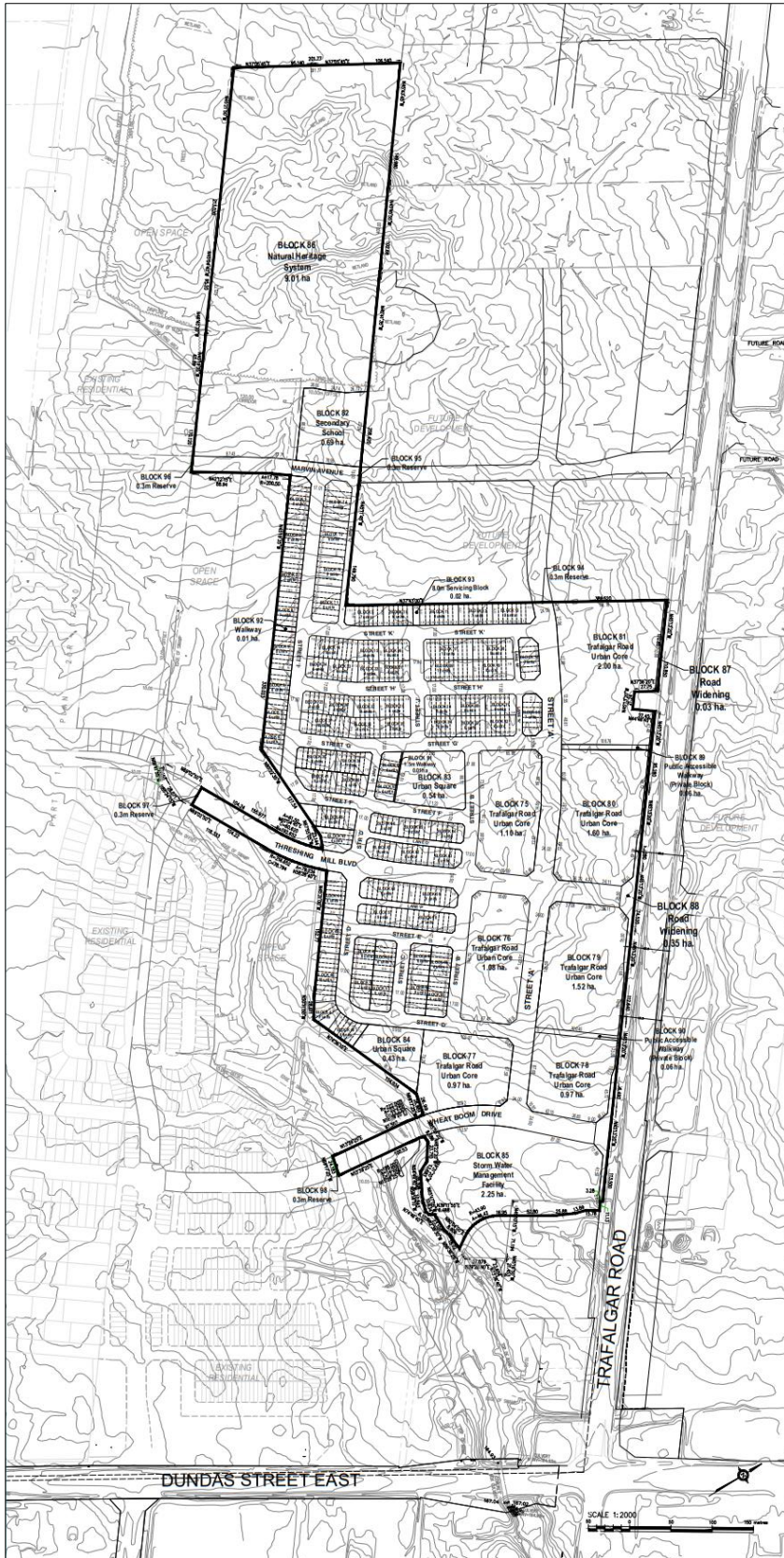


Figure 2 Draft Plan of Subdivision

3. Existing Conditions

3.1 Existing Road Network

Dundas Street East is an east-west major arterial road under the jurisdiction of the Region of Halton. In the study area it has a six-lane urban cross section. The intersection of Dundas Street East and Trafalgar Road is signalized, with an auxiliary right-turn lane in both the eastbound and westbound direction, one auxiliary left-turn lane in the westbound direction, and dual auxiliary left-turn lanes in the eastbound direction. The intersection of Dundas Street East and Ernest Appelbe Boulevard is also signalized, with an auxiliary left-turn and an auxiliary right-turn lane in both the eastbound and westbound directions. The posted speed limit on Dundas Street East is 70 km/h.

Trafalgar Road is a north-south major arterial road under the jurisdiction of the Region of Halton. In the study area it has a four-lane urban cross section. The intersections of Trafalgar Road and Threshing Mill Boulevard and Trafalgar Road and Wheat Boom Drive are both signalized, with no auxiliary turning lanes under the existing configuration. The posted speed limit on Trafalgar Road is 60 km/h.

Threshing Mill Boulevard is an east-west connector road under the jurisdiction of the Town of Oakville. Within the study area, it is only constructed east of Trafalgar Road and continues again west of Ernest Appelbe Boulevard. The intersection of Threshing Mill Boulevard and Trafalgar Road is signalized, while the intersection of Threshing Mill Boulevard and Ernest Appelbe Boulevard is unsignalized. The assumed posted speed limit on Threshing Mill Boulevard is 50 km/h.

Wheat Boom Drive is an east-west avenue road under the jurisdiction of the Town of Oakville. Within the study area, it is only constructed east of Trafalgar Road and continues once again just east of Ernest Appelbe Boulevard. The intersection of Wheat Boom Drive and Trafalgar Road is signalized, while the intersection of Wheat Boom Drive and Ernest Appelbe Boulevard is unsignalized. The assumed posted speed limit on Wheat Boom Drive is 50 km/h.

Ernest Appelbe Boulevard is a north-south avenue road under the jurisdiction of the Town of Oakville. Within the study area, it has a four-lane urban cross section. The intersection of Ernest Appelbe Boulevard and Dundas Street East is signalized, with an auxiliary left-turn lane in both the northbound and southbound directions. The intersections of Ernest Appelbe Boulevard at Wheat Boom Drive and Ernest Appelbe Boulevard at Threshing Mill Boulevard are both unsignalized. The assumed posted speed limit on Ernest Appelbe Boulevard is 50 km/h.

3.2 Pedestrian and Bicycle Routes

Pedestrian sidewalks are available on both sides of the existing roads throughout the study area with the exception of Trafalgar Road.

Within the study area, Wheat Boom Drive has been designated as a Signed Bike Route under the Town of Oakville's Trails and Cycleways Map. East of the study area, Threshing Mill Boulevard and Wheat Boom Drive are also designated as Signed Bike Routes. South of the study area, Dundas Street East has a multi-use trail on the south side of the road, between Ernest Appelbe Boulevard and Ninth Line.

3.3 Transit Services

Oakville Transit currently offers the following routes within or near the study area:

Route 1 (Trafalgar) operates in the north/south direction along Trafalgar Road between the Oakville Go Station and the Trafalgar/407 GO Carpool Lot. It currently operates with an hour headway, and the nearest transit stop to the study area is located at Trafalgar Road and Dundas Street East.

Route 5 (Dundas) generally operates in the east/west direction along Dundas Street and in the north/south direction along Trafalgar Road, between Oakville GO Station and the Dundas/407 GO Carpool Lot. **Route 5A** follows a similar route, however it operates in the east/west direction along Sixteen Mile Drive/Wheat Boom Drive between Neyagawa

Boulevard and Ernest Appelbe Boulevard. Both routes 5 and 5A operate with 30-minute headways, with 15 minute headways between each other. The nearest bus stop to the study area is located at Ernest Appelbe Boulevard and Wheat Boom Drive, serviced by bus route 5A only

3.4 Existing Traffic Data

For the study, GHD utilized recent traffic counts for the intersection of Trafalgar Road and Wheat Boom Drive from 2020 and for the intersection of Trafalgar Road and Threshing Mill Boulevard in 2021.

Updated turning movement counts at the intersections of Trafalgar Road at Dundas Street East, Dundas Street East at Ernest Appelbe Boulevard, Ernest Appelbe Boulevard at Wheat Boom Drive, and Ernest Appelbe Boulevard at Threshing Mill Boulevard was undertaken by Ontario Traffic Inc. in March 2023. Due to COVID-19 pandemic and local and provincial restrictions, turning movement counts conducted on different dates and times of the year may differ significantly. As a result, GHD compared the link volumes between all study intersections along Trafalgar Road and Dundas Street and balanced the intersection counts by carrying the highest volumes through the study area.

The projected baseline 2022 traffic volumes for the a.m. and p.m. peak hours are summarized in **Figure 3**.

The historic and most recent turning movement count data from Ontario Traffic Inc. is provided in **Appendix B**.

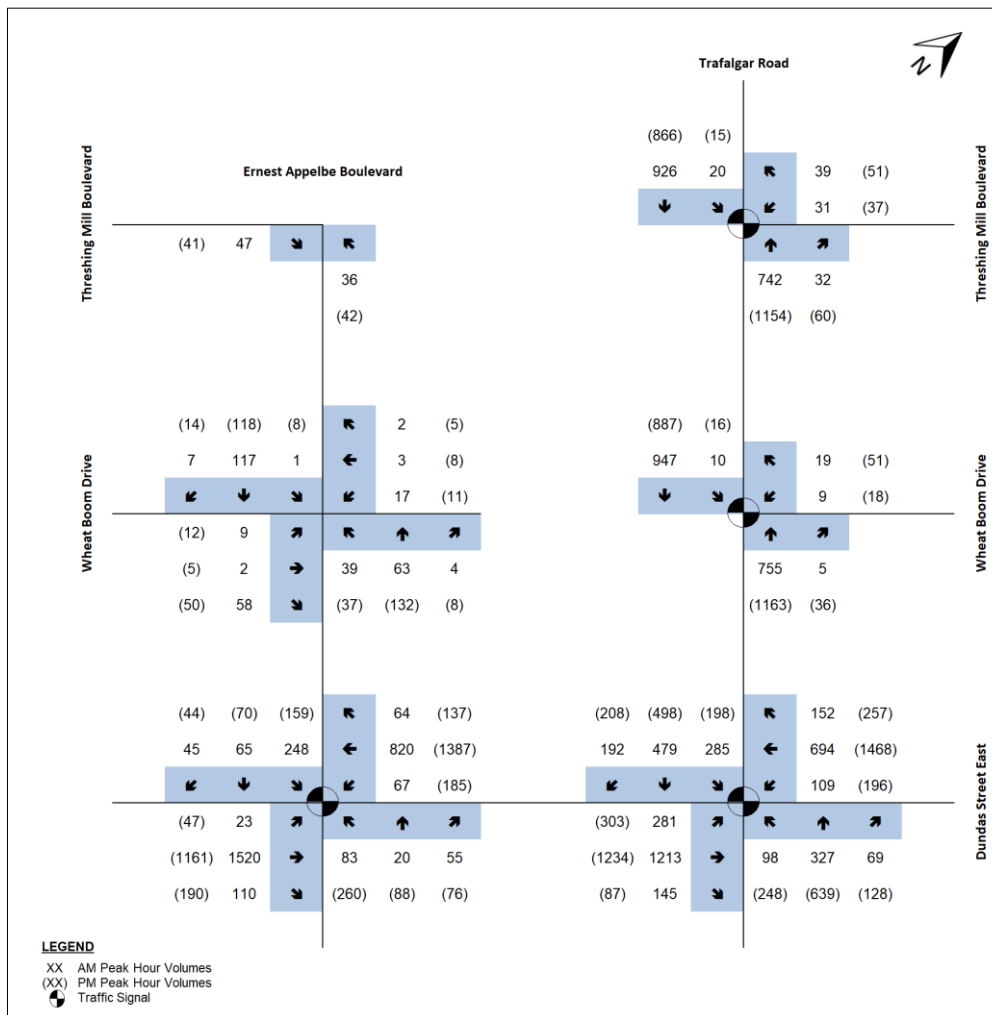


Figure 3 Projected 2022 Existing Traffic Volumes

4. Future Background Traffic

4.1 Study Horizon Year

As agreed with the Region of Halton and Town of Oakville Staff, the future horizon years selected for analysis includes the full build-out of Phases 2A-2D in 2027, followed by the full build-out of the site in 2032 (Phases 2E and 2F)

4.2 Future Road Network Improvements

The Trafalgar Road Improvements Phase 2 project (from Hays Boulevard to William Halton Parkway) is projected to be completed and operational in year 2026. With the completion of this project, Trafalgar Road will be widened from four lanes to six lanes, with the addition of an HOV lane in both directions within the six-lane configuration.

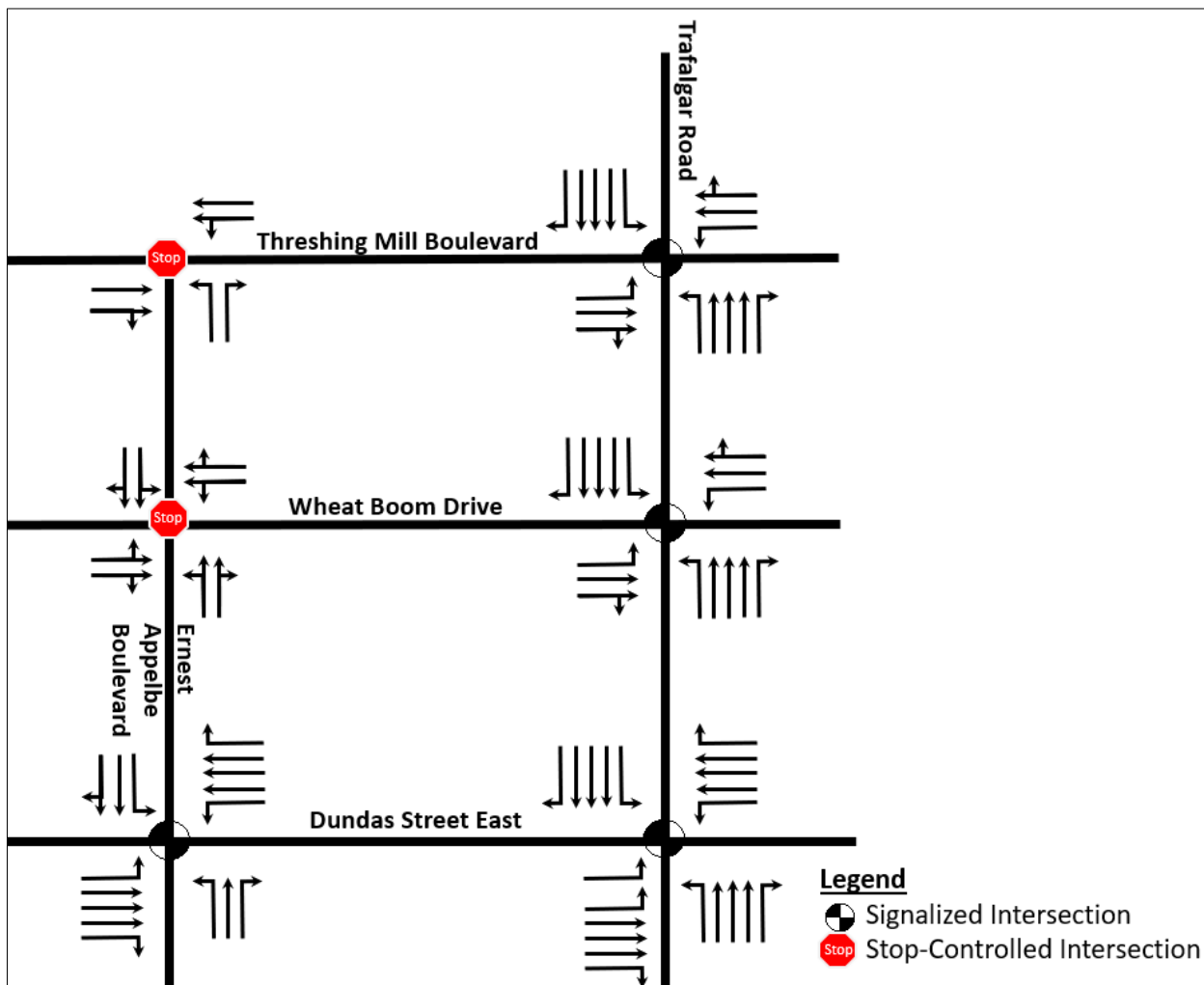


Figure 4 Future Lane Configuration

In addition to the HOV lane included in the widening of Trafalgar Road, an HOV lane is also proposed in both directions along Dundas Street within the existing six-lane configuration. The HOV lanes are identified on **Figure 5** below with the HOV lanes located in the curb lane.

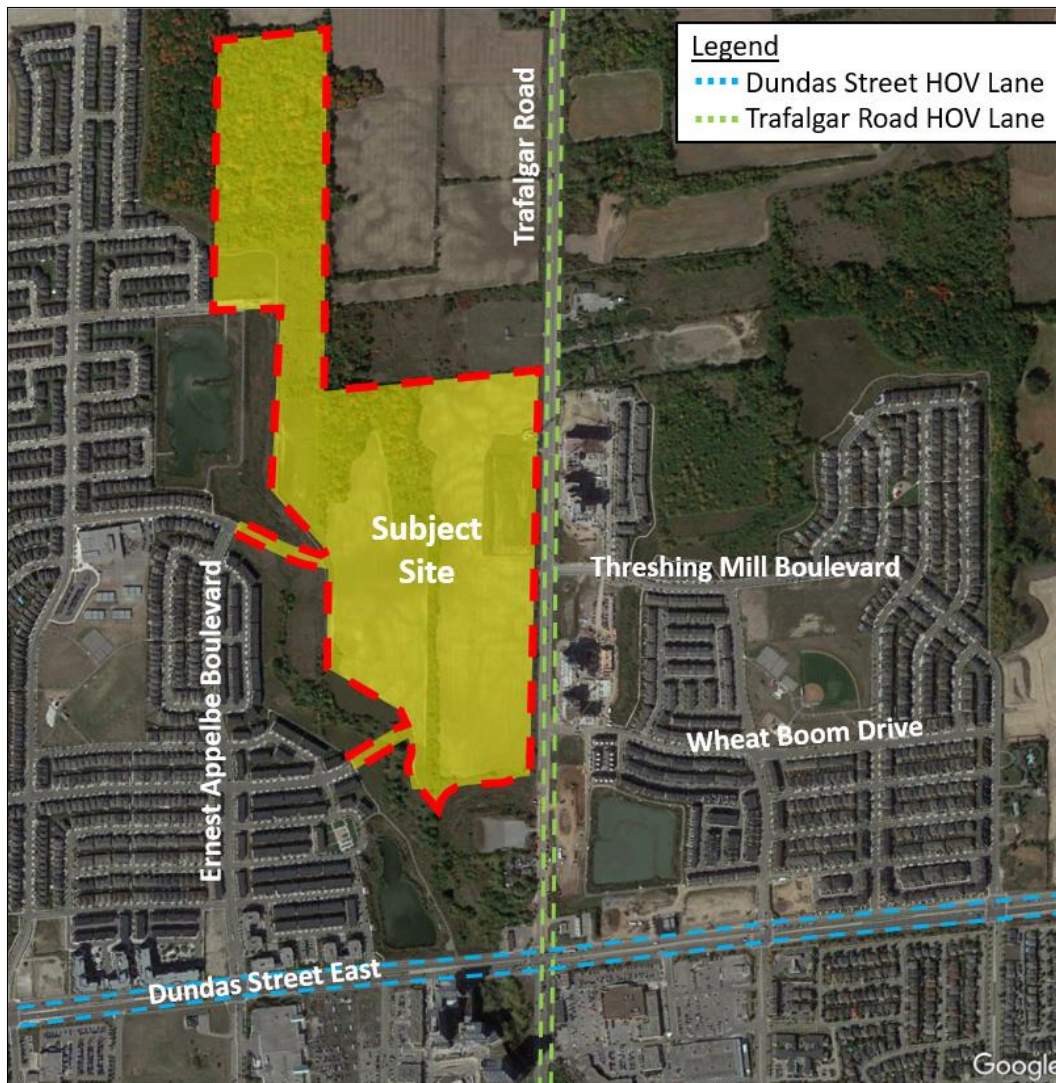


Figure 5 Proposed HOV Lane Locations

4.3 Corridor Growth

GHD applied a two percent compounded annually growth rate to all roads within the study area, as agreed to with Region and Town staff.

4.4 Background Development Traffic

GHD reviewed the Town’s development application web portal to determine which planned or approved background developments located near the subject site would contribute to traffic volumes at the study intersections. As directed by Town staff, the following sites were included as background traffic:

- Oakvillage 3 - Tower B - BC Trafalgar Inc, 3220 William Coltson Avenue
- MC OakVillage GP Inc., 348 Wheat Boom Drive
- MC Oakvillage, 335, 345 and 349 Wheat Boom Drive
- Oakvillage Block 14 (Daniels Emshih), 377, 387 and 411 Dundas Street East
- Emshih Developments, 351 Dundas Street East

- 3064 Trafalgar Road Inc., 3064 Trafalgar Road
- MC OakVillage Phase 4A/B, 3075 Trafalgar Road
- MC Oakvillage Phase 4C, 3075 Trafalgar Road
- HCDSB North Oakville #4 Elementary School, 420 Threshing Mill Boulevard

The locations of the background developments are identified on **Figure 6** below.



Figure 6 Background Development Locations

The proposed trip generation from each background development is summarized in **Table 1** below, with the trip distribution for each site provided in **Appendix D**. The total site trips from all nine background developments are provided in **Figure 7**.

Table 1 Background Development Traffic

Background Development (Identification on Figure 6)	TIS Build-out Year	Peak Hour Trips					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
Oakvillage 3 - Tower B (1), dated June 2020	2021	28	87	115	81	51	132
MC OakVillage GP Inc (4)	N/A assumed within 2027	4	12	16	13	8	21
MC Oakvillage (3), dated February 2021	2026	43	125	165	135	94	188
Oakvillage Block 14 & Emshih Developments (8 & 9), dated July 2018	2020	106	251	357	328	239	567
3064 Trafalgar Road Inc. (7), dated September 2020	N/A assumed within 2027	43	136	179	128	83	211
MC OakVillage Phase 4A/B (5), December 2022	N/A assumed within 2027	31	99	130	88	55	143
MC Oakvillage Phase 4C, dated May 2022 (6)	N/A assumed within 2027	17	53	70	48	30	78
HCDSB North Oakville #4 Elementary School (2)	N/A assumed within 2027	268	229	497	49	58	107
Total		540	992	1529	870	618	1447

With no traffic impact study having been completed for the HCDSB North Oakville #4 Elementary School, GHD estimated the site traffic generated by the school using the expected student load. It was assumed that 30% of the traffic generated by the school would originate from this proposed subdivision (west of Trafalgar Road), with the site traffic being distributed equally between Threshing Mill Boulevard and Wheat Boom Drive.

However, under the 2027 future background scenario, with the west approaches of the intersections of Threshing Mill Boulevard at Trafalgar Road and Wheat Boom Drive at Trafalgar Road not being completed until the first phase of the subdivision, GHD assumed that only 10% of the school's traffic would be generated west of Trafalgar Road from existing residential areas. The 10% of traffic would travel to the school along Dundas Street East and Postridge Drive only during the Future Background 2027 traffic condition. For the Future Total 2027 scenario and onwards, the school generated traffic would now come along Threshing Mill Boulevard and Wheat Boom Drive, with most of the trips being generated within the proposed subdivision. The trip distribution towards the school is further explained in **Section 5.2**.

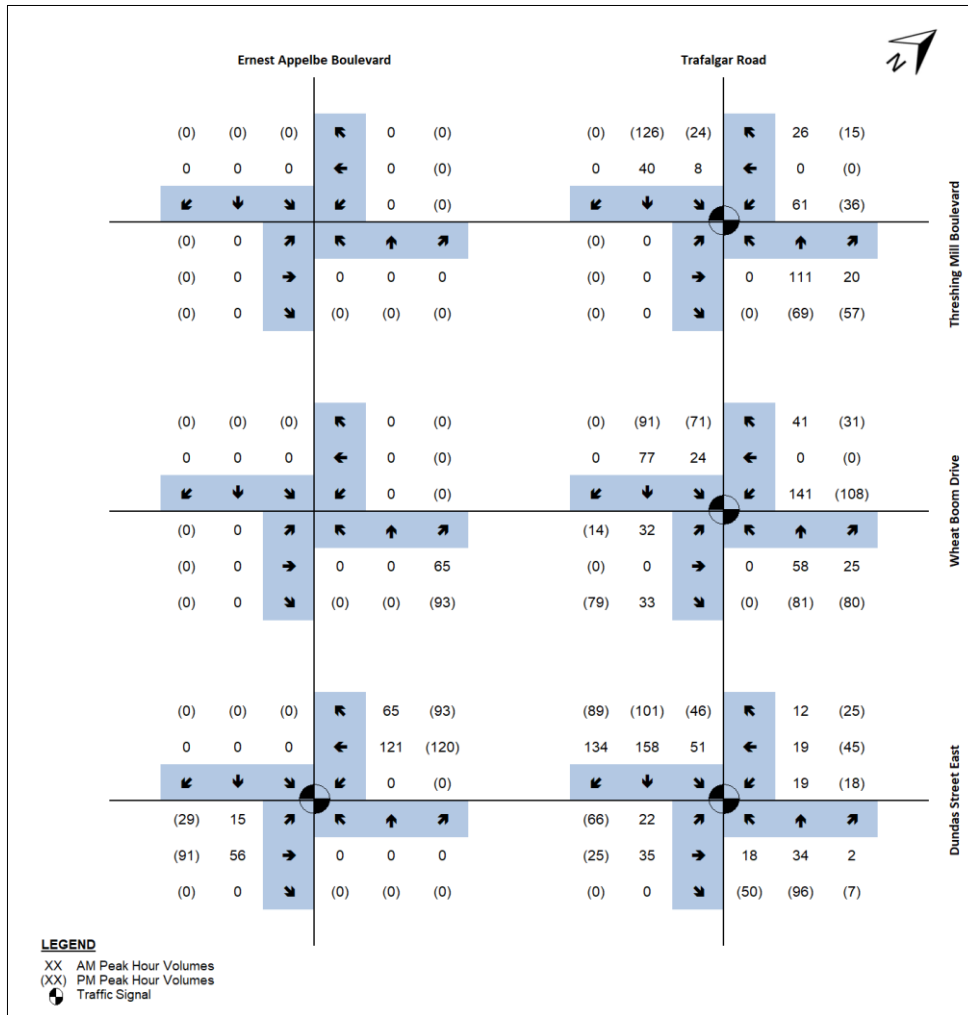


Figure 7 Total Background Development Site Traffic

4.5 Future Background Traffic Volumes

The background traffic volumes for the 2027 and 2032 horizon years were derived by applying a 2% per annum corridor growth rate to the projected 2022 traffic volumes and adding the total background development site traffic from **Figure 7**. The background traffic related to the HCDSB North Oakville #4 Elementary School was assigned to Dundas Street East for the Future Background 2027 scenario, before the extension of Threshing Mill Boulevard and Wheat Boom Drive is completed with the first phase of the proposed subdivision. Once the construction of the townhouses and the two roads are completed, this traffic was reassigned to Threshing Mill Boulevard and Wheat Boom Drive for the Future Total 2027 scenario and Future Background 2032 scenario.

The resulting 2027 and 2032 future background traffic volumes are summarized in **Figure 8** and **Figure 9**.

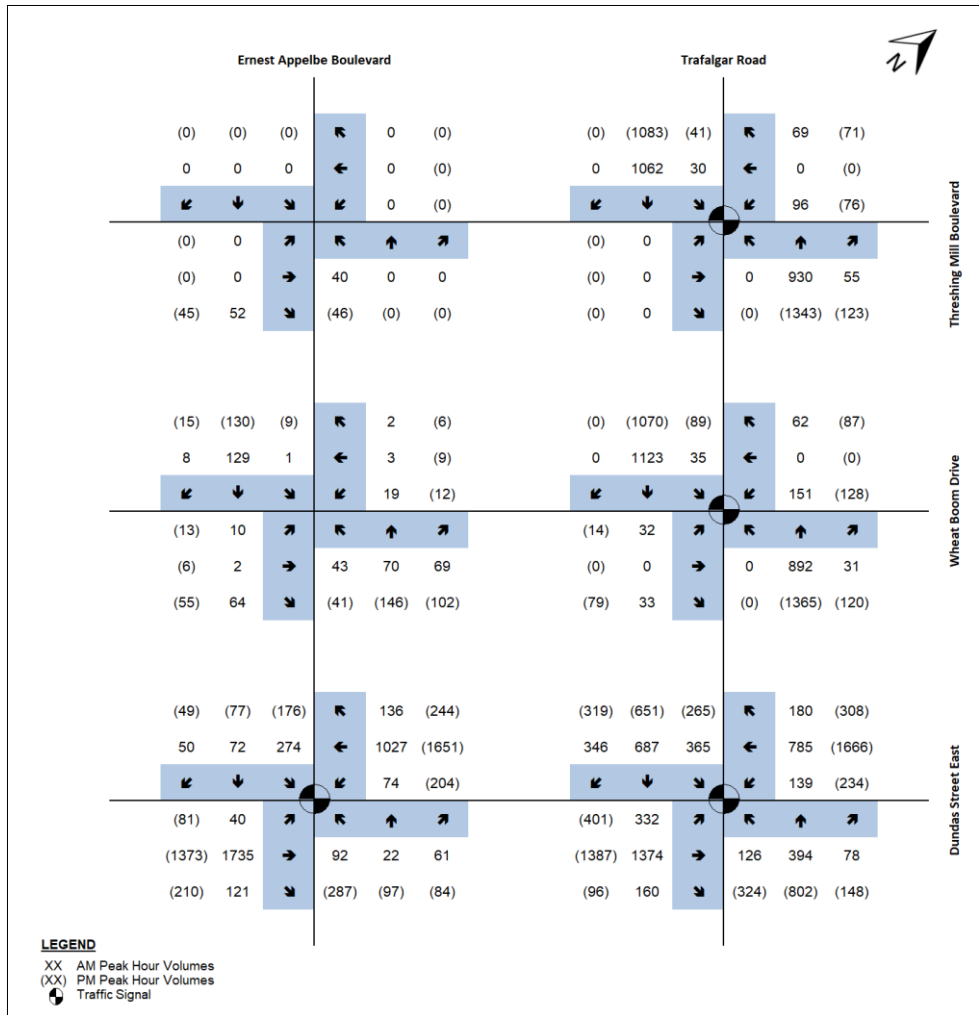


Figure 8 2027 Future Background Traffic Volumes

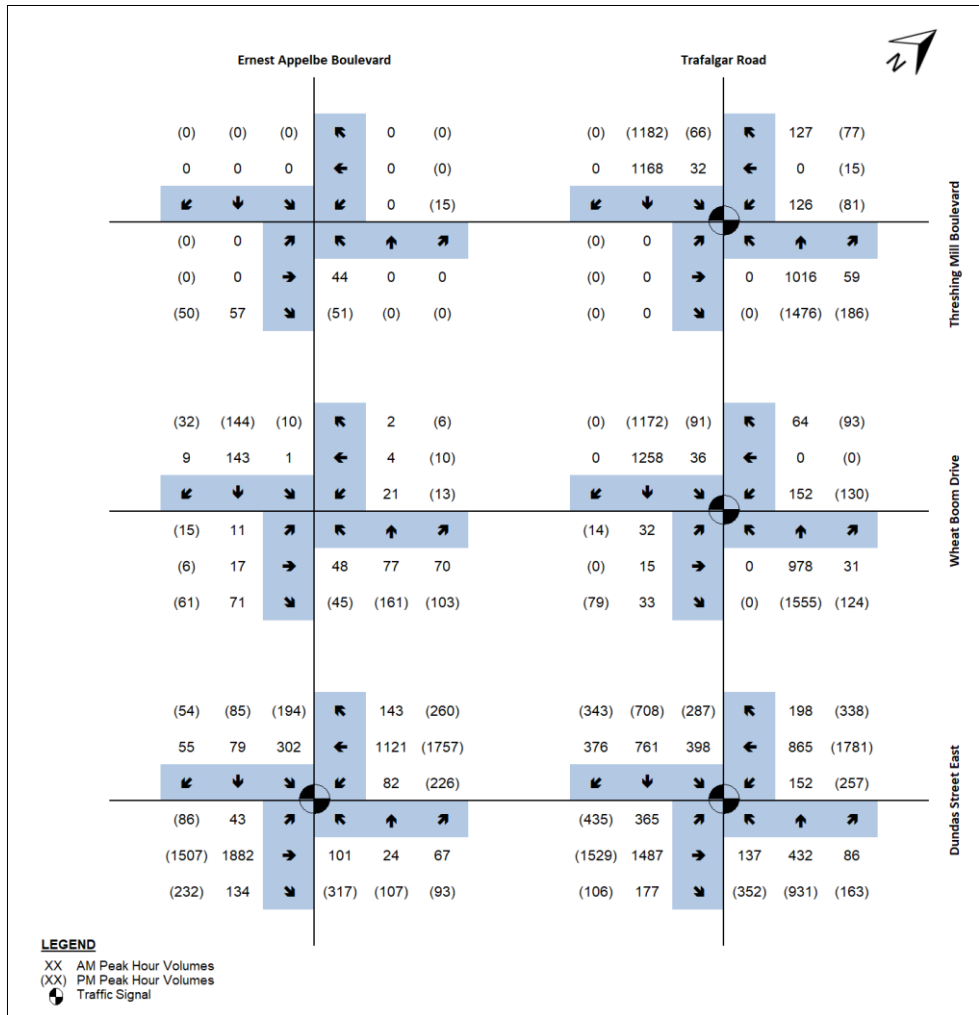


Figure 9 2032 Future Background Traffic Volumes

5. Site Generated Traffic

5.1 Site Traffic Generation

The subject site consists of 506 townhouse units, 1,879 mid-rise and 2521 high-rise units to be built out in six phases, with the anticipated build-out year of each phase identified on **Figure 10** below.

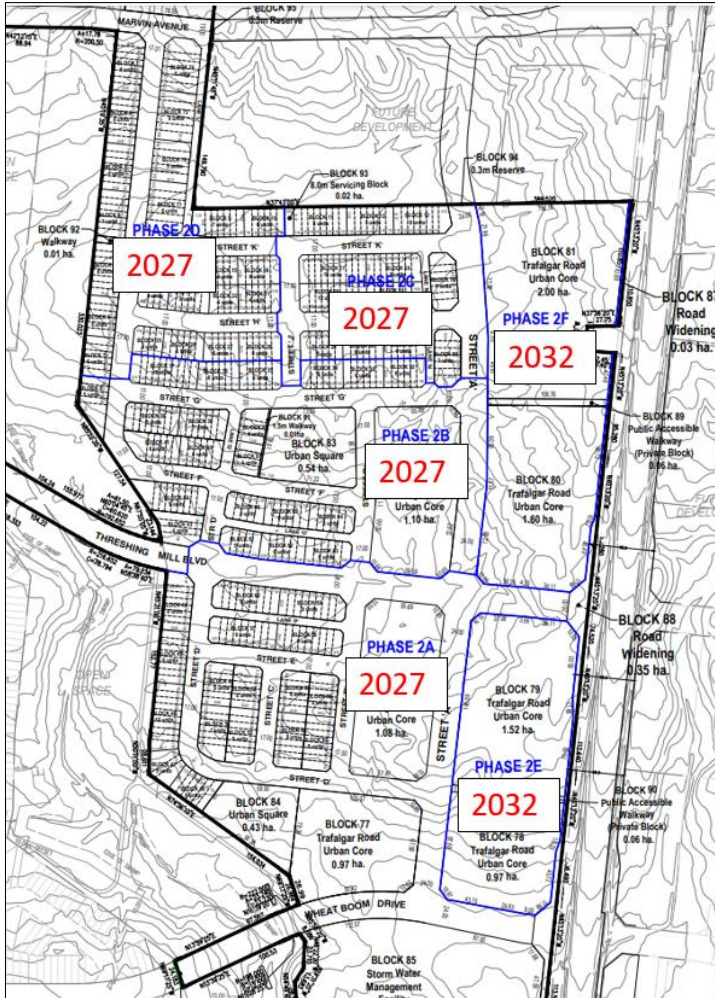


Figure 10 Green Ginger 2 Phasing Plan

Phases 2A, 2B, 2C, and 2D are anticipated to be built out within the 2027 horizon year, and consists of the follow:

- 491 townhouse units
- The 1,260 mid-rise units located to the west of Street “A”

The full build-out of the site will be completed within the 2032 horizon year, and consists of the following:

- The 15 “condo townhouse” units
- The remaining 619 mid-rise units located east of Street “A”
- All 2,521 high-rise units
- All 27,496 ft² of conceptual retail space

The trip generation for the residential uses was calculated using rates provided in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition using Land Use Code (LUC) 215 (Single-Family Attached Housing) for the townhouse units, LUC 221 (Multifamily Housing – Mid-Rise) for the mid-rise units, LUC 222 (Multifamily Housing – High-Rise) for the high-rise units, and LUC 822 (Shopping Plaza - 40-150k) for the conceptual retail space. A comparison of the fitted curve equations and average rates for each individual Land Use Code was completed, whichever calculation resulted in a greater trip generation was used as a conservative measure.

Through communication with Region of Halton staff, it was confirmed that a 5% mode split should be assumed for active transportation and 3% for Transportation Demand Management (TDM) in the area. The transit modal split for 2027 and 2032 were derived from the 2016 Transportation Tomorrow Survey (TTS) data. The three zones used for analysis consisted of three zones south of the proposed subdivision (4034, 4035 and 4037) because the subdivision and two adjacent zones had very few residential units constructed when the survey was conducted. The transit modal split from the 2016 TTS data for both the a.m. and p.m. peak was 6%. When combined with the active transportation and TDM, the total mode split reduction applied to the ITE trip generation rates was 14%. The 2016 Transportation Tomorrow Survey is provided in **Appendix E**.

Table 2 below summarizes the estimated trip generation for the proposed subdivision.

Table 2 *Estimated Site Trips*

Land Uses	GFA/ Dwelling Units	Parameters	Peak Hour					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Townhouses (LUC 215)	506 units	Trip Ratio	25%	75%	100%	59%	41%	100%
		Gross Trips	64	193	257	177	123	300
		Total Mode Split Reduction	-9	-27	-36	-25	-17	-42
		Total New Trips	55	166	221	152	106	258
Mid-rise Building (LUC 221)	1,879 units	Trip Ratio	23%	77%	100%	61%	39%	100%
		Gross Trips	186	629	815	447	286	733
		Total Mode Split Reduction	-26	-87	-113	-62	-40	-102
		Total New Trips	160	542	702	385	246	631
High-rise Building (LUC 222)	2,521 units	Trip Ratio	26%	74%	100%	62%	38%	100%
		Gross Trips	176	505	681	500	307	807
		Total Mode Split Reduction	-24	-70	-94	-70	-43	-113
		Total New Trips	152	435	587	430	264	694
Retail (LUC 822)	27,496 ft ²	Trip Ratio	62%	38%	100%	49%	51%	100%
		Gross Trips	29	19	48	70	73	143
		Pass By (30%)	N/A	N/A	N/A	22	22	44
		Total New Trips	29	19	48	48	51	99
Total Primary Trips			396	1,162	1,558	1,015	667	1,682

The proposed subdivision is expected to generate a total of 1,558 new two-way trips consisting of 396 inbound and 1,162 outbound trips during weekday a.m. peak hour and 1,682 new two-way trips consisting of 1,015 inbound and 667 outbound trips during the weekday p.m. peak hour.

5.2 Zone Breakdown

Due to the large area covered by the proposed subdivision, GHD divided the subject into 7 zones based on the assumed route used along the study area roads. The 7 zones are shown in **Figure 11** with the phases associated with each zone summarized in **Table 3**.

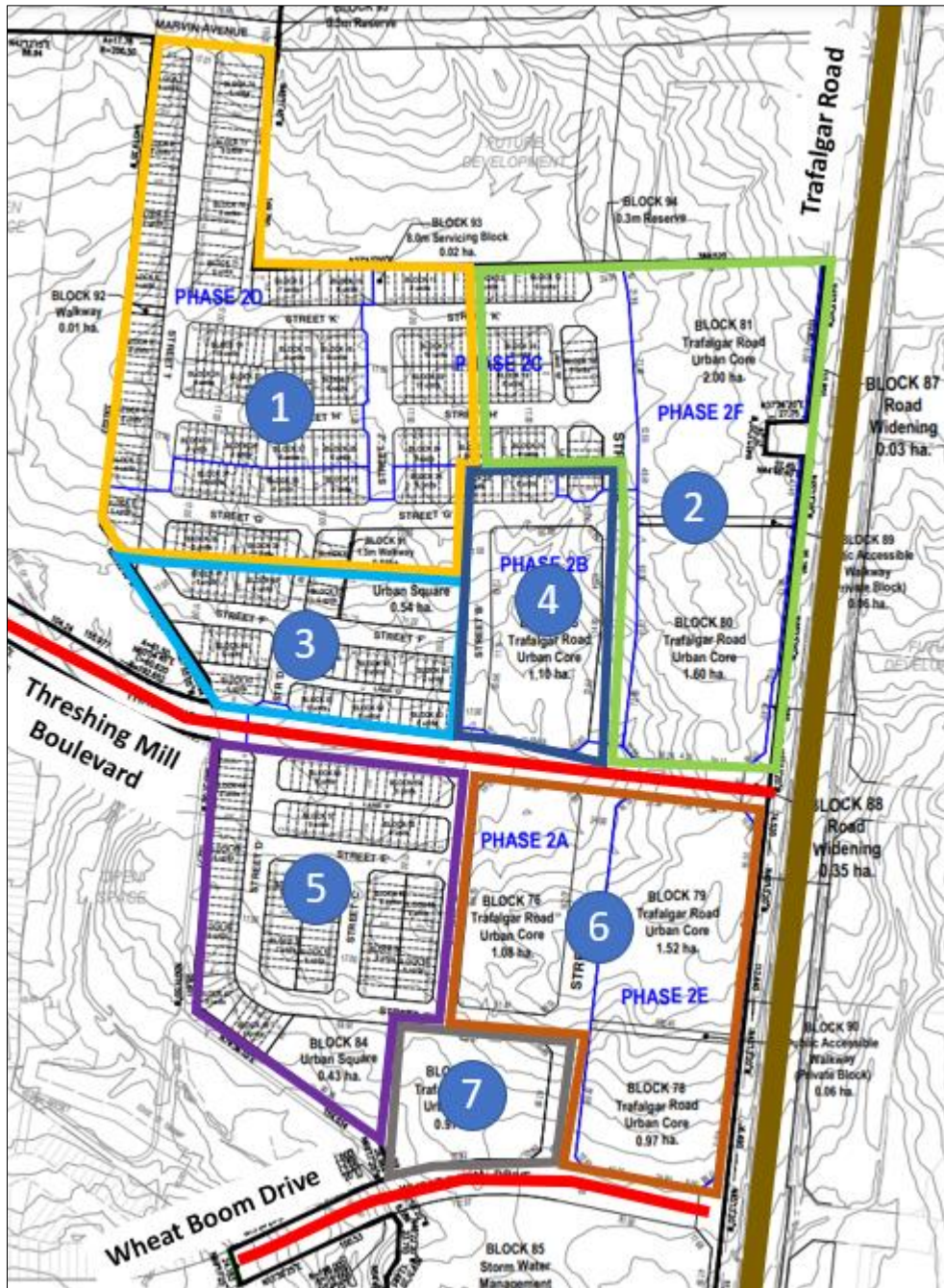


Figure 11 Zone Breakdown

Table 3 Phase Breakdown per Zone

Zone	Phases
Zone 1	2D, some of 2C and 2B
Zone 2	2F and some of 2C
Zone 3	Some of 2B
Zone 4	Some of 2V and 2C
Zone 5	Some of 2A
Zone 6	2E and some of 2A
Zone 7	Some of 2A

The overall breakdown of each dwelling type per zone provided in **Table 4**. Zones 2 and 6 contain phases with build-outs occurring within two different horizon years, and as a result **Table 5** summarizes the unit breakdown anticipated to be built-out within the 2027 horizon year and **Table 6** summarizes the unit breakdown anticipated to be built-out between the 2027 and 2032 horizon year.

Table 4 Dwelling Unit Count per Zone (Total)

Zone	Townhouses	Mid-rise Units	High-rise Units	Retail (GFA)
Zone 1	233 units	0 units	0 units	0 m ²
Zone 2	72 units	367 units	1,361 units	1,032 m ²
Zone 3	63 units	0 units	0 units	0 m ²
Zone 4	12 units	476 units	0 units	0 m ²
Zone 5	126 units	0 units	0 units	0 m ²
Zone 6	0 units	741 units	1,160 units	1,522 m ²
Zone 7	0 units	295 units	0 units	0 m ²
TOTAL	506 units	1,879 units	2,521 units	5,153 m²

Table 5 Dwelling Unit Count per Zone (2027 - Phase 2A, 2B, 2C, 2D)

Zone	Townhouses	Mid-rise Units	High-rise Units	Retail (GFA)
Zone 1	233 units	N/A	N/A	N/A
Zone 2	57 units	0 units	N/A	N/A
Zone 3	63 units	N/A	N/A	N/A
Zone 4	12 units	476 units	N/A	N/A
Zone 5	126 units	N/A	N/A	N/A
Zone 6	N/A	489 units	N/A	N/A

Zone	Townhouses	Mid-rise Units	High-rise Units	Retail (GFA)
Zone 7	0 units	295 units	N/A	N/A
TOTAL	491 units	1,260 units	N/A	N/A

Table 6 Dwelling Unit Count per Zone (2032 - 2E, 2F)

Zone	Townhouses	Mid-rise Units	High-rise Units	Retail (GFA)
Zone 1	N/A	N/A	N/A	0 m ²
Zone 2	15 units	367 units	1,361 units	1,032 m ²
Zone 3	N/A	N/A	0 units	0 m ²
Zone 4	N/A	N/A	0 units	0 m ²
Zone 5	N/A	N/A	0 units	0 m ²
Zone 6	N/A	252 units	1,160 units	1,522 m ²
Zone 7	N/A	N/A	0 units	0 m ²
TOTAL	15 units	619 units	2,521 units	5,153 m²

5.3 Trip Generation Per Zone

Based on the breakdown of units between the six zones over the two horizon years, **Table 7** and **Table 8** summarize the trip generation for the 2027 and 2032 horizon years, respectively.

Table 7 Estimated Site Trips –2027

Land Uses	GFA (Dwelling Units)	Parameters	Peak Hour					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Townhouses	491 units	Total New Trips	53	161	215	148	103	250
Mid-rise Building	1,260 units	Total New Trips	108	363	471	258	165	423
Total Primary Trips			161	524	686	406	268	673

Table 8 Estimated Site Trips – 2032

Land Uses	GFA (Dwelling Units)	Parameters	Peak Hour					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Townhouses	15 units	Total New Trips	2	5	7	5	3	8
Mid-rise Building	619 units	Total New Trips	52	179	231	127	81	208
High-rise Building	2,521 units	Total New Trips	152	435	587	430	264	694
Retail	27,496 ft ²	Total New Trips	29	19	48	48	51	99
Total Primary Trips			235	638	872	610	399	1,009

Table 9 Trip Generation per Zone

Zone	Unit Breakdown	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Zone 1	233 townhouse units	25	76	102	70	48	119
Zone 2	72 townhouse units, 367 mid-rise units, 1,361 high-rise units, and 2,875 m ² of retail	133	373	504	348	227	575
Zone 3	63 townhouse units	7	21	28	19	13	32
Zone 4	12 townhouse units and 476 mid-rise units	42	141	183	102	65	166
Zone 5	126 townhouse units	14	41	55	38	26	64
Zone 6	741 mid-rise units and 1,160 high-rise units, and 2,278 m ² of retail	150	425	576	379	248	627
Zone 7	295 mid-rise units,	25	85	110	60	39	99
TOTAL	506 townhouse units, 1,879 mid-rise units, 2,521 high-rise units, and 27,496 square feet of conceptual retail GFA	396	1,162	1,558	1,015	667	1,682

5.4 Site Traffic Distribution and Assignment

The distribution of the site-generated traffic was based on a review of the 2016 Transportation Tomorrow Survey (TTS) and the existing traffic patterns extracted from the 2020, 2021, and 2022 turning movement counts conducted at the study intersections.

To account for 30% of trips generated by the school originating from the proposed subdivision (approximately 80 trips), GHD assigned 5% of the overall trips from each zone eastbound towards the school along Threshing Mill Boulevard/Wheat Boom Drive. During the p.m. peak hour, 5% was also assigned to all inbound trips to the subdivision originating from the school. The 5% was assigned to the inbound trips from the east during the p.m. peak. The trip distribution is summarized in **Table 10** below.

Table 10 Trips Distribution

Origin/Destination	AM Peak Hour		PM Peak Hour	
	Percentage of Inbound Trips	Percentage of Outbound Trips	Percentage of Inbound Trips	Percentage of Outbound Trips
North on Trafalgar	18%	22%	22%	17%
South on Trafalgar	41%	38%	38%	42%
East on (Dundas, Threshing Mill, Wheat Boom)	7%	12%	19%	7%
West (Dundas and Ernest Appelbe)	34%	23%	21%	35%
School	NA	5%	NA	NA
Total	100%	100%	100%	100%

As discussed with Region and Town staff, the first phase of the traffic impact study (study horizon year 2027) includes site trips generated only by the 491 townhouse dwelling units. The second phase of the development includes the site trips generated by all townhouse, mid-rise and high-rise units, as well as the retail space located within the high-rise buildings. The estimated site trips generated by the subdivision and distributed to the study area road network for the weekday a.m. and p.m. peak hours are shown in **Figure 12** and **Figure 13**.

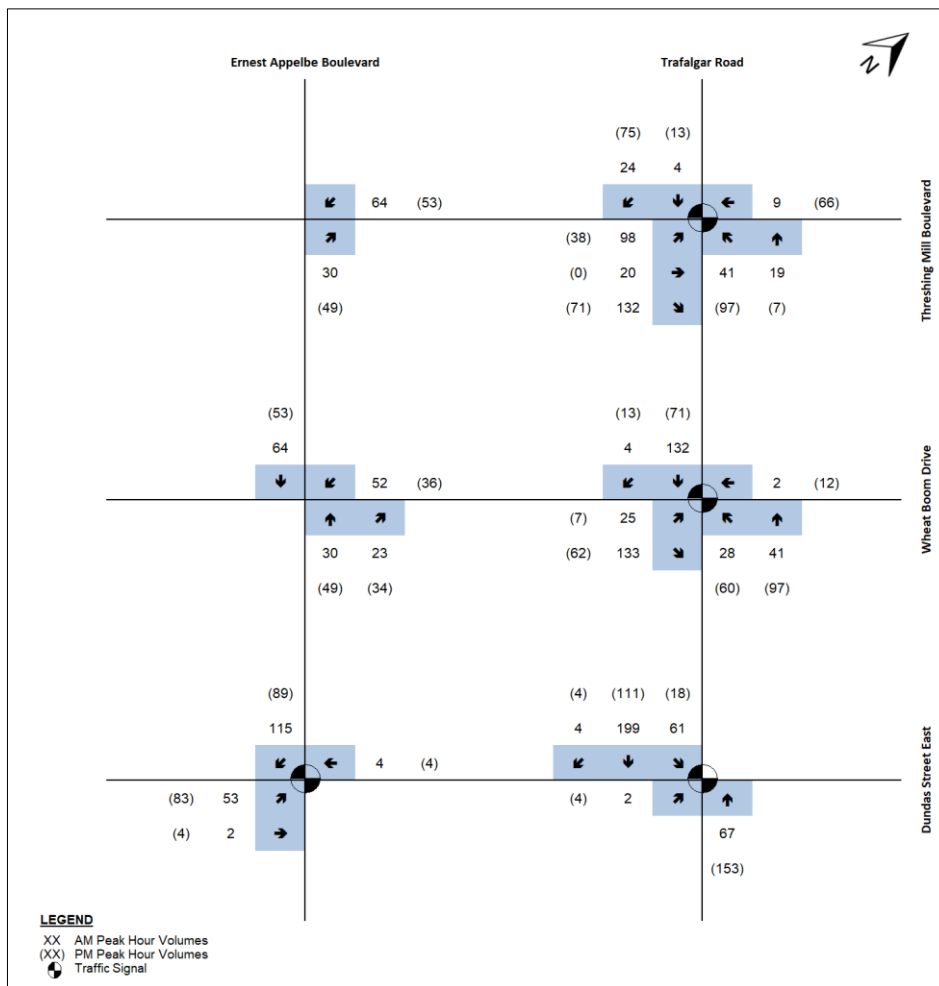


Figure 12 Total Phase 1 Site Trips – 2027

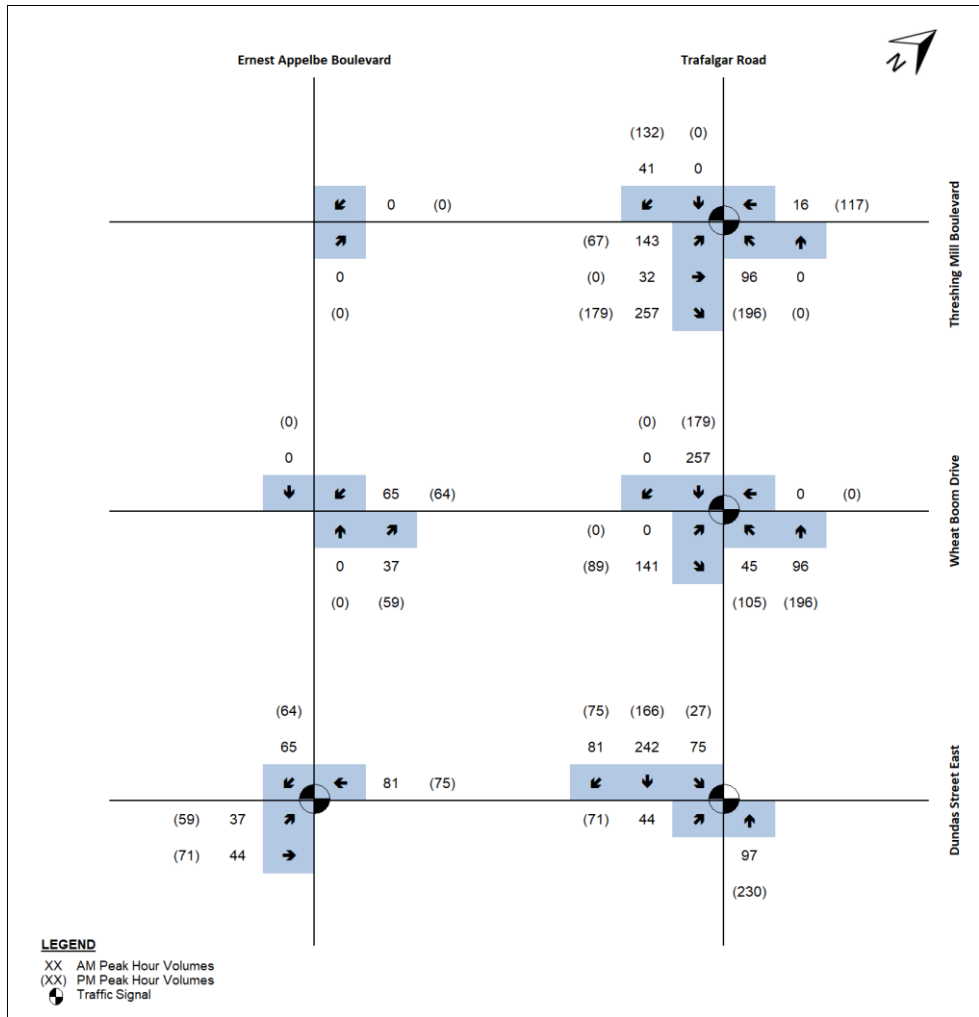


Figure 13 Total Phase 2 Site Trips – 2032

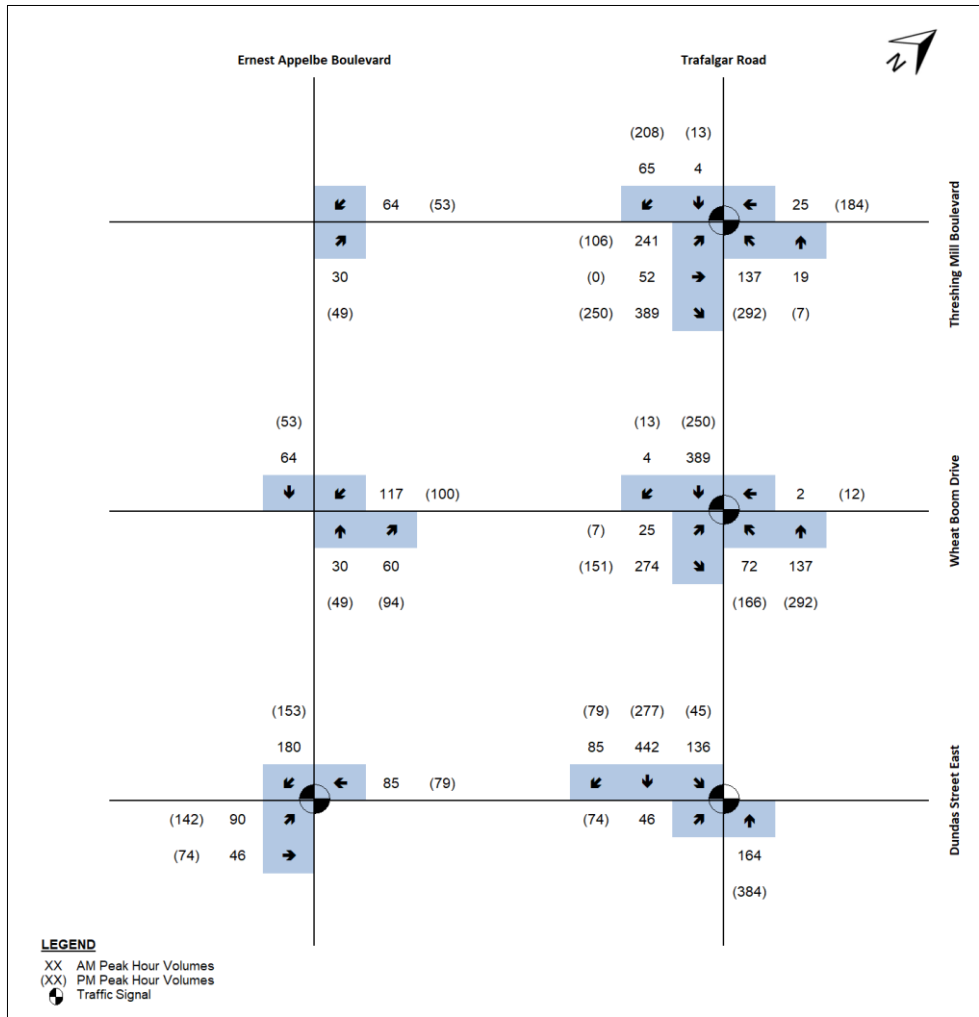


Figure 14 Total Site Trips

6. Future Total Traffic

The future total traffic conditions in the weekday a.m. and p.m. peak hours for the 2027 and 2032 planning horizons were derived by combining the projected future background traffic with the corresponding estimated site generated traffic. The resulting traffic volumes are presented in **Figure 15** and **Figure 16**.

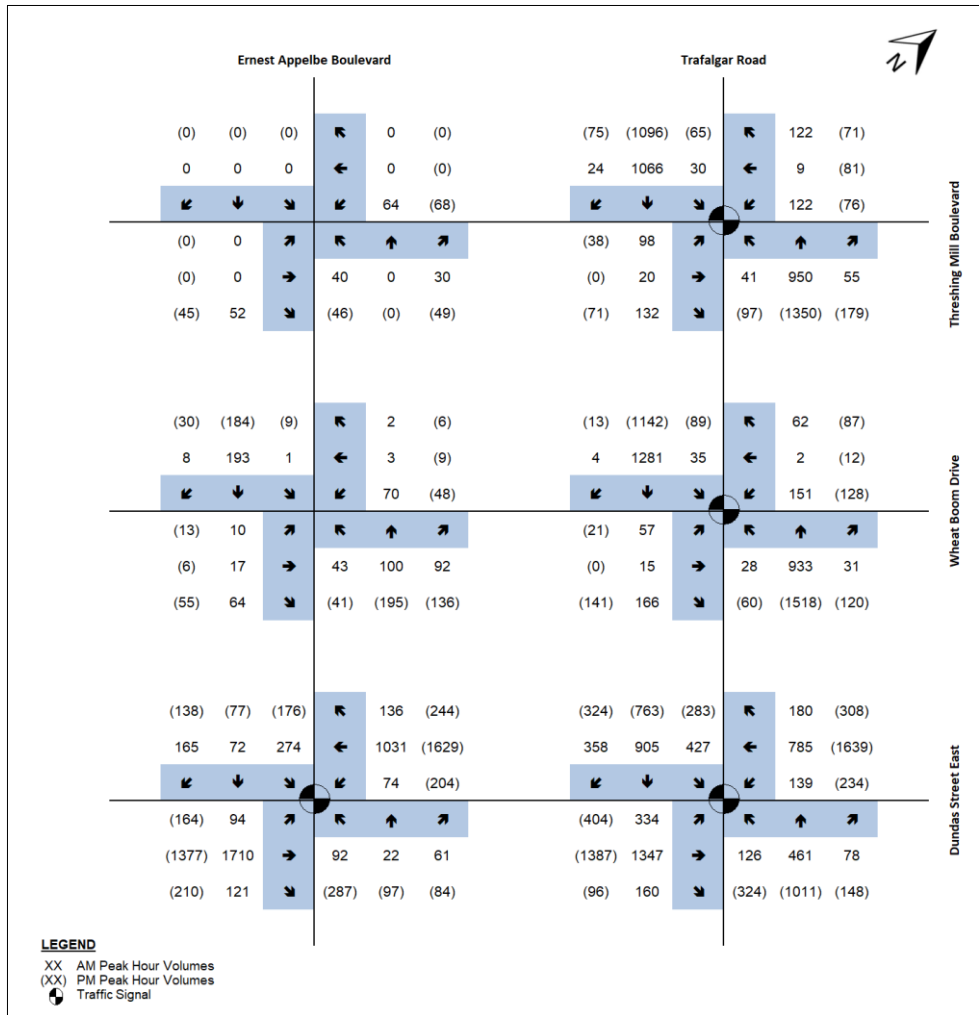


Figure 15 2027 Future Total Traffic Volumes

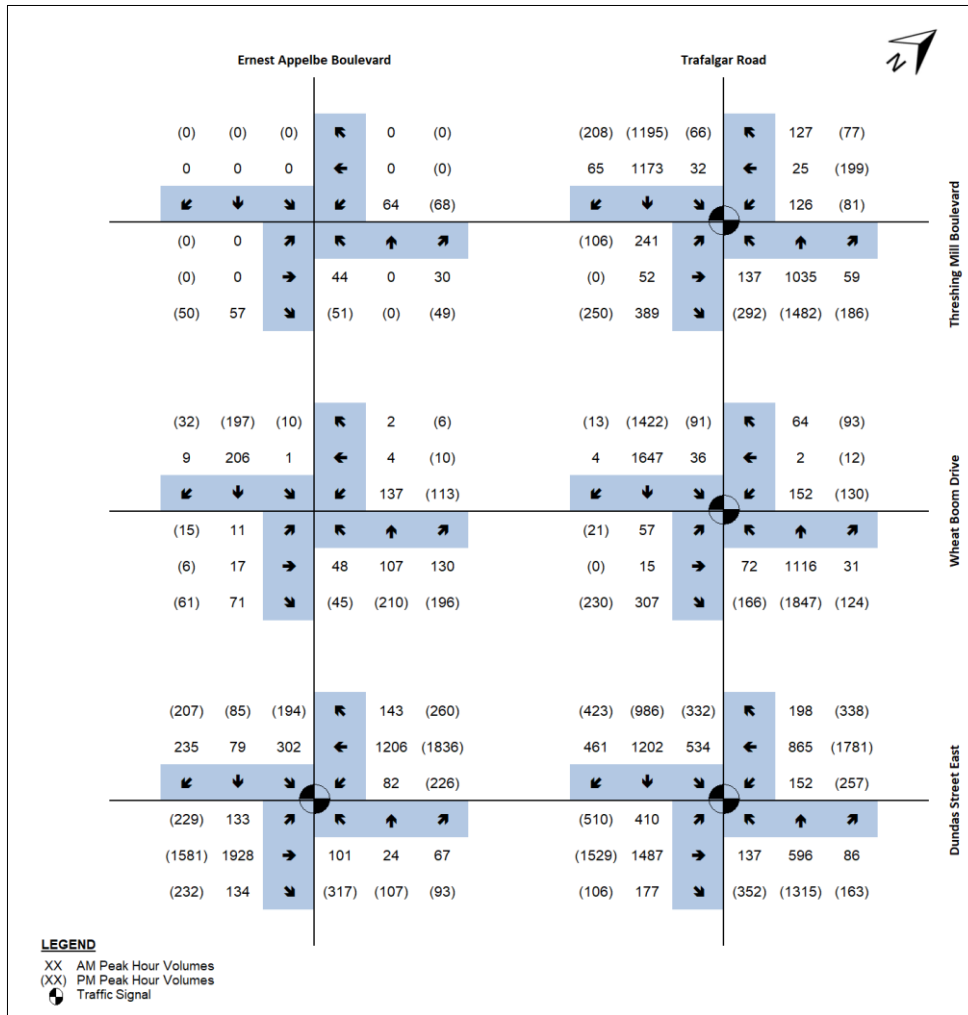


Figure 16 2032 Future Total Traffic Volumes

7. 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, and were analyzed using the SimTraffic software (15-minute seed time, 60-minute run time, and the average of 5 runs). Both pedestrian crossing volumes and heavy vehicle proportions are included in the analyses. The peak hour factors from the traffic counts were used to analyze existing and future traffic conditions.

To account for the road capacity effect of the proposed HOV lanes on Dundas Street and Trafalgar Road in the weekday a.m. and p.m. peak hours, we have adopted the established methodology of applying a 0.80 lane utilization factor as requested by the Region which takes into consideration of the estimated proportion of traffic anticipated to utilize the HOV lanes.

The analysis includes identification and required modifications and improvements (if any) at intersections where the addition of background growth or background growth plus site-generated traffic volumes causes the following:

'Critical' intersections and movements for a signalized intersection include:

- V/C ratios for overall intersections operations, through movements, or shared through/turning movements increase to 0.85 or above;
- V/C ratios for exclusive movements increase to 0.95 or above; or
- 95th percentile queue length for individual movements that are projected to, or exceed, the storage length.

'Critical' intersections and movements for an unsignalized intersection include:

- Level of Services (LOS), based on average delay per vehicle, on individual movements exceeds LOS "D",
- Queue length for individual movements that exceeds the lesser of 5 vehicles or the available queue storage.

The following tables summarize the HCM capacity results for the study intersections during the weekday a.m. and p.m. peak hours under existing (2022), future background (2027 & 2032) and future total (2027 & 2032) traffic conditions. The detailed calculation sheets are provided in **Appendix C**.

7.1 Trafalgar Road and Dundas Street East

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

Table 11 Capacity analysis of Trafalgar Road and Dundas Street East

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
Existing 2022	<u>Overall: 0.75 (D) 46</u>		<u>Overall: 0.85 (D) 47</u>	
	EBL = 0.66 (D) 48	EBL = 68 m	EBL = 0.75 (E) 67	EBL = 65 m
	EBT = 0.74 (D) 52	EBT = 122 m	EBT = 0.8 (D) 46	EBT = 104 m
	EBR = 0.11 (F) 136	EBR = 95 m	EBR = 0.06 (C) 32	EBR = 57 m
	WBL = 0.62 (D) 44	WBL = 38 m	WBL = 0.7 (D) 42	WBL = 69 m
	WBT = 0.54 (D) 41	WBT = 81 m	WBT = 0.94 (E) 55	WBT = 129 m
	WBR = 0.11 (D) 35	WBR = 26 m	WBR = 0.25 (C) 35	WBR = 100 m
	NBL = 0.27 (C) 24	NBL = 36 m	NBL = 0.7 (D) 39	NBL = 103 m
	NBTR = 0.36 (C) 32	NBTR = 56 m	NBTR = 0.72 (D) 44	NBTR = 99 m
	SBL = 0.8 (D) 49	SBL = 50 m	SBL = 0.82 (D) 54	SBL = 50 m
	SBT = 0.48 (D) 38	SBT = 154 m	SBT = 0.47 (D) 38	SBT = 125 m
	SBR = 0.14 (C) 33	SBR = 65 m	SBR = 0.14 (C) 33	SBR = 64 m
	Future Background 2027	<u>Overall: 0.94 (D) 44</u>		<u>Overall: 1.07 (E) 68</u>
EBL = 0.89 (E) 66		EBL = 89 m	EBL = 1.11 (F) 123	EBL = 130 m
EBT = 0.97 (D) 50		EBT = 125 m	EBT = 0.88 (D) 43	EBT = 482 m
EBR = 0.16 (C) 23		EBR = 99 m	EBR = 0.07 (C) 28	EBR = 72 m
WBL = 0.95 (F) 96		WBL = 83 m	WBL = 1.08 (F) 120	WBL = 195 m
WBT = 0.71 (D) 46		WBT = 78 m	WBT = 1.1 (F) 98	WBT = 386 m
WBR = 0.13 (D) 36		WBR = 41 m	WBR = 0.35 (C) 34	WBR = 101 m
NBL = 0.44 (C) 33		NBL = 46 m	NBL = 1.05 (F) 98	NBL = 152 m
NBT = 0.36 (D) 38		NBT = 53 m	NBT = 0.68 (D) 46	NBT = 287 m
NBR = 0.05 (C) 34		NBR = 21 m	NBR = 0.14 (D) 37	NBR = 50 m
SBL = 0.83 (D) 41		SBL = 47 m	SBL = 1.00 (F) 86	SBL = 49 m
SBT = 0.47 (C) 33		SBT = 165 m	SBT = 0.55 (D) 42	SBT = 168 m
SBR = 0.33 (C) 32		SBR = 62 m	SBR = 0.42 (D) 42	SBR = 63 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
Future Total 2027	<u>Overall: 1.04 (D) 47</u> EBL = 0.9 (E) 67 EBT = 0.95 (D) 47 EBR = 0.15 (C) 23 WBL = 0.95 (F) 96 WBT = 0.71 (D) 46 WBR = 0.13 (D) 36 NBL = 0.56 (D) 38 NBT = 0.42 (D) 39 NBR = 0.05 (C) 34 SBL = 1.03 (F) 80 SBT = 0.62 (D) 36 SBR = 0.38 (C) 33	EBL = 83 m EBT = 115 m EBR = 84 m WBL = 108 m WBT = 78 m WBR = 42 m NBL = 42 m NBT = 52 m NBR = 23 m SBL = 43 m SBT = 411 m SBR = 67 m	<u>Overall: 1.13 (E) 72</u> EBL = 1.12 (F) 127 EBT = 0.88 (D) 43 EBR = 0.07 (C) 28 WBL = 1.08 (F) 120 WBT = 1.08 (F) 92 WBR = 0.35 (C) 34 NBL = 1.16 (F) 139 NBT = 0.86 (D) 54 NBR = 0.18 (D) 38 SBL = 1.15 (F) 142 SBT = 0.64 (D) 44 SBR = 0.43 (D) 42	EBL = 114 m EBT = 520 m EBR = 70 m WBL = 202 m WBT = 278 m WBR = 101 m NBL = 144 m NBT = 464 m NBR = 69 m SBL = 45 m SBT = 294 m SBR = 65 m
Future Background 2032	<u>Overall: 0.89 (E) 62</u> EBL = 1.13 (F) 124 EBT = 1.12 (F) 95 EBR = 0.2 (C) 23 WBL = 1.13 (F) 155 WBT = 0.82 (D) 52 WBR = 0.14 (D) 38 NBL = 0.55 (C) 33 NBT = 0.39 (D) 39 NBR = 0.06 (C) 34 SBL = 0.8 (C) 29 SBT = 0.46 (C) 30 SBR = 0.42 (C) 30	EBL = 131 m EBT = 231 m EBR = 112 m WBL = 193 m WBT = 307 m WBR = 46 m NBL = 52 m NBT = 56 m NBR = 24 m SBL = 46 m SBT = 162 m SBR = 61 m	<u>Overall: 1.25 (F) 92</u> EBL = 1.13 (F) 144 EBT = 0.98 (E) 60 EBR = 0.09 (C) 28 WBL = 1.12 (F) 132 WBT = 1.2 (F) 139 WBR = 0.41 (D) 36 NBL = 1.28 (F) 184 NBT = 0.76 (D) 47 NBR = 0.18 (D) 36 SBL = 1.31 (F) 202 SBT = 0.57 (D) 41 SBR = 0.44 (D) 41	EBL = 130 m EBT = 480 m EBR = 94 m WBL = 188 m WBT = 752 m WBR = 96 m NBL = 129 m NBT = 602 m NBR = 66 m SBL = 45 m SBT = 363 m SBR = 67 m
Future Total 2032	<u>Overall: 1.1 (E) 72</u> EBL = 1.27 (F) 182 EBT = 1.12 (F) 94 EBR = 0.2 (C) 22 WBL = 1.13 (F) 155 WBT = 0.82 (D) 52 WBR = 0.14 (D) 38 NBL = 0.82 (E) 58 NBT = 0.57 (D) 44 NBR = 0.06 (D) 36 SBL = 1.16 (F) 121 SBT = 0.73 (D) 36 SBR = 0.6 (D) 36	EBL = 117 m EBT = 641 m EBR = 115 m WBL = 193 m WBT = 395 m WBR = 60 m NBL = 82 m NBT = 79 m NBR = 28 m SBL = 42 m SBT = 494 m SBR = 65 m	<u>Overall: 1.4 (F) 113</u> EBL = 1.33 (F) 221 EBT = 0.98 (E) 60 EBR = 0.09 (C) 28 WBL = 1.12 (F) 132 WBT = 1.2 (F) 139 WBR = 0.41 (D) 36 NBL = 1.64 (F) 339 NBT = 1.07 (F) 92 NBR = 0.22 (D) 37 SBL = 1.52 (F) 292 SBT = 0.79 (D) 47 SBR = 0.63 (D) 47	EBL = 113 m EBT = 658 m EBR = 85 m WBL = 184 m WBT = 865 m WBR = 98 m NBL = 123 m NBT = 749 m NBR = 70 m SBL = 43 m SBT = 470 m SBR = 64 m

Under existing conditions, the intersection of Dundas Street East and Trafalgar Road is operating at satisfactory levels with an overall v/c ratio of 0.75 LOS D and 0.85 LOS D during the a.m. and p.m. peak hours respectively. The only reported critical movement during the existing 2022 scenario occurs in the westbound through movement during the p.m. peak hour (0.94 LOS E).

With the addition of corridor growth, background traffic, the Trafalgar Road widening including HOV lanes under the future background 2027 scenario, and signal optimization, the overall intersection has reached critical levels during

both peak hours. The reported v/c ratio for the intersection increased to 0.94 LOS D during the a.m. peak hour and 1.07 LOS D during the p.m. peak hour. During the a.m. peak hour, the eastbound through and westbound left-turn movements are operating at a critical level but still below the theoretical capacity of 1.0. During the p.m. peak hour, the westbound through movement remains critical (1.1 LOS F), with all left-turn movements and the eastbound through movement operating at a critical level. Only the eastbound through movement remains below capacity.

Under the 2027 future total traffic condition, with the addition of the site traffic generated by the development of Phases 2A to 2D, the overall intersection continues to operate at critical levels, (1.04 LOS D during the a.m. peak hour and 1.13 LOS E during the p.m. peak hour). The same approaches remain critical during both the a.m. and p.m. peak hours in addition to the southbound left-turn movement during the a.m. peak hour.

Under the 2032 future background scenario which includes corridor growth, background developments, and further signal improvements, the overall v/c ratio of the intersection is reported at 0.89 LOS E during the a.m. peak hour and 1.25 LOS F during the p.m. peak hour. During the a.m. peak hour, the eastbound and westbound left-turn movements and the eastbound through movements operates at a critical level and over capacity. During the p.m. peak hour, all left-turn lanes, and the eastbound and westbound through lanes operate at a critical level with only the eastbound through movement remaining below capacity.

Under the 2032 future total scenario including the full build-out of all phases of the development, the overall v/c ratio of the intersection continues to increase and remain at a critical levels and over capacity. The overall v/c ratio of the intersection during the morning peak hour has increased to 1.10 LOS E, and to 1.40 LOS F during the afternoon peak hour. During the a.m. peak hour, the critical movements identified under the 2032 future background condition continue to operate at a critical level and above capacity in addition to the southbound left-turn lane. Similarly, during the p.m. peak hour, all critical movements identified under the 2032 future background condition continue to operate at a critical level and above capacity in addition to northbound through movement.

The capacity issues at this intersection are prevalent under the 2027 and 2032 future background scenarios given the background development site trips and assumed growth along Dundas Street and along Trafalgar Road. It is expected that some of this growth along with existing traffic will redistribute to the future William Halton Parkway (a parallel route) once construction of Phase 2 is completed by December 2024 and delays along Dundas Street become excessive for drivers. Therefore, there are no additional required geometric or intersection improvements recommended for this intersection.

7.2 Trafalgar Road and Wheat Boom Drive

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

Table 12 Capacity analysis of Trafalgar Road and Wheat Boom Drive

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
Existing 2022	<u>Overall: 0.38 (A) 7</u> WBL = 0.04 (D) 38 WBR = 0.01 (D) 38 NBT = 0.37 (A) 8 SBT = 0.48 (A) 5	WBL = 10 m WBR = 14 m NBTR = 65 m SBLT = 54 m	<u>Overall: 0.43 (A) 9</u> WBL = 0.05 (D) 39 WBR = 0.04 (D) 38 NBTR = 0.54 (A) 10 SBTL = 0.44 (A) 5	WBL = 11 m WBR = 19 m NBTR = 91 m SBLT = 53 m
Future Background 2027	<u>Overall: 0.55 (B) 15</u> EBL = 0.08 (C) 28 EBTR = 0.01 (C) 27 WBL = 0.46 (D) 36 WBTR = 0.02 (C) 27 NBT = 0.42 (B) 15	EBL = 12 m EBTR = 7 m WBL = 51 m WBTR = 30 m NBT = 71 m	<u>Overall: 0.54 (B) 17</u> EBL = 0.05 (D) 40 EBTR = 0.03 (D) 39 WBL = 0.5 (D) 50 WBTR = 0.03 (D) 39 NBT = 0.59 (B) 18	EBL = 7 m EBTR = 8 m WBL = 39 m WBTR = 25 m NBT = 104 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
	NBR = 0.03 (B) 11 SBL = 0.26 (B) 13 SBT = 0.6 (B) 11	NBR = 29 m SBL = 31 m SBT = 54 m	NBR = 0.08 (B) 12 SBL = 0.34 (C) 34 SBT = 0.42 (A) 8	NBR = 61 m SBL = 28 m SBT = 50 m
Future Total 2027	<u>Overall: 0.63 (B) 17</u> EBL = 0.14 (C) 29 EBTR = 0.12 (C) 28 WBL = 0.54 (D) 40 WBTR = 0.02 (C) 27 NBL = 0.19 (B) 18 NBT = 0.43 (B) 15 NBR = 0.03 (B) 11 SBL = 0.28 (B) 15 SBT = 0.69 (B) 14 SBR = 0 (B) 16	EBL = 18 m EBTR = 40 m WBL = 53 m WBTR = 59 m NBL = 16 m NBT = 74 m NBR = 30 m SBL = 42 m SBT = 169 m SBR = 2 m	<u>Overall: 0.59 (B) 18</u> EBL = 0.08 (D) 40 EBTR = 0.05 (D) 39 WBL = 0.53 (D) 51 WBTR = 0.05 (D) 39 NBL = 0.23 (B) 11 NBT = 0.65 (B) 19 NBR = 0.09 (B) 12 SBL = 0.38 (D) 37 SBT = 0.44 (A) 8 SBR = 0.01 (A) 8	EBL = 11 m EBTR = 14 m WBL = 39 m WBTR = 24 m NBL = 34 m NBT = 122 m NBR = 59 m SBL = 31 m SBT = 59 m SBR = 5 m
Future Background 2032	<u>Overall: 0.56 (B) 13</u> EBL = 0.33 (D) 47 EBTR = 0.08 (D) 44 WBL = 0.5 (C) 33 WBTR = 0.03 (C) 29 NBT = 0.41 (B) 10 NBR = 0.02 (A) 7 SBL = 0.17 (A) 9 SBT = 0.52 (B) 11	EBL = 14 m EBTR = 13 m WBL = 48 m WBTR = 28 m NBT = 54 m NBR = 16 m SBL = 16 m SBT = 63 m	<u>Overall: 0.62 (B) 19</u> EBL = 0.05 (D) 36 EBTR = 0.03 (D) 36 WBL = 0.61 (E) 59 WBTR = 0.03 (D) 42 NBT = 0.67 (B) 20 NBR = 0.09 (B) 12 SBL = 0.52 (D) 40 SBT = 0.55 (A) 9	EBL = 8 m EBTR = 9 m WBL = 43 m WBTR = 31 m NBT = 109 m NBR = 53 m SBL = 39 m SBT = 63 m
Future Total 2032	<u>Overall: 0.76 (C) 23</u> EBL = 0.41 (D) 46 EBTR = 0.93dr (D) 46 WBL = 0.59 (C) 35 WBTR = 0.05 (C) 28 NBL = 0.48 (B) 18 NBT = 0.48 (B) 12 NBR = 0.02 (A) 8 SBL = 0.23 (B) 15 SBT = 0.82 (C) 24 SBR = 0 (B) 12	EBL = 24 m EBTR = 74 m WBL = 49 m WBTR = 21 m NBL = 38 m NBT = 82 m NBR = 25 m SBL = 68 m SBT = 339 m SBR = 12 m	<u>Overall: 0.75 (C) 22</u> EBL = 0.08 (D) 37 EBTR = 0.15 (D) 37 WBL = 0.71 (E) 68 WBTR = 0.06 (D) 43 NBL = 0.58 (C) 27 NBT = 0.8 (C) 23 NBR = 0.1 (B) 12 SBL = 0.57 (D) 41 SBT = 0.67 (B) 11 SBR = 0.01 (B) 14	EBL = 9 m EBTR = 51 m WBL = 54 m WBTR = 126 m NBL = 59 m NBT = 131 m NBR = 46 m SBL = 75 m SBT = 292 m SBR = 16 m

Under existing conditions, the intersection of Trafalgar Road and Wheat Boom Drive is operating at satisfactory levels with an overall v/c ratio of 0.38 LOS A and 0.43 LOS A during the a.m. and p.m. peak hours respectively. There are no critical approaches reported.

Under the 2027 future background conditions including the west approach to the intersection and signal optimization, the overall intersection continues to operate satisfactory (0.55 LOS C and 0.54 LOS B during the a.m. and p.m. peak hours respectively). There are no critical approaches reported.

Under the 2027 future total traffic condition, with the addition of the site traffic generated by Phases 2A to 2D of the development, the overall intersection continues to operate at satisfactory levels (0.63 LOS C during the a.m. peak hour and 0.59 LOS B during the p.m. peak hour). There continues to be no critical approaches at this intersection.

Under the 2032 future background scenario with further signal optimization, the overall v/c ratio of the intersection increases slightly to 0.56 LOS B during the a.m. peak hour and 0.62 LOS B during the p.m. peak hour. No individual approach is expected to reach critical levels at this intersection.

With the addition of all site trips generated by all six phases of the proposed subdivision under the 2032 future total traffic scenario, the intersection continues to operate at a satisfactory level with a v/c ratio of 0.76 LOS C during the a.m. peak hour and 0.75 LOS C during the p.m. peak hour.

There are no geometric improvements recommended for this intersection other than signal timing optimization, as well as the addition of a northbound left-turn auxiliary phase in response to the increased traffic volumes destined to the proposed subdivision.

7.3 Trafalgar Road and Threshing Mill Boulevard

Capacity analysis for 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 13 Capacity analysis of Trafalgar Road and Threshing Mill Boulevard

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
Existing 2022	<u>Overall: 0.39 (A) 8</u> WBL = 0.1 (D) 40 WBR = 0.03 (D) 38 NBT = 0.35 (A) 5 SBT = 0.47 (A) 9	WBL = 18 m WBR = 12 m NBTR = 41 m SBLT = 68 m	<u>Overall: 0.43 (A) 8</u> WBL = 0.12 (D) 40 WBR = 0.03 (D) 38 NBTR = 0.52 (A) 5 SBLT = 0.41 (A) 8	WBL = 23 m WBR = 13 m NBTR = 52 m SBLT = 61 m
Future Background 2027	<u>Overall: 0.45 (B) 16</u> WBL = 0.28 (C) 34 WBTR = 0.02 (C) 30 NBT = 0.38 (A) 7 NBR = 0.04 (A) 2 SBL = 0.17 (B) 19 SBT = 0.55 (C) 23	WBL = 40 m WBTR = 14 m NBT = 35 m NBR = 12 m SBL = 33 m SBT = 78 m	<u>Overall: 0.44 (A) 9</u> WBL = 0.36 (D) 48 WBTR = 0.02 (D) 42 NBT = 0.43 (A) 3 NBR = 0.08 (A) 1 SBL = 0.24 (B) 13 SBT = 0.4 (B) 12	WBL = 36 m WBTR = 16 m NBT = 33 m NBR = 14 m SBL = 26 m SBT = 63 m
Future Total 2027	<u>Overall: 0.5 (B) 18</u> EBL = 0.28 (C) 34 EBTR = 0.07 (C) 30 WBL = 0.42 (D) 38 WBTR = 0.06 (C) 30 NBL = 0.16 (A) 9 NBT = 0.39 (A) 7 NBR = 0.04 (A) 3 SBL = 0.18 (B) 19 SBT = 0.55 (C) 23 SBR = 0.02 (B) 16	EBL = 36 m EBTR = 26 m WBL = 42 m WBTR = 23 m NBL = 18 m NBT = 38 m NBR = 12 m SBL = 31 m SBT = 85 m SBR = 9 m	<u>Overall: 0.44 (B) 11</u> EBL = 0.19 (D) 45 EBTR = 0.02 (D) 42 WBL = 0.39 (D) 50 WBTR = 0.17 (D) 43 NBL = 0.31 (A) 6 NBT = 0.44 (A) 3 NBR = 0.12 (A) 1 SBL = 0.38 (B) 17 SBT = 0.4 (B) 12 SBR = 0.05 (A) 9	EBL = 17 m EBTR = 16 m WBL = 35 m WBTR = 28 m NBL = 24 m NBT = 33 m NBR = 19 m SBL = 23 m SBT = 60 m SBR = 19 m
Future Background 2032	<u>Overall: 0.47 (B) 10</u> WBL = 0.71 (E) 65 WBTR = 0.04 (D) 48 NBT = 0.33 (A) 5 NBR = 0.04 (A) 4 SBL = 0.12 (A) 5 SBT = 0.38 (A) 5	WBL = 47 m WBTR = 22 m NBT = 47 m NBR = 15 m SBL = 16 m SBT = 44 m	<u>Overall: 0.52 (B) 15</u> WBL = 0.47 (E) 56 WBTR = 0.06 (D) 45 NBT = 0.5 (A) 6 NBR = 0.13 (A) 2 SBL = 0.57 (D) 39 SBT = 0.54 (C) 21	WBL = 34 m WBTR = 20 m NBT = 47 m NBR = 21 m SBL = 47 m SBT = 83 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
Future Total 2032	<u>Overall: 0.7 (C) 30</u>		<u>Overall: 0.78 (C) 23</u>	
	EBL = 0.51 (C) 31	EBL = 54 m	EBL = 0.58 (D) 54	EBL = 38 m
	EBTR = 0.28 (C) 29	EBTR = 87 m	EBTR = 0.09 (D) 38	EBTR = 68 m
	WBL = 0.82 (E) 77	WBL = 50 m	WBL = 0.6 (E) 67	WBL = 41 m
	WBTR = 0.09 (D) 43	WBTR = 36 m	WBTR = 0.54 (D) 52	WBTR = 49 m
	NBL = 0.66 (C) 28	NBL = 56 m	NBL = 0.79 (E) 60	NBL = 57 m
	NBT = 0.48 (B) 20	NBT = 92 m	NBT = 0.51 (A) 6	NBT = 54 m
	NBR = 0.04 (B) 15	NBR = 44 m	NBR = 0.13 (A) 6	NBR = 28 m
	SBL = 0.22 (C) 28	SBL = 58 m	SBL = 0.58 (D) 40	SBL = 53 m
	SBT = 0.7 (C) 33	SBT = 349 m	SBT = 0.55 (C) 21	SBT = 113 m
	SBR = 0.04 (C) 22	SBR = 55 m	SBR = 0.14 (B) 16	SBR = 54 m

Under existing conditions, the overall intersection of Trafalgar Road and Threshing Mill Boulevard is operating at satisfactory levels with an overall v/c ratio of 0.39 LOS A and 0.43 LOS A during the a.m. and p.m. peak hours respectively. There are no critical approaches during the existing 2022 traffic condition.

Under the future background 2027 traffic scenario, with signal optimization, the overall intersection continues to operate satisfactory (0.45 LOS B and 0.44 LOS B during the a.m. and p.m. peak hours respectively). There are no critical approaches reported in the analysis.

Under the 2027 future total traffic condition, with the addition of the Phase 2A to 2D site traffic, the overall intersection continues to operate at satisfactory levels (0.50 LOS B during the a.m. peak hour and 0.44 LOS B during the p.m. peak hour). There continues to be no critical approaches at this intersection.

Under the 2032 future background scenario, with signal optimization, the overall v/c ratio of the intersection increases to 0.47 LOS C during the a.m. peak hour and 0.52 LOS B during the p.m. peak hour. No individual approach increases to critical levels at this intersection during the 2032 future background traffic condition.

With the addition of all site trips generated by the build-out of the six phases of the subject site, the 2032 total traffic scenario is reporting the intersection operating at a satisfactory level with a v/c ratio of 0.70 LOS C during the a.m. peak hour and 0.78 LOS C during the p.m. peak hour. There are no critical approaches to report on during the future total 2032 scenario.

There are no geometric improvements recommended for this intersection with the exception of signal timings optimization and the addition of a northbound left-turn auxiliary phase in response to the increased traffic volumes destined to the proposed subdivision.

7.4 Dundas Street East and Ernest Appelbe Boulevard

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

Table 14 Capacity analysis of Dundas Street East and Ernest Appelbe Boulevard

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
Existing 2022	<u>Overall: 0.63 (C) 25</u>		<u>Overall: 0.62 (B) 20</u>	
	EBL = 0.12 (C) 22	EBL = 22 m	EBL = 0.27 (C) 22	EBL = 21 m
	EBT = 0.69 (C) 30	EBT = 107 m	EBT = 0.46 (C) 20	EBT = 81 m
	EBR = 0.08 (C) 20	EBR = 26 m	EBR = 0.13 (B) 17	EBR = 22 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
	WBL = 0.41 (D) 50 WBT = 0.33 (A) 5 WBR = 0.04 (A) 1 NBL = 0.21 (C) 30 NBT = 0.03 (C) 27 NBR = 0.04 (C) 28 SBL = 0.66 (D) 50 SBTR = 0.09 (C) 35	WBL = 32 m WBT = 35 m WBR = 10 m NBL = 37 m NBT = 11 m NBR = 21 m SBL = 49 m SBTR = 72 m	WBL = 0.58 (B) 15 WBT = 0.44 (B) 12 WBR = 0.08 (A) 10 NBL = 0.66 (D) 44 NBT = 0.15 (C) 30 NBR = 0.05 (C) 29 SBL = 0.39 (C) 35 SBTR = 0.09 (C) 29	WBL = 53 m WBT = 85 m WBR = 44 m NBL = 63 m NBT = 76 m NBR = 17 m SBL = 43 m SBTR = 33 m
Future Background 2027	<u>Overall: 0.77 (C) 32</u> EBL = 0.23 (B) 15 EBT = 0.79 (C) 29 EBR = 0.1 (B) 17 WBL = 0.55 (B) 16 WBT = 0.49 (C) 25 WBR = 0.09 (D) 54 NBL = 0.27 (C) 33 NBT = 0.04 (C) 31 NBR = 0.05 (C) 31 SBL = 0.87 (E) 70 SBTR = 0.12 (D) 39	EBL = 24 m EBT = 99 m EBR = 47 m WBL = 32 m WBT = 74 m WBR = 30 m NBL = 38 m NBT = 12 m NBR = 22 m SBL = 49 m SBTR = 103 m	<u>Overall: 0.75 (C) 31</u> EBL = 0.46 (C) 25 EBT = 0.72 (C) 33 EBR = 0.16 (C) 23 WBL = 0.8 (C) 22 WBT = 0.76 (C) 27 WBR = 0.18 (C) 32 NBL = 0.58 (C) 33 NBT = 0.14 (C) 28 NBR = 0.06 (C) 27 SBL = 0.66 (E) 60 SBTR = 0.14 (D) 43	EBL = 22 m EBT = 112 m EBR = 49 m WBL = 55 m WBT = 124 m WBR = 49 m NBL = 63 m NBT = 72 m NBR = 15 m SBL = 46 m SBTR = 49 m
Future Total 2027	<u>Overall: 0.77 (C) 32</u> EBL = 0.48 (B) 16 EBT = 0.78 (C) 29 EBR = 0.1 (B) 17 WBL = 0.55 (B) 16 WBT = 0.52 (C) 28 WBR = 0.09 (E) 61 NBL = 0.3 (C) 33 NBT = 0.04 (C) 31 NBR = 0.05 (C) 31 SBL = 0.86 (E) 68 SBTR = 0.16 (D) 40	EBL = 40 m EBT = 107 m EBR = 50 m WBL = 31 m WBT = 93 m WBR = 57 m NBL = 35 m NBT = 14 m NBR = 18 m SBL = 49 m SBTR = 92 m	<u>Overall: 0.77 (C) 33</u> EBL = 0.79 (D) 48 EBT = 0.72 (C) 33 EBR = 0.16 (C) 23 WBL = 0.8 (C) 22 WBT = 0.78 (C) 29 WBR = 0.19 (D) 38 NBL = 0.64 (C) 34 NBT = 0.14 (C) 28 NBR = 0.06 (C) 27 SBL = 0.66 (E) 60 SBTR = 0.18 (D) 43	EBL = 44 m EBT = 99 m EBR = 47 m WBL = 53 m WBT = 92 m WBR = 73 m NBL = 64 m NBT = 84 m NBR = 17 m SBL = 48 m SBTR = 52 m
Future Background 2032	<u>Overall: 0.85 (D) 36</u> EBL = 0.28 (B) 16 EBT = 0.89 (D) 36 EBR = 0.12 (B) 18 WBL = 0.53 (B) 16 WBT = 0.55 (C) 25 WBR = 0.1 (D) 51 NBL = 0.3 (C) 33 NBT = 0.04 (C) 31 NBR = 0.05 (C) 31 SBL = 0.94 (F) 82 SBTR = 0.12 (D) 39	EBL = 24 m EBT = 111 m EBR = 61 m WBL = 31 m WBT = 80 m WBR = 43 m NBL = 39 m NBT = 16 m NBR = 22 m SBL = 48 m SBTR = 118 m	<u>Overall: 0.83 (C) 31</u> EBL = 0.46 (C) 23 EBT = 0.77 (C) 31 EBR = 0.17 (C) 21 WBL = 0.86 (E) 57 WBT = 0.81 (C) 30 WBR = 0.2 (B) 18 NBL = 0.74 (D) 45 NBT = 0.16 (C) 27 NBR = 0.06 (C) 26 SBL = 0.44 (C) 33 SBTR = 0.1 (C) 26	EBL = 23 m EBT = 112 m EBR = 55 m WBL = 70 m WBT = 125 m WBR = 84 m NBL = 67 m NBT = 123 m NBR = 21 m SBL = 46 m SBTR = 39 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
Future Total 2032	<u>Overall: 0.89 (D) 38</u>		<u>Overall: 0.92 (D) 38</u>	
	EBL = 0.69 (C) 30	EBL = 123 m	EBL = 0.93 (E) 75	EBL = 176 m
	EBT = 0.91 (D) 38	EBT = 373 m	EBT = 0.8 (C) 33	EBT = 513 m
	EBR = 0.12 (B) 18	EBR = 86 m	EBR = 0.18 (C) 21	EBR = 94 m
	WBL = 0.53 (B) 18	WBL = 32 m	WBL = 0.86 (E) 57	WBL = 71 m
	WBT = 0.66 (C) 30	WBT = 97 m	WBT = 0.9 (D) 38	WBT = 137 m
	WBR = 0.1 (D) 52	WBR = 73 m	WBR = 0.21 (C) 21	WBR = 82 m
	NBL = 0.38 (C) 33	NBL = 39 m	NBL = 0.93 (E) 71	NBL = 68 m
	NBT = 0.04 (C) 31	NBT = 119 m	NBT = 0.16 (C) 27	NBT = 131 m
	NBR = 0.05 (C) 31	NBR = 27 m	NBR = 0.06 (C) 26	NBR = 27 m
	SBL = 0.94 (F) 82	SBL = 47 m	SBL = 0.44 (C) 33	SBL = 49 m
	SBTR = 0.2 (D) 39	SBTR = 261 m	SBTR = 0.16 (C) 27	SBTR = 140 m

Under existing conditions, the intersection of Dundas Street East and Ernest Appelbe Boulevard is operating at satisfactory levels with an overall v/c ratio of 0.63 LOS C and 0.62 LOS B during the a.m. and p.m. peak hours respectively. There are no individual approaches operation at critical levels.

With the addition of corridor growth, background traffic, and signal optimization under the future background 2027 scenario, the overall intersection v/c ratios increase to 0.77 LOS C during the a.m. peak hour and to 0.75 LOS C during the p.m. peak hour. There continues to be no reported critical approaches at this intersection.

Under the 2027 future total traffic condition, with the addition of Phase 2A to 2D site trips, the overall intersection continues to operate below critical levels, reporting a v/c ratio of 0.77 LOS C during the a.m. peak hour (unchanged from future background scenario) and 0.77 LOS C during the p.m. peak hour (an increase of 0.02).

Under the 2032 future background scenario, including corridor growth, background developments, and signal optimization, the overall v/c ratio of the intersection remains at satisfactory levels. The intersection reports an overall v/c ratio of 0.85 LOS D during the a.m. peak hour (critical) and 0.83 LOS C during the p.m. peak hour. Only the eastbound through movement during the a.m. peak hour has reached a critical level but remain below the theoretical capacity of 1.00.

With the addition of all site generated traffic under the 2032 future total scenario, the overall v/c ratio of the intersection increases, with the overall intersection reaching critical levels during both peak hours (0.89 LOS D during the a.m. peak hour and 0.92 LOS D during the p.m. peak hour). The eastbound through movement continues to operate at a critical level during the a.m. peak hour while the westbound through movement has begun to operate at a critical level during the p.m. peak hour. Both critical movements remain below the theoretical capacity level of 1.00.

There are no geometric improvements recommended for this intersection with the exception of signal timing optimization in response to the addition of site generated traffic to this study intersection.

7.5 Ernest Appelbe Boulevard and Wheat Boom Drive

Table 15 Capacity analysis of Ernest Appelbe Boulevard and Wheat Boom Drive

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
Existing 2022	EBTLR = 0.1 (A) 8 WBTL = 0.03 (A) 8 WBTR = 0 (A) 7 NBTL = 0.12 (A) 8 NBTR = 0.05 (A) 7 SBTL = 0.09 (A) 7 SBTR = 0.1 (A) 7	EBLTR = 17 m WBLT = 11 m WBTR = 4 m NBLT = 16 m NBTR = 12 m SBLT = 14 m SBTR = 13 m	EBTLR = 0.11 (A) 9 WBTL = 0.03 (A) 8 WBTR = 0.01 (A) 7 NBTL = 0.17 (A) 8 NBTR = 0.11 (A) 7 SBT = 0.1 (A) 7 SBTR = 0.11 (A) 7	EBLTR = 22 m WBLT = 11 m WBTR = 6 m NBLT = 17 m NBTR = 12 m SBLT = 13 m SBTR = 14 m
Future Background 2027	EBT = 0.12 (A) 9 WBTL = 0.04 (A) 8 WBTR = 0 (A) 7 NBTL = 0.13 (A) 8 NBTR = 0.15 (A) 7 SBTL = 0.1 (A) 7 SBTR = 0.11 (A) 7	EBLTR = 18 m WBLT = 12 m WBTR = 4 m NBLT = 18 m NBTR = 12 m SBLT = 15 m SBTR = 14 m	EBT = 0.12 (A) 9 WBTL = 0.03 (A) 8 WBTR = 0.01 (A) 7 NBTL = 0.18 (A) 8 NBTR = 0.24 (A) 8 SBTL = 0.12 (A) 8 SBTR = 0.12 (A) 8	EBLTR = 23 m WBLT = 13 m WBTR = 6 m NBLT = 20 m NBTR = 16 m SBLT = 14 m SBTR = 16 m
Future Total 2027	EBT = 0.15 (A) 10 WBTL = 0.14 (A) 9 WBTR = 0.01 (A) 7 NBTL = 0.17 (A) 9 NBTR = 0.22 (A) 8 SBTL = 0.16 (A) 8 SBTR = 0.17 (A) 8	EBLTR = 17 m WBLT = 15 m WBTR = 6 m NBLT = 20 m NBTR = 15 m SBLT = 16 m SBTR = 18 m	EBT = 0.13 (A) 10 WBTL = 0.1 (A) 9 WBTR = 0.02 (A) 8 NBTL = 0.23 (A) 9 NBTR = 0.34 (A) 9 SBTL = 0.16 (A) 8 SBTR = 0.19 (A) 8	EBLTR = 23 m WBLT = 15 m WBTR = 8 m NBLT = 22 m NBTR = 18 m SBLT = 14 m SBTR = 17 m
Future Background 2032	EBT = 0.16 (A) 9 WBTL = 0.04 (A) 8 WBTR = 0 (A) 7 NBTL = 0.15 (A) 8 NBTR = 0.15 (A) 7 SBTL = 0.12 (A) 8 SBTR = 0.13 (A) 8	EBLTR = 17 m WBLT = 12 m WBTR = 4 m NBLT = 19 m NBTR = 13 m SBLT = 16 m SBTR = 16 m	EBT = 0.14 (A) 10 WBTL = 0.03 (A) 8 WBTR = 0.02 (A) 7 NBTL = 0.21 (A) 9 NBTR = 0.26 (A) 8 SBTL = 0.13 (A) 8 SBTR = 0.16 (A) 8	EBLTR = 22 m WBLT = 13 m WBTR = 8 m NBLT = 20 m NBTR = 14 m SBLT = 14 m SBTR = 16 m
Future Total 2032	EBT = 0.18 (B) 10 WBTL = 0.29 (B) 11 WBTR = 0.01 (A) 8 NBTL = 0.19 (A) 9 NBTR = 0.3 (A) 9 SBTL = 0.19 (A) 9 SBTR = 0.2 (A) 9	EBLTR = 17 m WBLT = 18 m WBTR = 6 m NBLT = 20 m NBTR = 19 m SBLT = 15 m SBTR = 16 m	EBT = 0.16 (B) 11 WBTL = 0.25 (B) 11 WBTR = 0.02 (A) 8 NBTL = 0.27 (B) 10 NBTR = 0.47 (A) 12 SBTL = 0.19 (A) 9 SBTR = 0.22 (A) 9	EBLTR = 23 m WBLT = 13 m WBTR = 8 m NBLT = 20 m NBTR = 14 m SBLT = 15 m SBTR = 16 m

Under existing, future background and future total traffic conditions, the intersection of Ernest Appelbe Boulevard and Wheat Boom Drive is reported to operate satisfactorily with substantial reserve capacity, low levels of delay and negligible queueing. All approaches are operating with delays of 12 seconds or less.

There are no geometric improvements recommend for this study intersection.

7.6 Ernest Appelbe Boulevard and Threshing Mill Boulevard

Table 16 Capacity analysis of Ernest Appelbe Boulevard and Threshing Mill Boulevard

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 th % Que.	V/C (LOS) seconds	95 th % Que
Existing 2022	EBR = 0 (A) 7 NBL = 0 (A) 7	EBR = 16 m NBL = 11 m	EBR = 0 (A) 7 NBL = 0 (A) 7	EBR = 14 m NBL = 12 m
Future Background 2027	EBR = 0 (A) 6 NBL = 0 (A) 7	EBR = 15 m NBL = 12 m	EBR = 0 (A) 6 NBL = 0 (A) 7	EBR = 14 m NBL = 12 m
Future Total 2027	EBT = 0 (A) 7 EBTR = 0 (A) 6 WBTL = 0 (A) 8 WBT = 0 (A) 7 NBL = 0 (A) 8 NBR = 0 (A) 6	EBT = 0 m EBTR = 17 m WBTL = 16 m WBT = 0 m NBL = 13 m NBR = 9 m	EBT = 0 (A) 7 EBTR = 0 (A) 6 WBTL = 0 (A) 8 WBT = 0 (A) 7 NBL = 0 (A) 8 NBR = 0 (A) 6	EBT = 0 m EBTR = 14 m WBTL = 16 m WBT = 0 m NBL = 11 m NBR = 11 m
Future Background 2032	EBR = 0 (A) 6 NBL = 0 (A) 8	EBR = 16 m NBL = 12 m	EBR = 0 (A) 6 NBL = 0 (A) 7	EBTR = 14 m NBL = 12 m
Future Total 2032	EBT = 0 (A) 7 EBTR = 0 (A) 6 WBTL = 0 (A) 8 WBT = 0 (A) 7 NBL = 0 (A) 8 NBR = 0 (A) 6	EBT = 0 m EBTR = 15 m WBTL = 15 m WBT = 0 m NBL = 13 m NBR = 8 m	EBT = 0 (A) 7 EBTR = 0 (A) 6 WBTL = 0 (A) 8 WBT = 0 (A) 7 NBL = 0 (A) 8 NBR = 0 (A) 6	EBT = 0 m EBTR = 15 m WBTL = 14 m WBT = 0 m NBL = 13 m NBR = 12 m

Under existing, future background and future total traffic conditions, the intersection of Ernest Appelbe Boulevard and Threshing Mill Boulevard is reported to operate satisfactorily with substantial reserve capacity, low levels of delay and negligible queuing. The estimated volumes at this intersection as low and all approaches are reported delays of 8 seconds or less.

There are no geometric improvements recommend for this study intersection.

8. Proposed Road Network Deviation from Secondary Plan

The North Oakville Secondary Plan Road network included two proposed right-in/out intersections onto Trafalgar Road from the subject site. This included one right-in/out between Wheat Boom Drive and Threshing Mill Boulevard and a second located north of Threshing Mill Boulevard.

The proposed Draft Plan of Subdivision eliminates both right-in/out driveways on Trafalgar Road and assigns all southbound and eastbound right turning vehicles to/from the subject site to the intersections of Trafalgar Road with Threshing Mill Boulevard and Wheat Boom Drive.

The resulting increase in traffic assigned to the intersection of Trafalgar Road with Threshing Mill Boulevard and Wheat Boom Drive from the proposed deviation was confirmed through the capacity analysis of the Future Total 2032 traffic scenario presented in Sections 7.2 and 7.3 to not have a negative impact on the efficiency and operation of these intersections. In particular, the eastbound shared through/right turn lanes which are projected to have a volume at Threshing Mill Boulevard of 441 and 250 trips during the a.m. and p.m. peak hour respectively and at Wheat Boom Drive of 322 and 230 trips during the a.m. and p.m. peak hour respectively.

At Threshing Mill Boulevard, the SimTraffic analysis reports the eastbound shared through/right turn to have a 95th percentile queue length of 87 metres during the a.m. peak hour and 68 metres during the p.m. peak hour. At Wheat Boom Drive, the eastbound shared through/right turn is reported to have a 95th percentile queue length of 74 metres during the a.m. peak hour and 51 metres during the p.m. peak hour. With approximately 100 metres spacing proposed between Trafalgar Road and Street A along both collector roads, the reported 95th percentile queue lengths for the eastbound approaches at both Threshing Mill Boulevard and Wheat Boom Drive for the 2032 total traffic scenario are not shown to extend from Trafalgar Road back to the first intersection of Street A.

Furthermore, as summarized in **Table 12** and **13**, the capacity analysis of the eastbound shared through movement at both intersections results in low v/c ratios and acceptable delays during the a.m. and p.m. peak hours, and, as a result, the proposed deviations from the Secondary Plan are not expected to negatively impact the functionality or operation of the two intersections on Trafalgar or on Street A.

9. Roadway Elements

9.1 Traffic Calming Measures

GHD recommends placing Curb Extension/Bulb Out on Local and Collector Roads within the proposed subdivision. These curb extensions are described as horizontal intrusion of the curb into the roadway resulting in a narrower section of roadway. They are usually placed at intersections but may also be placed at mid-block locations if there is expected to be a significant volume of pedestrians crossing. Curb extensions and bulb outs are generally used to reduce vehicle speeds, reduce vehicle speeds when turning, reduce the crossing distance for pedestrians while also increasing their visibility, and prevents parking close to intersections. They can also be used to visually enhance the street if they are landscaped. Typically curb extensions where long, straight and uninterrupted sections of a roadway way or exceed 300 metres for roads with a posted speed limit of 50 kph. However, despite the proposed draft plan not containing such long sections of straight and uninterrupted sections of roadways, GHD is recommending some curb extensions and bulb outs as indicated in the figure below.

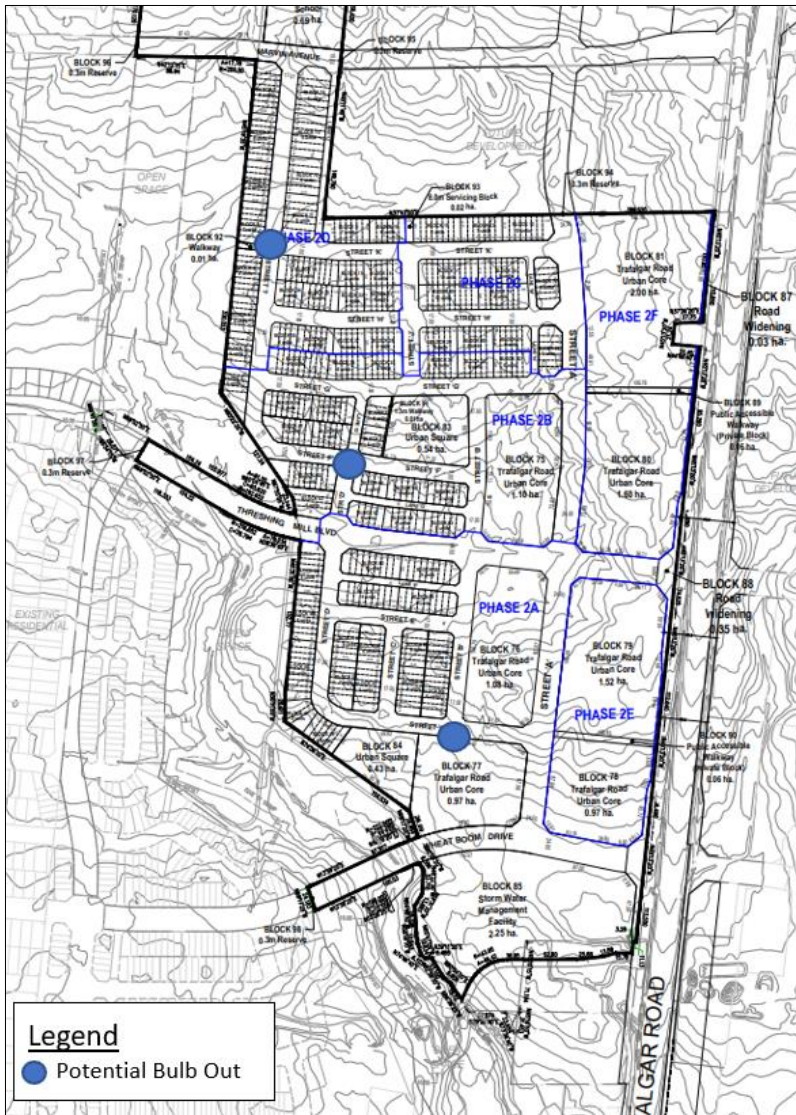


Figure 17 Proposed Traffic Calming Measure Locations

9.2 Active Transportation and Trail Connectivity

Outside of the study area, signed bike routes are currently provided along Threshing Mill Boulevard and Wheat Boom Drive east of Trafalgar Road. These two routes connect the signed route along Eighth Line, which continues southbound towards Dundas Street. At Dundas Street and Eighth Line, a multi-use trail is provided on the south side of the road, as well as the transition of the signed route on Eighth Line into a bike lane south of Dundas Street.

West of Trafalgar Road, Wheat Boom Drive continues to have a signed bike route, as well as North Park Boulevard (the continuation of Threshing Mill Boulevard west of Sixth Line). These two routes continue west until they connect with the multi-use trail and bike lane provided at Neyagawa Boulevard.

With the series of cycling infrastructure provided outside of the study area and their connections to other cycling routes, it is recommended to connect the signed routes along Threshing Mill Boulevard and Wheat Boom Drive on both sides of Trafalgar Road along their respective future connections within the proposed subdivision.

Additionally, a series of existing and proposed major trails, pond access and sidewalk crossings are identified on the figure below.

The proposed pedestrian and cyclist facilities and for the subdivision and the major trail proposed on the west side of the major trail are provided in **Figure 18** below.

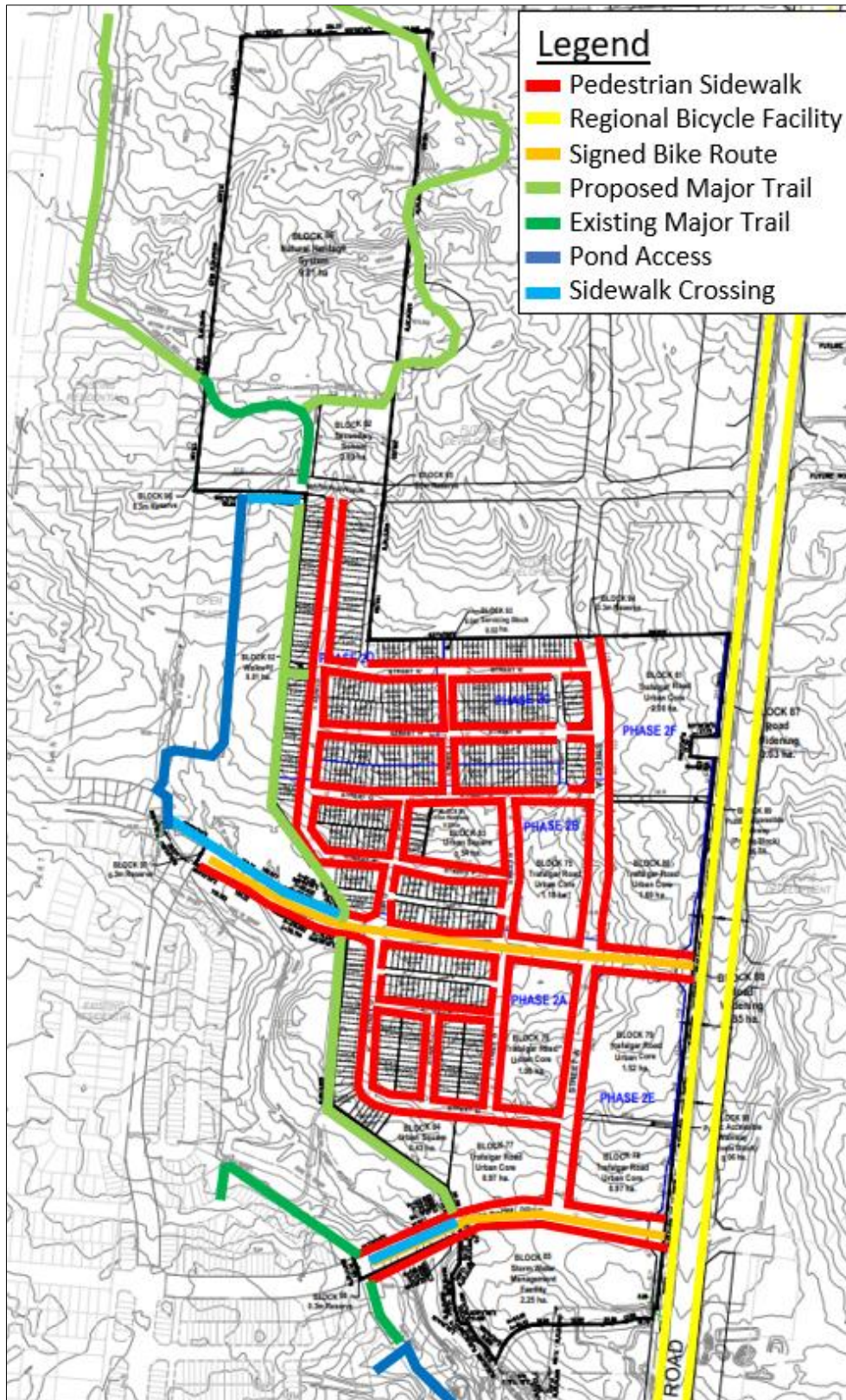


Figure 18 Proposed Pedestrian and Cycling Facilities

9.3 Transit Facilities Plan

A transit facilities plan has been prepared for the proposed subdivision as a separate report. The transit facilities plan has identified five transit stops within the subdivision, as identified on **Figure 19**, in addition to Wheat Boom Drive being identified as a secondary transit corridor and Threshing Mill Boulevard as a local service route. The five transit stops are as follows:

- Eastbound near-side transit stop at Wheat Boom Drive and Trafalgar Road: Stop 'A'
- Eastbound near-side transit stop at Threshing Mill Boulevard and Trafalgar Road: Stop 'A'
- Westbound near-side transit stop at Threshing Mill Boulevard and Ernest Appelbe Boulevard: Stop 'A'
- Eastbound and westbound near-side transit stop at Threshing Mill Boulevard and "Street D": Stop 'A'

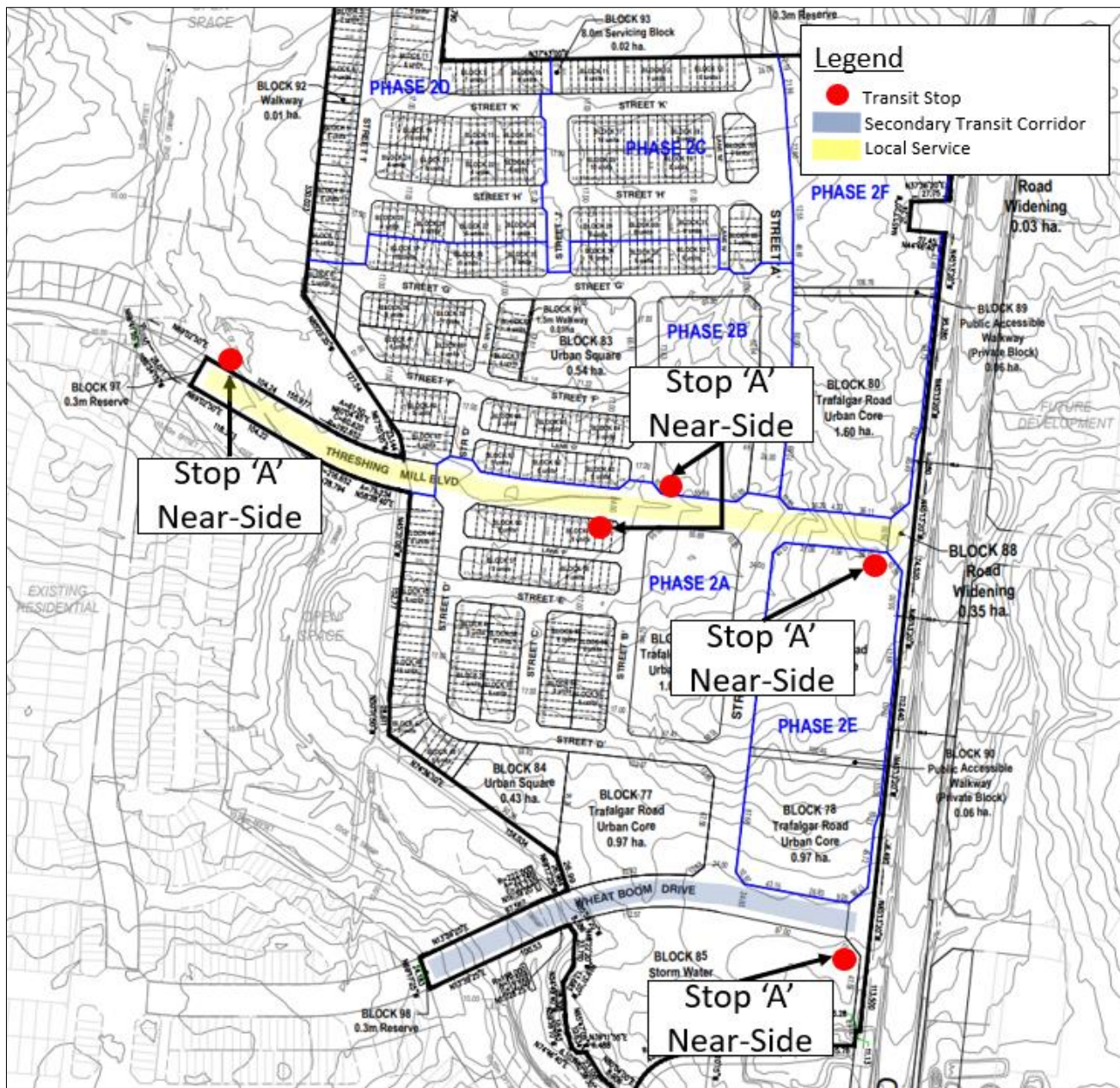


Figure 19 Transit Facilities Plan

10. November 1st, 2021 Pre-Consultation Form Staff Comments

A Pre-Consultation meeting was held in November 2021, and Town staff provided the following comments and requested they be addressed within the Traffic Impact Study. GHD has reviewed the two comments and provided the following responses:

Comment #1: Have your transportation consultant look at all deviations from master plan and discuss/justify any new proposal.

The proposed draft plan for Green Ginger Phase 2 does not provide an extension of Ernest Appelbe Boulevard north of Threshing Mill Boulevard over the Natural Heritage System (NHS) as previously identified in the North Oakville East Secondary Plan. Instead, it provides alternate connectivity via Threshing Mill Boulevard and a proposed new Street 'A', which runs north-south through the draft plan from Wheat Boom Drive north to the future William Halton Parkway.

The alternative road alignment reduces the number of NHS crossings and continues to achieve the required connectivity and transportation goals of the North Oakville East Secondary Plan. To accomplish this, the Town has requested that Threshing Mill Boulevard between Ernest Appelbe Boulevard & Trafalgar Road and the proposed Street 'A' be upgraded to an Avenue/Transit Corridor with a 24 metre right-of-way to provide the same functionality that the previously proposed Ernest Appelbe extension would have achieved.

The findings of the Traffic Study and subsequent capacity analysis confirms that the volumes along the proposed alternative road network are expected to be accommodated by the internal intersection geometry with no transportation issues.

Comment #2: Have consultants address northern block and Marvin/Trafalgar intersection build out?

The future Marvin Road extension from its current terminus just east of Bowbeer Drive to Trafalgar Road will be completed when the development block north of Green Ginger develops sometime in the future. As per the Terms of Reference agreed to with the Town and the Region for the Traffic Impact Study completed for Green Ginger Phase 2, the future development block to the north and the future intersection of Marvin Avenue and Trafalgar Road were not included in the analysis of future traffic scenarios. This extension and future intersection is not required for the development of Green Ginger Phase 2 and will be assessed when an application for the development block to the north is submitted to the Town.

11. Conclusion

The proposed draft plan of subdivision prepared by Malone Given Parsons, dated March 2023 consists of a series of townhouses and urban core blocks. The residential units and commercial retail space are broken down as follows:

- 506 townhouse units (including 15 condominium townhouse units)
- 10 mid-rise buildings with a total of 1,879 residential units
- 8 high-rise buildings with a total of 2,521 residential units and 27,496 square feet of conceptual retail GFA

Parking for the subject site will be provided based on a site-specific Zoning By-law that amends Zoning By-law 2009-189 to require Apartment Buildings or Mixed-Use Buildings to provide a minimum of 0.15 parking spaces per dwelling unit for visitors and 1.0 parking spaces per 30 sq.m. of leasable non-residential floor area.

Access to the proposed subdivision from the regional arterial roads is proposed via Threshing Mill Boulevard, Wheat Boom Drive and Ernest Appelbe Boulevard.

The proposed subdivision is expected to generate a total of 1,558 new two-way trips consisting of 396 inbound and 1,162 outbound trips during weekday a.m. peak hour and 1,682 new two-way trips consisting of 1,015 inbound and 667 outbound trips during the weekday p.m. peak hour.

The intersection of Dundas Street East and Trafalgar Road is reported to operate near or above capacity during both peak hours during the Future Total 2027 and 2032 scenarios. The large v/c ratios, delays, and queues are as a result of general corridor growth up to the 2032 horizon year. With the future completion of the William Halton Parkway, we can expect a decrease in the volume of through traffic along Dundas Street East in both the eastbound and westbound direction, therefore based on the timing of this development we do not anticipate any concerns presently or following the completion of William Halton Parkway. Additionally, Burnhamthorpe Road (located between the subject site and William Halton Parkway) provides an additional east/west route through the Town that can also be used as an alternate route to Dundas Street.

The intersections of Threshing Mill Boulevard at Trafalgar Road and Wheat Boom Drive at Trafalgar Road will have the west approach of the intersection in operation once the first sub-phases of the development are completed. With the additional traffic that will access the subdivision from the south, a northbound left-turn phase has been added to reduce the overall and individual approach v/c ratios.

Under future traffic conditions, the signal timings for all signalized intersections along Trafalgar Road and Dundas Street East were optimized as needed to reduce v/c ratios and delays.

The proposed Green Ginger subdivision proposes a deviation from the secondary plan through the elimination of the Ernest Appelbe extension and crossing of the NHS. The functionality and connectivity is proposed instead through a revised road network that includes Threshing Mill Boulevard and Street A. The findings in the traffic study confirm that there is sufficient capacity along the alternate road network and study intersection to support the deviation.

Appendices

Appendix A

Terms of Reference

Raf Andrenacci

From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: Tuesday, January 4, 2022 11:34 AM
To: Will Maria
Cc: Matt Krusto (InTouch); Leigh Musson; Tricia Collingwood
Subject: RE: TOR for Green Ginger Phase 2

Good Morning Will;

Happy New Year! Please see my comments for the above mentioned TOR:

Study Intersections:

- The study intersections provided are acceptable

Background Development:

Please use the following developments for the Background development application:

- Oakvillage 3 - Tower B - BC Trafalgar Inc. 3220 William Coltson Avenue - 1312.010/02
- MC OakVillage GP Inc - 348 Wheat Boom Drive - 24CDM-21007/1312
- MC Oakvillage - 335, 345 and 349 Wheat Boom Drive - 1312.012/01
- Oakvillage Block 14 - Daniels Emshih - 377, 387 and 411 Dundas Street East - 1312.013/01
- Emshih Developments - 351 Dundas Street East - 1312.009/01
- 3064 Trafalgar Road Inc. - 3064 Trafalgar Road - 1313.006/01
- MC OakVillage Phase 4A/B - 3075 Trafalgar Road - 1312.012/02
- MC Oakvillage Phase 4C - 3075 Trafalgar Road - 1312.012/03
- HCDSB North Oakville #4 Elementary School - 420 Threshing Mill Boulevard - 1311.001/03

All of the above development applications can be found on Town of Oakville's website.

Figures/Tables:

Please provide figures for the following:

- Existing Road Network
- Proposed/Future Road Network
- All Trips along the road network identified within the study area (Existing, future background, site generated, trip distributions and future total(s))

Please provide tables for the following:

- All trips calculated (future background, site generated, future total(s))
- Tabulate the background development site generated traffic
- All intersection capacity analysis movements (LOS, v/c ratio, delays and queue)

Growth Rate/ Horizon:

- The proposed 2% growth rate is acceptable
- The study horizons are acceptable

Thanks for the opportunity to review the TOR. If you have any questions or concerns regarding the above requests, please feel free to contact me.

Regards;
Aquisha

Regards;

Aquisha Khan, P. Eng.

Transportation Engineer,

Transportation and Engineering Department,

Town of Oakville | P: 905-845-6601 | www.oakville.ca

[Complete our Community Development customer service survey](#)

Canada's Best Place to Live (MoneySense 2018)

Please consider the environment before printing this email.

<http://www.oakville.ca/privacy.html>

From: Krusto, Matt

Sent: December 20, 2021 6:30 PM

To: 'Will Maria' ; Aquisha Khan

Subject: RE: TOR for Green Ginger Phase 2

SECURITY CAUTION: This email originated from outside of The Town of Oakville. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Will,

I have the following comments on the terms of reference.

For the *“Transit mode splits, as well as TDM & Active Transportation assumptions”*, please use:

Halton’s Transportation Master Plan 2011 utilizes a transit mode split of 10% for 2021, 15% for 2026 and 20% for 2031. Assumption of travel via other modes (active transportation i.e.: walk, cycle) should utilize a 5% mode split for 2026. Transportation Demand Management (TDM) assumptions of 3% for 2026 would also be acceptable. **Transit mode splits will need to be adjusted from the 2011 TMP assumptions to reasonable percentages based on current year (2021) and 2026 planned and proposed mode splits (based on existing facilities and service in the area to date (planned &/or proposed)). Reasonable assumptions and rationale must be clearly outlined in the Study.**

Any Regional information (traffic counts, signal timing) if needed, can be obtained from Halton through a request to our Road Operations staff at trafficdatarequests@halton.ca

The proposed use of a 2% growth rate is acceptable.

The planned construction start of the Trafalgar Road Improvements Phase 2 project (Hays Boulevard to William Halton Parkway), is scheduled for utility relocation to commence in early 2023 with construction start in late 2023 (scheduling is currently tentative and subject to change). Trafalgar Road should be assumed completed and operational in year 2026.

Study intersections are acceptable.

Town staff will provide all background developments to consider as part of the study.

Thanks again for circulating.

Matt

Matt Krusto

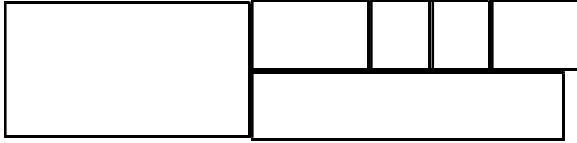
Supervisor, Transportation Development Review

Infrastructure Planning & Policy

Public Works

Halton Region

905-825-6000, ext. 7225 | 1-866-442-5866



This message, including any attachments, is intended only for the person(s) named above and may contain confidential and/or privileged information. Any use, distribution, copying or disclosure by anyone other than the intended recipient is strictly prohibited. If you are not the intended recipient, please notify us immediately by telephone or e-mail and permanently delete the original transmission from us, including any attachments, without making a copy.

From: Will Maria

Sent: December 16, 2021 9:34 AM

To: Krusto, Matt ; Aquisha Khan

Subject: TOR for Green Ginger Phase 2

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure or need assistance please contact the IT Service Desk.

Good morning Matt/Aquisha,

GHD Inc. has been retained to prepare a Transportation Impact Study for the Green Ginger Phase 2 Draft Plan located on the west side of Trafalgar Road north of Dundas Street in the Town of Oakville.

In order to properly scope this project we ask that the Region and Town provide comments on the following scope and confirm if there are any additional items required as part of the study.

The proposed draft plan is attached.

The proposed development consists of 539 townhouse units plus blocks within the Trafalgar Road Urban Core.

The site is accessed via the intersections of Trafalgar Road with Wheat Boom Drive and Threshing Mill Blvd and Ernest Appelbe with Dundas Street.

The main internal intersections will be the intersections of Ernest Appelbe with Wheat Boom and Threshing Mill.

A traffic assessment (horizon years) for existing 2022, five year horizon (2027) for the Townhouse units and 10 year horizon (2032) for the Trafalgar Urban Core blocks from the date of the report is proposed.

Terms of Reference

The following study intersections have been selected and are consistent with the previous study:

- Trafalgar and Dundas
- Trafalgar Road and Wheat Boom

- Trafalgar Road and Threshing Mill
- Dundas and Ernest Appelbe
- Ernest Appelbe and Wheat Boom
- Ernest Appelbe and Threshing Mill

Given the amount of development that has occurred since any traffic data has been collected in the area, GHD proposes to conduct updated traffic counts for the study intersections.

Signal timings will be obtained from the Region.

Traffic due to general background growth (non-specific development traffic) will be accounted for through a 2 percent per annum corridor growth rate (Region and Town roads) as per previous studies in the area.

Future background traffic within the selected planning horizon generated by other developments will be included (please identify if there are specific developments to include as background traffic in addition to general corridor growth estimated at 2% per annum on Town and Region Roads).

Trip generation estimates will be prepared for the weekday am and pm peak hours, for the proposed development using ITE trip generation data.

Transit mode split and non-auto trip rates methodologies will be clearly documented in the report based on TTS data.

The directional distribution of traffic approaching and departing the site (via the driveways) will be determined based upon a review of existing traffic patterns and the Toronto Tomorrow Survey 2016 (TTS).

The site traffic will be assigned to the study area roadway network in accordance with our interpretation of these various patterns.

Analysis to include HOV on Trafalgar for both the 2027 and 2032 horizon years.

Capacity analysis of the study intersections to be completed using Synchro Version 10.

Prepare a Transit Facilities Plan for the draft plan identifying possible transit routes, transit stops and amenities.

If the above scope is acceptable to the Region and Town then it will form the basis of our scope of work.

Sincerely,
Will

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

GHD Ltd.

T: 905 814 4397 | C: 647 229 8541 | V: 881397 | F: 905 890 8499 | E: will.maria@ghd.com
6705 Millcreek Drive Unit 1 Mississauga ON L5N 5M4 | www.ghd.com

[WATER](#) | [ENERGY & RESOURCES](#) | [ENVIRONMENT](#) | [PROPERTY & BUILDINGS](#) | [TRANSPORTATION](#)

Please consider our environment before printing this email

CONFIDENTIALITY NOTICE: This email, including any attachments, is confidential and may be privileged. If you are not the intended recipient please notify the sender immediately, and please delete it; you should not

copy it or use it for any purpose or disclose its contents to any other person. GHD and its affiliates reserve the right to monitor and modify all email communications through their networks.

Appendix B

Traffic Data



Project #22-014 - GHD

Intersection Count Report

Intersection:	Trafalgar Rd & Dundas St E
Municipality:	Oakville
Count Date:	Jan 25, 2022
Site Code:	2201400001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-19:00
Weather:	Clear

Traffic Count Map

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2201400001
Municipality: Oakville
Count Date: Jan 25, 2022



Traffic Count Summary

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

Trafalgar 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	232	281	111	0	624	0	85	187	46	0	318	2	942
08:00 - 09:00	181	304	122	0	607	0	98	232	69	0	399	3	1006
BREAK													
16:00 - 17:00	182	312	153	0	647	1	229	426	109	0	764	1	1411
17:00 - 18:00	152	355	137	0	644	1	242	444	145	0	831	5	1475
18:00 - 19:00	114	260	126	0	500	0	189	428	99	0	716	0	1216
GRAND TOTAL	861	1512	649	0	3022	2	843	1717	468	0	3028	11	6050



Traffic Count Summary

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

Dundas St E - 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	101	506	121	0	728	0	157	1091	48	0	1296	0	2024
08:00 - 09:00	109	694	108	0	911	1	200	1213	145	0	1558	1	2469
BREAK													
16:00 - 17:00	180	1320	172	0	1672	1	232	1152	85	0	1469	1	3141
17:00 - 18:00	225	1425	166	0	1816	0	196	1195	77	0	1468	2	3284
18:00 - 19:00	188	1062	111	0	1361	0	145	974	70	0	1189	1	2550
GRAND TOTAL	803	5007	678	0	6488	2	930	5625	425	0	6980	5	13468



Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	32	51	17	0	100	10	6	2	0	18	0	0	0	0	0	0
07:15	54	65	28	0	147	7	9	3	0	19	0	0	0	0	0	0
07:30	48	69	25	0	142	5	6	4	0	15	0	0	0	0	0	0
07:45	67	70	30	0	167	9	5	2	0	16	0	0	0	0	0	0
08:00	32	41	31	0	104	7	4	6	0	17	0	0	0	0	0	0
08:15	33	82	26	0	141	6	8	3	0	17	0	0	0	0	0	0
08:30	40	73	28	0	141	8	4	3	0	15	0	0	0	0	0	0
08:45	51	87	23	0	161	4	5	2	0	11	0	0	0	0	0	0
SUBTOTAL	357	538	208	0	1103	56	47	25	0	128	0	0	0	0	0	0



Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	53	62	23	0	138	4	5	2	0	11	0	0	0	0	0	0
16:15	49	75	52	0	176	3	6	3	0	12	0	0	0	0	0	0
16:30	34	62	30	0	126	5	4	1	0	10	0	0	0	0	0	0
16:45	30	95	41	0	166	4	3	1	0	8	0	0	0	0	0	1
17:00	38	100	46	0	184	2	3	1	0	6	0	0	0	0	0	0
17:15	41	89	33	0	163	1	4	0	0	5	0	0	0	0	0	0
17:30	34	88	38	0	160	3	3	1	0	7	0	0	0	0	0	0
17:45	32	63	17	0	112	1	5	1	0	7	0	0	0	0	0	1
18:00	35	65	29	0	129	2	2	2	0	6	0	0	0	0	0	0
18:15	24	64	38	0	126	2	3	1	0	6	0	0	0	0	0	0
18:30	26	61	27	0	114	1	1	0	0	2	0	0	0	0	0	0
18:45	22	63	28	0	113	2	1	1	0	4	0	0	0	0	0	0
SUBTOTAL	418	887	402	0	1707	30	40	14	0	84	0	0	0	0	0	2
GRAND TOTAL	775	1425	610	0	2810	86	87	39	0	212	0	0	0	0	0	2



Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	15	27	10	0	52	2	3	1	0	6	0	0	0	0	0	0
07:15	13	59	9	0	81	4	2	0	0	6	0	0	0	0	0	0
07:30	19	48	12	0	79	5	5	1	0	11	0	0	0	0	0	0
07:45	22	36	11	0	69	5	7	2	0	14	0	0	0	0	0	2
08:00	19	45	13	0	77	3	5	0	0	8	0	0	0	0	0	0
08:15	18	53	21	0	92	2	8	1	0	11	0	0	0	0	0	1
08:30	23	50	15	0	88	2	4	2	0	8	0	0	0	0	0	2
08:45	28	58	17	0	103	3	9	0	0	12	0	0	0	0	0	0
SUBTOTAL	157	376	108	0	641	26	43	7	0	76	0	0	0	0	0	5



Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	51	121	23	0	195	5	4	1	0	10	0	0	0	0	0	0
16:15	63	92	38	0	193	3	6	1	0	10	0	0	0	0	0	0
16:30	48	99	30	0	177	1	5	2	0	8	0	0	0	0	0	0
16:45	56	96	14	0	166	2	3	0	0	5	0	0	0	0	0	1
17:00	51	125	38	0	214	1	4	1	0	6	0	0	0	0	0	2
17:15	55	134	48	0	237	0	1	0	0	1	0	0	0	0	0	2
17:30	81	108	27	0	216	2	2	0	0	4	0	0	0	0	0	1
17:45	51	67	30	0	148	1	3	1	0	5	0	0	0	0	0	0
18:00	56	100	31	0	187	0	1	0	0	1	0	0	0	0	0	0
18:15	47	115	23	0	185	2	1	1	0	4	0	0	0	0	0	0
18:30	41	106	24	0	171	1	2	0	0	3	0	0	0	0	0	0
18:45	42	102	20	0	164	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	642	1265	346	0	2253	18	33	7	0	58	0	0	0	0	0	6
GRAND TOTAL	799	1641	454	0	2894	44	76	14	0	134	0	0	0	0	0	11



Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

East Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	18	99	23	0	140	3	12	5	0	20	0	0	0	0	0	0
07:15	17	95	30	0	142	4	19	7	0	30	0	2	0	0	2	0
07:30	20	124	19	0	163	6	11	9	0	26	0	0	0	0	0	0
07:45	30	133	18	0	181	3	11	10	0	24	0	0	0	0	0	0
08:00	29	145	27	0	201	2	16	5	0	23	0	0	0	0	0	1
08:15	27	154	20	0	201	3	9	3	0	15	0	0	0	0	0	0
08:30	14	164	22	0	200	4	18	2	0	24	0	0	0	0	0	0
08:45	27	171	24	0	222	3	17	5	0	25	0	0	0	0	0	0
SUBTOTAL	182	1085	183	0	1450	28	113	46	0	187	0	2	0	0	2	1

Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

East Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	37	280	36	0	353	3	13	4	0	20	0	3	0	0	3	0
16:15	58	315	37	0	410	1	9	5	0	15	0	2	0	0	2	1
16:30	45	335	38	0	418	2	4	2	0	8	0	0	0	0	0	0
16:45	33	356	47	0	436	1	3	3	0	7	0	0	0	0	0	0
17:00	56	363	56	0	475	0	5	1	0	6	0	0	0	0	0	0
17:15	44	393	40	0	477	2	2	4	0	8	0	0	0	0	0	0
17:30	59	343	37	0	439	1	3	2	0	6	0	0	0	0	0	0
17:45	61	314	25	0	400	2	2	1	0	5	0	0	0	0	0	0
18:00	56	288	37	0	381	0	3	0	0	3	0	1	0	0	1	0
18:15	47	272	23	0	342	1	2	1	0	4	0	0	0	0	0	0
18:30	43	232	26	0	301	1	1	2	0	4	0	0	0	0	0	0
18:45	40	262	21	0	323	0	1	1	0	2	0	0	0	0	0	0
SUBTOTAL	579	3753	423	0	4755	14	48	26	0	88	0	6	0	0	6	1
GRAND TOTAL	761	4838	606	0	6205	42	161	72	0	275	0	8	0	0	8	2



Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

West Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	33	197	12	0	242	3	7	1	0	11	0	0	0	0	0	0
07:15	38	247	13	0	298	2	11	0	0	13	0	0	0	0	0	0
07:30	39	264	11	0	314	2	8	2	0	12	0	0	0	0	0	0
07:45	39	346	7	0	392	1	11	2	0	14	0	0	0	0	0	0
08:00	43	316	13	0	372	2	10	4	0	16	0	0	0	0	0	0
08:15	42	346	23	0	411	3	16	3	0	22	0	0	0	0	0	1
08:30	48	274	36	0	358	1	11	5	0	17	0	0	0	0	0	0
08:45	59	228	57	0	344	2	12	4	0	18	0	0	0	0	0	0
SUBTOTAL	341	2218	172	0	2731	16	86	21	0	123	0	0	0	0	0	1



Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Municipality: Oakville
 Count Date: Jan 25, 2022

West Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	59	264	13	0	336	2	15	0	0	17	0	1	0	0	1	0
16:15	56	228	13	0	297	4	14	2	0	20	0	0	0	0	0	0
16:30	42	320	21	0	383	1	8	1	0	10	0	0	0	0	0	0
16:45	66	294	32	0	392	2	8	3	0	13	0	0	0	0	0	1
17:00	57	302	17	0	376	2	9	1	0	12	0	0	0	0	0	0
17:15	49	286	18	0	353	1	10	1	0	12	0	0	0	0	0	1
17:30	46	318	15	0	379	1	7	0	0	8	0	0	0	0	0	1
17:45	38	258	24	0	320	2	5	1	0	8	0	0	0	0	0	0
18:00	37	261	13	0	311	0	4	1	0	5	0	0	0	0	0	0
18:15	42	233	21	0	296	1	6	0	0	7	0	0	0	0	0	0
18:30	33	236	18	0	287	1	6	1	0	8	0	0	0	0	0	1
18:45	31	220	16	0	267	0	8	0	0	8	0	0	0	0	0	0
SUBTOTAL	556	3220	221	0	3997	17	100	11	0	128	0	1	0	0	1	4
GRAND TOTAL	897	5438	393	0	6728	33	186	32	0	251	0	1	0	0	1	5

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2201400001
Count Date: Jan 25, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St E runs E/W

North Approach

	Out	In	Total
	547	491	1038
	60	49	109
	0	0	0
Totals	607	540	1147

Trafalgar Rd

	0	0	0	0
	14	21	25	0
	108	283	156	0
Totals	122	304	181	0

East Approach

	Out	In	Total
	824	1386	2210
	87	77	164
	0	0	0
Totals	911	1463	2374

Dundas St E

				Totals
	0	0	0	0
	0	8	192	200
	0	49	1164	1213
	0	16	129	145

Peds: 0

Peds: 1



Peds: 1

Peds: 3

Dundas St E

Totals			
0	0	0	0
108	93	15	0
694	634	60	0
109	97	12	0

West Approach

	Out	In	Total
	1485	830	2315
	73	84	157
	0	0	0
Totals	1558	914	2472

Totals				
98	88	206	66	0
10	10	26	3	0
0	0	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
	360	509	869
	39	49	88
	0	0	0
Totals	399	558	957

- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Count Date: Jan 25, 2022
 Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Dundas St E						West Approach Dundas St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	39	45	37	0	0	121	22	50	13	0	0	85	31	161	32	0	1	224	45	326	17	0	0	388	818
08:15	39	90	29	0	0	158	20	61	22	0	1	103	30	163	23	0	0	216	45	362	26	0	1	433	910
08:30	48	77	31	0	0	156	25	54	17	0	2	96	18	182	24	0	0	224	49	285	41	0	0	375	851
08:45	55	92	25	0	0	172	31	67	17	0	0	115	30	188	29	0	0	247	61	240	61	0	0	362	896
Grand Total	181	304	122	0	0	607	98	232	69	0	3	399	109	694	108	0	1	911	200	1213	145	0	1	1558	3475
Approach %	29.8	50.1	20.1	0	-	-	24.6	58.1	17.3	0	-	-	12	76.2	11.9	0	-	-	12.8	77.9	9.3	0	-	-	-
Totals %	5.2	8.7	3.5	0	17.5	11.5	2.8	6.7	2	0	11.5	3.1	20	3.1	0	26.2	5.8	34.9	4.2	0	44.8	44.8			
PHF	0.82	0.83	0.82	0	0.88	0.87	0.79	0.87	0.78	0	0.87	0.88	0.92	0.84	0	0.92	0.82	0.84	0.59	0	0.9	0.95	0.95		
Cars	156	283	108	0	547	360	88	206	66	0	360	97	634	93	0	824	192	1164	129	0	1485	3216			
% Cars	86.2	93.1	88.5	0	90.1	90.2	89.8	88.8	95.7	0	90.2	89	91.4	86.1	0	90.5	96	96	89	0	95.3	92.5			
Trucks	25	21	14	0	60	39	10	26	3	0	39	12	60	15	0	87	8	49	16	0	73	259			
% Trucks	13.8	6.9	11.5	0	9.9	9.8	10.2	11.2	4.3	0	9.8	11	8.6	13.9	0	9.5	4	4	11	0	4.7	7.5			
Bicycles	0	0	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	0	0		
Peds					0	-					3	-					1	-					1	-	5
% Peds					0	-					60	-					20	-					20	-	-

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 19:00:00

One Hour Peak

From: 16:45:00
To: 17:45:00

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2201400001
Count Date: Jan 25, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St E runs E/W

North Approach

	Out	In	Total
	673	861	1534
	26	26	52
	0	0	0
Totals	699	887	1586

Trafalgar Rd

	0	0	0	0
	3	13	10	0
	158	372	143	0
Totals	161	385	153	0

East Approach

	Out	In	Total
	1827	1470	3297
	27	45	72
	0	0	0
Totals	1854	1515	3369

Dundas St E

				Totals
	0	0	0	0
	0	6	218	224
	0	34	1200	1234
	0	5	82	87

Peds: 1

Peds: 3



Peds: 0

Peds: 6

Dundas St E

Totals			
0	0	0	0
190	180	10	0
1468	1455	13	0
196	192	4	0

West Approach

	Out	In	Total
	1500	1856	3356
	45	21	66
	0	0	0
Totals	1545	1877	3422

Totals				
248	243	463	127	0
5	5	10	1	0
0	0	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
	833	646	1479
	16	22	38
	0	0	0
Totals	849	668	1517

- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

Intersection: Trafalgar Rd & Dundas St E
 Site Code: 2201400001
 Count Date: Jan 25, 2022
 Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Dundas St E						West Approach Dundas St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:45	34	98	42	0	1	174	58	99	14	0	1	171	34	359	50	0	0	443	68	302	35	0	1	405	1193
17:00	40	103	47	0	0	190	52	129	39	0	2	220	56	368	57	0	0	481	59	311	18	0	0	388	1279
17:15	42	93	33	0	0	168	55	135	48	0	2	238	46	395	44	0	0	485	50	296	19	0	1	365	1256
17:30	37	91	39	0	0	167	83	110	27	0	1	220	60	346	39	0	0	445	47	325	15	0	1	387	1219
Grand Total	153	385	161	0	1	699	248	473	128	0	6	849	196	1468	190	0	0	1854	224	1234	87	0	3	1545	4947
Approach %	21.9	55.1	23	0	-	-	29.2	55.7	15.1	0	-	-	10.6	79.2	10.2	0	-	-	14.5	79.9	5.6	0	-	-	
Totals %	3.1	7.8	3.3	0	14.1	17.2	5	9.6	2.6	0	17.2	37.5	4	29.7	3.8	0	37.5	31.2	4.5	24.9	1.8	0	31.2		
PHF	0.91	0.93	0.86	0	0.92	0.89	0.75	0.88	0.67	0	0.89	0.82	0.93	0.83	0	0.96	0.82	0.95	0.62	0	0.95	0.97	0.97	0.97	
Cars	143	372	158	0	673	833	243	463	127	0	833	1827	192	1455	180	0	1827	218	1200	82	0	1500	4833		
% Cars	93.5	96.6	98.1	0	96.3	98.1	98	97.9	99.2	0	98.1	98.5	98	99.1	94.7	0	98.5	97.3	97.2	94.3	0	97.1	97.7		
Trucks	10	13	3	0	26	16	5	10	1	0	16	27	4	13	10	0	27	6	34	5	0	45	114		
% Trucks	6.5	3.4	1.9	0	3.7	1.9	2	2.1	0.8	0	1.9	1.5	2	0.9	5.3	0	1.5	2.7	2.8	5.7	0	2.9	2.3		
Bicycles	0	0	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	0	0		
Peds					1	-					6	-					0	-					3	-	10
% Peds					10	-					60	-					0	-					30	-	



Project #21-258 - GHD

Intersection Count Report

Intersection:	Trafalgar Rd & Threshing Mill Blvd
Municipality:	Oakville
Count Date:	Nov 25, 2021
Site Code:	2125800001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear

Traffic Count Map

Intersection: Trafalgar Rd & Threshing Mill Blvd
Site Code: 2125800001
Municipality: Oakville
Count Date: Nov 25, 2021





Traffic Count Summary

Intersection: Trafalgar Rd & Threshing Mill Blvd
 Site Code: 2125800001
 Municipality: Oakville
 Count Date: Nov 25, 2021

Trafalgar 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	10	569	0	0	579	0	0	448	15	0	463	0	1042
08:00 - 09:00	20	707	0	0	727	0	0	537	23	0	560	0	1287
BREAK													
16:00 - 17:00	15	569	0	0	584	0	0	769	40	0	809	0	1393
17:00 - 18:00	8	373	0	0	381	0	0	531	14	0	545	0	926
GRAND TOTAL	53	2218	0	0	2271	0	0	2285	92	0	2377	0	4648



Traffic Count Data

Intersection: Trafalgar Rd & Threshing Mill Blvd
 Site Code: 2125800001
 Municipality: Oakville
 Count Date: Nov 25, 2021

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	2	119	0	0	121	0	9	0	0	9	0	0	0	0	0	0
07:15	2	119	0	0	121	0	8	0	0	8	0	0	0	0	0	0
07:30	2	154	0	0	156	0	8	0	0	8	0	0	0	0	0	0
07:45	3	144	0	0	147	1	8	0	0	9	0	0	0	0	0	0
08:00	2	180	0	0	182	1	9	0	0	10	0	0	0	0	0	0
08:15	3	152	0	0	155	2	14	0	0	16	0	0	0	0	0	0
08:30	5	163	0	0	168	0	14	0	0	14	0	0	0	0	0	0
08:45	6	154	0	0	160	1	21	0	0	22	0	0	0	0	0	0
SUBTOTAL	25	1185	0	0	1210	5	91	0	0	96	0	0	0	0	0	0



Traffic Count Data

Intersection: Trafalgar Rd & Threshing Mill Blvd
 Site Code: 2125800001
 Municipality: Oakville
 Count Date: Nov 25, 2021

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	7	127	0	0	134	0	6	0	0	6	0	0	0	0	0	0
16:15	0	142	0	0	142	0	6	0	0	6	0	0	0	0	0	0
16:30	3	142	0	0	145	0	4	0	0	4	0	0	0	0	0	0
16:45	5	138	0	0	143	0	4	0	0	4	0	0	0	0	0	0
17:00	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
17:15	2	126	0	0	128	0	7	0	0	7	0	0	0	0	0	0
17:30	0	114	0	0	114	0	4	0	0	4	0	0	0	0	0	0
17:45	0	118	0	0	118	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	23	907	0	0	930	0	35	0	0	35	0	0	0	0	0	0
GRAND TOTAL	48	2092	0	0	2140	5	126	0	0	131	0	0	0	0	0	0



Traffic Count Data

Intersection: Trafalgar Rd & Threshing Mill Blvd
 Site Code: 2125800001
 Municipality: Oakville
 Count Date: Nov 25, 2021

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	99	6	0	105	0	5	0	0	5	0	0	0	0	0	0
07:15	0	114	3	0	117	0	6	0	0	6	0	0	0	0	0	0
07:30	0	128	1	0	129	0	8	1	0	9	0	0	0	0	0	0
07:45	0	87	2	0	89	0	1	2	0	3	0	0	0	0	0	0
08:00	0	138	4	0	142	0	12	1	0	13	0	0	0	0	0	0
08:15	0	136	2	0	138	0	9	0	0	9	0	0	0	0	0	0
08:30	0	136	7	0	143	0	6	0	0	6	0	0	0	0	0	0
08:45	0	93	8	0	101	0	7	1	0	8	0	0	0	0	0	0
SUBTOTAL	0	931	33	0	964	0	54	5	0	59	0	0	0	0	0	0



Traffic Count Data

Intersection: Trafalgar Rd & Threshing Mill Blvd
 Site Code: 2125800001
 Municipality: Oakville
 Count Date: Nov 25, 2021

East Approach - Threshing Mill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	3	0	5	0	8	0	0	0	0	0	2	0	0	0	2	0
07:15	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0
07:30	2	0	9	0	11	0	0	0	0	0	0	0	0	0	0	0
07:45	7	0	4	0	11	0	0	0	0	0	0	0	0	0	0	0
08:00	5	0	8	0	13	1	0	0	0	1	0	0	0	0	0	0
08:15	6	0	12	0	18	1	0	1	0	2	0	0	0	0	0	0
08:30	4	0	11	0	15	1	0	0	0	1	0	0	0	0	0	0
08:45	5	0	6	0	11	1	0	1	0	2	0	0	0	0	0	0
SUBTOTAL	35	0	57	0	92	4	0	2	0	6	2	0	0	0	2	0



Traffic Count Data

Intersection: Trafalgar Rd & Threshing Mill Blvd
 Site Code: 2125800001
 Municipality: Oakville
 Count Date: Nov 25, 2021

East Approach - Threshing Mill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	6	0	12	0	18	0	0	1	0	1	0	0	0	0	0	0
16:15	3	0	9	0	12	0	0	0	0	0	0	0	0	0	0	0
16:30	9	0	16	0	25	2	0	0	0	2	0	0	0	0	0	0
16:45	3	0	13	0	16	1	0	0	0	1	0	0	0	0	0	0
17:00	4	0	14	0	18	0	0	0	0	0	0	0	0	0	0	0
17:15	2	0	8	0	10	0	0	0	0	0	0	0	0	0	0	0
17:30	5	0	3	0	8	0	0	1	0	1	0	0	0	0	0	0
17:45	4	0	3	0	7	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	36	0	78	0	114	3	0	2	0	5	0	0	0	0	0	0
GRAND TOTAL	71	0	135	0	206	7	0	4	0	11	2	0	0	0	2	0

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 08:00:00
To: 09:00:00




Intersection: Trafalgar Rd & Threshing Mill Blvd
Site Code: 2125800001
Count Date: Nov 25, 2021

Weather conditions: Clear




**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
	665	540	1205
	62	36	98
	0	0	0
Totals	727	576	1303

Trafalgar Rd

	0	0	0
	58	4	0
	649	16	0
Totals	707	20	0






Peds: 0

Peds: 0






Peds: 0

Peds: 0







	Out	In	Total
	503	21	0
	34	2	0
	0	0	0
Totals	537	23	0

Trafalgar Rd




East Approach

	Out	In	Total
	57	37	94
	6	6	12
	0	0	0
Totals	63	43	106


Threshing Mill Blvd

Totals			
	0	0	0
	39	37	2
	24	20	4

South Approach

	Out	In	Total
	524	669	1193
	36	62	98
	0	0	0
Totals	560	731	1291

 - Cars

 - Trucks

 - Bicycles

Comments



Peak Hour Summary

Intersection: Trafalgar Rd & Threshing Mill Blvd
 Site Code: 2125800001
 Count Date: Nov 25, 2021
 Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Threshing Mill Blvd						West Approach						Total Vehicles	
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total		
08:00	3	189		0	0	192		150	5	0	0	155	6		8	0	0	14					0		361	
08:15	5	166		0	0	171		145	2	0	0	147	7		13	0	0	20					0		338	
08:30	5	177		0	0	182		142	7	0	0	149	5		11	0	0	16					0		347	
08:45	7	175		0	0	182		100	9	0	0	109	6		7	0	0	13					0		304	
Grand Total	20	707		0	0	727		537	23	0	0	560	24		39	0	0	63					0	0	1350	
Approach %	2.8	97.2		0	-			95.9	4.1	0	-		38.1		61.9	0	-									
Totals %	1.5	52.4		0	53.9			39.8	1.7	0	41.5		1.8		2.9	0	4.7									
PHF	0.71	0.94		0	0.95			0.9	0.64	0	0.9		0.86		0.75	0	0.79					0		0.93		
Cars	16	649		0	665			503	21	0	524		20	37	0	57							0		1246	
% Cars	80	91.8		0	91.5			93.7	91.3	0	93.6		83.3	94.9	0	90.5							0		92.3	
Trucks	4	58		0	62			34	2	0	36		4	2	0	6							0		104	
% Trucks	20	8.2		0	8.5			6.3	8.7	0	6.4		16.7	5.1	0	9.5							0		7.7	
Bicycles	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	
Peds				0	-					0	-					0	-						0	-	0	
% Peds				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: Trafalgar Rd & Threshing Mill Blvd
Site Code: 2125800001
Count Date: Nov 25, 2021

Weather conditions: Clear




**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
	564	787	1351
	20	33	53
	0	0	0
Totals	584	820	1404

Trafalgar Rd

	0	0	0
	20	0	0
	549	15	0
Totals	569	15	0






Peds: 0

Peds: 0






Peds: 0

Peds: 0







	Out	In	Total
Totals	769	40	0
	737	37	0
	32	3	0
	0	0	0

Trafalgar Rd




East Approach

	Out	In	Total
	71	52	123
	4	3	7
	0	0	0
Totals	75	55	130

Threshing Mill Blvd

	Totals			
	0	0	0	0
	51	50	1	0
	24	21	3	0

South Approach

	Out	In	Total
	774	570	1344
	35	23	58
	0	0	0
Totals	809	593	1402

 - Cars

 - Trucks

 - Bicycles

Comments

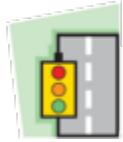


Peak Hour Summary

Intersection: Trafalgar Rd & Threshing Mill Blvd
 Site Code: 2125800001
 Count Date: Nov 25, 2021
 Period: 16:00 - 18:00

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

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Threshing Mill Blvd						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	7	133		0	0	140		184	10	0	0	194	6		13	0	0	19					0		353
16:15	0	148		0	0	148		188	15	0	0	203	3		9	0	0	12					0		363
16:30	3	146		0	0	149		199	6	0	0	205	11		16	0	0	27					0		381
16:45	5	142		0	0	147		198	9	0	0	207	4		13	0	0	17					0		371
Grand Total	15	569		0	0	584		769	40	0	0	809	24		51	0	0	75					0	0	1468
Approach %	2.6	97.4		0	-			95.1	4.9	0	-		32		68	0	-						0		
Totals %	1	38.8		0	39.8			52.4	2.7	0	55.1		1.6		3.5	0	5.1						0		
PHF	0.54	0.96		0	0.98			0.97	0.67	0	0.98		0.55		0.8	0	0.69					0		0.96	
Cars	15	549		0	564		737	37	0	774	21	50	0	71								0		1409	
% Cars	100	96.5		0	96.6		95.8	92.5	0	95.7	87.5	98	0	94.7								0		96	
Trucks	0	20		0	20		32	3	0	35	3	1	0	4								0		59	
% Trucks	0	3.5		0	3.4		4.2	7.5	0	4.3	12.5	2	0	5.3								0		4	
Bicycles	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	
Peds				0	-					0	-						0	-				0	-	0	
% Peds				0	-					0	-						0	-				0	-	0	



Ontario Traffic Inc.
TRAFFIC MONITORING  SERVICES & PRODUCTS

Project #20-158 - GHD

Intersection Count Report

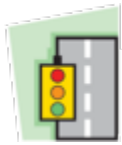
Intersection: Trafalgar Rd & Wheat Boom Dr
Municipality: Oakville
Count Date: Sep 29, 2020
Site Code: 2015800001
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-09:00, 16:00-18:00
Weather: Clear



Traffic Count Map

Intersection: Trafalgar Rd & Wheat Boom Dr
Municipality: Oakville
Count Date: Sep 29, 2020





Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Trafalgar Rd & Wheat Boom Dr
Municipality: Oakville
Count Date: Sep 29, 2020

Trafalgar Rd - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	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	6	866	0	0	872	0	0	733	4	0	737	0
08:00 - 09:00	9	852	0	0	861	0	0	740	17	0	757	0
BREAK												
16:00 - 17:00	17	843	0	0	860	0	0	1090	26	0	1116	0
17:00 - 18:00	12	919	0	0	931	0	0	1122	39	0	1161	0
GRAND TOTAL	44	3480	0	0	3524	0	0	3685	86	0	3771	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Trafalgar Rd & Wheat Boom Dr

Municipality: Oakville

Count Date: Sep 29, 2020

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	134	0	0	134	1	22	0	0	23	0	0	0	0	0	0
07:15	0	198	0	0	198	1	23	0	0	24	0	0	0	0	0	0
07:30	1	219	0	0	220	1	27	0	0	28	0	0	0	0	0	0
07:45	1	214	0	0	215	1	29	0	0	30	0	0	0	0	0	0
08:00	2	202	0	0	204	3	35	0	0	38	0	0	0	0	0	0
08:15	1	188	0	0	189	0	25	0	0	25	0	0	0	0	0	0
08:30	0	182	0	0	182	2	18	0	0	20	0	0	0	0	0	0
08:45	1	179	0	0	180	0	23	0	0	23	0	0	0	0	0	0
SUBTOTAL	6	1516	0	0	1522	9	202	0	0	211	0	0	0	0	0	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Trafalgar Rd & Wheat Boom Dr

Municipality: Oakville

Count Date: Sep 29, 2020

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	3	177	0	0	180	0	17	0	0	17	0	0	0	0	0	0
16:15	3	192	0	0	195	0	19	0	0	19	0	0	0	0	0	0
16:30	2	199	0	0	201	1	24	0	0	25	0	0	0	0	0	0
16:45	7	197	0	0	204	1	18	0	0	19	0	0	0	0	0	0
17:00	3	186	0	0	189	1	14	0	0	15	0	0	0	0	0	0
17:15	3	202	0	0	205	0	17	0	0	17	0	0	0	0	0	0
17:30	1	227	0	0	228	0	26	0	0	26	0	0	0	0	0	0
17:45	4	226	0	0	230	0	21	0	0	21	0	0	0	0	0	0
SUBTOTAL	26	1606	0	0	1632	3	156	0	0	159	0	0	0	0	0	0
GRAND TOTAL	32	3122	0	0	3154	12	358	0	0	370	0	0	0	0	0	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Trafalgar Rd & Wheat Boom Dr

Municipality: Oakville

Count Date: Sep 29, 2020

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	139	0	0	139	0	19	2	0	21	0	0	0	0	0	0
07:15	0	152	0	0	152	0	23	0	0	23	0	0	0	0	0	0
07:30	0	186	0	0	186	0	28	0	0	28	0	0	0	0	0	0
07:45	0	160	1	0	161	0	26	1	0	27	0	0	0	0	0	0
08:00	0	153	2	0	155	0	27	1	0	28	0	0	0	0	0	0
08:15	0	138	4	0	142	0	25	0	0	25	0	0	0	0	0	0
08:30	0	165	2	0	167	0	19	0	0	19	0	0	0	0	0	0
08:45	0	192	7	0	199	0	21	1	0	22	0	0	0	0	0	0
SUBTOTAL	0	1285	16	0	1301	0	188	5	0	193	0	0	0	0	0	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Trafalgar Rd & Wheat Boom Dr
Municipality: Oakville
Count Date: Sep 29, 2020

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	202	4	0	206	0	30	1	0	31	0	0	0	0	0	0
16:15	0	242	8	0	250	0	25	0	0	25	0	0	0	0	0	0
16:30	0	250	4	0	254	0	31	0	0	31	0	0	0	0	0	0
16:45	0	278	8	0	286	0	32	1	0	33	0	0	0	0	0	0
17:00	0	266	11	0	277	0	26	0	0	26	0	0	0	0	0	0
17:15	0	259	7	0	266	0	28	0	0	28	0	0	0	0	0	0
17:30	0	247	7	0	254	0	27	2	0	29	0	0	0	0	0	0
17:45	0	243	11	0	254	0	26	1	0	27	0	0	0	0	0	0
SUBTOTAL	0	1987	60	0	2047	0	225	5	0	230	0	0	0	0	0	0
GRAND TOTAL	0	3272	76	0	3348	0	413	10	0	423	0	0	0	0	0	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Trafalgar Rd & Wheat Boom Dr

Municipality: Oakville

Count Date: Sep 29, 2020

East Approach - Wheat Boom Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	1	0	5	0	6	0	0	1	0	1	0	0	0	0	0	0
07:15	2	0	1	0	3	2	0	0	0	2	0	0	0	0	0	0
07:30	0	0	3	0	3	1	0	1	0	2	0	0	0	0	0	0
07:45	1	0	8	0	9	0	0	0	0	0	0	0	0	0	0	0
08:00	3	0	5	0	8	0	0	1	0	1	0	0	0	0	0	0
08:15	4	0	3	0	7	3	0	0	0	3	0	0	0	0	0	0
08:30	2	0	7	0	9	0	0	1	0	1	0	0	0	0	0	0
08:45	1	0	3	0	4	0	0	2	0	2	0	0	0	0	0	0
SUBTOTAL	14	0	35	0	49	6	0	6	0	12	0	0	0	0	0	0



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

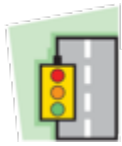
Intersection: Trafalgar Rd & Wheat Boom Dr

Municipality: Oakville

Count Date: Sep 29, 2020

East Approach - Wheat Boom Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	4	0	2	0	6	0	0	1	0	1	0	0	0	0	0	0
16:15	1	0	8	0	9	0	0	4	0	4	0	0	0	0	0	0
16:30	2	0	10	0	12	0	0	2	0	2	0	0	0	0	0	0
16:45	4	0	11	0	15	0	0	1	0	1	0	0	0	0	0	0
17:00	4	0	10	0	14	0	0	3	0	3	0	0	0	0	0	0
17:15	3	0	15	0	18	0	0	1	0	1	0	0	0	0	0	0
17:30	7	0	10	0	17	0	0	0	0	0	0	0	0	0	0	0
17:45	2	0	5	0	7	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	27	0	71	0	98	0	0	12	0	12	0	0	0	0	0	0
GRAND TOTAL	41	0	106	0	147	6	0	18	0	24	0	0	0	0	0	0



Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 07:15:00
To: 08:15:00

Intersection: Trafalgar Rd & Wheat Boom Dr
Site ID: 2015800001
Count Date: Sep 29, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
	837	668	1505
	120	106	226
	0	0	0
Totals	957	774	1731

Trafalgar Rd

	0	0	0
	114	6	0
	833	4	0
Totals	947	10	0

East Approach

	Out	In	Total
	23	7	30
	5	8	13
	0	0	0
Totals	28	15	43

Peds: 0

Peds: 0



Peds: 0

Peds: 0

Wheat Boom Dr

Totals			
0	0	0	0
19	17	2	0
9	6	3	0

South Approach

	Out	In	Total
	654	839	1493
	106	117	223
	0	0	0
Totals	760	956	1716

Trafalgar Rd

Totals	755	5	0
	651	3	0
	104	2	0
	0	0	0

- Cars

- Trucks

- Bicycles

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Trafalgar Rd & Wheat Boom Dr
Count Date: Sep 29, 2020
Period: 07:00 - 09:00

Peak Hour Data (07:15 - 08:15)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Wheat Boom Dr						West Approach						Total Vehicles	
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total		
07:15	1	221		0	0	222		175	0	0	0	175	4		1	0	0	5					0		402	
07:30	2	246		0	0	248		214	0	0	0	214	1		4	0	0	5					0		467	
07:45	2	243		0	0	245		186	2	0	0	188	1		8	0	0	9					0		442	
08:00	5	237		0	0	242		180	3	0	0	183	3		6	0	0	9					0		434	
Grand Total	10	947		0	0	957		755	5	0	0	760	9		19	0	0	28					0	0	1745	
Approach %	1	99		0		-		99.3	0.7	0		-	32.1		67.9	0		-							-	
Totals %	0.6	54.3		0		54.8		43.3	0.3	0		43.6	0.5		1.1	0		1.6							0	
PHF	0.5	0.96		0		0.96		0.88	0.42	0		0.89	0.56		0.59	0		0.78					0		0.93	
Cars	4	833		0		837		651	3	0		654	6		17	0		23					0		1514	
% Cars	40	88		0		87.5		86.2	60	0		86.1	66.7		89.5	0		82.1					0		86.8	
Trucks	6	114		0		120		104	2	0		106	3		2	0		5					0		231	
% Trucks	60	12		0		12.5		13.8	40	0		13.9	33.3		10.5	0		17.9					0		13.2	
Bicycles	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	
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: 16:45:00
To: 17:45:00

Intersection: Trafalgar Rd & Wheat Boom Dr
Site ID: 2015800001
Count Date: Sep 29, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
	826	1096	1922
	77	118	195
	0	0	0
Totals	903	1214	2117

Trafalgar Rd

	0	0	0
	75	2	0
	812	14	0
Totals	887	16	0

East Approach

	Out	In	Total
	64	47	111
	5	5	10
	0	0	0
Totals	69	52	121

Peds: 0

Peds: 0



Peds: 0

Peds: 0

Wheat Boom Dr

Totals			
0	0	0	0
51	46	5	0
18	18	0	0

South Approach

	Out	In	Total
	1083	830	1913
	116	75	191
	0	0	0
Totals	1199	905	2104

Trafalgar Rd

Totals	1163	36	0
	1050	33	0
	113	3	0
	0	0	0

- Cars

- Trucks

- Bicycles

Comments



Ontario Traffic Inc.
TRAFFIC MONITORING + SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Trafalgar Rd & Wheat Boom Dr
Count Date: Sep 29, 2020
Period: 16:00 - 18:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Wheat Boom Dr						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:45	8	215		0	0	223		310	9	0	0	319	4		12	0	0	16					0		558
17:00	4	200		0	0	204		292	11	0	0	303	4		13	0	0	17					0		524
17:15	3	219		0	0	222		287	7	0	0	294	3		16	0	0	19					0		535
17:30	1	253		0	0	254		274	9	0	0	283	7		10	0	0	17					0		554
Grand Total	16	887		0	0	903		1163	36	0	0	1199	18		51	0	0	69					0	0	2171
Approach %	1.8	98.2		0	-	-		97	3	0	-	-	26.1		73.9	0	-	-					-	-	-
Totals %	0.7	40.9		0	41.6		53.6	1.7	0	55.2		0.8		2.3	0	3.2							0		
PHF	0.5	0.88		0	0.89		0.94	0.82	0	0.94		0.64		0.8	0	0.91							0	0.97	
Cars	14	812		0	826		1050	33	0	1083		18		46	0	64						0		1973	
% Cars	87.5	91.5		0	91.5		90.3	91.7	0	90.3		100		90.2	0	92.8						0		90.9	
Trucks	2	75		0	77		113	3	0	116		0		5	0	5						0		198	
% Trucks	12.5	8.5		0	8.5		9.7	8.3	0	9.7		0		9.8	0	7.2						0		9.1	
Bicycles	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	
Peds					0	-				0	-					0	-					0	-	0	
% Peds					0	-				0	-					0	-					0	-	0	



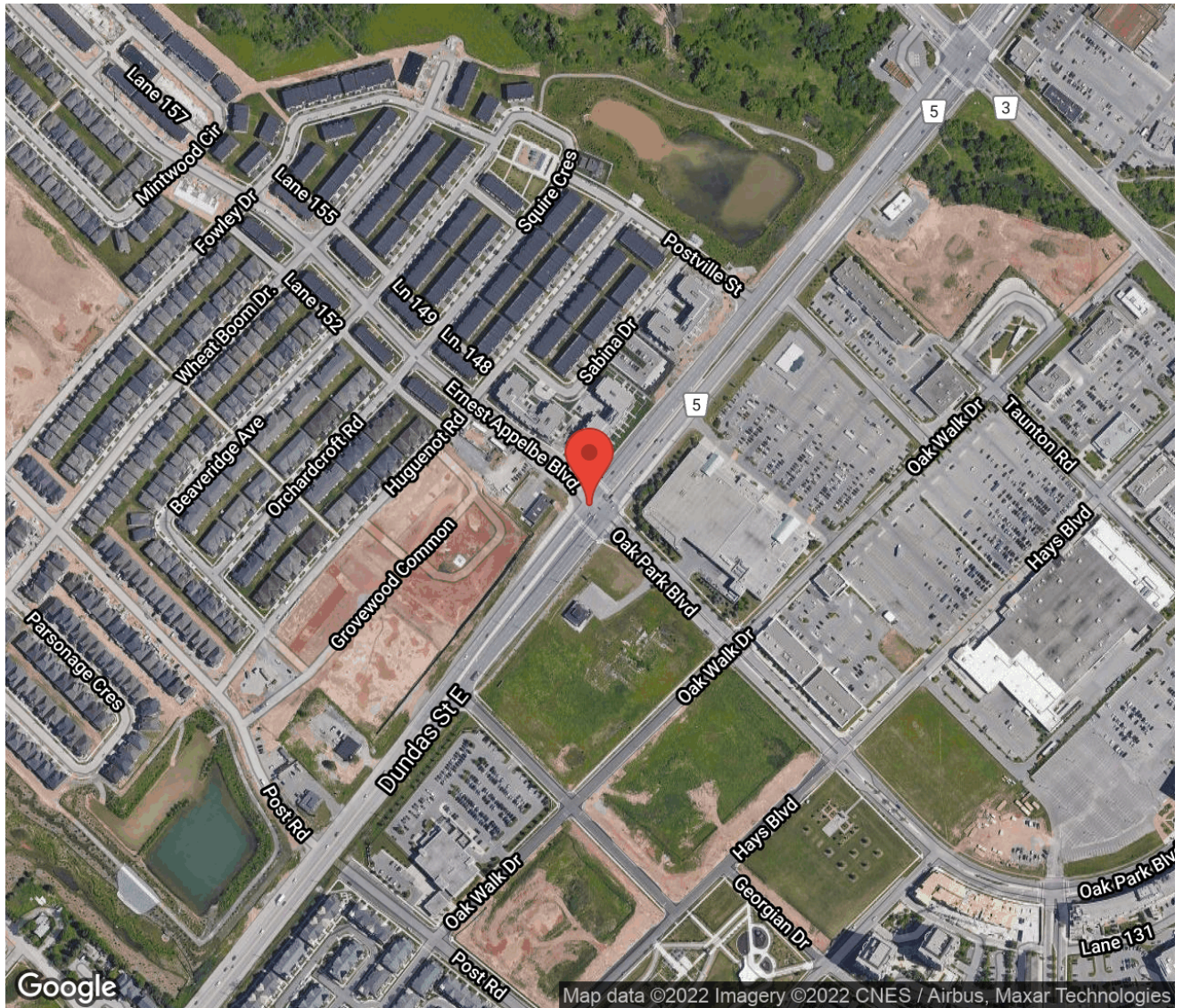
Project #22-014 - GHD

Intersection Count Report

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
Municipality: Oakville
Count Date: Jan 25, 2022
Site Code: 2201400002
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-09:00, 16:00-19:00
Weather: Clear

Traffic Count Map

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022





Traffic Count Summary

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

Ernest Applebe Blvd - 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	144	31	25	0	200	0	44	9	71	0	124	0	324
08:00 - 09:00	245	64	44	0	353	3	89	20	62	0	171	1	524
BREAK													
16:00 - 17:00	139	65	38	0	242	2	228	73	66	0	367	7	609
17:00 - 18:00	161	60	47	0	268	0	260	86	75	0	421	14	689
18:00 - 19:00	120	54	28	0	202	1	204	81	63	0	348	0	550
GRAND TOTAL	809	274	182	0	1265	6	825	269	337	0	1431	22	2696



Traffic Count Summary

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

Dundas St E - 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	50	678	26	0	754	3	22	1299	59	0	1380	0	2134
08:00 - 09:00	78	833	85	0	996	4	23	1451	109	0	1583	2	2579
BREAK													
16:00 - 17:00	182	1400	109	0	1691	8	32	1230	157	0	1419	5	3110
17:00 - 18:00	184	1322	148	0	1654	5	43	1079	183	0	1305	9	2959
18:00 - 19:00	146	989	144	0	1279	9	37	834	160	0	1031	0	2310
GRAND TOTAL	640	5222	512	0	6374	29	157	5893	668	0	6718	16	13092



Traffic Count Data

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

North Approach - Ernest Applebe Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	18	5	1	0	24	0	1	0	0	1	0	0	0	0	0	0
07:15	29	2	6	0	37	0	0	1	0	1	0	0	0	0	0	0
07:30	44	7	9	0	60	1	2	0	0	3	0	0	0	0	0	0
07:45	50	14	7	0	71	2	0	1	0	3	0	0	0	0	0	0
08:00	70	15	14	0	99	0	1	0	0	1	0	0	0	0	0	0
08:15	64	16	9	0	89	2	0	1	0	3	0	0	0	0	0	1
08:30	60	16	11	0	87	0	3	2	0	5	0	0	0	0	0	2
08:45	49	12	5	0	66	0	1	2	0	3	0	0	0	0	0	0
SUBTOTAL	384	87	62	0	533	5	8	7	0	20	0	0	0	0	0	3



Traffic Count Data

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

North Approach - Ernest Applebe Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	38	8	11	0	57	1	1	0	0	2	1	0	0	0	1	2
16:15	34	20	13	0	67	1	0	0	0	1	0	0	0	0	0	0
16:30	26	9	4	0	39	1	1	2	0	4	0	0	0	0	0	0
16:45	36	24	7	0	67	1	1	1	0	3	0	1	0	0	1	0
17:00	36	14	9	0	59	0	0	2	0	2	0	0	0	0	0	0
17:15	45	16	9	0	70	0	3	2	0	5	0	0	0	0	0	0
17:30	41	10	14	0	65	0	1	0	0	1	0	0	0	0	0	0
17:45	39	15	11	0	65	0	1	0	0	1	0	0	0	0	0	0
18:00	28	11	8	0	47	0	0	0	0	0	0	0	0	0	0	1
18:15	35	18	6	0	59	0	1	0	0	1	0	0	0	0	0	0
18:30	35	7	7	0	49	0	0	0	0	0	0	0	0	0	0	0
18:45	22	16	7	0	45	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	415	168	106	0	689	4	10	7	0	21	1	1	0	0	2	3
GRAND TOTAL	799	255	168	0	1222	9	18	14	0	41	1	1	0	0	2	6



Traffic Count Data

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

South Approach - Oak Park Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	8	0	18	0	26	3	0	3	0	6	0	0	0	0	0	0
07:15	2	2	21	0	25	1	2	3	0	6	0	0	0	0	0	0
07:30	14	2	11	0	27	1	0	1	0	2	0	0	0	0	0	0
07:45	15	2	12	0	29	0	1	2	0	3	0	0	0	0	0	0
08:00	16	1	9	0	26	1	0	2	0	3	0	0	0	0	0	0
08:15	22	4	14	0	40	5	1	4	0	10	0	0	0	0	0	0
08:30	21	11	10	0	42	3	0	2	0	5	0	0	0	0	0	1
08:45	21	2	18	0	41	0	1	3	0	4	0	0	0	0	0	0
SUBTOTAL	119	24	113	0	256	14	5	20	0	39	0	0	0	0	0	1



Traffic Count Data

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

South Approach - Oak Park Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	61	24	18	0	103	3	2	1	0	6	0	0	0	0	0	0
16:15	38	9	13	0	60	0	2	4	0	6	0	0	0	0	0	1
16:30	70	15	10	0	95	0	1	3	0	4	0	0	0	0	0	1
16:45	55	20	16	0	91	1	0	1	0	2	0	0	0	0	0	5
17:00	62	22	16	0	100	1	1	2	0	4	0	0	0	0	0	8
17:15	74	25	20	0	119	1	0	2	0	3	0	0	0	0	0	2
17:30	66	19	19	0	104	0	1	0	0	1	0	0	0	0	0	1
17:45	54	18	14	0	86	2	0	2	0	4	0	0	0	0	0	3
18:00	48	14	8	0	70	0	1	0	0	1	0	0	0	0	0	0
18:15	61	19	15	0	95	1	0	1	0	2	0	0	0	0	0	0
18:30	48	25	15	0	88	0	1	3	0	4	0	0	0	0	0	0
18:45	46	21	20	0	87	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	683	231	184	0	1098	9	9	20	0	38	0	0	0	0	0	21
GRAND TOTAL	802	255	297	0	1354	23	14	40	0	77	0	0	0	0	0	22



Traffic Count Data

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

East Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	7	135	3	0	145	1	13	1	0	15	0	0	0	0	0	0
07:15	7	136	5	0	148	1	25	1	0	27	0	2	0	0	2	2
07:30	14	165	6	0	185	3	13	2	0	18	0	0	0	0	0	0
07:45	16	174	7	0	197	1	15	1	0	17	0	0	0	0	0	1
08:00	15	186	11	0	212	2	20	2	0	24	0	0	0	0	0	0
08:15	18	182	20	0	220	0	12	0	0	12	0	0	0	0	0	2
08:30	15	208	23	0	246	0	23	0	0	23	0	0	0	0	0	1
08:45	28	181	27	0	236	0	21	2	0	23	0	0	0	0	0	1
SUBTOTAL	120	1367	102	0	1589	8	142	9	0	159	0	2	0	0	2	7

Traffic Count Data

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

East Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	41	305	25	0	371	1	17	2	0	20	1	3	0	0	4	4
16:15	50	387	29	0	466	0	14	0	0	14	0	2	0	0	2	1
16:30	45	316	29	0	390	0	3	2	0	5	0	0	0	0	0	0
16:45	44	349	22	0	415	0	4	0	0	4	0	0	0	0	0	3
17:00	53	332	23	0	408	0	7	0	0	7	0	0	0	0	0	0
17:15	44	351	44	0	439	0	3	0	0	3	0	0	0	0	0	0
17:30	44	335	48	0	427	0	6	0	0	6	0	0	0	0	0	3
17:45	43	284	33	0	360	0	4	0	0	4	0	0	0	0	0	2
18:00	36	280	31	0	347	3	3	1	0	7	0	0	0	0	0	4
18:15	43	244	36	0	323	0	1	1	0	2	0	1	0	0	1	2
18:30	36	205	38	0	279	0	2	0	0	2	0	0	0	0	0	1
18:45	28	250	37	0	315	0	3	0	0	3	0	0	0	0	0	2
SUBTOTAL	507	3638	395	0	4540	4	67	6	0	77	1	6	0	0	7	22
GRAND TOTAL	627	5005	497	0	6129	12	209	15	0	236	1	8	0	0	9	29



Traffic Count Data

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

West Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	2	232	7	0	241	0	5	1	0	6	0	0	0	0	0	0
07:15	3	306	10	0	319	6	7	2	0	15	0	0	0	0	0	0
07:30	4	336	9	0	349	0	6	0	0	6	0	0	0	0	0	0
07:45	4	396	27	0	427	3	11	3	0	17	0	0	0	0	0	0
08:00	2	350	24	0	376	1	13	0	0	14	0	0	0	0	0	0
08:15	5	393	26	0	424	4	11	3	0	18	0	0	0	0	0	0
08:30	3	334	27	0	364	1	12	0	0	13	0	0	0	0	0	2
08:45	4	324	28	0	356	3	14	1	0	18	0	0	0	0	0	0
SUBTOTAL	27	2671	158	0	2856	18	79	10	0	107	0	0	0	0	0	2



Traffic Count Data

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Municipality: Oakville
 Count Date: Jan 25, 2022

West Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	5	296	35	0	336	0	14	0	0	14	0	0	0	0	0	0
16:15	3	316	34	0	353	0	14	1	0	15	0	0	0	0	0	1
16:30	11	286	35	0	332	1	3	1	0	5	0	0	0	0	0	0
16:45	12	294	48	0	354	0	7	3	0	10	0	0	0	0	0	4
17:00	5	293	40	0	338	0	8	3	0	11	0	0	0	0	0	6
17:15	10	260	48	0	318	0	8	0	0	8	0	0	0	0	0	1
17:30	20	286	47	0	353	0	5	1	0	6	0	0	0	0	0	2
17:45	8	215	44	0	267	0	4	0	0	4	0	0	0	0	0	0
18:00	5	250	43	0	298	0	2	0	0	2	0	0	0	0	0	0
18:15	12	201	38	0	251	0	5	1	0	6	0	0	0	0	0	0
18:30	7	187	26	0	220	0	3	2	0	5	0	0	0	0	0	0
18:45	10	178	50	0	238	3	8	0	0	11	0	0	0	0	0	0
SUBTOTAL	108	3062	488	0	3658	4	81	12	0	97	0	0	0	0	0	14
GRAND TOTAL	135	5733	646	0	6514	22	160	22	0	204	0	0	0	0	0	16

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: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
Site Code: 2201400002
Count Date: Jan 25, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St E runs E/W

North Approach

	Out	In	Total
	346	93	439
	12	14	26
	0	0	0
Totals	358	107	465

Ernest Applebe Blvd

	0	0	0	0
	4	4	4	0
	41	61	244	0
Totals	45	65	248	0

East Approach

	Out	In	Total
	875	1762	2637
	76	61	137
	0	0	0
Totals	951	1823	2774

Dundas St E

				Totals
	0	0	0	0
	0	9	14	23
	0	47	1473	1520
	0	6	104	110

Peds: 3

Peds: 2



Peds: 4

Peds: 1

Dundas St E

Totals			
0	0	0	0
64	61	3	0
820	750	70	0
67	64	3	0

West Approach

	Out	In	Total
	1591	865	2456
	62	83	145
	0	0	0
Totals	1653	948	2601

Totals			
83	74	18	45
20	9	2	10
55	0	0	0
0	0	0	0

Oak Park Blvd

South Approach

	Out	In	Total
	137	229	366
	21	13	34
	0	0	0
Totals	158	242	400

- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Count Date: Jan 25, 2022
 Period: 07:00 - 09:00

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

Start Time	North Approach Ernest Applebe Blvd						South Approach Oak Park Blvd						East Approach Dundas St E						West Approach Dundas St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:45	52	14	8	0	0	74	15	3	14	0	0	32	17	189	8	0	1	214	7	407	30	0	0	444	764
08:00	70	16	14	0	0	100	17	1	11	0	0	29	17	206	13	0	0	236	3	363	24	0	0	390	755
08:15	66	16	10	0	1	92	27	5	18	0	0	50	18	194	20	0	2	232	9	404	29	0	0	442	816
08:30	60	19	13	0	2	92	24	11	12	0	1	47	15	231	23	0	1	269	4	346	27	0	2	377	785
Grand Total	248	65	45	0	3	358	83	20	55	0	1	158	67	820	64	0	4	951	23	1520	110	0	2	1653	3120
Approach %	69.3	18.2	12.6	0	-	-	52.5	12.7	34.8	0	-	-	7	86.2	6.7	0	-	-	1.4	92	6.7	0	-	-	
Totals %	7.9	2.1	1.4	0	11.5		2.7	0.6	1.8	0	5.1		2.1	26.3	2.1	0	30.5		0.7	48.7	3.5	0	53		
PHF	0.89	0.86	0.8	0	0.9		0.77	0.45	0.76	0	0.79		0.93	0.89	0.7	0	0.88		0.64	0.93	0.92	0	0.93	0.96	
Cars	244	61	41	0	346		74	18	45	0	137		64	750	61	0	875		14	1473	104	0	1591	2949	
% Cars	98.4	93.8	91.1	0	96.6		89.2	90	81.8	0	86.7		95.5	91.5	95.3	0	92		60.9	96.9	94.5	0	96.2	94.5	
Trucks	4	4	4	0	12		9	2	10	0	21		3	70	3	0	76		9	47	6	0	62	171	
% Trucks	1.6	6.2	8.9	0	3.4		10.8	10	18.2	0	13.3		4.5	8.5	4.7	0	8		39.1	3.1	5.5	0	3.8	5.5	
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					3	-					1	-					4	-					2	-	10
% Peds					30	-					10	-					40	-					20	-	

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 19:00:00

One Hour Peak

From: 16:45:00
To: 17:45:00

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
Site Code: 2201400002
Count Date: Jan 25, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St E runs E/W

North Approach

	Out	In	Total
	261	270	531
	11	2	13
	1	0	1
Totals	273	272	545

Ernest Applebe Blvd

	0	1	0	0
	5	5	1	0
	39	64	158	0
Totals	44	70	159	0

East Approach

	Out	In	Total
	1689	1362	3051
	20	34	54
	0	0	0
Totals	1709	1396	3105

Dundas St E

				Totals
	0	0	0	0
	0	0	47	47
	0	28	1133	1161
	0	7	183	190

Peds: 0

Peds: 13



Peds: 6

Peds: 16

Dundas St E

Totals			
0	0	0	0
137	137	0	0
1387	1367	20	0
185	185	0	0

West Approach

	Out	In	Total
	1363	1663	3026
	35	28	63
	0	0	0
Totals	1398	1691	3089

Totals				
260	257	86	71	0
88	3	2	5	0
76	0	0	0	0

Oak Park Blvd

South Approach

	Out	In	Total
	414	432	846
	10	12	22
	0	1	1
Totals	424	445	869

- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

Intersection: Dundas St E & Ernest Applebe Blvd-Oak Park Blvd
 Site Code: 2201400002
 Count Date: Jan 25, 2022
 Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Ernest Applebe Blvd						South Approach Oak Park Blvd						East Approach Dundas St E						West Approach Dundas St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:45	37	26	8	0	0	71	56	20	17	0	5	93	44	353	22	0	3	419	12	301	51	0	4	364	947
17:00	36	14	11	0	0	61	63	23	18	0	8	104	53	339	23	0	0	415	5	301	43	0	6	349	929
17:15	45	19	11	0	0	75	75	25	22	0	2	122	44	354	44	0	0	442	10	268	48	0	1	326	965
17:30	41	11	14	0	0	66	66	20	19	0	1	105	44	341	48	0	3	433	20	291	48	0	2	359	963
Grand Total	159	70	44	0	0	273	260	88	76	0	16	424	185	1387	137	0	6	1709	47	1161	190	0	13	1398	3804
Approach %	58.2	25.6	16.1	0	-	-	61.3	20.8	17.9	0	-	-	10.8	81.2	8	0	-	-	3.4	83	13.6	0	-	-	
Totals %	4.2	1.8	1.2	0	7.2	6.8	2.3	2	0	11.1	4.9	36.5	3.6	0	44.9	1.2	30.5	5	0	36.8					
PHF	0.88	0.67	0.79	0	0.91	0.87	0.88	0.86	0	0.87	0.87	0.98	0.71	0	0.97	0.59	0.96	0.93	0	0.96	0.99				
Cars	158	64	39	0	261	257	86	71	0	414	185	1367	137	0	1689	47	1133	183	0	1363	3727				
% Cars	99.4	91.4	88.6	0	95.6	98.8	97.7	93.4	0	97.6	100	98.6	100	0	98.8	100	97.6	96.3	0	97.5	98				
Trucks	1	5	5	0	11	3	2	5	0	10	0	20	0	0	20	0	28	7	0	35	76				
% Trucks	0.6	7.1	11.4	0	4	1.2	2.3	6.6	0	2.4	0	1.4	0	0	1.2	0	2.4	3.7	0	2.5	2				
Bicycles	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
% Bicycles	0	1.4	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Peds					0	-				16	-				6	-				13	-	35			
% Peds					0	-				45.7	-				17.1	-				37.1	-				



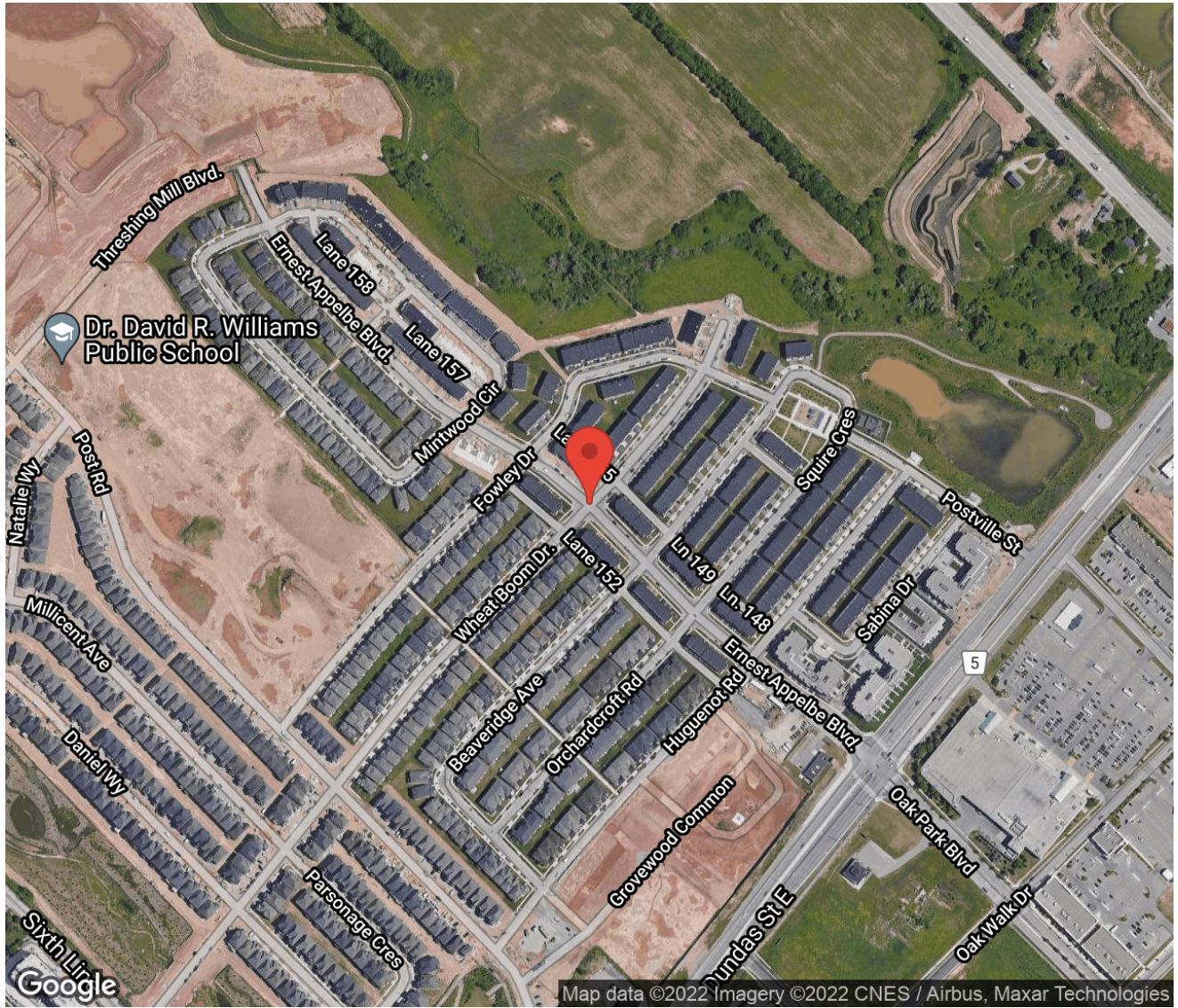
Project #22-014 - GHD

Intersection Count Report

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
Municipality: Oakville
Count Date: Jan 25, 2022
Site Code: 2201400003
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-09:00, 16:00-19:00
Weather: Clear

Traffic Count Map

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
Site Code: 2201400003
Municipality: Oakville
Count Date: Jan 25, 2022





Traffic Count Summary

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Municipality: Oakville
 Count Date: Jan 25, 2022

Ernest Applebe Blvd - 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	57	3	0	60	0	13	31	3	0	47	0	107
08:00 - 09:00	1	117	7	0	125	0	39	63	4	0	106	1	231
BREAK													
16:00 - 17:00	7	120	13	0	140	0	34	130	7	0	171	0	311
17:00 - 18:00	3	94	10	0	107	0	37	112	10	0	159	3	266
18:00 - 19:00	0	62	6	0	68	0	29	74	7	0	110	1	178
GRAND TOTAL	11	450	39	0	500	0	152	410	31	0	593	5	1093

Traffic Count Summary

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Municipality: Oakville
 Count Date: Jan 25, 2022

Wheat Boom Dr - 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	6	1	0	0	7	3	1	1	30	0	32	3	39
08:00 - 09:00	17	3	2	0	22	1	9	2	58	0	69	5	91
BREAK													
16:00 - 17:00	10	8	5	0	23	8	12	3	52	0	67	8	90
17:00 - 18:00	10	4	5	0	19	7	8	3	35	0	46	8	65
18:00 - 19:00	7	1	3	0	11	1	2	5	22	0	29	4	40
GRAND TOTAL	50	17	15	0	82	20	32	14	197	0	243	28	325



Traffic Count Data

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Municipality: Oakville
 Count Date: Jan 25, 2022

North Approach - Ernest Applebe Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds	
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total		
07:00	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	9	1	0	10	0	0	1	0	1	0	0	0	0	0	0	0
07:30	0	18	1	0	19	0	1	0	0	1	0	0	0	0	0	0	0
07:45	0	19	0	0	19	0	1	0	0	1	0	0	0	0	0	0	0
08:00	0	29	2	0	31	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	28	0	0	28	0	2	0	0	2	0	0	0	0	0	0	0
08:30	0	25	2	0	27	0	1	0	0	1	0	0	0	0	0	0	0
08:45	1	32	3	0	36	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	1	169	9	0	179	0	5	1	0	6	0	0	0	0	0	0	0



Traffic Count Data

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Municipality: Oakville
 Count Date: Jan 25, 2022

North Approach - Ernest Applebe Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	27	1	0	28	0	1	1	0	2	0	0	0	0	0	0
16:15	0	28	4	0	32	0	0	2	0	2	0	0	0	0	0	0
16:30	2	30	3	0	35	0	1	0	0	1	0	0	0	0	0	0
16:45	5	33	2	0	40	0	0	0	0	0	0	0	0	0	0	0
17:00	1	25	3	0	29	0	1	0	0	1	0	0	0	0	0	0
17:15	2	25	3	0	30	0	0	0	0	0	0	0	0	0	0	0
17:30	0	24	1	0	25	0	2	0	0	2	0	0	0	0	0	0
17:45	0	16	3	0	19	0	1	0	0	1	0	0	0	0	0	0
18:00	0	16	1	0	17	0	2	0	0	2	0	0	0	0	0	0
18:15	0	17	1	0	18	0	2	0	0	2	0	0	0	0	0	0
18:30	0	13	2	0	15	0	1	0	0	1	0	0	0	0	0	0
18:45	0	11	2	0	13	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	10	265	26	0	301	0	11	3	0	14	0	0	0	0	0	0
GRAND TOTAL	11	434	35	0	480	0	16	4	0	20	0	0	0	0	0	0



Traffic Count Data

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Municipality: Oakville
 Count Date: Jan 25, 2022

South Approach - Ernest Applebe Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds	
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total		
07:00	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
07:15	2	6	1	0	9	2	1	0	0	3	0	0	0	0	0	0	0
07:30	1	8	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0
07:45	4	13	2	0	19	3	1	0	0	4	0	0	0	0	0	0	0
08:00	4	11	1	0	16	0	1	0	0	1	0	0	0	0	0	0	0
08:15	9	16	1	0	26	4	0	0	0	4	0	0	0	0	0	0	0
08:30	10	15	1	0	26	1	0	0	0	1	0	0	0	0	0	0	0
08:45	8	20	1	0	29	3	0	0	0	3	0	0	0	0	0	0	1
SUBTOTAL	39	91	7	0	137	13	3	0	0	16	0	0	0	0	0	0	1



Traffic Count Data

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Municipality: Oakville
 Count Date: Jan 25, 2022

South Approach - Ernest Applebe Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	7	27	3	0	37	1	2	0	0	3	0	0	0	0	0	0
16:15	7	35	2	0	44	1	2	0	0	3	0	0	0	0	0	0
16:30	6	33	2	0	41	2	1	0	0	3	0	0	0	0	0	0
16:45	6	30	0	0	36	4	0	0	0	4	0	0	0	0	0	0
17:00	10	30	4	0	44	1	1	0	0	2	0	0	0	0	0	1
17:15	9	25	1	0	35	2	1	0	0	3	0	0	0	0	0	1
17:30	5	28	3	0	36	1	1	0	0	2	0	0	0	0	0	0
17:45	8	24	2	0	34	1	2	0	0	3	0	0	0	0	0	1
18:00	9	24	2	0	35	0	0	0	0	0	0	0	0	0	0	1
18:15	7	18	1	0	26	1	0	0	0	1	0	0	0	0	0	0
18:30	5	16	2	0	23	1	1	0	0	2	0	0	0	0	0	0
18:45	5	15	2	0	22	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	84	305	24	0	413	16	11	0	0	27	0	0	0	0	0	4
GRAND TOTAL	123	396	31	0	550	29	14	0	0	43	0	0	0	0	0	5



Traffic Count Data

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Municipality: Oakville
 Count Date: Jan 25, 2022

East Approach - Wheat Boom Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	2	2	1	0	5	0	0	0	0	0	0	0	0	0	0	2
16:15	3	0	1	0	4	0	1	0	0	1	0	0	0	0	0	0
16:30	2	1	1	0	4	0	0	0	0	0	0	0	0	0	0	2
16:45	3	4	2	0	9	0	0	0	0	0	0	0	0	0	0	4
17:00	3	2	1	0	6	0	0	0	0	0	0	0	0	0	0	3
17:15	3	0	1	0	4	0	0	2	0	2	0	0	0	0	0	0
17:30	2	2	0	0	4	1	0	0	0	1	0	0	0	0	0	4
17:45	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
18:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:15	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1
18:30	2	1	1	0	4	1	0	0	0	1	0	0	0	0	0	0
18:45	1	0	1	0	2	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	25	12	10	0	47	2	1	3	0	6	0	0	0	0	0	16
GRAND TOTAL	48	16	12	0	76	2	1	3	0	6	0	0	0	0	0	20



Traffic Count Data

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Municipality: Oakville
 Count Date: Jan 25, 2022

West Approach - Wheat Boom Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
07:15	0	0	3	0	3	0	1	1	0	2	0	0	0	0	0	2
07:30	0	0	9	0	9	0	0	3	0	3	0	0	0	0	0	1
07:45	1	0	11	0	12	0	0	2	0	2	0	0	0	0	0	0
08:00	5	1	11	0	17	0	0	1	0	1	0	0	0	0	0	0
08:15	1	0	20	0	21	0	0	0	0	0	0	0	0	0	0	1
08:30	1	1	14	0	16	0	0	2	0	2	0	0	0	0	0	2
08:45	2	0	9	0	11	0	0	1	0	1	0	0	0	0	0	2
SUBTOTAL	10	2	77	0	89	0	1	11	0	12	0	0	0	0	0	8

Traffic Count Data

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Municipality: Oakville
 Count Date: Jan 25, 2022

West Approach - Wheat Boom Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	3	0	9	0	12	0	0	2	0	2	0	0	0	0	0	3
16:15	2	0	8	0	10	1	0	3	0	4	0	0	0	0	0	0
16:30	3	0	9	0	12	0	0	4	0	4	0	0	0	0	0	3
16:45	2	1	11	0	14	1	2	6	0	9	0	0	0	0	0	2
17:00	3	2	8	0	13	0	0	1	0	1	0	0	0	0	0	5
17:15	2	1	10	0	13	0	0	1	0	1	0	0	0	0	0	2
17:30	2	0	6	0	8	1	0	2	0	3	0	0	0	0	0	0
17:45	0	0	6	0	6	0	0	1	0	1	0	0	0	0	0	1
18:00	0	2	6	0	8	0	0	1	0	1	0	0	0	0	0	2
18:15	0	1	6	0	7	0	0	0	0	0	0	0	0	0	0	1
18:30	1	1	4	0	6	0	0	0	0	0	0	0	0	0	0	0
18:45	1	1	4	0	6	0	0	1	0	1	0	0	0	0	0	1
SUBTOTAL	19	9	87	0	115	3	2	22	0	27	0	0	0	0	0	20
GRAND TOTAL	29	11	164	0	204	3	3	33	0	39	0	0	0	0	0	28

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
Site Code: 2201400003
Count Date: Jan 25, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Ernest Applebe Blvd runs N/S

North Approach

	Out	In	Total
	122	73	195
	3	1	4
	0	0	0
Totals	125	74	199

Ernest Applebe Blvd

	0	0	0	0
	0	3	0	0
	7	114	1	0
Totals	7	117	1	0

East Approach

	Out	In	Total
	22	7	29
	0	0	0
	0	0	0
Totals	22	7	29

Wheat Boom Dr

				Totals
	0	0	0	0
	0	0	9	9
	0	0	2	2
	0	4	54	58

Peds: 0



Wheat Boom Dr

Totals			
0	0	0	0
2	2	0	0
3	3	0	0
17	17	0	0

West Approach

	Out	In	Total
	65	41	106
	4	8	12
	0	0	0
Totals	69	49	118

Totals				
39	31	62	4	0
8	8	1	0	0
0	0	0	0	0

Ernest Applebe Blvd

South Approach

Out	In	Total
97	185	282
9	7	16
0	0	0
106	192	298

- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Count Date: Jan 25, 2022
 Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Ernest Applebe Blvd						South Approach Ernest Applebe Blvd						East Approach Wheat Boom Dr						West Approach Wheat Boom Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0	29	2	0	0	31	4	12	1	0	0	17	3	0	0	0	0	3	5	1	12	0	0	18	69
08:15	0	30	0	0	0	30	13	16	1	0	0	30	8	1	1	0	0	10	1	0	20	0	1	21	91
08:30	0	26	2	0	0	28	11	15	1	0	0	27	2	1	0	0	0	3	1	1	16	0	2	18	76
08:45	1	32	3	0	0	36	11	20	1	0	1	32	4	1	1	0	1	6	2	0	10	0	2	12	86
Grand Total	1	117	7	0	0	125	39	63	4	0	1	106	17	3	2	0	1	22	9	2	58	0	5	69	322
Approach %	0.8	93.6	5.6	0	-	-	36.8	59.4	3.8	0	-	-	77.3	13.6	9.1	0	-	-	13	2.9	84.1	0	-	-	-
Totals %	0.3	36.3	2.2	0	-	38.8	12.1	19.6	1.2	0	-	32.9	5.3	0.9	0.6	0	-	6.8	2.8	0.6	18	0	-	21.4	-
PHF	0.25	0.91	0.58	0	-	0.87	0.75	0.79	1	0	-	0.83	0.53	0.75	0.5	0	-	0.55	0.45	0.5	0.73	0	-	0.82	0.88
Cars	1	114	7	0	-	122	31	62	4	0	-	97	17	3	2	0	-	22	9	2	54	0	-	65	306
% Cars	100	97.4	100	0	-	97.6	79.5	98.4	100	0	-	91.5	100	100	100	0	-	100	100	100	93.1	0	-	94.2	95
Trucks	0	3	0	0	-	3	8	1	0	0	-	9	0	0	0	0	-	0	0	0	4	0	-	4	16
% Trucks	0	2.6	0	0	-	2.4	20.5	1.6	0	0	-	8.5	0	0	0	0	-	0	0	0	6.9	0	-	5.8	5
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	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	5	-	7
% Peds	-	-	-	-	0	-	-	-	-	-	14.3	-	-	-	-	-	14.3	-	-	-	-	-	71.4	-	-

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 19:00:00

One Hour Peak

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

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
Site Code: 2201400003
Count Date: Jan 25, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Ernest Applebe Blvd runs N/S

North Approach

	Out	In	Total
	136	143	279
	4	6	10
	0	0	0
Totals	140	149	289

Ernest Applebe Blvd

	0	0	0	0
	2	2	0	0
	12	116	8	0
Totals	14	118	8	0



Peds: 0

East Approach

	Out	In	Total
	23	19	42
	1	2	3
	0	0	0
Totals	24	21	45

Wheat Boom Dr

				Totals
	0	0	0	0
	0	2	10	12
	0	2	3	5
	0	14	36	50

Peds: 10



Peds: 9

Peds: 1

Wheat Boom Dr

Totals			
0	0	0	0
5	5	0	0
8	7	1	0
11	11	0	0

West Approach

	Out	In	Total
	49	48	97
	18	11	29
	0	0	0
Totals	67	59	126

Totals				
37	29	128	8	0
8	8	4	0	0
0	0	0	0	0

Ernest Applebe Blvd

South Approach

Out	In	Total
165	163	328
12	16	28
0	0	0
177	179	356

- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

Intersection: Ernest Applebe Blvd & Wheat Boom Dr
 Site Code: 2201400003
 Count Date: Jan 25, 2022
 Period: 16:00 - 19:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Ernest Applebe Blvd						South Approach Ernest Applebe Blvd						East Approach Wheat Boom Dr						West Approach Wheat Boom Dr						Total Vehic es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:15	0	28	6	0	0	34	8	37	2	0	0	47	3	1	1	0	0	5	3	0	11	0	0	14	100
16:30	2	31	3	0	0	36	8	34	2	0	0	44	2	1	1	0	2	4	3	0	13	0	3	16	100
16:45	5	33	2	0	0	40	10	30	0	0	0	40	3	4	2	0	4	9	3	3	17	0	2	23	112
17:00	1	26	3	0	0	30	11	31	4	0	1	46	3	2	1	0	3	6	3	2	9	0	5	14	96
Grand Total	8	118	14	0	0	140	37	132	8	0	1	177	11	8	5	0	9	24	12	5	50	0	10	67	408
Approach %	5.7	84.3	10	0	-	-	20.9	74.6	4.5	0	-	-	45.8	33.3	20.8	0	-	-	17.9	7.5	74.6	0	-	-	
Totals %	2	28.9	3.4	0	-	34.3	9.1	32.4	2	0	-	43.4	2.7	2	1.2	0	-	5.9	2.9	1.2	12.3	0	-	16.4	
PHF	0.4	0.89	0.58	0	0	0.88	0.84	0.89	0.5	0	0	0.94	0.92	0.5	0.63	0	0	0.67	1	0.42	0.74	0	0	0.73	0.91
Cars	8	116	12	0	-	136	29	128	8	0	-	165	11	7	5	0	-	23	10	3	36	0	-	49	373
% Cars	100	98.3	85.7	0	-	97.1	78.4	97	100	0	-	93.2	100	87.5	100	0	-	95.8	83.3	60	72	0	-	73.1	91.4
Trucks	0	2	2	0	-	4	8	4	0	0	-	12	0	1	0	0	-	1	2	2	14	0	-	18	35
% Trucks	0	1.7	14.3	0	-	2.9	21.6	3	0	0	-	6.8	0	12.5	0	0	-	4.2	16.7	40	28	0	-	26.9	8.6
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	-					1	-					9	-					10	-	20
% Peds					0	-					5	-					45	-					50	-	



Project #22-014 - GHD

Intersection Count Report

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
Municipality: Oakville
Count Date: Jan 25, 2022
Site Code: 2201400004
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-09:00, 16:00-19:00
Weather: Clear

Traffic Count Map

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
Site Code: 2201400004
Municipality: Oakville
Count Date: Jan 25, 2022





Traffic Count Summary

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
 Site Code: 2201400004
 Municipality: Oakville
 Count Date: Jan 25, 2022

Ernest Applebe Blvd - 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	0	0	0	0	0	16	0	0	0	16	1	16
08:00 - 09:00	0	0	0	0	0	0	36	0	0	0	36	0	36
BREAK													
16:00 - 17:00	0	0	0	0	0	0	28	0	0	0	28	0	28
17:00 - 18:00	0	0	0	0	0	0	42	0	0	0	42	1	42
18:00 - 19:00	0	0	0	0	0	0	26	0	0	0	26	1	26
GRAND TOTAL	0	0	0	0	0	0	148	0	0	0	148	3	148



Traffic Count Summary

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
 Site Code: 2201400004
 Municipality: Oakville
 Count Date: Jan 25, 2022

Threshing Mill Blvd - 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	0	0	0	0	0	0	0	0	19	0	19	1	19
08:00 - 09:00	0	0	0	0	0	0	0	0	47	0	47	4	47
BREAK													
16:00 - 17:00	0	0	0	0	0	0	0	0	33	0	33	1	33
17:00 - 18:00	0	0	0	0	0	0	0	0	41	0	41	1	41
18:00 - 19:00	0	0	0	0	0	0	0	0	22	0	22	5	22
GRAND TOTAL	0	0	0	0	0	0	0	0	162	0	162	12	162



Traffic Count Data

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
 Site Code: 2201400004
 Municipality: Oakville
 Count Date: Jan 25, 2022

North Approach - Ernest Applebe Blvd

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Traffic Count Data

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
 Site Code: 2201400004
 Municipality: Oakville
 Count Date: Jan 25, 2022

South Approach - Ernest Applebe Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds	
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total		
07:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
07:15	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
07:30	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
07:45	6	0	0	0	6	1	0	0	0	1	0	0	0	0	0	0	1
08:00	9	0	0	0	9	2	0	0	0	2	0	0	0	0	0	0	0
08:15	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0
08:30	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0
08:45	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	49	0	0	0	49	3	0	0	0	3	0	0	0	0	0	0	1



Traffic Count Data

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
 Site Code: 2201400004
 Municipality: Oakville
 Count Date: Jan 25, 2022

South Approach - Ernest Applebe Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
16:15	6	0	0	0	6	1	0	0	0	1	0	0	0	0	0	0
16:30	8	0	0	0	8	1	0	0	0	1	0	0	0	0	0	0
16:45	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
17:00	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
17:15	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	1
17:30	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0
17:45	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0
18:00	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	1
18:15	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
18:30	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
18:45	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	94	0	0	0	94	2	0	0	0	2	0	0	0	0	0	2
GRAND TOTAL	143	0	0	0	143	5	0	0	0	5	0	0	0	0	0	3



Traffic Count Data

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
 Site Code: 2201400004
 Municipality: Oakville
 Count Date: Jan 25, 2022

West Approach - Threshing Mill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds	
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total		
07:00	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	3	0	3	0	0	1	0	1	0	0	0	0	0	0	0
07:30	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	6	0	6	0	0	1	0	1	0	0	0	0	0	0	1
08:00	0	0	14	0	14	0	0	0	0	0	0	0	0	0	0	0	2
08:15	0	0	14	0	14	0	0	1	0	1	0	0	0	0	0	0	0
08:30	0	0	10	0	10	0	0	1	0	1	0	0	0	0	0	0	2
08:45	0	0	6	0	6	0	0	1	0	1	0	0	0	0	0	0	0
SUBTOTAL	0	0	61	0	61	0	0	5	0	5	0	0	0	0	0	0	5



Traffic Count Data

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
 Site Code: 2201400004
 Municipality: Oakville
 Count Date: Jan 25, 2022

West Approach - Threshing Mill Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	0	5	0	5	0	0	1	0	1	0	0	0	0	0	0
16:15	0	0	7	0	7	0	0	1	0	1	0	0	0	0	0	1
16:30	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	8	0	8	0	0	1	0	1	0	0	0	0	0	0
17:00	0	0	9	0	9	0	0	1	0	1	0	0	0	0	0	0
17:15	0	0	12	0	12	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	9	0	9	0	0	0	0	0	0	0	0	0	0	1
17:45	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	2
18:30	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	2
18:45	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	0	0	92	0	92	0	0	4	0	4	0	0	0	0	0	7
GRAND TOTAL	0	0	153	0	153	0	0	9	0	9	0	0	0	0	0	12

Peak Hour Diagram

Specified Period

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

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
Site Code: 2201400004
Count Date: Jan 25, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Ernest Applebe Blvd runs N/S

North Approach

	Out	In	Total
	0	0	0
	0	0	0
	0	0	0
Totals	0	0	0

Ernest Applebe Blvd

	0	0	0	0
	0	0	0	0
	0	0	0	0
Totals	0	0	0	0

East Approach

	Out	In	Total
	0	0	0
	0	0	0
	0	0	0
Totals	0	0	0

Threshing Mill Blvd

				Totals
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	3	44	47

Peds: 0

Peds: 4



Peds: 0

Peds: 0

Threshing Mill Blvd

Totals			
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

West Approach

	Out	In	Total
	44	34	78
	3	2	5
	0	0	0
Totals	47	36	83

Totals			
36	0	0	0
34	0	0	0
2	0	0	0
0	0	0	0

Ernest Applebe Blvd

South Approach

	Out	In	Total
	34	44	78
	2	3	5
	0	0	0
Totals	36	47	83

- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
 Site Code: 2201400004
 Count Date: Jan 25, 2022
 Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Ernest Applebe Blvd						South Approach Ernest Applebe Blvd						East Approach Threshing Mill Blvd						West Approach Threshing Mill Blvd						Total Vehic es	
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total		
08:00	0	0	0	0	0	0	11	0	0	0	0	11	0	0	0	0	0	0	0	0	14	0	2	14	25	
08:15	0	0	0	0	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	15	0	0	15	22	
08:30	0	0	0	0	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	11	0	2	11	21	
08:45	0	0	0	0	0	0	8	0	0	0	0	8	0	0	0	0	0	0	0	0	7	0	0	7	15	
Grand Total	0	0	0	0	0	0	36	0	0	0	0	36	0	0	0	0	0	0	0	47	0	4	47	83		
Approach %	0	0	0	0	-	-	100	0	0	0	-	-	0	0	0	0	-	-	0	0	100	0	-	-		
Totals %	0	0	0	0	0	0	43.4	0	0	0	0	43.4	0	0	0	0	0	0	0	0	56.6	0	0	56.6		
PHF	0	0	0	0	0	0	0.82	0	0	0	0	0.82	0	0	0	0	0	0	0	0	0	0	0.78	0	0.78	0.83
Cars	0	0	0	0	0	0	34	0	0	0	0	34	0	0	0	0	0	0	0	0	44	0	0	44	78	
% Cars	0	0	0	0	0	0	94.4	0	0	0	0	94.4	0	0	0	0	0	0	0	0	93.6	0	0	93.6	94	
Trucks	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0	0	3	5	
% Trucks	0	0	0	0	0	0	5.6	0	0	0	0	5.6	0	0	0	0	0	0	0	0	6.4	0	0	6.4	6	
Bicycles	0	0	0	0	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	0	0	0	0	
Peds					0	-						0	-								4	-		4		
% Peds					0	-						0	-								100	-				

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 19:00:00

One Hour Peak

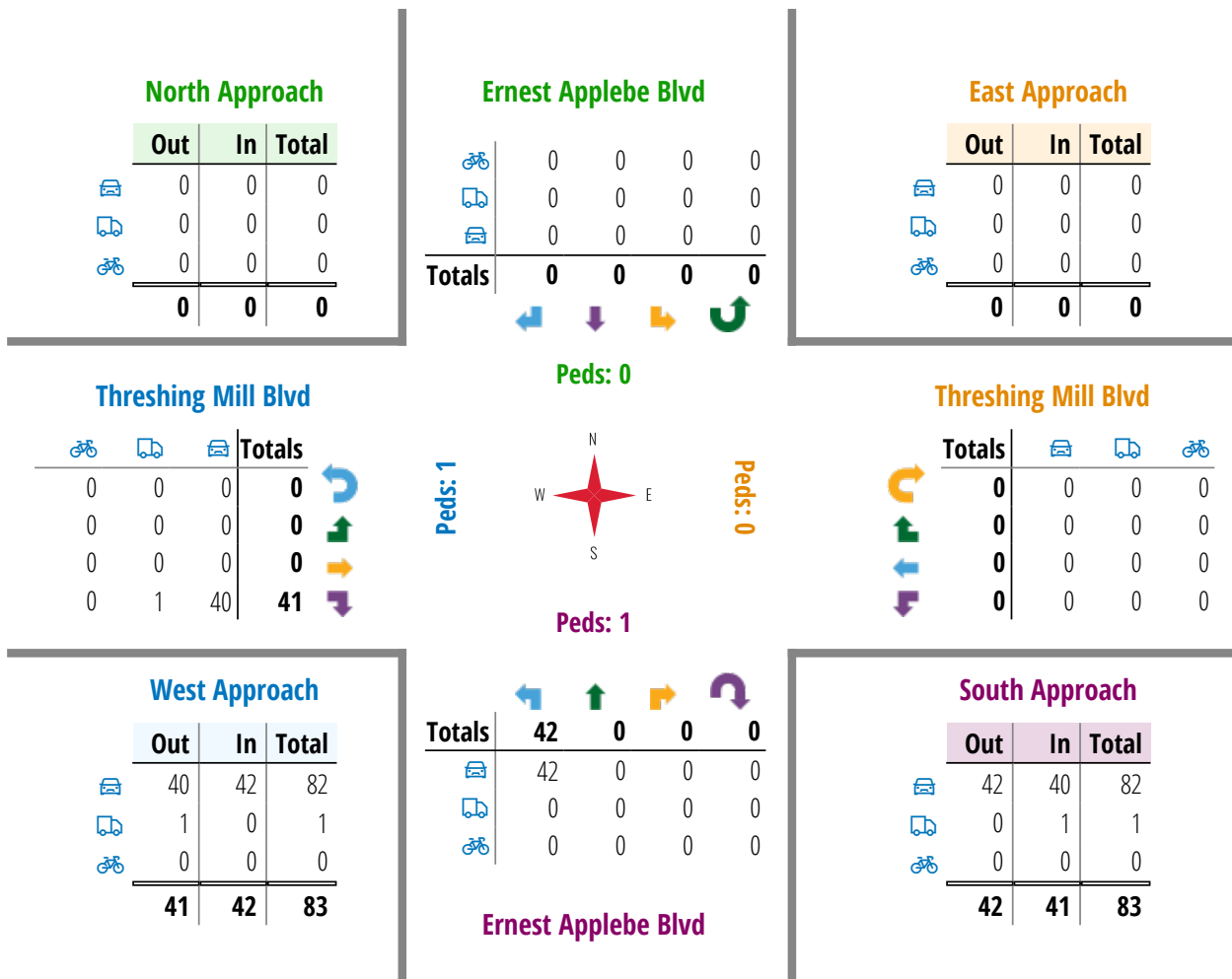
From: 17:00:00
To: 18:00:00

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
Site Code: 2201400004
Count Date: Jan 25, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Ernest Applebe Blvd runs N/S



Car - Cars

Truck - Trucks

Bicycle - Bicycles

Comments



Peak Hour Summary

Intersection: Ernest Applebe Blvd & Threshing Mill Blvd
 Site Code: 2201400004
 Count Date: Jan 25, 2022
 Period: 16:00 - 19:00

Peak Hour Data (17:00 - 18:00)

Start Time	North Approach Ernest Applebe Blvd						South Approach Ernest Applebe Blvd						East Approach Threshing Mill Blvd						West Approach Threshing Mill Blvd						Total Vehi cles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
17:00	0	0	0	0	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	10	0	0	10	17
17:15	0	0	0	0	0	0	10	0	0	0	1	10	0	0	0	0	0	0	0	0	12	0	0	12	22
17:30	0	0	0	0	0	0	12	0	0	0	0	12	0	0	0	0	0	0	0	0	9	0	1	9	21
17:45	0	0	0	0	0	0	13	0	0	0	0	13	0	0	0	0	0	0	0	0	10	0	0	10	23
Grand Total	0	0	0	0	0	0	42	0	0	0	1	42	0	0	0	0	0	0	0	0	41	0	1	41	83
Approach %	0	0	0	0	-	-	100	0	0	0	-	-	0	0	0	0	-	-	0	0	100	0	-	-	
Totals %	0	0	0	0	0	0	50.6	0	0	0	50.6	50.6	0	0	0	0	0	0	0	0	49.4	0	49.4	49.4	
PHF	0	0	0	0	0	0	0.81	0	0	0	0.81	0.81	0	0	0	0	0	0	0	0	0.85	0	0.85	0.85	0.9
Cars	0	0	0	0	0	0	42	0	0	0	42	42	0	0	0	0	0	0	0	0	40	0	40	40	82
% Cars	0	0	0	0	0	0	100	0	0	0	100	100	0	0	0	0	0	0	0	0	97.6	0	97.6	97.6	98.8
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.4	0	2.4	2.4	1.2
Bicycles	0	0	0	0	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	0	0	0	0
Peds					0	-					1	-					0	-					1	-	2
% Peds					0	-					50	-					0	-					50	-	

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Configuration Controller Sequence

Phase Ring Sequence and Assignment (MM) 1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Sequence 1																
Ring 1	| 1	2 |	3	4 |	9	10 |	13	14 |	.	.	.	.	.	.	.	.
Ring 2	| 5	6 |	7	8 |	11	12 |	15	16 |	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	| 2	1 |	3	4 |	10	9 |	13	14 |	.	.	.	.	.	.	.	.
Ring 2	| 5	6 |	7	8 |	11	12 |	15	16 |	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	| 1	2 |	4	3 |	9	10 |	14	13 |	.	.	.	.	.	.	.	.
Ring 2	| 5	6 |	7	8 |	11	12 |	15	16 |	.	.	.	.	.	.	.	.
Sequence 4																
Ring 1	| 2	1 |	4	3 |	10	9 |	14	13 |	.	.	.	.	.	.	.	.
Ring 2	| 5	6 |	7	8 |	11	12 |	15	16 |	.	.	.	.	.	.	.	.
Sequence 5																
Ring 1	| 1	2 |	3	4 |	9	10 |	13	14 |	.	.	.	.	.	.	.	.
Ring 2	| 6	5 |	7	8 |	12	11 |	15	16 |	.	.	.	.	.	.	.	.
Sequence 6																
Ring 1	| 2	1 |	3	4 |	10	9 |	13	14 |	.	.	.	.	.	.	.	.
Ring 2	| 6	5 |	7	8 |	12	11 |	15	16 |	.	.	.	.	.	.	.	.
Sequence 7																
Ring 1	| 1	2 |	4	3 |	9	10 |	14	13 |	.	.	.	.	.	.	.	.
Ring 2	| 6	5 |	7	8 |	12	11 |	15	16 |	.	.	.	.	.	.	.	.
Sequence 8																
Ring 1	| 2	1 |	4	3 |	10	9 |	14	13 |	.	.	.	.	.	.	.	.
Ring 2	| 6	5 |	7	8 |	12	11 |	15	16 |	.	.	.	.	.	.	.	.
Sequence 9																
Ring 1	| 1	2 |	3	4 |	9	10 |	13	14 |	.	.	.	.	.	.	.	.
Ring 2	| 5	6 |	8	7 |	11	12 |	16	15 |	.	.	.	.	.	.	.	.
Sequence 10																
Ring 1	| 2	1 |	3	4 |	10	9 |	13	14 |	.	.	.	.	.	.	.	.
Ring 2	| 5	6 |	8	7 |	11	12 |	16	15 |	.	.	.	.	.	.	.	.
Sequence 11																
Ring 1	| 1	2 |	4	3 |	9	10 |	14	13 |	.	.	.	.	.	.	.	.
Ring 2	| 5	6 |	8	7 |	11	12 |	16	15 |	.	.	.	.	.	.	.	.
Sequence 12																
Ring 1	| 2	1 |	4	3 |	10	9 |	14	13 |	.	.	.	.	.	.	.	.
Ring 2	| 5	6 |	8	7 |	11	12 |	16	15 |	.	.	.	.	.	.	.	.
Sequence 13																
Ring 1	| 1	2 |	3	4 |	9	10 |	13	14 |	.	.	.	.	.	.	.	.
Ring 2	| 6	5 |	8	7 |	12	11 |	16	15 |	.	.	.	.	.	.	.	.
Sequence 14																
Ring 1	| 2	1 |	3	4 |	10	9 |	13	14 |	.	.	.	.	.	.	.	.
Ring 2	| 6	5 |	8	7 |	12	11 |	16	15 |	.	.	.	.	.	.	.	.
Sequence 15																
Ring 1	| 1	2 |	4	3 |	9	10 |	14	13 |	.	.	.	.	.	.	.	.
Ring 2	| 6	5 |	8	7 |	12	11 |	16	15 |	.	.	.	.	.	.	.	.
Sequence 16																
Ring 1	| 2	1 |	4	3 |	10	9 |	14	13 |	.	.	.	.	.	.	.	.
Ring 2	| 6	5 |	8	7 |	12	11 |	16	15 |	.	.	.	.	.	.	.	.

Phases In Use/Exclusive Ped (MM) 1-2

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases In Use	X	X		X		X	X	X								
Exclusive Ped																

Phase Compatibility (MM) 1-1-2

Phase	
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Description																

Administration (MM) 1-7-1

Enable Controller/Cabinet Interlock No
 CRC
 CRC (16 bit) B4E2
 Enable Automatic Backup to Datakey No

Backup Prevent (MM) 1-1-3

Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Timing	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phases	2	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Simultaneous Gap (MM) 1-1-4

Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phase	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Must	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Gap	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
With	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phase	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Disable		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Load Switch Assignments (MM) 1-3

	Phase / Overlap	Type	Dimming				Power Up	Auto		Flash Together
			Red	Yellow	Green	Dark		Red	Yellow	
1	1	V				-	Auto	X		
2	2	V				-	Auto	X		X
3	3	V				-	Auto	X		
4	4	V				-	Auto	X		X
5	5	V				+	Auto	X		
6	6	V				+	Auto	X		X
7	7	V				+	Auto	X		
8	8	V				+	Auto	X		X
9	2	P				-	Auto			
10	4	P				-	Auto			
11	6	P				+	Auto			
12	8	P				+	Auto			
13	1	O				-	Auto	X		
14	2	O				+	Auto	X		X
15	3	O				-	Auto	X		
16	4	O				+	Auto	X		X

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Configuration Port 1 (SDLC)**Port 1 SDLC (MM) 1-4-1**

BIU	1	2	3	4	5	6	7	8
Term & Facility	X	X						
Detector Rack	X							

Enable TS2/MMU Type Cabinet: No

Enable MMU Extended Status: Yes

Enable SDLC Stop Time: No

Enable 3 Critical RFE's Lockup: Yes

MMU Program (MM) 1-4-2

Channel Can Serve With Channel	
Channel 1	Channel 2
1	5
1	6
1	11
1	15
2	5
2	6
2	9
2	11
2	13
2	15
3	7
3	8
3	12
3	16
4	7
4	8
4	10
4	12
4	14
4	16
5	9
5	13
6	9
6	11
6	13
6	15
7	10
7	14
8	10
8	12
8	14
8	16
9	11
9	13
9	15
10	12
10	14
10	16
11	13
11	15

12	14
12	16
13	15
14	16

Color Check Enable (MM) 1-4-3

Enable Color Check: No

MMU/LS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Green																
Yellow																
Red	X		X		X		X									

Secondary Stations/Tests (MM) 1-4-4

ID	1	2	3	4	5	6	7	8	MMU
Term & Facility									

ID	1	2	3	4	5	6	7	8	Diag
Detector Rack									

Enable SDLC Diagnostic Test: No

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Configuration Communications 1 (SDLC)**Ethernet Port Configuration (MM) 1-5-1**

DHCP Enable: No
 Controller IP: 172.16.2.113
 Subnet Mask: 255.255.0.0
 Default Gateway IP: 10.104.0.1
 Server IP: 172.16.0.254

NTCIP (MM) 1-5-5

NTCIP Backup Time (Sec): 0
 NTCIP UDP Port: 501
 Ethernet Priority: 2
 Port 2 Priority (Port C50S for 2070): 4
 Port 3A Priority (Port C21S for 2070): 1
 Port 3B Priority (Port C22S for 2070): 3

Port Configuration (MM) 1-5-2 to 1-5-4

Port	2 (C50S)	3A (C21S)	3B (C22S)
Protocol	GPS NMEA	ECPIP	AB3418
Enable	No	Yes	No
Data Rate (BPS)	4800	9600	1200
Data, Parity, Stop	8 N 1	8 N 1	8 O 1
Address	0	6	6
Telemetry Response Delay	0.0	10.0	1.0
Duplex - Half or Full	Half	Full	Full
Flow Control	No	Yes	Yes
Group Address	0	0	0
Single Flag Enable	Yes	Yes	Yes
RTS to CTS Delay	n/a	n/a	3.0
RTS Turn Off Delay	n/a	n/a	2.0
Dropout Time	10	0	300
Early RTS	n/a	n/a	No
Telemetry Mode	n/a	n/a	FSK
ATCS Railroad	0	n/a	n/a
ATCS Railroad Line	0	n/a	n/a
ATCS Group	0	n/a	n/a
Wayside Device	0	n/a	n/a
ATC Device	0	n/a	n/a
Wayside Subnode	0	n/a	n/a
ATC Subnode	0	n/a	n/a

ECPIP (MM) 1-5-6

Controller Address: 6
 Expanded System Detector Address: 0

System Detector Assignment

System Detector	Local Detector
-----------------	----------------

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Configuration Logging / Display**Event Logging (MM) 1-6-1**

Critical RFE's (MMU/TF)	Yes	3 Critical Errors Within 24 Hours	Yes
MMU Flash Faults	Yes	Local Flash Fault	Yes
Non-Critical RFE's (Det/Test)	Yes	Detector Errors	Yes
Coordination Errors	No	Controller Download	Yes
Preemption Events	Yes	TSP Events	Yes
Power On/Off	Yes	Low Battery	Yes
Access	Yes	Data Change	Yes
Online / Offline	Yes		

Alarm Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable Logging	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Display Options (MM) 1-7-2

Key Click Enable:	No
Backlight Enable:	Yes
LED Mode:	Auto
Display Mode:	Basic
Screen Format:	Advanced
Trans Mode Pop-Up Disable:	No

Sign On (MM) 8-5

Sign On Message Line 1: Solutions that Move the World

Sign On Message Line 2:

Software Modules (MM) 8-7

Application Version: 02.66.10

OS (Boot) Version: 01.14.03



Town of Oakville, ON

MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Logic Processor Page 1

Logic Statement Control (MM) 1-8-1

Logic #	Statement Control
---------	-------------------

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Logic Processor Page 2

Logic Statements (MM) 1-8-2

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Controller Timing Plan (MM) 2-1

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	7	20	0	10	0	20	6	10	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	25	0	27	0	25	0	27	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	3.0	5.5	5.0	5.0	5.0	5.5	5.0	3.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	3.5	0.0	0.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	7	55	0	22	0	55	0	22	35	35	35	35	35	35	35	35
Max2	0	0	0	0	0	0	0	0	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.7	3.0	3.3	3.0	3.7	3.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	2.6	1.0	3.3	1.0	2.6	1.0	3.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Plan 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Controller Overlaps
Vehicle Overlaps (MM) 2-2

Overlap	Type	Lag Green	Yellow	Red	Adv. Green
---------	------	-----------	--------	-----	------------

Phases

Overlap	Phase	Included	Protect	Ped Protect	Not Overlap	Modifier	Lag X Phases	Lag 2 Phases	Flash Green
A	2	Yes	No	No	No		No	No	.
B	4	Yes	No	No	No		No	No	.
C	6	Yes	No	No	No		No	No	.
D	8	Yes	No	No	No		No	No	.

PPLT FYA

Overlap	Protected Phase (Left Turn)	Permissive Phase (Opposing Thru)	Flashing Arrow Output	Flashing Arrow Output CH	Delay Start of FYA	Delay Start of Clearance	Action Plan SF Bit Disable	Ped Protected Enable
---------	-----------------------------	----------------------------------	-----------------------	--------------------------	--------------------	--------------------------	----------------------------	----------------------

Guaranteed Minimum Time Data (MM) 2-4

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	5	0	7	3.0	0.0	5
B02	5	0	7	3.0	0.0	5
C03	5	0	7	3.0	0.0	5
D04	5	0	7	3.0	0.0	5
E05	5	0	7	3.0	0.0	5
F06	5	0	7	3.0	0.0	5
G07	5	0	7	3.0	0.0	5
H08	5	0	7	3.0	0.0	5
I09	5	0	7	3.0	0.0	5
J10	5	0	7	3.0	0.0	5
K11	5	0	7	3.0	0.0	5
L12	5	0	7	3.0	0.0	5
M13	5	0	7	3.0	0.0	5
N14	5	0	7	3.0	0.0	5
O15	5	0	7	3.0	0.0	5
P16	5	0	7	3.0	0.0	5



Town of Oakville, ON

MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Controller Pedestrian Overlaps

Vehicle / Pedestrian Overlaps (MM) 2-3

Included	Pedestrian Overlaps
----------	---------------------

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Controller Start / Flash Data (MM) 2-5**Start Up**

Phase	Phase Setting
1	.
2	Y
3	.
4	.
5	.
6	Y
7	.
8	.
9	.
10	.
11	.
12	.
13	.
14	.
15	.
16	.

Overlap
A
B
C
D

Flash Thru Mon: Yes
Flash Time: 0
All Red: 4
Power Start Seq: 1
MUTCD Enabled: No
Y->G: n/a

Automatic Flash

Entry
2
6

Exit
2
6

Overlap Exit
A
B
C
D

Flash Thru Mon: Yes
Exit Flash: W
Minimum Flash: 8
Mimimum Recall: No
Cycle Through Phase: Yes

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Controller Options

Controller Options (MM) 2-6-1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Grn Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guar Passage																
Non-Act I																
Non-Act II																
Dual Entry		X	X	X	X											
Cond Service																
Cond Reservice																
Ped Re-Service	X				X											
Rest In Walk																
Flashing Walk																
Ped Clr-Yel																
Ped Clr-Red																
IGRN + Veh Ext																

Ped Clear Protect: Off Unit Red Revert: 2.0 MUTCD 3 Seconds Don't Walk: No

Pre-Timed Mode (MM) 2-7

Enable Pre-Timed Mode: No Free Input Disables Pre-Timed: No

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed																

Phase Recall Options (MM) 2-8

Plan # 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall		X				X										
Ped Recall																
Max Recall																
Soft Recall																
No Rest																
AI Calc																

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Coordination Options

Options (MM) 3-1

Manual Pattern	Auto	ECPI Coord	Yes
System Source	TBC	System Format	STD
Splits In	Percent	Offsets In	Percent
Transition	Smooth	Max Select	MAXINH
Dwell / Add Time	0		
Delay Coord Wk-LZ	No	Force Off	Float
Offset Reference	Lead	Use Ped Time	No
Ped Recall	No	Ped Reservice	Yes
Local Zero Override	Yes	FO Added Ini Green	No
Re-sync Count	0	Multisync	No

Auto Perm Minimum Green (Seconds) (MM) 3-4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Split Demand (MM) 3-5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demand 1																
Demand 2																

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Coordination Pattern Data

Coordinator Pattern Data (MM) 3-2

Coordinator Pattern # 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits In	Percent
Cycle	130	Std (COS)	9	Offsets In	Percent
Offset Value	65%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 1)	9	50	0	41	0	59	8	33	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data					
Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Function Outputs																

Coordinator Pattern # 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits In	Percent
Cycle	120	Std (COS)	17	Offsets In	Percent
Offset Value	69%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 2)	14	51	0	35	0	65	0	35	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Function Outputs																

Coordinator Pattern # 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits In	Percent
Cycle	120	Std (COS)	25	Offsets In	Percent
Offset Value	88%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 3)	14	51	0	35	0	65	0	35	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Function Outputs																

Coordinator Pattern # 4

Split Pattern	4	TS2 (Pat-Off)	1-1	Splits In	Percent
Cycle	120	Std (COS)	33	Offsets In	Percent
Offset Value	69%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 4)	14	51	0	35	0	65	0	35	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Function Outputs																

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Coordination Split Pattern

Split Pattern Data (MM) 3-3

Split Pattern # 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (percent)	9	50	0	41	0	59	8	33	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (percent)	14	51	0	35	0	65	0	35	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (percent)	14	51	0	35	0	65	0	35	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (percent)	14	51	0	35	0	65	0	35	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Preempt Plan

Preempt Plan (MM) 4-1

Preempt Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases																
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	10	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	7	5	4.0	1.0
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	4.0	1.0
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	0	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Preempt Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																

Cycling Overlap																				
Exit Phases																				
Exit Calls																				
Special Function																				

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	10	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	7	5	4.0	1.0
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	4.0	1.0
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	0	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

**Preempt Preempt Filtering
Enable Preempt Filtering & TSP/SCP
(MM) 4-2**

Input	Solid	Pulsing
1	...BYPASSED...	...BYPASSED...
2	...BYPASSED...	...BYPASSED...
3	PREEMPTION 3	PREEMPTION 7
4	PREEMPTION 4	PREEMPTION 8
5	PREEMPTION 5	PREEMPTION 9
6	PREEMPTION 6	PREEMPTION 10
7	...BYPASSED...	...BYPASSED...
8	...BYPASSED...	...BYPASSED...
9	...BYPASSED...	...BYPASSED...
10	...BYPASSED...	...BYPASSED...

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Preempt TSP/SCP Plan and Split

TSP / SCP Plan (MM) 4-3

TSP/SCP Plan	Enable Option	Signal Type	Det Lock	Delay Time	Max Presence	PMT Enables Reservice	No Delay in TSP	Action SF Inhibit	Reservice Cycles	Bus Heading
1	No	Solid	No	0	0	No	False	0	0	NB
2	No	Solid	No	0	0	No	False	0	0	SB
3	No	Solid	No	0	0	No	False	0	0	EB
4	No	Solid	No	0	0	No	False	0	0	WB
5	No	Solid	No	0	0	No	False	0	0	.
6	No	Solid	No	0	0	No	False	0	0	.

Mode: TSP
 Free Default Pattern: 120
 Headway Allowance: 0

TSP/SCP Plan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1
2
3
4
5
6

TSP / SCP Split Pattern (MM) 4-4

TSP/SCP Split Pattern	Max Type	Phase															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4	Max Reduction	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Time Base Clock/Calendar

Clock/Calendar Data (MM) 5-1

Manual Action Plan: 0
SYNC Reference Time: 03:15
SYNC Reference: Reference Time
Day Light Savings: No
Time Reset Input Set Time: 3:30:00
Standard Time From GMT: 0

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Time Base Action Plan

Action Plan (MM) 5-2

Action Plan - 1

Pattern	1	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)									
-----------------	--	--	--	--	--	--	--	--	--

Aux Func (1-3)			
----------------	--	--	--

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15
LP 16-30
LP 31-45
LP 46-60
LP 61-75
LP 76-90
LP 91-100

Action Plan - 2

Pattern	2	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
LP 1-15	
LP 16-30	
LP 31-45	
LP 46-60	
LP 61-75	
LP 76-90	
LP 91-100	

Action Plan - 3

Pattern	3	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
LP 1-15	
LP 16-30	
LP 31-45	
LP 46-60	
LP 61-75	
LP 76-90	
LP 91-100	

Action Plan - 4

Pattern	4	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
LP 1-15
LP 16-30
LP 31-45
LP 46-60
LP 61-75
LP 76-90
LP 91-100

Action Plan - 5

Pattern	5	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit							X									
Spec Func (1-8)																
Aux Func (1-3)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
LP 1-15
LP 16-30
LP 31-45
LP 46-60
LP 61-75
LP 76-90
LP 91-100

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Time Base Day Plan/Schedule**Day Plan (MM) 5-3****Day Plan #1**

Event	Action Plan	Start Time
1	1	06:00
2	2	10:00
3	3	15:15
4	4	19:00
5	5	22:00

Schedule (MM) 5-4**Schedule Number - 1**

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X	X	X	X	X	X	X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Time Base Exceptions
Exception Day Program (MM) 5-5

Excep Day	Float/Fixed	Mon/Mon	DOW/DOM	WOM/Year	Day Plan
-----------	-------------	---------	---------	----------	----------

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Detectors

Detectors - Pg 1

Veh Det Phase Assignment (MM) 6-1**Vehicle Detector Plan Number - 1**

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
3	3		N
4	4		N
5	5		N
7	7	4	N
8	8		N
9	9		N
10	2		N
11	11		N
12	12		N
13	13		N
14	6		N
15	15		N
16	16		N

Vehicle Detector Plan Number - 2

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N
13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Plan Number - 3

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N
13	13		N
14	14		N

15	15		N
16	16		N

Vehicle Detector Plan Number - 4

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N
13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Setup (MM) 6-2

Veh Detector	Type	TS2 Detector	Description
1	N-NTCIP	Yes	
2	N-NTCIP	Yes	
3	N-NTCIP	Yes	
4	N-NTCIP	Yes	
5	N-NTCIP	Yes	
6	N-NTCIP	Yes	
7	N-NTCIP	Yes	
8	N-NTCIP	Yes	
9	N-NTCIP	Yes	
10	N-NTCIP	Yes	
11	N-NTCIP	Yes	
12	N-NTCIP	Yes	
13	N-NTCIP	Yes	
14	N-NTCIP	Yes	
15	N-NTCIP	Yes	
16	N-NTCIP	Yes	
17	N-NTCIP	Yes	
18	N-NTCIP	Yes	
19	N-NTCIP	Yes	
20	N-NTCIP	Yes	
21	N-NTCIP	Yes	
22	N-NTCIP	Yes	
23	N-NTCIP	Yes	
24	N-NTCIP	Yes	
25	N-NTCIP	Yes	
26	N-NTCIP	Yes	
27	N-NTCIP	Yes	
28	N-NTCIP	Yes	
29	N-NTCIP	Yes	
30	N-NTCIP	Yes	
31	N-NTCIP	Yes	
32	N-NTCIP	Yes	
33	N-NTCIP	Yes	
34	N-NTCIP	Yes	
35	N-NTCIP	Yes	
36	N-NTCIP	Yes	
37	N-NTCIP	Yes	
38	N-NTCIP	Yes	
39	N-NTCIP	Yes	
40	N-NTCIP	Yes	
41	N-NTCIP	Yes	

42	N-NTCIP	Yes	
43	N-NTCIP	Yes	
44	N-NTCIP	Yes	
45	N-NTCIP	Yes	
46	N-NTCIP	Yes	
47	N-NTCIP	Yes	
48	N-NTCIP	Yes	
49	N-NTCIP	Yes	
50	N-NTCIP	Yes	
51	N-NTCIP	Yes	
52	N-NTCIP	Yes	
53	N-NTCIP	Yes	
54	N-NTCIP	Yes	
55	N-NTCIP	Yes	
56	N-NTCIP	Yes	
57	N-NTCIP	Yes	
58	N-NTCIP	Yes	
59	N-NTCIP	Yes	
60	N-NTCIP	Yes	
61	N-NTCIP	Yes	
62	N-NTCIP	Yes	
63	N-NTCIP	Yes	
64	N-NTCIP	Yes	

Vehicle Detector Plan Number - 1

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	0	No	Yes	0.0	None	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	5.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	Yes	Yes	0.0	Passage	0.0	0	No	4	None	No	No	No
8	8	No	Yes	5.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 2

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 3

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 4

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Ped Detector Phase Assignment (MM) 6-3

Mode: NTCIP

Called Phase	Detector
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15

Called Phase	Detector
16	16

Town of Oakville, ON



MOVING TRAFFIC FORWARD

REG1106 - Dundas St @ Oak Park Blvd - Econolite Type - ASC/3

Detectors**Detectors - Pg 2****Log - Speed Detector Setup (MM) 6-4**

NTCIP Log Period: 60 ECPI Log Period: 0 Length Unit: Inches

Speed Detector	Local Detector	One/Two Detector	Vehicle Length	Trap length	Enable Log
1	0	1	0	0	No
2	0	1	0	0	No
3	0	1	0	0	No
4	0	1	0	0	No
5	0	1	0	0	No
6	0	1	0	0	No
7	0	1	0	0	No
8	0	1	0	0	No
9	0	1	0	0	No
10	0	1	0	0	No
11	0	1	0	0	No
12	0	1	0	0	No
13	0	1	0	0	No
14	0	1	0	0	No
15	0	1	0	0	No
16	0	1	0	0	No

Vehicle Detector Diagnostics (MM) 6-5**Veh Diagnostic Plan Number - 1**

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Pedestrian Detector Diagnostics (MM) 6-6**Ped Diagnostic Plan Number - 1**

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier

Date: 29-May-2020

Intersection: Dundas St @ Trafalgar Rd

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use	x	x	x	x	x	x	x	x	x	x	x	x
Direction	WBLT	EB	NBLT	SB	EBLT	WB	SBLT	NB				
Min Green	7	20	7	10	7	20	7	10				
Veh Ext.	3.5	5.5	3.5	3.5	3.5	5.5	3.5	3.5				
Yellow	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7				
Red	1	2.7	1	2.8	2	2.7	1	2.8				
Walk		7		7		7		7				
Don't Walk		27		27		27		27				
Max 1	20	55	20	35	20	55	20	35				
Max 2	20	60	20	40	20	60	20	40				
Max 3												
Veh Recall			x									
Ped Recall												
Notes:	Pedestrian Reservice Active Local Zero Override Active Sync Reference 3:15											

<p>Pattern 1 Time: 6:00 Cycle Length: 130 Offset (%): 14%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>WBLT</td> <td>EB</td> <td>NBLT</td> <td>SB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>11%</td> <td>39%</td> <td>14%</td> <td>36%</td> </tr> <tr> <td>Direction</td> <td>EBLT</td> <td>WB</td> <td>SBLT</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>17%</td> <td>33%</td> <td>10%</td> <td>40%</td> </tr> </tbody> </table>	Direction	WBLT	EB	NBLT	SB	Phase	1	2	3	4	%	11%	39%	14%	36%	Direction	EBLT	WB	SBLT	NB	Phase	5	6	7	8	%	17%	33%	10%	40%	<p>Pattern 2 Time: 10:00 Cycle Length: 120 Offset (%): 6%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>WBLT</td> <td>EB</td> <td>NBLT</td> <td>SB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>14%</td> <td>36%</td> <td>12%</td> <td>38%</td> </tr> <tr> <td>Direction</td> <td>EBLT</td> <td>WB</td> <td>SBLT</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>12%</td> <td>38%</td> <td>15%</td> <td>35%</td> </tr> </tbody> </table>	Direction	WBLT	EB	NBLT	SB	Phase	1	2	3	4	%	14%	36%	12%	38%	Direction	EBLT	WB	SBLT	NB	Phase	5	6	7	8	%	12%	38%	15%	35%
Direction	WBLT	EB	NBLT	SB																																																									
Phase	1	2	3	4																																																									
%	11%	39%	14%	36%																																																									
Direction	EBLT	WB	SBLT	NB																																																									
Phase	5	6	7	8																																																									
%	17%	33%	10%	40%																																																									
Direction	WBLT	EB	NBLT	SB																																																									
Phase	1	2	3	4																																																									
%	14%	36%	12%	38%																																																									
Direction	EBLT	WB	SBLT	NB																																																									
Phase	5	6	7	8																																																									
%	12%	38%	15%	35%																																																									
<p>Pattern 3 Time: 15:15 Cycle Length: 130 Offset (%): 31%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>WBLT</td> <td>EB</td> <td>NBLT</td> <td>SB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>16%</td> <td>36%</td> <td>12%</td> <td>36%</td> </tr> <tr> <td>Direction</td> <td>EBLT</td> <td>WB</td> <td>SBLT</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>16%</td> <td>36%</td> <td>12%</td> <td>36%</td> </tr> </tbody> </table>	Direction	WBLT	EB	NBLT	SB	Phase	1	2	3	4	%	16%	36%	12%	36%	Direction	EBLT	WB	SBLT	NB	Phase	5	6	7	8	%	16%	36%	12%	36%	<p>Pattern 4 Time: 19:00 Cycle Length: 120 Offset (%): 14%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>WBLT</td> <td>EB</td> <td>NBLT</td> <td>SB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td>13%</td> <td>38%</td> <td>12%</td> <td>37%</td> </tr> <tr> <td>Direction</td> <td>EBLT</td> <td>WB</td> <td>SBLT</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td>13%</td> <td>38%</td> <td>12%</td> <td>37%</td> </tr> </tbody> </table>	Direction	WBLT	EB	NBLT	SB	Phase	1	2	3	4	%	13%	38%	12%	37%	Direction	EBLT	WB	SBLT	NB	Phase	5	6	7	8	%	13%	38%	12%	37%
Direction	WBLT	EB	NBLT	SB																																																									
Phase	1	2	3	4																																																									
%	16%	36%	12%	36%																																																									
Direction	EBLT	WB	SBLT	NB																																																									
Phase	5	6	7	8																																																									
%	16%	36%	12%	36%																																																									
Direction	WBLT	EB	NBLT	SB																																																									
Phase	1	2	3	4																																																									
%	13%	38%	12%	37%																																																									
Direction	EBLT	WB	SBLT	NB																																																									
Phase	5	6	7	8																																																									
%	13%	38%	12%	37%																																																									
<p>Pattern 5 Time: 22:00 Cycle Length: Local Offset (%):</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>WBLT</td> <td>EB</td> <td>NBLT</td> <td>SB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>EBLT</td> <td>WB</td> <td>SBLT</td> <td>NB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Direction	WBLT	EB	NBLT	SB	Phase	1	2	3	4	%					Direction	EBLT	WB	SBLT	NB	Phase	5	6	7	8	%					<p>Pattern 6 Time: Cycle Length: Offset (%):</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Direction					Phase	1	2	3	4	%					Direction					Phase	5	6	7	8	%				
Direction	WBLT	EB	NBLT	SB																																																									
Phase	1	2	3	4																																																									
%																																																													
Direction	EBLT	WB	SBLT	NB																																																									
Phase	5	6	7	8																																																									
%																																																													
Direction																																																													
Phase	1	2	3	4																																																									
%																																																													
Direction																																																													
Phase	5	6	7	8																																																									
%																																																													



Date: 1-Jan-20

Intersection: Trafalgar Road & Threshing Mill

8 Phase Basic Timing Sheet

	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use		x				x		x	X			
Direction	SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB				
Min Green		20				20		10				
Veh Ext.		5.0				5.0		3.0				
Yellow		4.6				4.6		3.3				
Red		2				2		2.2				
Walk		7										
Don't Walk		28										
Max 1		60				60		30				
Max 2												
Max 3												
Veh Recall		X				X						
Ped Recall		X										
Notes:	Set Sync Reference to 3:15											

<p>Pattern 1 Time: 6:00 Cycle Length: 120 Offset (%): 11%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>SBLT</td> <td>NB</td> <td>WBLT</td> <td>EB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td>75</td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>NBLT</td> <td>SB</td> <td>EBLT</td> <td>WB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td>75</td> <td></td> <td>25</td> </tr> </tbody> </table>	Direction	SBLT	NB	WBLT	EB	Phase	1	2	3	4	%		75			Direction	NBLT	SB	EBLT	WB	Phase	5	6	7	8	%		75		25	<p>Pattern 2 Time: 9:30, 19:00 Cycle Length: 100 Offset (%): 0%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>SBLT</td> <td>NB</td> <td>WBLT</td> <td>EB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td>70</td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>NBLT</td> <td>SB</td> <td>EBLT</td> <td>WB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td>70</td> <td></td> <td>30</td> </tr> </tbody> </table>	Direction	SBLT	NB	WBLT	EB	Phase	1	2	3	4	%		70			Direction	NBLT	SB	EBLT	WB	Phase	5	6	7	8	%		70		30
Direction	SBLT	NB	WBLT	EB																																																									
Phase	1	2	3	4																																																									
%		75																																																											
Direction	NBLT	SB	EBLT	WB																																																									
Phase	5	6	7	8																																																									
%		75		25																																																									
Direction	SBLT	NB	WBLT	EB																																																									
Phase	1	2	3	4																																																									
%		70																																																											
Direction	NBLT	SB	EBLT	WB																																																									
Phase	5	6	7	8																																																									
%		70		30																																																									
<p>Pattern 3 Time: 15:15 Cycle Length: 120 Offset (%): 17%</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td>SBLT</td> <td>NB</td> <td>WBLT</td> <td>EB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td>75</td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>NBLT</td> <td>SB</td> <td>EBLT</td> <td>WB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td>75</td> <td></td> <td>25</td> </tr> </tbody> </table>	Direction	SBLT	NB	WBLT	EB	Phase	1	2	3	4	%		75			Direction	NBLT	SB	EBLT	WB	Phase	5	6	7	8	%		75		25	<p>Pattern 4 Time: Cycle Length: Offset (%):</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Direction					Phase	1	2	3	4	%					Direction					Phase	5	6	7	8	%				
Direction	SBLT	NB	WBLT	EB																																																									
Phase	1	2	3	4																																																									
%		75																																																											
Direction	NBLT	SB	EBLT	WB																																																									
Phase	5	6	7	8																																																									
%		75		25																																																									
Direction																																																													
Phase	1	2	3	4																																																									
%																																																													
Direction																																																													
Phase	5	6	7	8																																																									
%																																																													
<p>Pattern 5 Time: 21:00 Cycle Length: Local Offset (%):</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Direction					Phase	1	2	3	4	%					Direction					Phase	5	6	7	8	%					<p>Pattern 6 Time: Cycle Length: Offset (%):</p> <table border="1"> <tbody> <tr> <td>Direction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Direction					Phase	1	2	3	4	%					Direction					Phase	5	6	7	8	%				
Direction																																																													
Phase	1	2	3	4																																																									
%																																																													
Direction																																																													
Phase	5	6	7	8																																																									
%																																																													
Direction																																																													
Phase	1	2	3	4																																																									
%																																																													
Direction																																																													
Phase	5	6	7	8																																																									
%																																																													



Date: 1-Jan-20

Intersection: Trafalgar Road & Wheat Boom

8 Phase Basic Timing Sheet

	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use		x				x		x	X			
Direction	SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB				
Min Green		20				20		10				
Veh Ext.		5.0				5.0		3.0				
Yellow		4.6				4.6		3.3				
Red		2				2		2.2				
Walk		7										
Don't Walk		28										
Max 1		60				60		30				
Max 2												
Max 3												
Veh Recall		X				X						
Ped Recall		X										
Notes:	Set Sync Reference to 3:15											

<p>Pattern 1 Time: 6:00 Cycle Length: 120 Offset (%): 0%</p> <table border="0"> <tr> <td>Direction</td> <td>SBLT</td> <td>NB</td> <td>WBLT</td> <td>EB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td>75</td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>NBLT</td> <td>SB</td> <td>EBLT</td> <td>WB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td>75</td> <td></td> <td>25</td> </tr> </table>	Direction	SBLT	NB	WBLT	EB	Phase	1	2	3	4	%		75			Direction	NBLT	SB	EBLT	WB	Phase	5	6	7	8	%		75		25	<p>Pattern 2 Time: 9:30, 19:00 Cycle Length: 100 Offset (%): 11%</p> <table border="0"> <tr> <td>Direction</td> <td>SBLT</td> <td>NB</td> <td>WBLT</td> <td>EB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td>70</td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>NBLT</td> <td>SB</td> <td>EBLT</td> <td>WB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td>70</td> <td></td> <td>23</td> </tr> </table>	Direction	SBLT	NB	WBLT	EB	Phase	1	2	3	4	%		70			Direction	NBLT	SB	EBLT	WB	Phase	5	6	7	8	%		70		23
Direction	SBLT	NB	WBLT	EB																																																									
Phase	1	2	3	4																																																									
%		75																																																											
Direction	NBLT	SB	EBLT	WB																																																									
Phase	5	6	7	8																																																									
%		75		25																																																									
Direction	SBLT	NB	WBLT	EB																																																									
Phase	1	2	3	4																																																									
%		70																																																											
Direction	NBLT	SB	EBLT	WB																																																									
Phase	5	6	7	8																																																									
%		70		23																																																									
<p>Pattern 3 Time: 15:15 Cycle Length: 120 Offset (%): 11%</p> <table border="0"> <tr> <td>Direction</td> <td>SBLT</td> <td>NB</td> <td>WBLT</td> <td>EB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td>75</td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>NBLT</td> <td>SB</td> <td>EBLT</td> <td>WB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td>75</td> <td></td> <td>25</td> </tr> </table>	Direction	SBLT	NB	WBLT	EB	Phase	1	2	3	4	%		75			Direction	NBLT	SB	EBLT	WB	Phase	5	6	7	8	%		75		25	<p>Pattern 4 Time: 21:00 Cycle Length: Local Offset (%):</p> <table border="0"> <tr> <td>Direction</td> <td>SBLT</td> <td>NB</td> <td>WBLT</td> <td>EB</td> </tr> <tr> <td>Phase</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>NBLT</td> <td>SB</td> <td>EBLT</td> <td>WB</td> </tr> <tr> <td>Phase</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Direction	SBLT	NB	WBLT	EB	Phase	1	2	3	4	%					Direction	NBLT	SB	EBLT	WB	Phase	5	6	7	8	%				
Direction	SBLT	NB	WBLT	EB																																																									
Phase	1	2	3	4																																																									
%		75																																																											
Direction	NBLT	SB	EBLT	WB																																																									
Phase	5	6	7	8																																																									
%		75		25																																																									
Direction	SBLT	NB	WBLT	EB																																																									
Phase	1	2	3	4																																																									
%																																																													
Direction	NBLT	SB	EBLT	WB																																																									
Phase	5	6	7	8																																																									
%																																																													
<p>Pattern 5 Time: Cycle Length: Offset (%):</p> <table border="0"> <tr> <td>Direction</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>Phase</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Phase</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Direction	1	2	3	4	Phase					%					Direction	5	6	7	8	Phase					%					<p>Pattern 6 Time: Cycle Length: Offset (%):</p> <table border="0"> <tr> <td>Direction</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>Phase</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direction</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Phase</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>%</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Direction	1	2	3	4	Phase					%					Direction	5	6	7	8	Phase					%				
Direction	1	2	3	4																																																									
Phase																																																													
%																																																													
Direction	5	6	7	8																																																									
Phase																																																													
%																																																													
Direction	1	2	3	4																																																									
Phase																																																													
%																																																													
Direction	5	6	7	8																																																									
Phase																																																													
%																																																													

Appendix C

Synchro Outputs

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Existing 2022
 AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	47	0	0	36	0
Future Volume (vph)	0	47	0	0	36	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor						
Frt	0.865					
Flt Protected					0.950	
Satd. Flow (prot)	0	1568	0	0	3340	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1568	0	0	3340	0
Link Speed (k/h)	50			48	50	
Link Distance (m)	217.5			77.6	456.7	
Travel Time (s)	15.7			5.8	32.9	
Confl. Bikes (#/hr)	4					
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	6%	0%	0%	6%	0%
Adj. Flow (vph)	0	57	0	0	43	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	57	0	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
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)	14		24	24		14
Sign Control	Stop			Stop	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	6.7%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard











Existing 2022
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↗			↖↗	
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	47	0	0	36	0
Future Volume (vph)	0	47	0	0	36	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	0	57	0	0	43	0
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total (vph)	57	22	22			
Volume Left (vph)	0	22	22			
Volume Right (vph)	57	0	0			
Hadj (s)	-0.50	0.60	0.60			
Departure Headway (s)	3.5	5.2	5.2			
Degree Utilization, x	0.06	0.03	0.03			
Capacity (veh/h)	1005	674	674			
Control Delay (s)	6.7	7.2	7.2			
Approach Delay (s)	6.7	7.2				
Approach LOS	A	A				
Intersection Summary						
Delay			6.9			
Level of Service			A			
Intersection Capacity Utilization			6.7%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Existing 2022
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	31	39	742	31	20	925
Future Volume (vph)	31	39	742	31	20	925
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0	0.0		55.0	55.0	
Storage Lanes	0	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt		0.850	0.994			
Flt Protected	0.950					0.999
Satd. Flow (prot)	1560	1555	3419	0	0	3368
Flt Permitted	0.950					0.922
Satd. Flow (perm)	1560	1555	3419	0	0	3109
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		42	8			
Link Speed (k/h)	50		60			60
Link Distance (m)	189.1		286.1			116.2
Travel Time (s)	13.6		17.2			7.0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	17%	5%	6%	9%	20%	8%
Adj. Flow (vph)	33	42	798	33	22	995
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	42	831	0	0	1017
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		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
Turning Speed (k/h)	24	14		14	24	
Turn Type	Perm	Perm	NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8	8			6	
Minimum Split (s)	30.0	30.0	90.0		90.0	90.0
Total Split (s)	30.0	30.0	90.0		90.0	90.0
Total Split (%)	25.0%	25.0%	75.0%		75.0%	75.0%
Maximum Green (s)	24.5	24.5	83.4		83.4	83.4
Yellow Time (s)	3.3	3.3	4.6		4.6	4.6
All-Red Time (s)	2.2	2.2	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	5.5	5.5	6.6			6.6
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	5.0	5.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	24.5	24.5	83.4			83.4
Actuated g/C Ratio	0.20	0.20	0.70			0.70

Lanes, Volumes, Timings
 2: Trafalgar Road & Threshing Mill Boulevard

Existing 2022
 AM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.10	0.12	0.35			0.47
Control Delay	40.0	12.5	4.7			9.2
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	40.0	12.5	4.7			9.2
LOS	D	B	A			A
Approach Delay	24.6		4.7			9.2
Approach LOS	C		A			A

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	120
Control Type:	Pretimed
Maximum v/c Ratio:	0.47
Intersection Signal Delay:	7.9
Intersection LOS:	A
Intersection Capacity Utilization	58.3%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard

Existing 2022
AM Peak Hour



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	33	42	831	1017
v/c Ratio	0.10	0.12	0.35	0.47
Control Delay	40.0	12.5	4.7	9.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	40.0	12.5	4.7	9.2
Queue Length 50th (m)	6.4	0.0	16.0	51.3
Queue Length 95th (m)	15.3	9.4	20.1	64.2
Internal Link Dist (m)	165.1		262.1	92.2
Turn Bay Length (m)	45.0			
Base Capacity (vph)	318	350	2378	2160
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.12	0.35	0.47
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

2: Trafalgar Road & Threshing Mill Boulevard

Existing 2022
AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	31	39	742	31	20	925
Future Volume (vph)	31	39	742	31	20	925
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	6.6			6.6
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1560	1555	3419			3368
Flt Permitted	0.95	1.00	1.00			0.92
Satd. Flow (perm)	1560	1555	3419			3108
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	33	42	798	33	22	995
RTOR Reduction (vph)	0	33	2	0	0	0
Lane Group Flow (vph)	33	9	829	0	0	1017
Heavy Vehicles (%)	17%	5%	6%	9%	20%	8%
Turn Type	Perm	Perm	NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8	8			6	
Actuated Green, G (s)	24.5	24.5	83.4			83.4
Effective Green, g (s)	24.5	24.5	83.4			83.4
Actuated g/C Ratio	0.20	0.20	0.70			0.70
Clearance Time (s)	5.5	5.5	6.6			6.6
Lane Grp Cap (vph)	318	317	2376			2160
v/s Ratio Prot			0.24			
v/s Ratio Perm	c0.02	0.01				c0.33
v/c Ratio	0.10	0.03	0.35			0.47
Uniform Delay, d1	38.8	38.2	7.4			8.3
Progression Factor	1.00	1.00	0.59			1.00
Incremental Delay, d2	0.7	0.2	0.4			0.7
Delay (s)	39.5	38.4	4.7			9.0
Level of Service	D	D	A			A
Approach Delay (s)	38.9		4.7			9.0
Approach LOS	D		A			A

















Intersection Summary

HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Existing 2022
 AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	2	58	17	3	2	39	63	4	1	117	7
Future Volume (vph)	9	2	58	17	3	2	39	63	4	1	117	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.886			0.987			0.994			0.992	
Flt Protected		0.994			0.962			0.982				
Satd. Flow (prot)	0	1597	0	0	3466	0	0	3274	0	0	3522	0
Flt Permitted		0.994			0.962			0.982				
Satd. Flow (perm)	0	1597	0	0	3466	0	0	3274	0	0	3522	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		187.3			209.0			362.5			456.7	
Travel Time (s)		13.5			15.0			26.1			32.9	
Confl. Peds. (#/hr)			1	1			5		1	1		5
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 (%)	0%	0%	7%	0%	0%	0%	21%	2%	0%	0%	3%	0%
Adj. Flow (vph)	10	2	66	19	3	2	44	72	5	1	133	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	24	0	0	121	0	0	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			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												
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			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	29.7%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Existing 2022
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	2	58	17	3	2	39	63	4	1	117	7
Future Volume (vph)	9	2	58	17	3	2	39	63	4	1	117	7
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
Hourly flow rate (vph)	10	2	66	19	3	2	44	72	5	1	133	8













Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	78	21	4	80	41	68	75
Volume Left (vph)	10	19	0	44	0	1	0
Volume Right (vph)	66	0	2	0	5	0	8
Hadj (s)	-0.38	0.46	-0.40	0.49	-0.06	0.06	-0.03
Departure Headway (s)	4.8	5.7	4.8	5.4	4.8	4.9	4.8
Degree Utilization, x	0.10	0.03	0.00	0.12	0.05	0.09	0.10
Capacity (veh/h)	709	598	702	651	721	705	721
Control Delay (s)	8.3	7.7	6.6	7.9	6.9	7.2	7.2
Approach Delay (s)	8.3	7.5		7.6		7.2	
Approach LOS	A	A		A		A	

Intersection Summary

Delay	7.6
Level of Service	A
Intersection Capacity Utilization	29.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Existing 2022
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	9	19	755	5	10	947
Future Volume (vph)	9	19	755	5	10	947
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0	0.0		55.0	55.0	
Storage Lanes	0	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt		0.850	0.999			
Flt Protected	0.950					0.999
Satd. Flow (prot)	1372	1484	3194	0	0	3241
Flt Permitted	0.950					0.944
Satd. Flow (perm)	1372	1484	3194	0	0	3062
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		20	1			
Link Speed (k/h)	50		60			60
Link Distance (m)	206.4		414.9			286.1
Travel Time (s)	14.9		24.9			17.2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	33%	10%	14%	40%	60%	12%
Adj. Flow (vph)	10	20	812	5	11	1018
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	20	817	0	0	1029
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	
Turn Type	Perm	Perm	NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8	8			6	
Minimum Split (s)	30.0	30.0	90.0		90.0	90.0
Total Split (s)	30.0	30.0	90.0		90.0	90.0
Total Split (%)	25.0%	25.0%	75.0%		75.0%	75.0%
Maximum Green (s)	24.5	24.5	83.4		83.4	83.4
Yellow Time (s)	3.3	3.3	4.6		4.6	4.6
All-Red Time (s)	2.2	2.2	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	5.5	5.5	6.6			6.6
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	5.0	5.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	24.5	24.5	83.4			83.4
Actuated g/C Ratio	0.20	0.20	0.70			0.70

Lanes, Volumes, Timings
 4: Trafalgar Road & Wheat Boom Drive

Existing 2022
 AM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.04	0.06	0.37			0.48
Control Delay	38.9	15.7	8.1			5.5
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	38.9	15.7	8.1			5.5
LOS	D	B	A			A
Approach Delay	23.4		8.1			5.5
Approach LOS	C		A			A

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	120
Control Type:	Pretimed
Maximum v/c Ratio:	0.48
Intersection Signal Delay:	6.9
Intersection LOS:	A
Intersection Capacity Utilization	51.6%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



Queues
4: Trafalgar Road & Wheat Boom Drive

Existing 2022
AM Peak Hour



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	10	20	817	1029
v/c Ratio	0.04	0.06	0.37	0.48
Control Delay	38.9	15.7	8.1	5.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	38.9	15.7	8.1	5.5
Queue Length 50th (m)	1.9	0.0	37.3	23.1
Queue Length 95th (m)	6.6	6.6	47.1	26.6
Internal Link Dist (m)	182.4		390.9	262.1
Turn Bay Length (m)	45.0			
Base Capacity (vph)	280	318	2220	2128
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.06	0.37	0.48
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

4: Trafalgar Road & Wheat Boom Drive

Existing 2022
AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	19	755	5	10	947
Future Volume (vph)	9	19	755	5	10	947
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	6.6			6.6
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1372	1484	3194			3242
Flt Permitted	0.95	1.00	1.00			0.94
Satd. Flow (perm)	1372	1484	3194			3061
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	10	20	812	5	11	1018
RTOR Reduction (vph)	0	16	0	0	0	0
Lane Group Flow (vph)	10	4	817	0	0	1029
Heavy Vehicles (%)	33%	10%	14%	40%	60%	12%
Turn Type	Perm	Perm	NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8	8			6	
Actuated Green, G (s)	24.5	24.5	83.4			83.4
Effective Green, g (s)	24.5	24.5	83.4			83.4
Actuated g/C Ratio	0.20	0.20	0.70			0.70
Clearance Time (s)	5.5	5.5	6.6			6.6
Lane Grp Cap (vph)	280	302	2219			2127
v/s Ratio Prot			0.26			
v/s Ratio Perm	c0.01	0.00				c0.34
v/c Ratio	0.04	0.01	0.37			0.48
Uniform Delay, d1	38.3	38.1	7.5			8.4
Progression Factor	1.00	1.00	1.00			0.56
Incremental Delay, d2	0.2	0.1	0.5			0.7
Delay (s)	38.5	38.2	8.0			5.4
Level of Service	D	D	A			A
Approach Delay (s)	38.3		8.0			5.4
Approach LOS	D		A			A

Intersection Summary

HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings

Existing 2022

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	1520	110	67	820	64	83	20	55	248	65	45
Future Volume (vph)	23	1520	110	67	820	64	83	20	55	248	65	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.98	1.00	0.99	
Frt			0.850			0.850			0.850		0.939	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1313	5092	1541	1738	4812	1555	1644	1746	1384	1789	3174	0
Flt Permitted	0.319			0.074			0.612			0.744		
Satd. Flow (perm)	440	5092	1520	135	4812	1531	1055	1746	1361	1395	3174	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			67			61			47
Link Speed (k/h)		70			70			50				50
Link Distance (m)		187.7			548.5			65.8				362.5
Travel Time (s)		9.7			28.2			4.7				26.1
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%
Adj. Flow (vph)	24	1583	115	70	854	67	86	21	57	258	68	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	1583	115	70	854	67	86	21	57	258	115	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)		7.4			7.4			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												
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
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		7	4				8
Permitted Phases	2		2	6		6	4		4	8		
Minimum Split (s)	38.3	38.3	38.3	12.0	38.3	38.3	10.0	40.6	40.6	24.6	24.6	
Total Split (s)	65.0	65.0	65.0	12.0	77.0	77.0	10.0	53.0	53.0	43.0	43.0	
Total Split (%)	50.0%	50.0%	50.0%	9.2%	59.2%	59.2%	7.7%	40.8%	40.8%	33.1%	33.1%	
Maximum Green (s)	58.7	58.7	58.7	8.0	70.7	70.7	6.0	46.4	46.4	36.4	36.4	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	1.0	2.6	2.6	1.0	3.3	3.3	3.3	3.3	
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)	6.3	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		27.0	27.0	7.0	7.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	

Lanes, Volumes, Timings
 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Existing 2022
 AM Peak Hour

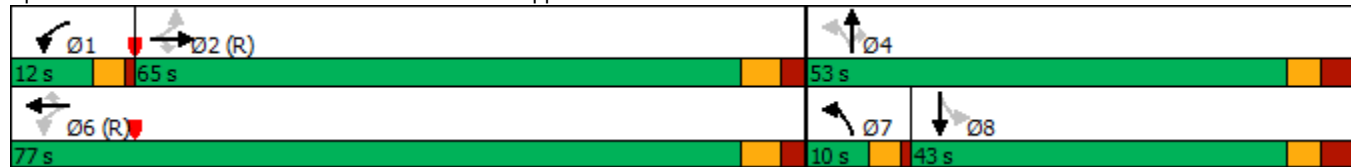


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	58.7	58.7	58.7	73.0	70.7	70.7	49.0	46.4	46.4	36.4	36.4	
Actuated g/C Ratio	0.45	0.45	0.45	0.56	0.54	0.54	0.38	0.36	0.36	0.28	0.28	
v/c Ratio	0.12	0.69	0.15	0.40	0.33	0.08	0.20	0.03	0.11	0.66	0.12	
Control Delay	22.9	30.3	4.7	35.9	5.3	0.3	28.1	27.6	6.6	50.8	21.1	
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	22.9	30.3	4.7	35.9	5.3	0.3	28.1	27.6	6.6	50.8	21.1	
LOS	C	C	A	D	A	A	C	C	A	D	C	
Approach Delay		28.5			7.1			20.6			41.7	
Approach LOS		C			A			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	28 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	95
Control Type:	Pretimed
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	23.1
Intersection LOS:	C
Intersection Capacity Utilization	87.7%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East



Queues

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Existing 2022

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	1583	115	70	854	67	86	21	57	258	115
v/c Ratio	0.12	0.69	0.15	0.40	0.33	0.08	0.20	0.03	0.11	0.66	0.12
Control Delay	22.9	30.3	4.7	35.9	5.3	0.3	28.1	27.6	6.6	50.8	21.1
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	22.9	30.3	4.7	35.9	5.3	0.3	28.1	27.6	6.6	50.8	21.1
Queue Length 50th (m)	3.5	115.9	0.8	5.3	10.1	0.0	14.4	3.5	0.0	58.6	6.7
Queue Length 95th (m)	9.4	132.8	11.4	17.1	15.5	m0.2	25.9	9.3	8.3	88.8	14.2
Internal Link Dist (m)		163.7			524.5			41.8			338.5
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	198	2299	746	174	2616	863	424	623	525	390	922
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	0.12	0.69	0.15	0.40	0.33	0.08	0.20	0.03	0.11	0.66	0.12

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Existing 2022
 AM Peak Hour


































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑	↗	↘	↑↑	
Traffic Volume (vph)	23	1520	110	67	820	64	83	20	55	248	65	45
Future Volume (vph)	23	1520	110	67	820	64	83	20	55	248	65	45
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1312	5092	1520	1738	4812	1531	1640	1746	1361	1781	3173	
Flt Permitted	0.32	1.00	1.00	0.07	1.00	1.00	0.61	1.00	1.00	0.74	1.00	
Satd. Flow (perm)	441	5092	1520	135	4812	1531	1057	1746	1361	1394	3173	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	24	1583	115	70	854	67	86	21	57	258	68	47
RTOR Reduction (vph)	0	0	60	0	0	31	0	0	37	0	34	0
Lane Group Flow (vph)	24	1583	55	70	854	36	86	21	20	258	81	0
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		
Actuated Green, G (s)	58.7	58.7	58.7	70.7	70.7	70.7	46.4	46.4	46.4	36.4	36.4	
Effective Green, g (s)	58.7	58.7	58.7	70.7	70.7	70.7	46.4	46.4	46.4	36.4	36.4	
Actuated g/C Ratio	0.45	0.45	0.45	0.54	0.54	0.54	0.36	0.36	0.36	0.28	0.28	
Clearance Time (s)	6.3	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6	
Lane Grp Cap (vph)	199	2299	686	172	2616	832	404	623	485	390	888	
v/s Ratio Prot		c0.31		c0.03	0.18		c0.01	0.01			0.03	
v/s Ratio Perm	0.05		0.04	0.20		0.02	0.07		0.01	c0.19		
v/c Ratio	0.12	0.69	0.08	0.41	0.33	0.04	0.21	0.03	0.04	0.66	0.09	
Uniform Delay, d1	20.7	28.4	20.3	19.3	16.4	13.9	28.4	27.2	27.3	41.4	34.6	
Progression Factor	1.00	1.00	1.00	2.26	0.30	0.04	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	1.7	0.2	6.3	0.3	0.1	1.2	0.1	0.2	8.5	0.2	
Delay (s)	21.9	30.1	20.5	49.9	5.2	0.6	29.6	27.3	27.5	49.9	34.8	
Level of Service	C	C	C	D	A	A	C	C	C	D	C	
Approach Delay (s)		29.3			8.1			28.6			45.2	
Approach LOS		C			A			C			D	

Intersection Summary		
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.63	C
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	87.7%	20.9
Analysis Period (min)	15	ICU Level of Service
		E
c Critical Lane Group		

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Existing 2022
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			 			 	
Traffic Volume (vph)	281	1213	145	109	694	152	98	326	69	285	478	192
Future Volume (vph)	281	1213	145	109	694	152	98	326	69	285	478	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		0.0	40.0		50.0
Storage Lanes	2		1	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor			0.98	1.00			1.00	1.00		1.00		0.99
Frt			0.850			0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	5043	1471	1644	4812	1432	1659	3231	0	1601	3411	1458
Flt Permitted	0.950			0.116			0.330			0.508		
Satd. Flow (perm)	3404	5043	1449	201	4812	1432	576	3231	0	856	3411	1439
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			172		21				202
Link Speed (k/h)		70			70			60				60
Link Distance (m)		548.5			210.0			108.1				414.9
Travel Time (s)		28.2			10.8			6.5				24.9
Confl. Peds. (#/hr)			3	3			1		1	1		1
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 (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%
Adj. Flow (vph)	296	1277	153	115	731	160	103	343	73	300	503	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	296	1277	153	115	731	160	103	416	0	300	503	202
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)		7.4			7.4			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												
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
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1		6
Permitted Phases			4	8		8	2			6		6
Minimum Split (s)	12.0	40.4	40.4	11.0	40.4	40.4	11.0	40.5		11.0	40.5	40.5
Total Split (s)	22.1	50.7	50.7	14.3	42.9	42.9	18.2	52.0		13.0	46.8	46.8
Total Split (%)	17.0%	39.0%	39.0%	11.0%	33.0%	33.0%	14.0%	40.0%		10.0%	36.0%	36.0%
Maximum Green (s)	17.1	44.3	44.3	10.3	36.5	36.5	14.2	45.5		9.0	40.3	40.3
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8		1.0	2.8	2.8
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)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5
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
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0			27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

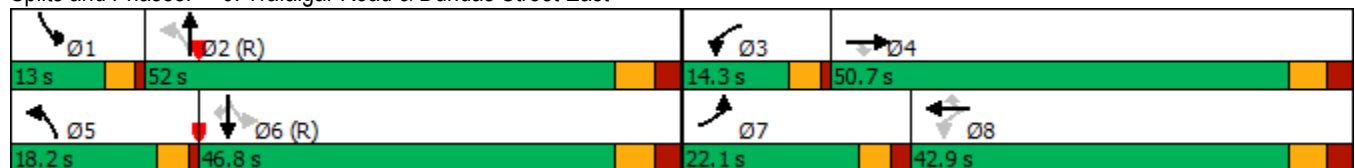
Existing 2022
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	17.1	44.3	44.3	49.2	36.5	36.5	61.0	45.5		51.8	40.3	40.3
Actuated g/C Ratio	0.13	0.34	0.34	0.38	0.28	0.28	0.47	0.35		0.40	0.31	0.31
v/c Ratio	0.66	0.74	0.26	0.61	0.54	0.30	0.27	0.36		0.77	0.48	0.35
Control Delay	48.7	51.9	21.8	37.3	41.4	5.7	21.5	30.9		42.3	38.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.7	51.9	21.8	37.3	41.4	5.7	21.5	30.9		42.3	38.1	6.0
LOS	D	D	C	D	D	A	C	C		D	D	A
Approach Delay		48.7			35.3			29.0			32.9	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	59.7 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Pretimed
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	39.4
Intersection LOS:	D
Intersection Capacity Utilization:	95.9%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Existing 2022
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	296	1277	153	115	731	160	103	416	300	503	202
v/c Ratio	0.66	0.74	0.26	0.61	0.54	0.30	0.27	0.36	0.77	0.48	0.35
Control Delay	48.7	51.9	21.8	37.3	41.4	5.7	21.5	30.9	42.3	38.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	51.9	21.8	37.3	41.4	5.7	21.5	30.9	42.3	38.1	6.0
Queue Length 50th (m)	40.8	121.3	17.7	16.4	58.3	0.0	14.6	39.3	49.1	54.8	0.0
Queue Length 95th (m)	56.1	134.1	m32.7	31.7	71.7	13.6	25.5	53.4	#76.3	71.5	17.2
Internal Link Dist (m)		524.5			186.0			84.1		390.9	
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		40.0		50.0
Base Capacity (vph)	447	1718	594	190	1351	525	388	1144	392	1057	585
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	0.66	0.74	0.26	0.61	0.54	0.30	0.27	0.36	0.77	0.48	0.35

Intersection Summary































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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: Trafalgar Road & Dundas Street East

Existing 2022
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	  			  			 			 		
Traffic Volume (vph)	281	1213	145	109	694	152	98	326	69	285	478	192	
Future Volume (vph)	281	1213	145	109	694	152	98	326	69	285	478	192	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		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)	3404	5043	1449	1644	4812	1432	1659	3230		1600	3411	1439	
Flt Permitted	0.95	1.00	1.00	0.12	1.00	1.00	0.33	1.00		0.51	1.00	1.00	
Satd. Flow (perm)	3404	5043	1449	201	4812	1432	577	3230		857	3411	1439	
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)	296	1277	153	115	731	160	103	343	73	300	503	202	
RTOR Reduction (vph)	0	0	101	0	0	115	0	14	0	0	0	139	
Lane Group Flow (vph)	296	1277	52	115	731	45	103	402	0	300	503	63	
Confl. Peds. (#/hr)			3	3			1		1	1		1	
Heavy Vehicles (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4	8		8	2			6		6	
Actuated Green, G (s)	17.1	44.3	44.3	46.8	36.5	36.5	58.5	45.5		49.3	40.3	40.3	
Effective Green, g (s)	17.1	44.3	44.3	46.8	36.5	36.5	58.5	45.5		49.3	40.3	40.3	
Actuated g/C Ratio	0.13	0.34	0.34	0.36	0.28	0.28	0.45	0.35		0.38	0.31	0.31	
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5	
Lane Grp Cap (vph)	447	1718	493	186	1351	402	377	1130		376	1057	446	
v/s Ratio Prot	c0.09	c0.25		0.05	0.15		c0.03	0.12		c0.06	0.15		
v/s Ratio Perm			0.04	0.17		0.03	0.09			c0.25		0.04	
v/c Ratio	0.66	0.74	0.11	0.62	0.54	0.11	0.27	0.36		0.80	0.48	0.14	
Uniform Delay, d1	53.7	37.8	29.3	30.1	39.6	34.7	21.7	31.4		32.9	36.3	32.4	
Progression Factor	0.80	1.30	4.62	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	5.6	2.2	0.3	14.5	1.6	0.6	1.8	0.9		16.1	1.5	0.7	
Delay (s)	48.4	51.6	135.6	44.5	41.2	35.3	23.5	32.3		48.9	37.8	33.0	
Level of Service	D	D	F	D	D	D	C	C		D	D	C	
Approach Delay (s)		58.5			40.6			30.5			40.2		
Approach LOS		E			D			C			D		
Intersection Summary													
HCM 2000 Control Delay			46.5		HCM 2000 Level of Service						D		
HCM 2000 Volume to Capacity ratio			0.75										
Actuated Cycle Length (s)			130.0		Sum of lost time (s)						21.9		
Intersection Capacity Utilization			95.9%		ICU Level of Service						F		
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Existing 2022
 PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	41	0	0	42	0
Future Volume (vph)	0	41	0	0	42	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00
Ped Bike Factor						
Frt	0.865					
Flt Protected					0.950	
Satd. Flow (prot)	0	1629	0	0	3541	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1629	0	0	3541	0
Link Speed (k/h)	50			48		50
Link Distance (m)	217.5			78.9		456.7
Travel Time (s)	15.7			5.9		32.9
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	46	0	0	47	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	46	0	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0		7.4
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)	14		24		14	
Sign Control	Stop		Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	7.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Existing 2022
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↗			↖↗	
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	41	0	0	42	0
Future Volume (vph)	0	41	0	0	42	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	46	0	0	47	0

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total (vph)	46	24	24
Volume Left (vph)	0	24	24
Volume Right (vph)	46	0	0
Hadj (s)	-0.57	0.50	0.50
Departure Headway (s)	3.5	5.1	5.1
Degree Utilization, x	0.04	0.03	0.03
Capacity (veh/h)	1022	692	692
Control Delay (s)	6.6	7.1	7.1
Approach Delay (s)	6.6	7.1	
Approach LOS	A	A	

Intersection Summary			
Delay		6.8	
Level of Service		A	
Intersection Capacity Utilization	7.0%		ICU Level of Service A
Analysis Period (min)		15	

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Existing 2022
PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	36	51	1153	60	15	866
Future Volume (vph)	36	51	1153	60	15	866
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0	0.0		55.0	55.0	
Storage Lanes	0	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt		0.850	0.993			
Flt Protected	0.950					0.999
Satd. Flow (prot)	1615	1601	3478	0	0	3509
Flt Permitted	0.950					0.916
Satd. Flow (perm)	1615	1601	3478	0	0	3217
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		53	10			
Link Speed (k/h)	50		60			60
Link Distance (m)	189.1		286.1			116.2
Travel Time (s)	13.6		17.2			7.0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	13%	2%	4%	8%	0%	4%
Adj. Flow (vph)	38	53	1201	63	16	902
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	53	1264	0	0	918
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		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
Turning Speed (k/h)	24	14		14	24	
Turn Type	Perm	Perm	NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8	8			6	
Minimum Split (s)	30.0	30.0	90.0		90.0	90.0
Total Split (s)	30.0	30.0	90.0		90.0	90.0
Total Split (%)	25.0%	25.0%	75.0%		75.0%	75.0%
Maximum Green (s)	24.5	24.5	83.4		83.4	83.4
Yellow Time (s)	3.3	3.3	4.6		4.6	4.6
All-Red Time (s)	2.2	2.2	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	5.5	5.5	6.6			6.6
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	5.0	5.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	24.5	24.5	83.4			83.4
Actuated g/C Ratio	0.20	0.20	0.70			0.70

Lanes, Volumes, Timings
 2: Trafalgar Road & Threshing Mill Boulevard

Existing 2022
 PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.12	0.14	0.52			0.41
Control Delay	40.2	11.4	5.3			8.5
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	40.2	11.4	5.3			8.5
LOS	D	B	A			A
Approach Delay	23.4		5.3			8.5
Approach LOS	C		A			A

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	120
Control Type:	Pretimed
Maximum v/c Ratio:	0.52
Intersection Signal Delay:	7.3
Intersection LOS:	A
Intersection Capacity Utilization	53.0%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard

Existing 2022
PM Peak Hour



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	38	53	1264	918
v/c Ratio	0.12	0.14	0.52	0.41
Control Delay	40.2	11.4	5.3	8.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	40.2	11.4	5.3	8.5
Queue Length 50th (m)	7.4	0.0	25.3	43.7
Queue Length 95th (m)	17.0	10.6	31.0	54.7
Internal Link Dist (m)	165.1		262.1	92.2
Turn Bay Length (m)	45.0			
Base Capacity (vph)	329	369	2420	2235
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.12	0.14	0.52	0.41
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

2: Trafalgar Road & Threshing Mill Boulevard

Existing 2022
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	36	51	1153	60	15	866
Future Volume (vph)	36	51	1153	60	15	866
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	6.6			6.6
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1615	1601	3477			3509
Flt Permitted	0.95	1.00	1.00			0.92
Satd. Flow (perm)	1615	1601	3477			3216
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	38	53	1201	62	16	902
RTOR Reduction (vph)	0	42	3	0	0	0
Lane Group Flow (vph)	38	11	1261	0	0	918
Heavy Vehicles (%)	13%	2%	4%	8%	0%	4%
Turn Type	Perm	Perm	NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8	8			6	
Actuated Green, G (s)	24.5	24.5	83.4			83.4
Effective Green, g (s)	24.5	24.5	83.4			83.4
Actuated g/C Ratio	0.20	0.20	0.70			0.70
Clearance Time (s)	5.5	5.5	6.6			6.6
Lane Grp Cap (vph)	329	326	2416			2235
v/s Ratio Prot			c0.36			
v/s Ratio Perm	c0.02	0.01				0.29
v/c Ratio	0.12	0.03	0.52			0.41
Uniform Delay, d1	38.9	38.3	8.8			7.8
Progression Factor	1.00	1.00	0.53			1.00
Incremental Delay, d2	0.7	0.2	0.7			0.6
Delay (s)	39.6	38.4	5.3			8.4
Level of Service	D	D	A			A
Approach Delay (s)	38.9		5.3			8.4
Approach LOS	D		A			A

Intersection Summary

HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Existing 2022
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	12	5	50	11	8	5	37	132	8	8	118	14
Future Volume (vph)	12	5	50	11	8	5	37	132	8	8	118	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.898			0.971			0.993			0.985	
Flt Protected		0.991			0.977			0.990			0.997	
Satd. Flow (prot)	0	1341	0	0	3314	0	0	3358	0	0	3478	0
Flt Permitted		0.991			0.977			0.990			0.997	
Satd. Flow (perm)	0	1341	0	0	3314	0	0	3358	0	0	3478	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		187.3			211.7			362.5			456.7	
Travel Time (s)		13.5			15.2			26.1			32.9	
Confl. Peds. (#/hr)			1	1			10		9	9		10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	49%	28%	0%	13%	0%	22%	3%	0%	0%	2%	14%
Adj. Flow (vph)	13	5	55	12	9	5	41	145	9	9	130	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	0	26	0	0	195	0	0	154	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			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												
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			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Existing 2022
 PM Peak Hour















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	12	5	50	11	8	5	37	132	8	8	118	14
Future Volume (vph)	12	5	50	11	8	5	37	132	8	8	118	14
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	5	55	12	9	5	41	145	9	9	130	15

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	73	17	10	114	82	74	80
Volume Left (vph)	13	12	0	41	0	9	0
Volume Right (vph)	55	0	5	0	9	0	15
Hadj (s)	0.05	0.42	-0.26	0.35	-0.03	0.09	-0.06
Departure Headway (s)	5.4	5.8	5.1	5.3	4.9	5.0	4.9
Degree Utilization, x	0.11	0.03	0.01	0.17	0.11	0.10	0.11
Capacity (veh/h)	626	575	650	665	715	688	711
Control Delay (s)	9.1	7.8	7.0	8.1	7.3	7.4	7.3
Approach Delay (s)	9.1	7.5		7.8		7.4	
Approach LOS	A	A		A		A	

Intersection Summary	
Delay	7.8
Level of Service	A
Intersection Capacity Utilization	34.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Existing 2022
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	18	51	1163	36	16	887
Future Volume (vph)	18	51	1163	36	16	887
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0	0.0		55.0	55.0	
Storage Lanes	0	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt		0.850	0.996			
Flt Protected	0.950					0.999
Satd. Flow (prot)	1825	1484	3307	0	0	3343
Flt Permitted	0.950					0.917
Satd. Flow (perm)	1825	1484	3307	0	0	3069
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		53	6			
Link Speed (k/h)	50		60			60
Link Distance (m)	206.4		414.9			286.1
Travel Time (s)	14.9		24.9			17.2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	10%	10%	8%	13%	9%
Adj. Flow (vph)	19	53	1199	37	16	914
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	53	1236	0	0	930
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	
Turn Type	Perm	Perm	NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8	8			6	
Minimum Split (s)	30.0	30.0	90.0		90.0	90.0
Total Split (s)	30.0	30.0	90.0		90.0	90.0
Total Split (%)	25.0%	25.0%	75.0%		75.0%	75.0%
Maximum Green (s)	24.5	24.5	83.4		83.4	83.4
Yellow Time (s)	3.3	3.3	4.6		4.6	4.6
All-Red Time (s)	2.2	2.2	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	5.5	5.5	6.6			6.6
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	5.0	5.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	24.5	24.5	83.4			83.4
Actuated g/C Ratio	0.20	0.20	0.70			0.70

Lanes, Volumes, Timings
 4: Trafalgar Road & Wheat Boom Drive

Existing 2022
 PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
v/c Ratio	0.05	0.15	0.54			0.44
Control Delay	39.1	11.6	9.9			5.5
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	39.1	11.6	9.9			5.5
LOS	D	B	A			A
Approach Delay	18.8		9.9			5.5
Approach LOS	B		A			A

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	120
Control Type:	Pretimed
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	8.3
Intersection Capacity Utilization	54.3%
Analysis Period (min)	15
Intersection LOS:	A
ICU Level of Service	A

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



Queues
4: Trafalgar Road & Wheat Boom Drive

Existing 2022
PM Peak Hour



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	19	53	1236	930
v/c Ratio	0.05	0.15	0.54	0.44
Control Delay	39.1	11.6	9.9	5.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	39.1	11.6	9.9	5.5
Queue Length 50th (m)	3.6	0.0	66.6	21.7
Queue Length 95th (m)	10.1	10.6	82.0	25.2
Internal Link Dist (m)	182.4		390.9	262.1
Turn Bay Length (m)	45.0			
Base Capacity (vph)	372	345	2300	2132
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.15	0.54	0.44
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
4: Trafalgar Road & Wheat Boom Drive

Existing 2022
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	18	51	1163	36	16	887
Future Volume (vph)	18	51	1163	36	16	887
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	6.6			6.6
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1825	1484	3305			3344
Flt Permitted	0.95	1.00	1.00			0.92
Satd. Flow (perm)	1825	1484	3305			3070
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	19	53	1199	37	16	914
RTOR Reduction (vph)	0	42	2	0	0	0
Lane Group Flow (vph)	19	11	1234	0	0	930
Heavy Vehicles (%)	0%	10%	10%	8%	13%	9%
Turn Type	Perm	Perm	NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8	8			6	
Actuated Green, G (s)	24.5	24.5	83.4			83.4
Effective Green, g (s)	24.5	24.5	83.4			83.4
Actuated g/C Ratio	0.20	0.20	0.70			0.70
Clearance Time (s)	5.5	5.5	6.6			6.6
Lane Grp Cap (vph)	372	302	2296			2133
v/s Ratio Prot			c0.37			
v/s Ratio Perm	c0.01	0.01				0.30
v/c Ratio	0.05	0.04	0.54			0.44
Uniform Delay, d1	38.4	38.3	8.9			8.0
Progression Factor	1.00	1.00	1.00			0.60
Incremental Delay, d2	0.3	0.2	0.9			0.6
Delay (s)	38.7	38.5	9.8			5.4
Level of Service	D	D	A			A
Approach Delay (s)	38.5		9.8			5.4
Approach LOS	D		A			A

Intersection Summary

HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1161	190	185	1387	137	260	88	76	159	70	44
Future Volume (vph)	47	1161	190	185	1387	137	260	88	76	159	70	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor			0.95				0.98		0.97	0.99	0.98	
Frt			0.850			0.850			0.850		0.943	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5142	1570	1825	5193	1633	1807	1883	1526	1807	3122	0
Flt Permitted	0.180			0.160			0.679			0.694		
Satd. Flow (perm)	346	5142	1496	307	5193	1633	1259	1883	1488	1304	3122	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			192			138			77			44
Link Speed (k/h)		70			70			50				50
Link Distance (m)		187.7			548.5			65.8				362.5
Travel Time (s)		9.7			28.2			4.7				26.1
Confl. Peds. (#/hr)			16	16			13		6	6		13
Peak Hour 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
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Adj. Flow (vph)	47	1173	192	187	1401	138	263	89	77	161	71	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	1173	192	187	1401	138	263	89	77	161	115	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)		7.4			7.4			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												
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	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
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	6.1	1.8	
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

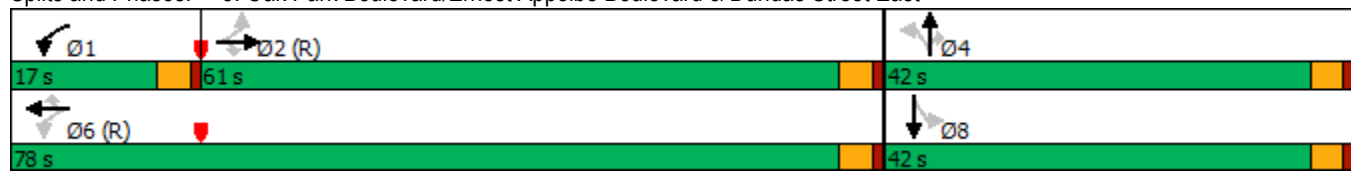


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	SBR
Protected Phases		2		1	6			4				8
Permitted Phases	2		2	6		6	4		4	8		
Detector Phase	2	2	2	1	6	6	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.0	20.0	20.0	9.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	61.0	61.0	61.0	17.0	78.0	78.0	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	50.8%	50.8%	50.8%	14.2%	65.0%	65.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Maximum Green (s)	57.0	57.0	57.0	13.0	74.0	74.0	38.0	38.0	38.0	38.0	38.0	38.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	59.4	59.4	59.4	74.0	74.0	74.0	38.0	38.0	38.0	38.0	38.0	38.0
Actuated g/C Ratio	0.50	0.50	0.50	0.62	0.62	0.62	0.32	0.32	0.32	0.32	0.32	0.32
v/c Ratio	0.27	0.46	0.23	0.58	0.44	0.13	0.66	0.15	0.15	0.39	0.11	
Control Delay	24.1	20.8	3.1	17.3	12.6	1.8	44.8	30.3	7.2	35.4	18.3	
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	24.1	20.8	3.1	17.3	12.6	1.8	44.8	30.3	7.2	35.4	18.3	
LOS	C	C	A	B	B	A	D	C	A	D	B	
Approach Delay		18.5			12.2			35.0				28.3
Approach LOS		B			B			D				C

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 106 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 18.2
 Intersection LOS: B
 Intersection Capacity Utilization 63.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East



Queues

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Existing 2022

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	1173	192	187	1401	138	263	89	77	161	115
v/c Ratio	0.27	0.46	0.23	0.58	0.44	0.13	0.66	0.15	0.15	0.39	0.11
Control Delay	24.1	20.8	3.1	17.3	12.6	1.8	44.8	30.3	7.2	35.4	18.3
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	24.1	20.8	3.1	17.3	12.6	1.8	44.8	30.3	7.2	35.4	18.3
Queue Length 50th (m)	6.3	64.3	0.0	17.6	59.3	0.0	53.3	15.0	0.0	29.5	6.1
Queue Length 95th (m)	16.5	79.3	12.0	27.8	69.3	7.3	83.4	27.5	10.6	49.1	13.0
Internal Link Dist (m)		163.7			524.5			41.8			338.5
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	171	2544	837	353	3202	1059	398	596	523	412	1018
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	0.27	0.46	0.23	0.53	0.44	0.13	0.66	0.15	0.15	0.39	0.11

Intersection Summary

HCM Signalized Intersection Capacity Analysis

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Existing 2022
PM Peak Hour

































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑	↘	↙	↑↑↑	↘	↙	↑	↘	↙	↑↘	
Traffic Volume (vph)	47	1161	190	185	1387	137	260	88	76	159	70	44
Future Volume (vph)	47	1161	190	185	1387	137	260	88	76	159	70	44
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1825	5142	1496	1825	5193	1633	1762	1883	1488	1786	3121	
Flt Permitted	0.18	1.00	1.00	0.16	1.00	1.00	0.68	1.00	1.00	0.69	1.00	
Satd. Flow (perm)	346	5142	1496	308	5193	1633	1260	1883	1488	1305	3121	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	47	1173	192	187	1401	138	263	89	77	161	71	44
RTOR Reduction (vph)	0	0	97	0	0	53	0	0	53	0	30	0
Lane Group Flow (vph)	47	1173	95	187	1401	85	263	89	24	161	85	0
Confl. Peds. (#/hr)			16	16			13		6	6		13
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2		2	6		6	4		4	8		
Actuated Green, G (s)	59.4	59.4	59.4	74.0	74.0	74.0	38.0	38.0	38.0	38.0	38.0	
Effective Green, g (s)	59.4	59.4	59.4	74.0	74.0	74.0	38.0	38.0	38.0	38.0	38.0	
Actuated g/C Ratio	0.49	0.49	0.49	0.62	0.62	0.62	0.32	0.32	0.32	0.32	0.32	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
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)	171	2545	740	323	3202	1007	399	596	471	413	988	
v/s Ratio Prot		0.23		c0.05	0.27			0.05			0.03	
v/s Ratio Perm	0.14		0.06	c0.30		0.05	c0.21		0.02	0.12		
v/c Ratio	0.27	0.46	0.13	0.58	0.44	0.08	0.66	0.15	0.05	0.39	0.09	
Uniform Delay, d1	17.7	19.8	16.3	12.4	12.1	9.3	35.4	29.4	28.5	32.0	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	3.9	0.6	0.4	2.5	0.4	0.2	8.3	0.5	0.2	2.8	0.2	
Delay (s)	21.7	20.4	16.7	15.0	12.5	9.5	43.7	29.9	28.7	34.7	29.0	
Level of Service	C	C	B	B	B	A	D	C	C	C	C	
Approach Delay (s)		20.0			12.5			38.1			32.3	
Approach LOS		B			B			D			C	
Intersection Summary												
HCM 2000 Control Delay			19.5		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			63.8%		ICU Level of Service					B		
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Existing 2022
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			 			 	
Traffic Volume (vph)	302	1234	87	196	1468	256	248	639	128	198	498	208
Future Volume (vph)	302	1234	87	196	1468	256	248	639	128	198	498	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		0.0	40.0		50.0
Storage Lanes	2		1	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00		0.98	1.00		0.99	1.00					0.98
Frt			0.850			0.850		0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	5092	1541	1789	5193	1555	1789	3495	0	1706	3544	1601
Flt Permitted	0.950			0.099			0.356			0.173		
Satd. Flow (perm)	3437	5092	1512	186	5193	1535	670	3495	0	311	3544	1576
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			208			19			214
Link Speed (k/h)		70			70			60				60
Link Distance (m)		548.5			210.0			108.1				414.9
Travel Time (s)		28.2			10.8			6.5				24.9
Confl. Peds. (#/hr)	1		6	6		1	3					3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%
Adj. Flow (vph)	311	1272	90	202	1513	264	256	659	132	204	513	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	311	1272	90	202	1513	264	256	791	0	204	513	214
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)		7.4			7.4			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												
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
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1		6
Permitted Phases			4	8		8	2			6		6
Minimum Split (s)	20.8	46.8	46.8	20.8	46.8	46.8	15.6	46.8		15.6	46.8	46.8
Total Split (s)	20.8	46.8	46.8	20.8	46.8	46.8	15.6	46.8		15.6	46.8	46.8
Total Split (%)	16.0%	36.0%	36.0%	16.0%	36.0%	36.0%	12.0%	36.0%		12.0%	36.0%	36.0%
Maximum Green (s)	15.8	40.4	40.4	16.8	40.4	40.4	11.6	40.3		11.6	40.3	40.3
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8		1.0	2.8	2.8
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)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5
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
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0			27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

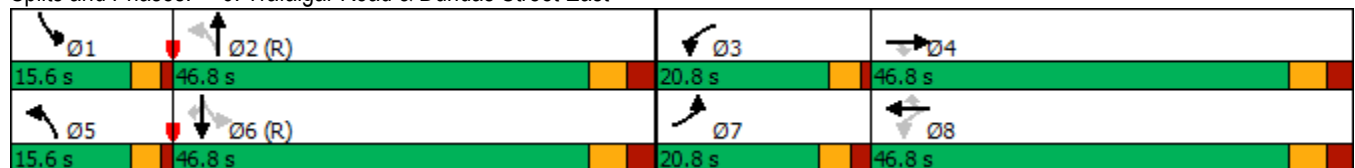
Existing 2022
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	15.8	40.4	40.4	59.6	40.4	40.4	54.4	40.3		54.4	40.3	40.3
Actuated g/C Ratio	0.12	0.31	0.31	0.46	0.31	0.31	0.42	0.31		0.42	0.31	0.31
v/c Ratio	0.75	0.80	0.17	0.69	0.94	0.43	0.67	0.72		0.80	0.47	0.34
Control Delay	67.0	45.9	4.9	41.0	55.6	10.8	34.2	43.3		47.8	37.9	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	67.0	45.9	4.9	41.0	55.6	10.8	34.2	43.3		47.8	37.9	5.7
LOS	E	D	A	D	E	B	C	D		D	D	A
Approach Delay		47.6			48.1			41.1			32.7	
Approach LOS		D			D			D			C	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	59.7 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	130
Control Type:	Pretimed
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	44.1
Intersection LOS:	D
Intersection Capacity Utilization	98.7%
ICU Level of Service	F
Analysis Period (min)	15

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Existing 2022
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	311	1272	90	202	1513	264	256	791	204	513	214
v/c Ratio	0.75	0.80	0.17	0.69	0.94	0.43	0.67	0.72	0.80	0.47	0.34
Control Delay	67.0	45.9	4.9	41.0	55.6	10.8	34.2	43.3	47.8	37.9	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.0	45.9	4.9	41.0	55.6	10.8	34.2	43.3	47.8	37.9	5.7
Queue Length 50th (m)	40.2	109.6	0.0	32.6	138.1	10.3	41.4	92.7	32.1	55.7	0.0
Queue Length 95th (m)	#56.0	127.6	9.1	#59.4	#167.2	32.9	61.6	115.5	#60.9	72.3	17.5
Internal Link Dist (m)		524.5			186.0			84.1		390.9	
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		40.0		50.0
Base Capacity (vph)	417	1582	542	292	1613	620	380	1096	254	1098	636
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	0.75	0.80	0.17	0.69	0.94	0.43	0.67	0.72	0.80	0.47	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

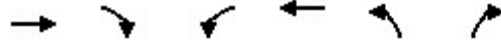
6: Trafalgar Road & Dundas Street East

Existing 2022
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	302	1234	87	196	1468	256	248	639	128	198	498	208	
Future Volume (vph)	302	1234	87	196	1468	256	248	639	128	198	498	208	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		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)	3437	5092	1512	1789	5193	1535	1788	3495		1706	3544	1576	
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.36	1.00		0.17	1.00	1.00	
Satd. Flow (perm)	3437	5092	1512	186	5193	1535	669	3495		311	3544	1576	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	311	1272	90	202	1513	264	256	659	132	204	513	214	
RTOR Reduction (vph)	0	0	62	0	0	143	0	13	0	0	0	148	
Lane Group Flow (vph)	311	1272	28	202	1513	121	256	778	0	204	513	66	
Confl. Peds. (#/hr)	1		6	6		1	3					3	
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4	8		8	2			6		6	
Actuated Green, G (s)	15.8	40.4	40.4	57.2	40.4	40.4	51.9	40.3		51.9	40.3	40.3	
Effective Green, g (s)	15.8	40.4	40.4	57.2	40.4	40.4	51.9	40.3		51.9	40.3	40.3	
Actuated g/C Ratio	0.12	0.31	0.31	0.44	0.31	0.31	0.40	0.31		0.40	0.31	0.31	
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5	
Lane Grp Cap (vph)	417	1582	469	288	1613	477	366	1083		248	1098	488	
v/s Ratio Prot	c0.09	0.25		0.09	c0.29		0.06	0.22		c0.07	0.14		
v/s Ratio Perm			0.02	0.22		0.08	0.22			c0.25		0.04	
v/c Ratio	0.75	0.80	0.06	0.70	0.94	0.25	0.70	0.72		0.82	0.47	0.14	
Uniform Delay, d1	55.2	41.2	31.5	29.0	43.6	33.5	28.8	39.8		29.0	36.2	32.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	11.5	4.4	0.2	13.4	11.9	1.3	10.6	4.1		25.5	1.4	0.6	
Delay (s)	66.7	45.6	31.7	42.3	55.4	34.8	39.4	43.9		54.5	37.6	32.9	
Level of Service	E	D	C	D	E	C	D	D		D	D	C	
Approach Delay (s)		48.8			51.3			42.8			40.2		
Approach LOS		D			D			D			D		
Intersection Summary													
HCM 2000 Control Delay			47.2									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.85										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	21.9
Intersection Capacity Utilization			98.7%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Background 2027
 AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	0	51	0	0	39	0
Future Volume (vph)	0	51	0	0	39	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Fr _t	0.850					
Fl _t Protected					0.950	
Satd. Flow (prot)	2927	0	0	3650	1722	1921
Fl _t Permitted					0.950	
Satd. Flow (perm)	2927	0	0	3650	1722	1921
Link Speed (k/h)	50			50	50	
Link Distance (m)	435.0			582.1	462.5	
Travel Time (s)	31.3			41.9	33.3	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	6%	0%	0%	6%	0%
Adj. Flow (vph)	0	61	0	0	47	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	0	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	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						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Stop			Stop	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard























Future Background 2027
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↗	↗
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	51	0	0	39	0
Future Volume (vph)	0	51	0	0	39	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	0	61	0	0	47	0
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	0	61	0	0	47	0
Volume Left (vph)	0	0	0	0	47	0
Volume Right (vph)	0	61	0	0	0	0
Hadj (s)	0.00	-0.60	0.00	0.00	0.60	0.00
Departure Headway (s)	4.6	4.0	4.7	4.7	5.2	4.6
Degree Utilization, x	0.00	0.07	0.00	0.00	0.07	0.00
Capacity (veh/h)	778	870	770	770	671	776
Control Delay (s)	6.4	6.1	6.5	6.5	7.4	6.4
Approach Delay (s)	6.1		0.0		7.4	
Approach LOS	A		A		A	
Intersection Summary						
Delay			6.7			
Level of Service			A			
Intersection Capacity Utilization			13.3%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2027
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	95	0	69	0	930	55	30	1061	0
Future Volume (vph)	0	0	0	95	0	69	0	930	55	30	1061	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt					0.850					0.850		
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1883	3579	0	1560	3042	0	1883	4350	1498	1521	4269	1883
Flt Permitted				0.757						0.238		
Satd. Flow (perm)	1883	3579	0	1243	3042	0	1883	4350	1498	381	4269	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					122					59		
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		582.1			534.2			286.1			525.0	
Travel Time (s)		41.9			38.5			17.2			31.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	17%	5%	2%	2%	6%	9%	20%	8%	2%
Adj. Flow (vph)	0	0	0	102	0	74	0	1000	59	32	1141	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	102	74	0	0	1000	59	32	1141	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			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												
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
Turn Type	Perm			Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	21.5	21.5		21.5	21.5		9.3	41.6	41.6	41.6	41.6	41.6
Total Split (s)	41.0	41.0		41.0	41.0		14.0	79.0	79.0	65.0	65.0	65.0
Total Split (%)	34.2%	34.2%		34.2%	34.2%		11.7%	65.8%	65.8%	54.2%	54.2%	54.2%
Maximum Green (s)	35.5	35.5		35.5	35.5		8.7	72.4	72.4	58.4	58.4	58.4
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.2	2.2		2.2	2.2		2.0	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.3	6.6	6.6	6.6	6.6	6.6
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Walk Time (s)	5.0	5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	0
Act Effct Green (s)				35.5	35.5			72.4	72.4	58.4	58.4	
Actuated g/C Ratio				0.30	0.30			0.60	0.60	0.49	0.49	

Lanes, Volumes, Timings
 2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2027
 AM Peak Hour

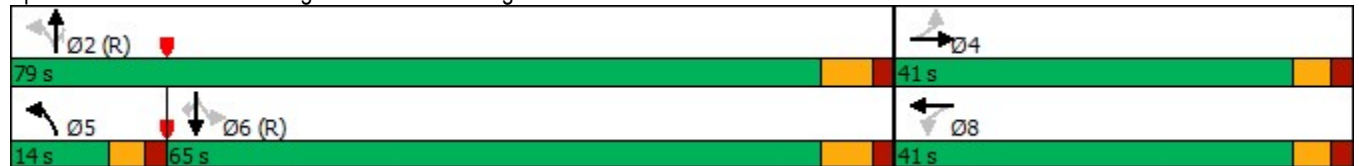


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio				0.28	0.08			0.38	0.06	0.17	0.55	
Control Delay				35.0	1.1			7.1	0.8	20.4	22.8	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				35.0	1.1			7.1	0.8	20.4	22.8	
LOS				C	A			A	A	C	C	
Approach Delay					20.7			6.7			22.8	
Approach LOS					C			A			C	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Pretimed
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	15.6
Intersection LOS:	B
Intersection Capacity Utilization	44.3%
ICU Level of Service	A
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2027
AM Peak Hour

























Lane Group	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	102	74	1000	59	32	1141
v/c Ratio	0.28	0.08	0.38	0.06	0.17	0.55
Control Delay	35.0	1.1	7.1	0.8	20.4	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	1.1	7.1	0.8	20.4	22.8
Queue Length 50th (m)	18.4	0.0	19.2	0.1	4.1	76.1
Queue Length 95th (m)	33.5	1.3	22.4	1.3	11.0	91.6
Internal Link Dist (m)		510.2	262.1			501.0
Turn Bay Length (m)	45.0			55.0	55.0	
Base Capacity (vph)	367	985	2624	927	185	2077
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	0.28	0.08	0.38	0.06	0.17	0.55
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

2: Trafalgar Road & Threshing Mill Boulevard

















Future Background 2027
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	95	0	69	0	930	55	30	1061	0
Future Volume (vph)	0	0	0	95	0	69	0	930	55	30	1061	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5			6.6	6.6	6.6	6.6	
Lane Util. Factor				1.00	0.95			*0.80	1.00	1.00	*0.80	
Frt				1.00	0.85			1.00	0.85	1.00	1.00	
Flt Protected				0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1560	3042			4350	1498	1521	4269	
Flt Permitted				0.76	1.00			1.00	1.00	0.24	1.00	
Satd. Flow (perm)				1243	3042			4350	1498	380	4269	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	102	0	74	0	1000	59	32	1141	0
RTOR Reduction (vph)	0	0	0	0	52	0	0	0	23	0	0	0
Lane Group Flow (vph)	0	0	0	102	22	0	0	1000	36	32	1141	0
Heavy Vehicles (%)	2%	2%	2%	17%	5%	2%	2%	6%	9%	20%	8%	2%
Turn Type	Perm			Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)				35.5	35.5			72.4	72.4	58.4	58.4	
Effective Green, g (s)				35.5	35.5			72.4	72.4	58.4	58.4	
Actuated g/C Ratio				0.30	0.30			0.60	0.60	0.49	0.49	
Clearance Time (s)				5.5	5.5			6.6	6.6	6.6	6.6	
Lane Grp Cap (vph)				367	899			2624	903	184	2077	
v/s Ratio Prot					0.01			c0.23			c0.27	
v/s Ratio Perm				c0.08					0.02	0.08		
v/c Ratio				0.28	0.02			0.38	0.04	0.17	0.55	
Uniform Delay, d1				32.4	30.0			12.3	9.7	17.3	21.6	
Progression Factor				1.00	1.00			0.54	0.25	1.00	1.00	
Incremental Delay, d2				1.9	0.0			0.4	0.1	2.0	1.1	
Delay (s)				34.3	30.0			7.0	2.5	19.3	22.6	
Level of Service				C	C			A	A	B	C	
Approach Delay (s)		0.0			32.5			6.8			22.5	
Approach LOS		A			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			16.3		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					17.4		
Intersection Capacity Utilization			44.3%		ICU Level of Service					A		
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Background 2027
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	2	64	18	3	2	43	69	69	1	129	7
Future Volume (vph)	9	2	64	18	3	2	43	69	69	1	129	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.884			0.988			0.943			0.992	
Flt Protected		0.994			0.962			0.988				
Satd. Flow (prot)	0	1592	0	0	3469	0	0	3215	0	0	3521	0
Flt Permitted		0.994			0.962			0.988				
Satd. Flow (perm)	0	1592	0	0	3469	0	0	3215	0	0	3521	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		629.9			580.1			363.3			462.5	
Travel Time (s)		45.4			41.8			26.2			33.3	
Confl. Peds. (#/hr)			1	1			5		1	1		5
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 (%)	0%	0%	7%	0%	0%	0%	21%	2%	0%	0%	3%	0%
Adj. Flow (vph)	10	2	73	20	3	2	49	78	78	1	147	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	25	0	0	205	0	0	156	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			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												
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			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.4%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Background 2027
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↕↕			↕↕			↕↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	2	64	18	3	2	43	69	69	1	129	7
Future Volume (vph)	9	2	64	18	3	2	43	69	69	1	129	7
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
Hourly flow rate (vph)	10	2	73	20	3	2	49	78	78	1	147	8

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	85	22	4	88	117	75	82
Volume Left (vph)	10	20	0	49	0	1	0
Volume Right (vph)	73	0	2	0	78	0	8
Hadj (s)	-0.39	0.47	-0.40	0.49	-0.46	0.06	-0.02
Departure Headway (s)	5.0	5.9	5.0	5.4	4.5	5.0	4.9
Degree Utilization, x	0.12	0.04	0.00	0.13	0.15	0.10	0.11
Capacity (veh/h)	677	569	663	644	778	689	703
Control Delay (s)	8.6	7.9	6.9	8.1	7.0	7.4	7.4
Approach Delay (s)	8.6	7.8		7.5		7.4	
Approach LOS	A	A		A		A	

Intersection Summary

Delay	7.7
Level of Service	A
Intersection Capacity Utilization	32.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Background 2027
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	0	33	150	0	61	0	891	30	35	1122	0
Future Volume (vph)	32	0	33	150	0	61	0	891	30	35	1122	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.850			0.850				0.850			
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1789	3042	0	1372	2821	0	1883	4044	1166	1141	4117	1883
Flt Permitted	0.712			0.733						0.250		
Satd. Flow (perm)	1341	3042	0	1059	2821	0	1883	4044	1166	300	4117	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		114			118				32			
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		580.1			469.9			414.9			286.1	
Travel Time (s)		41.8			33.8			24.9			17.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	33%	2%	10%	2%	14%	40%	60%	12%	2%
Adj. Flow (vph)	34	0	35	161	0	66	0	958	32	38	1206	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	35	0	161	66	0	0	958	32	38	1206	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			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												
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
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	21.5	21.5		21.5	21.5		9.5	41.6	41.6	41.6	41.6	41.6
Total Split (s)	45.0	45.0		45.0	45.0		10.0	75.0	75.0	65.0	65.0	65.0
Total Split (%)	37.5%	37.5%		37.5%	37.5%		8.3%	62.5%	62.5%	54.2%	54.2%	54.2%
Maximum Green (s)	39.5	39.5		39.5	39.5		4.5	68.4	68.4	58.4	58.4	58.4
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	6.6	6.6	6.6	6.6	6.6
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Walk Time (s)	5.0	5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	0
Act Effct Green (s)	39.5	39.5		39.5	39.5			68.4	68.4	58.4	58.4	
Actuated g/C Ratio	0.33	0.33		0.33	0.33			0.57	0.57	0.49	0.49	

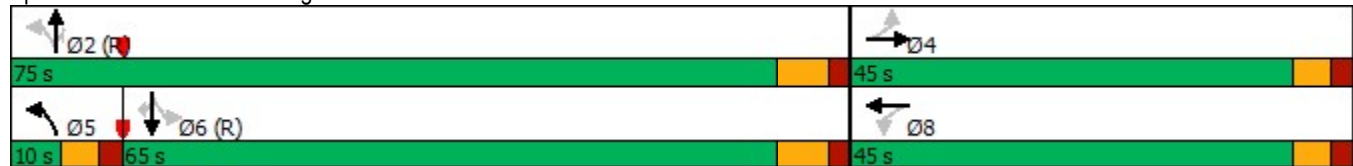
Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Background 2027
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.08	0.03		0.46	0.07			0.42	0.05	0.26	0.60	
Control Delay	28.5	0.1		37.2	0.5			15.2	3.9	13.7	11.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	28.5	0.1		37.2	0.5			15.2	3.9	13.7	11.5	
LOS	C	A		D	A			B	A	B	B	
Approach Delay		14.1			26.5			14.9			11.5	
Approach LOS		B			C			B			B	

Intersection Summary	
Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Pretimed
Maximum v/c Ratio:	0.60
Intersection Signal Delay:	14.2
Intersection LOS:	B
Intersection Capacity Utilization	57.3%
ICU Level of Service	B
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



4: Trafalgar Road & Wheat Boom Drive

AM Peak Hour































Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	35	161	66	958	32	38	1206
v/c Ratio	0.08	0.03	0.46	0.07	0.42	0.05	0.26	0.60
Control Delay	28.5	0.1	37.2	0.5	15.2	3.9	13.7	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	0.1	37.2	0.5	15.2	3.9	13.7	11.5
Queue Length 50th (m)	5.5	0.0	29.9	0.0	50.4	0.0	2.0	27.3
Queue Length 95th (m)	13.0	0.0	51.0	0.5	61.6	4.3	m3.8	30.9
Internal Link Dist (m)		556.1		445.9	390.9			262.1
Turn Bay Length (m)	45.0		45.0			55.0	55.0	
Base Capacity (vph)	441	1077	348	1007	2305	678	146	2003
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.03	0.46	0.07	0.42	0.05	0.26	0.60

Intersection Summary

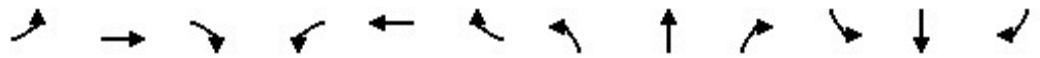
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Trafalgar Road & Wheat Boom Drive

Future Background 2027
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			  			  		
Traffic Volume (vph)	32	0	33	150	0	61	0	891	30	35	1122	0	
Future Volume (vph)	32	0	33	150	0	61	0	891	30	35	1122	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5	5.5		5.5	5.5			6.6	6.6	6.6	6.6		
Lane Util. Factor	1.00	0.95		1.00	0.95			*0.80	1.00	1.00	*0.80		
Frt	1.00	0.85		1.00	0.85			1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1789	3042		1372	2821			4044	1166	1141	4117		
Flt Permitted	0.71	1.00		0.73	1.00			1.00	1.00	0.25	1.00		
Satd. Flow (perm)	1341	3042		1059	2821			4044	1166	300	4117		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	34	0	35	161	0	66	0	958	32	38	1206	0	
RTOR Reduction (vph)	0	23	0	0	44	0	0	0	14	0	0	0	
Lane Group Flow (vph)	34	12	0	161	22	0	0	958	18	38	1206	0	
Heavy Vehicles (%)	2%	2%	2%	33%	2%	10%	2%	14%	40%	60%	12%	2%	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	
Protected Phases		4			8		5	2			6		
Permitted Phases	4			8			2		2	6		6	
Actuated Green, G (s)	39.5	39.5		39.5	39.5			68.4	68.4	58.4	58.4		
Effective Green, g (s)	39.5	39.5		39.5	39.5			68.4	68.4	58.4	58.4		
Actuated g/C Ratio	0.33	0.33		0.33	0.33			0.57	0.57	0.49	0.49		
Clearance Time (s)	5.5	5.5		5.5	5.5			6.6	6.6	6.6	6.6		
Lane Grp Cap (vph)	441	1001		348	928			2305	664	146	2003		
v/s Ratio Prot		0.00			0.01			c0.24			c0.29		
v/s Ratio Perm	0.03			c0.15					0.02	0.13			
v/c Ratio	0.08	0.01		0.46	0.02			0.42	0.03	0.26	0.60		
Uniform Delay, d1	27.7	27.1		31.9	27.2			14.5	11.3	18.1	22.4		
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	0.50	0.46		
Incremental Delay, d2	0.3	0.0		4.4	0.0			0.6	0.1	3.7	1.2		
Delay (s)	28.0	27.1		36.2	27.3			15.1	11.3	12.8	11.4		
Level of Service	C	C		D	C			B	B	B	B		
Approach Delay (s)		27.6			33.6			15.0			11.4		
Approach LOS		C			C			B			B		
Intersection Summary													
HCM 2000 Control Delay			15.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.55										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	17.6
Intersection Capacity Utilization			57.3%									ICU Level of Service	B
Analysis Period (min)			15										

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1734	121	73	1026	135	91	22	60	273	71	49
Future Volume (vph)	40	1734	121	73	1026	135	91	22	60	273	71	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.99			0.98	1.00		0.98	1.00	0.99	
Frt			0.850			0.850			0.850		0.939	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1313	4476	1541	1738	4230	1555	1644	1746	1384	1789	3174	0
Flt Permitted	0.171			0.060			0.595			0.742		
Satd. Flow (perm)	236	4476	1520	110	4230	1531	1026	1746	1361	1391	3174	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			141			63			51
Link Speed (k/h)		70			70			50				50
Link Distance (m)		679.5			548.5			631.1				363.3
Travel Time (s)		34.9			28.2			45.4				26.2
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%
Adj. Flow (vph)	42	1806	126	76	1069	141	95	23	63	284	74	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	1806	126	76	1069	141	95	23	63	284	125	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)		7.4			7.4			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												
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
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
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	6.1	1.8	
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

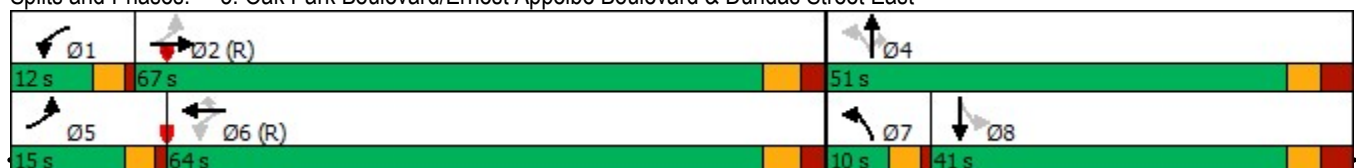


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6		7	4				8
Permitted Phases	2		2	6		6	4		4	8		
Detector Phase	5	2	2	1	6	6	7	4	4	8	8	
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	7.0	20.0	20.0	6.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	38.3	38.3	12.0	38.3	38.3	10.0	40.6	40.6	24.6	24.6	24.6
Total Split (s)	15.0	67.0	67.0	12.0	64.0	64.0	10.0	51.0	51.0	41.0	41.0	41.0
Total Split (%)	11.5%	51.5%	51.5%	9.2%	49.2%	49.2%	7.7%	39.2%	39.2%	31.5%	31.5%	31.5%
Maximum Green (s)	11.0	60.7	60.7	8.0	57.7	57.7	6.0	44.4	44.4	34.4	34.4	34.4
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.3	3.3	3.3	3.3	3.3
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	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.0	5.0	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	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	7.0
Flash Dont Walk (s)		25.0	25.0		25.0	25.0		27.0	27.0	7.0	7.0	7.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0	0	0	0
Act Effct Green (s)	75.8	67.3	67.3	75.7	67.2	67.2	43.1	40.5	40.5	30.5	30.5	30.5
Actuated g/C Ratio	0.58	0.52	0.52	0.58	0.52	0.52	0.33	0.31	0.31	0.23	0.23	0.23
v/c Ratio	0.21	0.78	0.15	0.48	0.49	0.16	0.26	0.04	0.13	0.87	0.16	0.16
Control Delay	14.3	30.0	6.4	17.8	26.1	10.8	31.6	29.5	7.7	73.7	22.5	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	30.0	6.4	17.8	26.1	10.8	31.6	29.5	7.7	73.7	22.5	22.5
LOS	B	C	A	B	C	B	C	C	A	E	C	C
Approach Delay		28.1			23.9			23.0				58.0
Approach LOS		C			C			C				E

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 29.7
 Intersection LOS: C
 Intersection Capacity Utilization 75.7%
 ICU Level of Service D
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	42	1806	126	76	1069	141	95	23	63	284	125
v/c Ratio	0.21	0.78	0.15	0.48	0.49	0.16	0.26	0.04	0.13	0.87	0.16
Control Delay	14.3	30.0	6.4	17.8	26.1	10.8	31.6	29.5	7.7	73.7	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	30.0	6.4	17.8	26.1	10.8	31.6	29.5	7.7	73.7	22.5
Queue Length 50th (m)	4.3	163.5	3.8	11.9	104.0	15.7	16.8	4.0	0.0	68.9	7.6
Queue Length 95th (m)	9.8	193.7	14.9	m17.1	118.6	m27.5	29.1	10.3	9.8	#108.0	15.5
Internal Link Dist (m)		655.5			524.5			607.1			339.3
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	233	2315	833	164	2187	859	368	596	506	368	877
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	0.78	0.15	0.46	0.49	0.16	0.26	0.04	0.12	0.77	0.14

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

Future Background 2027

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East


































AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	40	1734	121	73	1026	135	91	22	60	273	71	49	
Future Volume (vph)	40	1734	121	73	1026	135	91	22	60	273	71	49	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95		
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.98	1.00	0.99		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1313	4476	1520	1738	4230	1531	1640	1746	1361	1781	3173		
Flt Permitted	0.17	1.00	1.00	0.06	1.00	1.00	0.59	1.00	1.00	0.74	1.00		
Satd. Flow (perm)	236	4476	1520	110	4230	1531	1027	1746	1361	1392	3173		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	42	1806	126	76	1069	141	95	23	62	284	74	51	
RTOR Reduction (vph)	0	0	47	0	0	69	0	0	43	0	39	0	
Lane Group Flow (vph)	42	1806	79	76	1069	72	95	23	20	284	86	0	
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2	
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		
Protected Phases	5	2		1	6		7	4			8		
Permitted Phases	2		2	6		6	4		4	8			
Actuated Green, G (s)	72.6	66.4	66.4	72.6	66.4	66.4	40.5	40.5	40.5	30.5	30.5		
Effective Green, g (s)	72.6	66.4	66.4	72.6	66.4	66.4	40.5	40.5	40.5	30.5	30.5		
Actuated g/C Ratio	0.56	0.51	0.51	0.56	0.51	0.51	0.31	0.31	0.31	0.23	0.23		
Clearance Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6		
Vehicle Extension (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.0	5.0	3.5	3.5		
Lane Grp Cap (vph)	183	2286	776	139	2160	781	348	543	424	326	744		
v/s Ratio Prot	0.01	c0.40		c0.03	0.25		c0.01	0.01			0.03		
v/s Ratio Perm	0.12		0.05	0.28		0.05	0.07		0.01	c0.20			
v/c Ratio	0.23	0.79	0.10	0.55	0.49	0.09	0.27	0.04	0.05	0.87	0.12		
Uniform Delay, d1	14.0	26.1	16.4	21.5	20.8	16.3	32.8	31.2	31.3	47.9	39.1		
Progression Factor	1.00	1.00	1.00	0.60	1.17	3.29	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.6	2.9	0.3	3.4	0.6	0.2	0.4	0.1	0.1	22.0	0.1		
Delay (s)	14.7	29.0	16.7	16.4	25.0	53.9	33.2	31.3	31.4	69.8	39.2		
Level of Service	B	C	B	B	C	D	C	C	C	E	D		
Approach Delay (s)		27.9			27.6			32.3			60.5		
Approach LOS		C			C			C			E		
Intersection Summary													
HCM 2000 Control Delay			31.5									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	20.9
Intersection Capacity Utilization			75.7%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Background 2027
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	332	1374	160	139	785	180	126	394	78	365	686	346
Future Volume (vph)	332	1374	160	139	785	180	126	394	78	365	686	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor			0.98	1.00			1.00		0.99	1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	4433	1471	1644	4230	1432	1659	4154	1570	1601	4309	1458
Flt Permitted	0.950			0.112			0.328			0.385		
Satd. Flow (perm)	3404	4433	1449	194	4230	1432	573	4154	1550	648	4309	1439
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			138			189			171			303
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		548.5			751.0			655.8			414.9	
Travel Time (s)		28.2			38.6			39.3			24.9	
Confl. Peds. (#/hr)			3	3			1		1	1		1
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 (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%
Adj. Flow (vph)	349	1446	168	146	826	189	133	415	82	384	722	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	349	1446	168	146	826	189	133	415	82	384	722	364
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)		7.4			7.4			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												
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
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Minimum Split (s)	12.0	40.4	40.4	11.0	40.4	40.4	11.0	40.5	40.5	11.0	40.5	40.5
Total Split (s)	20.0	50.0	50.0	12.0	42.0	42.0	15.0	43.0	43.0	25.0	53.0	53.0
Total Split (%)	15.4%	38.5%	38.5%	9.2%	32.3%	32.3%	11.5%	33.1%	33.1%	19.2%	40.8%	40.8%
Maximum Green (s)	15.0	43.6	43.6	8.0	35.6	35.6	11.0	36.5	36.5	21.0	46.5	46.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8	2.8	1.0	2.8	2.8
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)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
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
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

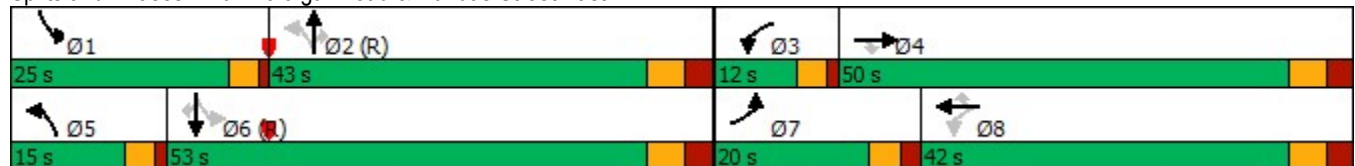
Future Background 2027
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	15.0	43.6	43.6	46.0	35.6	35.6	50.0	36.5	36.5	64.0	46.5	46.5
Actuated g/C Ratio	0.12	0.34	0.34	0.35	0.27	0.27	0.38	0.28	0.28	0.49	0.36	0.36
v/c Ratio	0.89	0.97	0.29	0.93	0.71	0.36	0.43	0.36	0.15	0.81	0.47	0.51
Control Delay	66.4	50.2	6.5	84.6	46.7	6.9	23.7	38.4	0.6	38.0	33.5	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.4	50.2	6.5	84.6	46.7	6.9	23.7	38.4	0.6	38.0	33.5	8.9
LOS	E	D	A	F	D	A	C	D	A	D	C	A
Approach Delay		49.3			45.0			30.4			28.6	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Pretimed
Maximum v/c Ratio:	0.97
Intersection Signal Delay:	40.2
Intersection LOS:	D
Intersection Capacity Utilization	102.0%
ICU Level of Service	G
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Future Background 2027
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	349	1446	168	146	826	189	133	415	82	384	722	364
v/c Ratio	0.89	0.97	0.29	0.93	0.71	0.36	0.43	0.36	0.15	0.81	0.47	0.51
Control Delay	66.4	50.2	6.5	84.6	46.7	6.9	23.7	38.4	0.6	38.0	33.5	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.4	50.2	6.5	84.6	46.7	6.9	23.7	38.4	0.6	38.0	33.5	8.9
Queue Length 50th (m)	41.5	165.1	13.9	22.3	79.8	0.0	18.3	35.4	0.0	64.0	59.1	10.4
Queue Length 95th (m)	m#68.0	#195.2	m15.5	#63.3	97.6	17.5	30.5	46.9	0.0	#101.3	73.2	36.6
Internal Link Dist (m)		524.5			727.0			631.8			390.9	
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Base Capacity (vph)	392	1486	577	157	1158	529	312	1166	558	472	1541	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.97	0.29	0.93	0.71	0.36	0.43	0.36	0.15	0.81	0.47	0.51

Intersection Summary


































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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

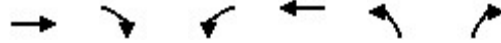
HCM Signalized Intersection Capacity Analysis
6: Trafalgar Road & Dundas Street East

Future Background 2027
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	332	1374	160	139	785	180	126	394	78	365	686	346
Future Volume (vph)	332	1374	160	139	785	180	126	394	78	365	686	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	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	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)	3404	4433	1449	1644	4230	1432	1659	4154	1550	1601	4309	1439
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.33	1.00	1.00	0.39	1.00	1.00
Satd. Flow (perm)	3404	4433	1449	194	4230	1432	572	4154	1550	649	4309	1439
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)	349	1446	168	146	826	189	133	415	82	384	722	364
RTOR Reduction (vph)	0	0	92	0	0	137	0	0	59	0	0	195
Lane Group Flow (vph)	349	1446	76	146	826	52	133	415	23	384	722	169
Confl. Peds. (#/hr)			3	3			1		1	1		1
Heavy Vehicles (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Actuated Green, G (s)	15.0	43.6	43.6	43.6	35.6	35.6	47.5	36.5	36.5	61.5	46.5	46.5
Effective Green, g (s)	15.0	43.6	43.6	43.6	35.6	35.6	47.5	36.5	36.5	61.5	46.5	46.5
Actuated g/C Ratio	0.12	0.34	0.34	0.34	0.27	0.27	0.37	0.28	0.28	0.47	0.36	0.36
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Lane Grp Cap (vph)	392	1486	485	154	1158	392	300	1166	435	460	1541	514
v/s Ratio Prot	c0.10	c0.33		0.06	0.20		0.04	0.10		c0.13	0.17	
v/s Ratio Perm			0.05	0.26		0.04	0.12		0.01	c0.26		0.12
v/c Ratio	0.89	0.97	0.16	0.95	0.71	0.13	0.44	0.36	0.05	0.83	0.47	0.33
Uniform Delay, d1	56.7	42.6	30.3	36.4	42.6	35.6	28.5	37.4	34.1	24.4	32.2	30.4
Progression Factor	0.86	0.86	0.73	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.3	13.2	0.4	59.9	3.8	0.7	4.7	0.9	0.2	16.2	1.0	1.7
Delay (s)	65.9	49.8	22.7	96.3	46.4	36.3	33.2	38.2	34.4	40.6	33.2	32.1
Level of Service	E	D	C	F	D	D	C	D	C	D	C	C
Approach Delay (s)		50.3			51.0			36.6			34.9	
Approach LOS		D			D			D			C	
Intersection Summary												
HCM 2000 Control Delay			44.5		HCM 2000 Level of Service						D	
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)						21.9	
Intersection Capacity Utilization			102.0%		ICU Level of Service						G	
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Background 2027
 PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	0	45	0	0	46	0
Future Volume (vph)	0	45	0	0	46	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.850					
Flt Protected					0.950	
Satd. Flow (prot)	3042	0	0	3579	1789	1883
Flt Permitted					0.950	
Satd. Flow (perm)	3042	0	0	3579	1789	1883
Link Speed (k/h)	50			50	50	
Link Distance (m)	536.9			582.1	462.5	
Travel Time (s)	38.7			41.9	33.3	
Confl. Peds. (#/hr)					1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	49	0	0	50	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	0	0	50	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	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						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Stop			Stop	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard























Future Background 2027
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑	↑
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	45	0	0	46	0
Future Volume (vph)	0	45	0	0	46	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	49	0	0	50	0
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	0	49	0	0	50	0
Volume Left (vph)	0	0	0	0	50	0
Volume Right (vph)	0	49	0	0	0	0
Hadj (s)	0.00	-0.67	0.00	0.00	0.53	0.00
Departure Headway (s)	4.6	4.0	4.7	4.7	5.1	4.6
Degree Utilization, x	0.00	0.05	0.00	0.00	0.07	0.00
Capacity (veh/h)	776	883	770	770	685	782
Control Delay (s)	6.4	6.0	6.5	6.5	7.3	6.4
Approach Delay (s)	6.0		0.0		7.3	
Approach LOS	A		A		A	
Intersection Summary						
Delay			6.7			
Level of Service			A			
Intersection Capacity Utilization			13.7%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2027
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	76	0	71	0	1343	123	40	1082	0
Future Volume (vph)	0	0	0	76	0	71	0	1343	123	40	1082	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt					0.850					0.850		
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1883	3579	0	1615	3042	0	1883	4433	1512	1825	4520	1847
Flt Permitted				0.757						0.147		
Satd. Flow (perm)	1883	3579	0	1287	3042	0	1883	4433	1512	282	4520	1847
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					85				128			
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		582.1			777.7			286.1			442.9	
Travel Time (s)		41.9			56.0			17.2			26.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	13%	2%	2%	2%	4%	8%	0%	2%	4%
Adj. Flow (vph)	0	0	0	79	0	74	0	1399	128	42	1127	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	79	74	0	0	1399	128	42	1127	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			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												
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
Turn Type	Perm			Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	21.5	21.5		21.5	21.5		8.0	41.6	41.6	41.6	41.6	41.6
Total Split (s)	26.0	26.0		26.0	26.0		12.0	94.0	94.0	82.0	82.0	82.0
Total Split (%)	21.7%	21.7%		21.7%	21.7%		10.0%	78.3%	78.3%	68.3%	68.3%	68.3%
Maximum Green (s)	20.5	20.5		20.5	20.5		8.0	87.4	87.4	75.4	75.4	75.4
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.2	2.2		2.2	2.2		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	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Walk Time (s)	5.0	5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	0
Act Effct Green (s)				20.5	20.5			87.4	87.4	75.4	75.4	
Actuated g/C Ratio				0.17	0.17			0.73	0.73	0.63	0.63	

Lanes, Volumes, Timings
 2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2027
 PM Peak Hour

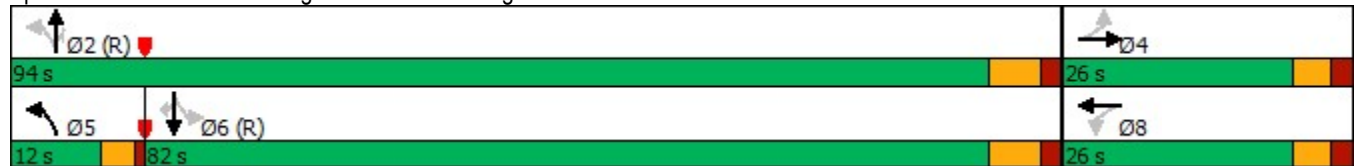


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio				0.36	0.13			0.43	0.11	0.24	0.40	
Control Delay				49.4	7.5			3.1	0.3	14.0	11.5	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				49.4	7.5			3.1	0.3	14.0	11.5	
LOS				D	A			A	A	B	B	
Approach Delay					29.2			2.8			11.6	
Approach LOS					C			A			B	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Pretimed
Maximum v/c Ratio:	0.43
Intersection Signal Delay:	7.9
Intersection LOS:	A
Intersection Capacity Utilization	51.7%
ICU Level of Service	A
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard





























Future Background 2027
PM Peak Hour



Lane Group	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	79	74	1399	128	42	1127
v/c Ratio	0.36	0.13	0.43	0.11	0.24	0.40
Control Delay	49.4	7.5	3.1	0.3	14.0	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.4	7.5	3.1	0.3	14.0	11.5
Queue Length 50th (m)	16.6	0.0	14.5	0.0	4.0	51.0
Queue Length 95th (m)	31.8	5.5	16.5	0.7	10.8	61.0
Internal Link Dist (m)		753.7	262.1			418.9
Turn Bay Length (m)	45.0			55.0	55.0	
Base Capacity (vph)	219	590	3228	1136	177	2840
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.13	0.43	0.11	0.24	0.40
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2027
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			  			  		
Traffic Volume (vph)	0	0	0	76	0	71	0	1343	123	40	1082	0	
Future Volume (vph)	0	0	0	76	0	71	0	1343	123	40	1082	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				5.5	5.5			6.6	6.6	6.6	6.6		
Lane Util. Factor				1.00	0.95			*0.80	1.00	1.00	*0.80		
Frt				1.00	0.85			1.00	0.85	1.00	1.00		
Flt Protected				0.95	1.00			1.00	1.00	0.95	1.00		
Satd. Flow (prot)				1615	3042			4433	1512	1825	4520		
Flt Permitted				0.76	1.00			1.00	1.00	0.15	1.00		
Satd. Flow (perm)				1287	3042			4433	1512	283	4520		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0	0	0	79	0	74	0	1399	128	42	1127	0	
RTOR Reduction (vph)	0	0	0	0	61	0	0	0	35	0	0	0	
Lane Group Flow (vph)	0	0	0	79	13	0	0	1399	93	42	1127	0	
Heavy Vehicles (%)	2%	2%	2%	13%	2%	2%	2%	4%	8%	0%	2%	4%	
Turn Type	Perm			Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	
Protected Phases		4			8		5	2			6		
Permitted Phases	4			8			2		2	6		6	
Actuated Green, G (s)				20.5	20.5			87.4	87.4	75.4	75.4		
Effective Green, g (s)				20.5	20.5			87.4	87.4	75.4	75.4		
Actuated g/C Ratio				0.17	0.17			0.73	0.73	0.63	0.63		
Clearance Time (s)				5.5	5.5			6.6	6.6	6.6	6.6		
Lane Grp Cap (vph)				219	519			3228	1101	177	2840		
v/s Ratio Prot					0.00			c0.32			0.25		
v/s Ratio Perm				c0.06					0.06	0.15			
v/c Ratio				0.36	0.02			0.43	0.08	0.24	0.40		
Uniform Delay, d1				44.0	41.4			6.5	4.7	9.7	11.0		
Progression Factor				1.00	1.00			0.41	0.15	1.00	1.00		
Incremental Delay, d2				4.6	0.1			0.4	0.1	3.1	0.4		
Delay (s)				48.5	41.5			3.0	0.8	12.9	11.5		
Level of Service				D	D			A	A	B	B		
Approach Delay (s)		0.0			45.1			2.9			11.5		
Approach LOS		A			D			A			B		
Intersection Summary													
HCM 2000 Control Delay			8.7		HCM 2000 Level of Service					A			
HCM 2000 Volume to Capacity ratio			0.44										
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					16.1			
Intersection Capacity Utilization			51.7%		ICU Level of Service					A			
Analysis Period (min)			15										

c Critical Lane Group

Lanes, Volumes, Timings
3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Background 2027
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Traffic Volume (vph)	13	5	55	12	8	5	40	145	101	8	130	15
Future Volume (vph)	13	5	55	12	8	5	40	145	101	8	130	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.897			0.972			0.947			0.986	
Flt Protected		0.991			0.976			0.993			0.997	
Satd. Flow (prot)	0	1341	0	0	3319	0	0	3281	0	0	3482	0
Flt Permitted		0.991			0.976			0.993			0.997	
Satd. Flow (perm)	0	1341	0	0	3319	0	0	3281	0	0	3482	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		487.3			580.1			363.3			462.5	
Travel Time (s)		35.1			41.8			26.2			33.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	49%	28%	0%	13%	0%	22%	3%	0%	0%	2%	14%
Adj. Flow (vph)	14	5	60	13	9	5	44	159	111	9	143	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	0	0	27	0	0	314	0	0	168	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			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												
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			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 33.7% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Background 2027
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↕↕			↕↕			↕↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	5	55	12	8	5	40	145	101	8	130	15
Future Volume (vph)	13	5	55	12	8	5	40	145	101	8	130	15
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	14	5	60	13	9	5	44	159	111	9	143	16























Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	79	18	10	124	191	81	88
Volume Left (vph)	14	13	0	44	0	9	0
Volume Right (vph)	60	0	5	0	111	0	16
Hadj (s)	0.05	0.43	-0.26	0.34	-0.39	0.09	-0.06
Departure Headway (s)	5.6	6.1	5.4	5.3	4.6	5.2	5.0
Degree Utilization, x	0.12	0.03	0.01	0.18	0.24	0.12	0.12
Capacity (veh/h)	594	542	608	660	764	668	689
Control Delay (s)	9.4	8.1	7.3	8.3	7.8	7.7	7.5
Approach Delay (s)	9.4	7.8		8.0		7.6	
Approach LOS	A	A		A		A	

Intersection Summary

Delay	8.1
Level of Service	A
Intersection Capacity Utilization	33.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Background 2027
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	79	127	0	87	0	1365	119	88	1070	0
Future Volume (vph)	14	0	79	127	0	87	0	1365	119	88	1070	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.850			0.850				0.850			
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1789	3042	0	1825	2821	0	1883	4192	1512	1615	4230	1883
Flt Permitted	0.696			0.702						0.101		
Satd. Flow (perm)	1311	3042	0	1349	2821	0	1883	4192	1512	172	4230	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		171			149				121			
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		580.1			914.5			414.9			286.1	
Travel Time (s)		41.8			65.8			24.9			17.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	0%	2%	10%	2%	10%	8%	13%	9%	2%
Adj. Flow (vph)	14	0	81	131	0	90	0	1407	123	91	1103	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	81	0	131	90	0	0	1407	123	91	1103	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			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												
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
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	21.5	21.5		21.5	21.5		8.0	41.6	41.6	8.0	41.6	41.6
Total Split (s)	29.0	29.0		29.0	29.0		9.0	75.0	75.0	16.0	82.0	82.0
Total Split (%)	24.2%	24.2%		24.2%	24.2%		7.5%	62.5%	62.5%	13.3%	68.3%	68.3%
Maximum Green (s)	23.5	23.5		23.5	23.5		5.0	68.4	68.4	12.0	75.4	75.4
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.2	2.2		2.2	2.2		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
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.0	6.6	6.6	4.0	6.6	6.6
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Walk Time (s)	5.0	5.0		5.0	5.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			28.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	0
Act Effct Green (s)	23.5	23.5		23.5	23.5			68.4	68.4	87.0	75.4	
Actuated g/C Ratio	0.20	0.20		0.20	0.20			0.57	0.57	0.72	0.63	

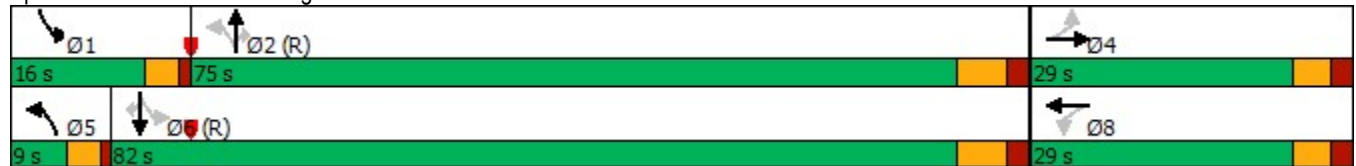
Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Background 2027
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.05	0.11		0.50	0.13			0.59	0.13	0.34	0.42	
Control Delay	40.1	0.3		50.4	1.1			18.0	2.5	20.3	8.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	40.1	0.3		50.4	1.1			18.0	2.5	20.3	8.2	
LOS	D	A		D	A			B	A	C	A	
Approach Delay		6.2			30.3			16.7			9.1	
Approach LOS		A			C			B			A	

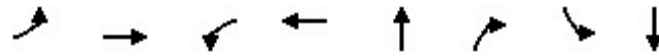
Intersection Summary	
Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Pretimed
Maximum v/c Ratio:	0.59
Intersection Signal Delay:	14.4
Intersection Capacity Utilization	58.4%
Analysis Period (min)	15
* User Entered Value	
Intersection LOS:	B
ICU Level of Service	B

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



4: Trafalgar Road & Wheat Boom Drive

PM Peak Hour

























Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	81	131	90	1407	123	91	1103
v/c Ratio	0.05	0.11	0.50	0.13	0.59	0.13	0.34	0.42
Control Delay	40.1	0.3	50.4	1.1	18.0	2.5	20.3	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	0.3	50.4	1.1	18.0	2.5	20.3	8.2
Queue Length 50th (m)	2.7	0.0	27.7	0.0	84.9	0.2	3.9	29.3
Queue Length 95th (m)	8.5	0.0	47.8	0.8	100.7	8.2	19.0	33.6
Internal Link Dist (m)		556.1		890.5	390.9			262.1
Turn Bay Length (m)	45.0		45.0			55.0	55.0	
Base Capacity (vph)	256	733	264	672	2389	913	269	2657
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.11	0.50	0.13	0.59	0.13	0.34	0.42

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: Trafalgar Road & Wheat Boom Drive

Future Background 2027
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	79	127	0	87	0	1365	119	88	1070	0
Future Volume (vph)	14	0	79	127	0	87	0	1365	119	88	1070	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5			6.6	6.6	4.0	6.6	
Lane Util. Factor	1.00	0.95		1.00	0.95			*0.80	1.00	1.00	*0.80	
Frt	1.00	0.85		1.00	0.85			1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1789	3042		1825	2821			4192	1512	1615	4230	
Flt Permitted	0.70	1.00		0.70	1.00			1.00	1.00	0.10	1.00	
Satd. Flow (perm)	1310	3042		1348	2821			4192	1512	171	4230	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	14	0	81	131	0	90	0	1407	123	91	1103	0
RTOR Reduction (vph)	0	65	0	0	72	0	0	0	52	0	0	0
Lane Group Flow (vph)	14	16	0	131	18	0	0	1407	71	91	1103	0
Heavy Vehicles (%)	2%	2%	2%	0%	2%	10%	2%	10%	8%	13%	9%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	23.5	23.5		23.5	23.5			68.4	68.4	84.4	75.4	
Effective Green, g (s)	23.5	23.5		23.5	23.5			68.4	68.4	84.4	75.4	
Actuated g/C Ratio	0.20	0.20		0.20	0.20			0.57	0.57	0.70	0.63	
Clearance Time (s)	5.5	5.5		5.5	5.5			6.6	6.6	4.0	6.6	
Lane Grp Cap (vph)	256	595		263	552			2389	861	264	2657	
v/s Ratio Prot		0.01			0.01			c0.34		c0.03	0.26	
v/s Ratio Perm	0.01			c0.10					0.05	0.21		
v/c Ratio	0.05	0.03		0.50	0.03			0.59	0.08	0.34	0.42	
Uniform Delay, d1	39.2	39.0		43.0	39.0			16.7	11.6	8.9	11.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	3.51	0.69	
Incremental Delay, d2	0.4	0.1		6.6	0.1			1.1	0.2	3.3	0.4	
Delay (s)	39.6	39.1		49.6	39.2			17.8	11.8	34.5	8.1	
Level of Service	D	D		D	D			B	B	C	A	
Approach Delay (s)		39.2			45.3			17.3			10.2	
Approach LOS		D			D			B			B	

Intersection Summary		
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.54	B
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	58.4%	16.1
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	1373	209	204	1651	244	287	97	83	175	77	48
Future Volume (vph)	80	1373	209	204	1651	244	287	97	83	175	77	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor			0.95				0.98		0.97	0.99	0.98	
Frt			0.850			0.850			0.850		0.943	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4520	1570	1825	4565	1633	1807	1883	1526	1807	3120	0
Flt Permitted	0.072			0.067			0.585			0.694		
Satd. Flow (perm)	138	4520	1491	129	4565	1633	1087	1883	1486	1303	3120	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			185			195			84			48
Link Speed (k/h)		70			70			50				50
Link Distance (m)		565.6			548.5			518.1				363.3
Travel Time (s)		29.1			28.2			37.3				26.2
Confl. Peds. (#/hr)			16	16			13		6	6		13
Peak Hour 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
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Adj. Flow (vph)	81	1387	211	206	1668	246	290	98	84	177	78	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	1387	211	206	1668	246	290	98	84	177	126	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)		7.4			7.4			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												
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
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
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	6.1	1.8	
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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		
Detector Phase	5	2	2	1	6	6	7	4	4	8	8	
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.0	20.0	20.0	9.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	15.0	57.0	57.0	21.0	63.0	63.0	22.0	52.0	52.0	30.0	30.0	
Total Split (%)	11.5%	43.8%	43.8%	16.2%	48.5%	48.5%	16.9%	40.0%	40.0%	23.1%	23.1%	
Maximum Green (s)	11.5	53.0	53.0	17.0	59.0	59.0	18.0	48.0	48.0	26.0	26.0	
Yellow Time (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
All-Red Time (s)	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	Max	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0	0	0	0
Act Effct Green (s)	64.5	55.7	55.7	73.9	62.2	62.2	48.0	48.0	48.0	26.8	26.8	
Actuated g/C Ratio	0.50	0.43	0.43	0.57	0.48	0.48	0.37	0.37	0.37	0.21	0.21	
v/c Ratio	0.46	0.72	0.28	0.80	0.76	0.28	0.58	0.14	0.14	0.66	0.19	
Control Delay	25.6	33.7	6.0	20.1	28.0	8.5	36.4	28.0	6.0	61.0	27.3	
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	25.6	33.7	6.0	20.1	28.0	8.5	36.4	28.0	6.0	61.0	27.3	
LOS	C	C	A	C	C	A	D	C	A	E	C	
Approach Delay		29.8			24.9			29.3			47.0	
Approach LOS		C			C			C			D	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 28.6 Intersection LOS: C
 Intersection Capacity Utilization 80.4% ICU Level of Service D
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	1387	211	206	1668	246	290	98	84	177	126
v/c Ratio	0.46	0.72	0.28	0.80	0.76	0.28	0.58	0.14	0.14	0.66	0.19
Control Delay	25.6	33.7	6.0	20.1	28.0	8.5	36.4	28.0	6.0	61.0	27.3
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	25.6	33.7	6.0	20.1	28.0	8.5	36.4	28.0	6.0	61.0	27.3
Queue Length 50th (m)	8.9	122.5	3.9	26.7	171.1	25.1	55.4	16.6	0.0	42.4	8.7
Queue Length 95th (m)	20.1	145.6	19.3	m25.1	m158.6	m26.8	80.6	29.2	10.6	#69.0	17.5
Internal Link Dist (m)		541.6			524.5			494.1			339.3
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	221	1936	744	295	2185	883	501	695	601	268	680
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	0.37	0.72	0.28	0.70	0.76	0.28	0.58	0.14	0.14	0.66	0.19

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

Future Background 2027

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East


































PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	1373	209	204	1651	244	287	97	83	175	77	48
Future Volume (vph)	80	1373	209	204	1651	244	287	97	83	175	77	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.98	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	0.94
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)	1825	4520	1491	1825	4565	1633	1783	1883	1486	1784	3119	3119
Flt Permitted	0.07	1.00	1.00	0.07	1.00	1.00	0.58	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	138	4520	1491	129	4565	1633	1098	1883	1486	1302	3119	3119
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	81	1387	211	206	1668	246	290	98	84	177	78	48
RTOR Reduction (vph)	0	0	106	0	0	102	0	0	53	0	38	0
Lane Group Flow (vph)	81	1387	105	206	1668	144	290	98	31	177	88	0
Confl. Peds. (#/hr)			16	16			13		6	6		13
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	NA
Protected Phases	5	2		1	6		7	4				8
Permitted Phases	2		2	6		6	4		4	8		
Actuated Green, G (s)	64.0	55.7	55.7	74.0	62.2	62.2	48.0	48.0	48.0	26.8	26.8	26.8
Effective Green, g (s)	64.0	55.7	55.7	74.0	62.2	62.2	48.0	48.0	48.0	26.8	26.8	26.8
Actuated g/C Ratio	0.49	0.43	0.43	0.57	0.48	0.48	0.37	0.37	0.37	0.21	0.21	0.21
Clearance Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	175	1936	638	259	2184	781	496	695	548	268	642	642
v/s Ratio Prot	0.03	0.31		c0.09	0.37		c0.08	0.05				0.03
v/s Ratio Perm	0.20		0.07	c0.36		0.09	0.14		0.02	c0.14		
v/c Ratio	0.46	0.72	0.16	0.80	0.76	0.18	0.58	0.14	0.06	0.66	0.14	0.14
Uniform Delay, d1	22.8	30.6	22.8	34.9	27.9	19.4	31.0	27.3	26.4	47.4	42.2	42.2
Progression Factor	1.00	1.00	1.00	0.57	0.98	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	2.3	0.6	1.6	0.2	0.0	1.8	0.4	0.2	12.1	0.4	0.4
Delay (s)	24.8	32.9	23.4	21.6	27.4	32.4	32.7	27.7	26.6	59.5	42.6	42.6
Level of Service	C	C	C	C	C	C	C	C	C	E	D	D
Approach Delay (s)		31.4			27.4			30.6			52.5	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			30.9									C
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			130.0							16.0		
Intersection Capacity Utilization			80.4%									D
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Background 2027
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	400	1387	96	234	1665	308	323	801	148	264	651	319
Future Volume (vph)	400	1387	96	234	1665	308	323	801	148	264	651	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98	1.00		0.99	1.00					0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	4476	1541	1789	4565	1555	1789	4520	1617	1706	4476	1601
Flt Permitted	0.950			0.090			0.251			0.153		
Satd. Flow (perm)	3437	4476	1512	169	4565	1535	472	4520	1617	275	4476	1576
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			203			127			206
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		548.5			696.9			509.2			414.9	
Travel Time (s)		28.2			35.8			30.6			24.9	
Confl. Peds. (#/hr)	1		6	6		1	3					3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%
Adj. Flow (vph)	412	1430	99	241	1716	318	333	826	153	272	671	329
Shared Lane Traffic (%)												
Lane Group Flow (vph)	412	1430	99	241	1716	318	333	826	153	272	671	329
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)		7.4			7.4			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												
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
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Minimum Split (s)	12.0	40.4	40.4	11.0	40.4	40.4	11.0	40.5	40.5	11.0	40.5	40.5
Total Split (s)	19.0	53.8	53.8	16.0	50.8	50.8	18.0	41.2	41.2	19.0	42.2	42.2
Total Split (%)	14.6%	41.4%	41.4%	12.3%	39.1%	39.1%	13.8%	31.7%	31.7%	14.6%	32.5%	32.5%
Maximum Green (s)	14.0	47.4	47.4	12.0	44.4	44.4	14.0	34.7	34.7	15.0	35.7	35.7
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8	2.8	1.0	2.8	2.8
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)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
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
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

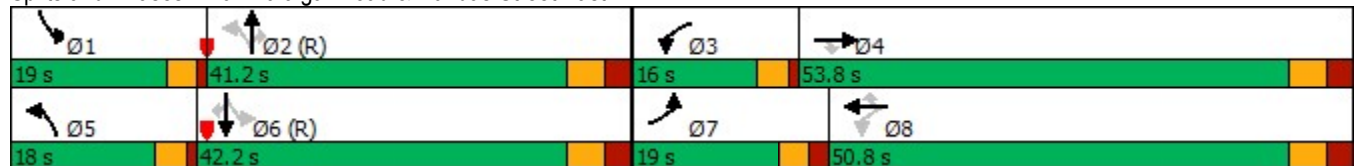
Future Background 2027
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	14.0	47.4	47.4	58.8	44.4	44.4	51.2	34.7	34.7	53.2	35.7	35.7
Actuated g/C Ratio	0.11	0.36	0.36	0.45	0.34	0.34	0.39	0.27	0.27	0.41	0.27	0.27
v/c Ratio	1.11	0.88	0.16	1.07	1.10	0.48	1.02	0.68	0.29	0.98	0.55	0.57
Control Delay	119.9	43.3	6.3	113.3	95.9	14.4	84.8	46.2	10.8	79.9	42.2	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.9	43.3	6.3	113.3	95.9	14.4	84.8	46.2	10.8	79.9	42.2	18.7
LOS	F	D	A	F	F	B	F	D	B	E	D	B
Approach Delay		57.7			86.3			51.9			44.2	
Approach LOS		E			F			D			D	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Pretimed
Maximum v/c Ratio:	1.11
Intersection Signal Delay:	63.6
Intersection LOS:	E
Intersection Capacity Utilization:	108.1%
ICU Level of Service:	G
Analysis Period (min):	15
* User Entered Value	

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Future Background 2027
PM Peak Hour




































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	412	1430	99	241	1716	318	333	826	153	272	671	329
v/c Ratio	1.11	0.88	0.16	1.07	1.10	0.48	1.02	0.68	0.29	0.98	0.55	0.57
Control Delay	119.9	43.3	6.3	113.3	95.9	14.4	84.8	46.2	10.8	79.9	42.2	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.9	43.3	6.3	113.3	95.9	14.4	84.8	46.2	10.8	79.9	42.2	18.7
Queue Length 50th (m)	~59.7	160.5	8.8	~51.6	~207.6	21.2	~60.2	79.4	5.0	47.9	61.3	25.7
Queue Length 95th (m)	#92.4	178.7	m12.2	#104.0	#241.3	48.1	#110.4	96.7	21.7	#103.8	76.3	56.0
Internal Link Dist (m)		524.5			672.9			485.2			390.9	
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Base Capacity (vph)	370	1632	612	225	1559	657	327	1206	524	277	1229	582
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.88	0.16	1.07	1.10	0.48	1.02	0.68	0.29	0.98	0.55	0.57

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: Trafalgar Road & Dundas Street East

Future Background 2027
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	  			  			  			  		
Traffic Volume (vph)	400	1387	96	234	1665	308	323	801	148	264	651	319	
Future Volume (vph)	400	1387	96	234	1665	308	323	801	148	264	651	319	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5	
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.98	
Flpb, ped/bikes	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	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)	3437	4476	1512	1789	4565	1535	1789	4520	1617	1706	4476	1576	
Flt Permitted	0.95	1.00	1.00	0.09	1.00	1.00	0.25	1.00	1.00	0.15	1.00	1.00	
Satd. Flow (perm)	3437	4476	1512	170	4565	1535	473	4520	1617	274	4476	1576	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	412	1430	99	241	1716	318	333	826	153	272	671	329	
RTOR Reduction (vph)	0	0	62	0	0	134	0	0	93	0	0	149	
Lane Group Flow (vph)	412	1430	37	241	1716	184	333	826	60	272	671	180	
Confl. Peds. (#/hr)	1		6	6		1	3					3	
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4	8		8	2		2	6		6	
Actuated Green, G (s)	14.0	47.4	47.4	56.4	44.4	44.4	48.7	34.7	34.7	50.7	35.7	35.7	
Effective Green, g (s)	14.0	47.4	47.4	56.4	44.4	44.4	48.7	34.7	34.7	50.7	35.7	35.7	
Actuated g/C Ratio	0.11	0.36	0.36	0.43	0.34	0.34	0.37	0.27	0.27	0.39	0.27	0.27	
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5	
Lane Grp Cap (vph)	370	1632	551	223	1559	524	318	1206	431	272	1229	432	
v/s Ratio Prot	c0.12	c0.32		0.10	c0.38		0.11	0.18		c0.12	0.15		
v/s Ratio Perm			0.02	0.37		0.12	c0.28		0.04	0.27		0.11	
v/c Ratio	1.11	0.88	0.07	1.08	1.10	0.35	1.05	0.68	0.14	1.00	0.55	0.42	
Uniform Delay, d1	58.0	38.6	26.9	36.6	42.8	32.0	34.8	42.7	36.3	31.2	40.2	38.6	
Progression Factor	0.79	0.96	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	77.1	5.8	0.2	83.4	55.6	1.9	63.3	3.2	0.7	54.6	1.7	2.9	
Delay (s)	122.8	43.0	28.5	120.0	98.4	33.9	98.1	45.9	36.9	85.7	42.0	41.5	
Level of Service	F	D	C	F	F	C	F	D	D	F	D	D	
Approach Delay (s)		59.2			91.7			58.1			51.2		
Approach LOS		E			F			E			D		
Intersection Summary													
HCM 2000 Control Delay			68.4									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.07										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	21.9
Intersection Capacity Utilization			108.1%									ICU Level of Service	G
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Total 2027
 AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	0	51	63	0	39	30
Future Volume (vph)	0	51	63	0	39	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt	0.850					0.850
Flt Protected				0.950	0.950	
Satd. Flow (prot)	2927	0	0	3468	1722	1633
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	2927	0	0	3468	1722	1633
Link Speed (k/h)	50			50	50	
Link Distance (m)	648.5			582.1	462.5	
Travel Time (s)	46.7			41.9	33.3	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	6%	0%	0%	6%	0%
Adj. Flow (vph)	0	61	76	0	47	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	0	76	47	36
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	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						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Stop			Stop	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Total 2027
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↗	↗
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	51	63	0	39	30
Future Volume (vph)	0	51	63	0	39	30
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	0	61	76	0	47	36
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	0	61	76	0	47	36
Volume Left (vph)	0	0	76	0	47	0
Volume Right (vph)	0	61	0	0	0	36
Hadj (s)	0.00	-0.60	0.50	0.00	0.60	-0.70
Departure Headway (s)	4.8	4.2	5.3	4.8	5.4	4.1
Degree Utilization, x	0.00	0.07	0.11	0.00	0.07	0.04
Capacity (veh/h)	750	834	664	754	639	833
Control Delay (s)	6.6	6.3	7.7	6.6	7.7	6.1
Approach Delay (s)	6.3		7.7		7.0	
Approach LOS	A		A		A	
Intersection Summary						
Delay			7.0			
Level of Service			A			
Intersection Capacity Utilization			20.2%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2027
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	19	132	122	9	122	40	949	55	30	1066	23
Future Volume (vph)	98	19	132	122	9	122	40	949	55	30	1066	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.869			0.861				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3110	0	1560	3075	0	1789	4350	1498	1521	4269	1601
Flt Permitted	0.663			0.649			0.134			0.232		
Satd. Flow (perm)	1249	3110	0	1066	3075	0	252	4350	1498	371	4269	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		142			117				59			71
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		582.1			941.9			286.1			574.3	
Travel Time (s)		41.9			67.8			17.2			34.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	17%	5%	2%	2%	6%	9%	20%	8%	2%
Adj. Flow (vph)	105	20	142	131	10	131	43	1020	59	32	1146	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	162	0	131	141	0	43	1020	59	32	1146	25
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												
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
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	21.5	21.5		21.5	21.5		9.3	41.6	41.6	41.6	41.6	41.6
Total Split (s)	41.0	41.0		41.0	41.0		14.0	79.0	79.0	65.0	65.0	65.0
Total Split (%)	34.2%	34.2%		34.2%	34.2%		11.7%	65.8%	65.8%	54.2%	54.2%	54.2%
Maximum Green (s)	35.5	35.5		35.5	35.5		8.7	72.4	72.4	58.4	58.4	58.4
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.2	2.2		2.2	2.2		2.0	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.3	6.6	6.6	6.6	6.6	6.6
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Walk Time (s)	5.0	5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	0
Act Effct Green (s)	35.5	35.5		35.5	35.5		73.7	72.4	72.4	58.4	58.4	58.4
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.61	0.60	0.60	0.49	0.49	0.49

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

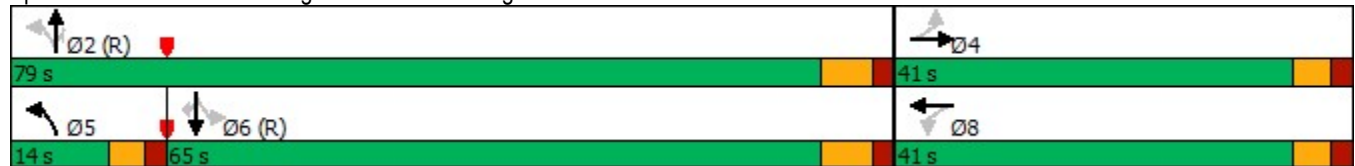
Future Total 2027
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.28	0.16		0.42	0.14		0.16	0.39	0.06	0.18	0.55	0.03
Control Delay	35.1	7.4		38.9	8.5		7.4	7.4	0.8	20.6	22.9	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	7.4		38.9	8.5		7.4	7.4	0.8	20.6	22.9	0.1
LOS	D	A		D	A		A	A	A	C	C	A
Approach Delay		18.3			23.1			7.1			22.4	
Approach LOS		B			C			A			C	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Pretimed
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	16.1
Intersection LOS:	B
Intersection Capacity Utilization	64.6%
ICU Level of Service	C
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2027
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	105	162	131	141	43	1020	59	32	1146	25
v/c Ratio	0.28	0.16	0.42	0.14	0.16	0.39	0.06	0.18	0.55	0.03
Control Delay	35.1	7.4	38.9	8.5	7.4	7.4	0.8	20.6	22.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	7.4	38.9	8.5	7.4	7.4	0.8	20.6	22.9	0.1
Queue Length 50th (m)	19.0	1.7	24.8	2.1	2.0	21.2	0.1	4.1	76.6	0.0
Queue Length 95th (m)	34.2	9.6	43.6	9.5	4.4	25.1	1.3	11.1	92.0	0.0
Internal Link Dist (m)		558.1		917.9		262.1			550.3	
Turn Bay Length (m)	45.0		45.0		55.0		55.0	55.0		55.0
Base Capacity (vph)	369	1020	315	992	266	2624	927	180	2077	815
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.16	0.42	0.14	0.16	0.39	0.06	0.18	0.55	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis

2: Trafalgar Road & Threshing Mill Boulevard













Future Total 2027
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	19	132	122	9	122	40	949	55	30	1066	23
Future Volume (vph)	98	19	132	122	9	122	40	949	55	30	1066	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.3	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80	1.00	1.00	*0.80	1.00
Frt	1.00	0.87		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3108		1560	3073		1789	4350	1498	1521	4269	1601
Flt Permitted	0.66	1.00		0.65	1.00		0.13	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	1248	3108		1066	3073		252	4350	1498	372	4269	1601
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	105	20	142	131	10	131	43	1020	59	32	1146	25
RTOR Reduction (vph)	0	100	0	0	82	0	0	0	23	0	0	13
Lane Group Flow (vph)	105	62	0	131	59	0	43	1020	36	32	1146	12
Heavy Vehicles (%)	2%	2%	2%	17%	5%	2%	2%	6%	9%	20%	8%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	35.5	35.5		35.5	35.5		72.4	72.4	72.4	58.4	58.4	58.4
Effective Green, g (s)	35.5	35.5		35.5	35.5		72.4	72.4	72.4	58.4	58.4	58.4
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.60	0.60	0.60	0.49	0.49	0.49
Clearance Time (s)	5.5	5.5		5.5	5.5		5.3	6.6	6.6	6.6	6.6	6.6
Lane Grp Cap (vph)	369	919		315	909		263	2624	903	181	2077	779
v/s Ratio Prot		0.02			0.02		0.01	c0.23			c0.27	
v/s Ratio Perm	0.08			c0.12			0.09		0.02	0.09		0.01
v/c Ratio	0.28	0.07		0.42	0.06		0.16	0.39	0.04	0.18	0.55	0.02
Uniform Delay, d1	32.5	30.4		33.9	30.3		11.7	12.3	9.7	17.3	21.6	15.9
Progression Factor	1.00	1.00		1.00	1.00		0.67	0.57	0.29	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.1		4.0	0.1		1.2	0.4	0.1	2.1	1.1	0.0
Delay (s)	34.4	30.5		37.9	30.5		9.1	7.4	2.8	19.4	22.7	16.0
Level of Service	C	C		D	C		A	A	A	B	C	B
Approach Delay (s)		32.0			34.1			7.2			22.4	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			18.5	HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			120.0	Sum of lost time (s)				17.4				
Intersection Capacity Utilization			64.6%	ICU Level of Service				C				
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Total 2027
 AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Traffic Volume (vph)	9	17	64	70	3	2	43	99	92	1	192	7
Future Volume (vph)	9	17	64	70	3	2	43	99	92	1	192	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.903			0.996			0.941			0.995	
Flt Protected		0.995			0.955			0.991				
Satd. Flow (prot)	0	1644	0	0	3472	0	0	3251	0	0	3530	0
Flt Permitted		0.995			0.955			0.991				
Satd. Flow (perm)	0	1644	0	0	3472	0	0	3251	0	0	3530	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		747.5			580.1			363.3			462.5	
Travel Time (s)		53.8			41.8			26.2			33.3	
Confl. Peds. (#/hr)			1	1			5		1	1		5
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 (%)	0%	0%	7%	0%	0%	0%	21%	2%	0%	0%	3%	0%
Adj. Flow (vph)	10	19	73	80	3	2	49	113	105	1	218	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	102	0	0	85	0	0	267	0	0	227	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			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												
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			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	36.1%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Total 2027
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	17	64	70	3	2	43	99	92	1	192	7
Future Volume (vph)	9	17	64	70	3	2	43	99	92	1	192	7
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
Hourly flow rate (vph)	10	19	73	80	3	2	49	112	105	1	218	8























Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	102	82	4	105	161	110	117
Volume Left (vph)	10	80	0	49	0	1	0
Volume Right (vph)	73	0	2	0	105	0	8
Hadj (s)	-0.32	0.49	-0.40	0.42	-0.44	0.06	0.00
Departure Headway (s)	5.5	6.3	5.4	5.7	4.9	5.4	5.3
Degree Utilization, x	0.15	0.14	0.01	0.17	0.22	0.16	0.17
Capacity (veh/h)	609	528	609	605	710	637	646
Control Delay (s)	9.5	9.1	7.2	8.7	8.0	8.2	8.2
Approach Delay (s)	9.5	9.1		8.3		8.2	
Approach LOS	A	A		A		A	

Intersection Summary

Delay	8.5
Level of Service	A
Intersection Capacity Utilization	36.1%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Total 2027
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	15	165	150	1	61	27	932	30	35	1281	4
Future Volume (vph)	57	15	165	150	1	61	27	932	30	35	1281	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.862			0.852				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3085	0	1372	2830	0	1789	4044	1166	1141	4117	1601
Flt Permitted	0.711			0.630			0.086			0.237		
Satd. Flow (perm)	1339	3085	0	910	2830	0	162	4044	1166	285	4117	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		100			106				32			73
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		580.1			755.7			414.9			286.1	
Travel Time (s)		41.8			54.4			24.9			17.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	33%	2%	10%	2%	14%	40%	60%	12%	2%
Adj. Flow (vph)	61	16	177	161	1	66	29	1002	32	38	1377	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	193	0	161	67	0	29	1002	32	38	1377	4
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												
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
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	21.5	21.5		21.5	21.5		9.5	41.6	41.6	41.6	41.6	41.6
Total Split (s)	45.0	45.0		45.0	45.0		10.0	75.0	75.0	65.0	65.0	65.0
Total Split (%)	37.5%	37.5%		37.5%	37.5%		8.3%	62.5%	62.5%	54.2%	54.2%	54.2%
Maximum Green (s)	39.5	39.5		39.5	39.5		4.5	68.4	68.4	58.4	58.4	58.4
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	6.6	6.6	6.6	6.6	6.6
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Walk Time (s)	5.0	5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	0
Act Effct Green (s)	39.5	39.5		39.5	39.5		69.5	68.4	68.4	58.4	58.4	58.4
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.58	0.57	0.57	0.49	0.49	0.49

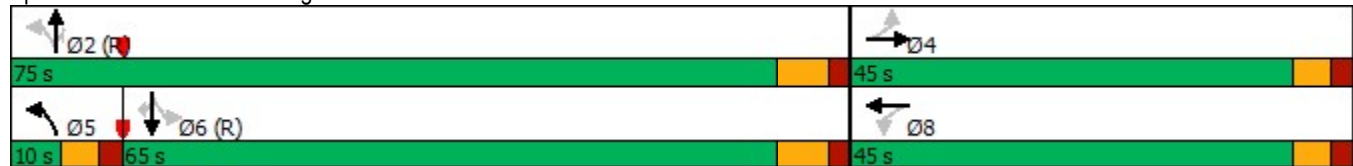
Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Total 2027
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.14	0.18		0.54	0.07		0.19	0.43	0.05	0.28	0.69	0.00
Control Delay	29.5	14.2		40.8	1.6		13.6	15.5	3.9	16.1	14.1	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	14.2		40.8	1.6		13.6	15.5	3.9	16.1	14.1	0.0
LOS	C	B		D	A		B	B	A	B	B	A
Approach Delay		17.8			29.3			15.1			14.1	
Approach LOS		B			C			B			B	

Intersection Summary	
Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Pretimed
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	15.9
Intersection LOS:	B
Intersection Capacity Utilization:	60.4%
ICU Level of Service:	B
Analysis Period (min):	15
* User Entered Value	

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



Queues
4: Trafalgar Road & Wheat Boom Drive

Future Total 2027
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	61	193	161	67	29	1002	32	38	1377	4
v/c Ratio	0.14	0.18	0.54	0.07	0.19	0.43	0.05	0.28	0.69	0.00
Control Delay	29.5	14.2	40.8	1.6	13.6	15.5	3.9	16.1	14.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	14.2	40.8	1.6	13.6	15.5	3.9	16.1	14.1	0.0
Queue Length 50th (m)	10.1	7.9	30.8	0.0	2.8	53.4	0.0	2.6	39.1	0.0
Queue Length 95th (m)	20.3	16.3	53.6	1.7	6.9	65.1	4.3	m5.2	46.2	m0.0
Internal Link Dist (m)		556.1		731.7		390.9			262.1	
Turn Bay Length (m)	45.0		45.0		55.0		55.0	55.0		55.0
Base Capacity (vph)	440	1082	299	1002	154	2305	678	138	2003	816
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.18	0.54	0.07	0.19	0.43	0.05	0.28	0.69	0.00

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Trafalgar Road & Wheat Boom Drive

Future Total 2027
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	15	165	150	1	61	27	932	30	35	1281	4
Future Volume (vph)	57	15	165	150	1	61	27	932	30	35	1281	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80	1.00	1.00	*0.80	1.00
Frt	1.00	0.86		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3086		1372	2831		1789	4044	1166	1141	4117	1601
Flt Permitted	0.71	1.00		0.63	1.00		0.09	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	1339	3086		911	2831		161	4044	1166	285	4117	1601
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	61	16	177	161	1	66	29	1002	32	38	1377	4
RTOR Reduction (vph)	0	67	0	0	45	0	0	0	14	0	0	2
Lane Group Flow (vph)	61	126	0	161	22	0	29	1002	18	38	1377	2
Heavy Vehicles (%)	2%	2%	2%	33%	2%	10%	2%	14%	40%	60%	12%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	39.5	39.5		39.5	39.5		68.4	68.4	68.4	58.4	58.4	58.4
Effective Green, g (s)	39.5	39.5		39.5	39.5		68.4	68.4	68.4	58.4	58.4	58.4
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.57	0.57	0.57	0.49	0.49	0.49
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	6.6	6.6	6.6	6.6	6.6
Lane Grp Cap (vph)	440	1015		299	931		152	2305	664	138	2003	779
v/s Ratio Prot		0.04			0.01		0.01	c0.25			c0.33	
v/s Ratio Perm	0.05			c0.18			0.10		0.02	0.13		0.00
v/c Ratio	0.14	0.12		0.54	0.02		0.19	0.43	0.03	0.28	0.69	0.00
Uniform Delay, d1	28.3	28.2		32.8	27.2		14.8	14.7	11.3	18.3	23.8	15.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.59	0.51	1.00
Incremental Delay, d2	0.7	0.3		6.8	0.0		2.8	0.6	0.1	4.3	1.7	0.0
Delay (s)	28.9	28.4		39.6	27.3		17.6	15.3	11.3	15.1	13.9	15.8
Level of Service	C	C		D	C		B	B	B	B	B	B
Approach Delay (s)		28.5			36.0			15.3			14.0	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			17.4									B
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			120.0								17.6	
Intersection Capacity Utilization			60.4%									B
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings

Future Total 2027

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	1709	121	73	1030	135	91	22	60	273	71	165
Future Volume (vph)	93	1709	121	73	1030	135	91	22	60	273	71	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.99			0.98	1.00		0.98	1.00	0.99	
Frt			0.850			0.850			0.850		0.895	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1313	4476	1541	1738	4230	1555	1644	1746	1384	1789	2985	0
Flt Permitted	0.155			0.063			0.511			0.742		
Satd. Flow (perm)	214	4476	1520	115	4230	1531	882	1746	1361	1391	2985	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			141			63			172
Link Speed (k/h)		70			70			50				50
Link Distance (m)		618.3			548.5			842.1				363.3
Travel Time (s)		31.8			28.2			60.6				26.2
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%
Adj. Flow (vph)	97	1780	126	76	1073	141	95	23	63	284	74	172
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1780	126	76	1073	141	95	23	63	284	246	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)		7.4			7.4			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												
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
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
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	6.1	1.8	
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

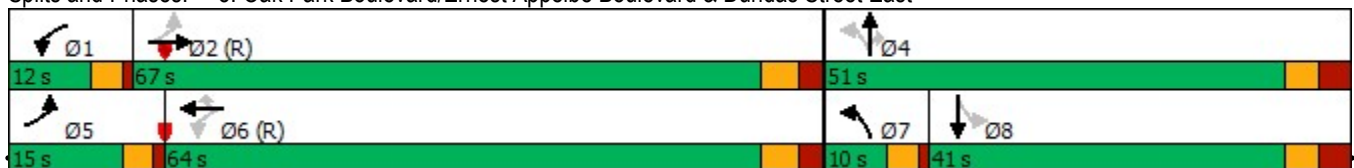


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6		7	4				8
Permitted Phases	2		2	6		6	4		4	8		
Detector Phase	5	2	2	1	6	6	7	4	4	8		8
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	7.0	20.0	20.0	6.0	10.0	10.0	10.0		10.0
Minimum Split (s)	8.0	38.3	38.3	12.0	38.3	38.3	10.0	40.6	40.6	24.6		24.6
Total Split (s)	15.0	67.0	67.0	12.0	64.0	64.0	10.0	51.0	51.0	41.0		41.0
Total Split (%)	11.5%	51.5%	51.5%	9.2%	49.2%	49.2%	7.7%	39.2%	39.2%	31.5%		31.5%
Maximum Green (s)	11.0	60.7	60.7	8.0	57.7	57.7	6.0	44.4	44.4	34.4		34.4
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.3		3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	3.3	3.3	3.3		3.3
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	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6		6.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes		Yes
Vehicle Extension (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.0	5.0	3.5		3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	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)		25.0	25.0		25.0	25.0		27.0	27.0	7.0		7.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0	0		0
Act Effct Green (s)	77.3	66.9	66.9	72.9	63.0	63.0	43.4	40.8	40.8	30.8		30.8
Actuated g/C Ratio	0.59	0.51	0.51	0.56	0.48	0.48	0.33	0.31	0.31	0.24		0.24
v/c Ratio	0.47	0.77	0.15	0.48	0.52	0.17	0.29	0.04	0.13	0.86		0.29
Control Delay	19.7	29.9	6.4	17.6	28.9	11.8	32.0	29.4	7.6	72.0		13.1
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	19.7	29.9	6.4	17.6	28.9	11.8	32.0	29.4	7.6	72.0		13.1
LOS	B	C	A	B	C	B	C	C	A	E		B
Approach Delay		27.9			26.4			23.2				44.6
Approach LOS		C			C			C				D

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 29.4 Intersection LOS: C
 Intersection Capacity Utilization 84.4% ICU Level of Service E
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East



Queues

Future Total 2027

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	97	1780	126	76	1073	141	95	23	63	284	246
v/c Ratio	0.47	0.77	0.15	0.48	0.52	0.17	0.29	0.04	0.13	0.86	0.29
Control Delay	19.7	29.9	6.4	17.6	28.9	11.8	32.0	29.4	7.6	72.0	13.1
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	19.7	29.9	6.4	17.6	28.9	11.8	32.0	29.4	7.6	72.0	13.1
Queue Length 50th (m)	10.6	161.8	3.9	12.2	104.5	15.4	16.6	4.0	0.0	68.3	7.6
Queue Length 95th (m)	19.4	189.1	14.9	m16.8	118.8	m27.0	29.1	10.3	9.8	#108.0	18.2
Internal Link Dist (m)		594.3			524.5			818.1			339.3
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	221	2304	829	164	2050	814	329	596	506	368	916
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	0.44	0.77	0.15	0.46	0.52	0.17	0.29	0.04	0.12	0.77	0.27

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

Future Total 2027

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East


































AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	93	1709	121	73	1030	135	91	22	60	273	71	165	
Future Volume (vph)	93	1709	121	73	1030	135	91	22	60	273	71	165	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95		
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.98	1.00	0.99		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1313	4476	1520	1738	4230	1531	1642	1746	1361	1781	2986		
Flt Permitted	0.16	1.00	1.00	0.06	1.00	1.00	0.51	1.00	1.00	0.74	1.00		
Satd. Flow (perm)	215	4476	1520	116	4230	1531	884	1746	1361	1392	2986		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	97	1780	126	76	1073	141	95	23	62	284	74	172	
RTOR Reduction (vph)	0	0	48	0	0	73	0	0	43	0	131	0	
Lane Group Flow (vph)	97	1780	78	76	1073	68	95	23	20	284	115	0	
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2	
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		
Protected Phases	5	2		1	6		7	4			8		
Permitted Phases	2		2	6		6	4		4	8			
Actuated Green, G (s)	75.4	66.1	66.1	69.2	63.0	63.0	40.8	40.8	40.8	30.8	30.8		
Effective Green, g (s)	75.4	66.1	66.1	69.2	63.0	63.0	40.8	40.8	40.8	30.8	30.8		
Actuated g/C Ratio	0.58	0.51	0.51	0.53	0.48	0.48	0.31	0.31	0.31	0.24	0.24		
Clearance Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6		
Vehicle Extension (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.0	5.0	3.5	3.5		
Lane Grp Cap (vph)	203	2275	772	139	2049	741	312	547	427	329	707		
v/s Ratio Prot	c0.03	c0.40		0.03	0.25		c0.01	0.01			0.04		
v/s Ratio Perm	0.24		0.05	0.26		0.04	0.08		0.01	c0.20			
v/c Ratio	0.48	0.78	0.10	0.55	0.52	0.09	0.30	0.04	0.05	0.86	0.16		
Uniform Delay, d1	14.4	26.1	16.6	21.6	23.1	18.1	32.6	31.0	31.1	47.6	39.4		
Progression Factor	1.00	1.00	1.00	0.60	1.16	3.39	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.8	2.8	0.3	3.3	0.7	0.2	0.6	0.1	0.1	20.6	0.1		
Delay (s)	16.2	28.8	16.8	16.2	27.6	61.4	33.1	31.1	31.1	68.2	39.5		
Level of Service	B	C	B	B	C	E	C	C	C	E	D		
Approach Delay (s)		27.5			30.6			32.2			54.9		
Approach LOS		C			C			C			D		
Intersection Summary													
HCM 2000 Control Delay			32.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	20.9
Intersection Capacity Utilization			84.4%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Total 2027
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	334	1347	160	139	785	180	126	460	78	426	904	358
Future Volume (vph)	334	1347	160	139	785	180	126	460	78	426	904	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor			0.98	1.00			1.00		0.99	1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	4433	1471	1644	4230	1432	1659	4154	1570	1601	4309	1458
Flt Permitted	0.950			0.112			0.203			0.336		
Satd. Flow (perm)	3404	4433	1449	194	4230	1432	354	4154	1550	566	4309	1439
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141			189			171			285
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		548.5			863.5			829.6			414.9	
Travel Time (s)		28.2			44.4			49.8			24.9	
Confl. Peds. (#/hr)			3	3			1		1	1		1
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 (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%
Adj. Flow (vph)	352	1418	168	146	826	189	133	484	82	448	952	377
Shared Lane Traffic (%)												
Lane Group Flow (vph)	352	1418	168	146	826	189	133	484	82	448	952	377
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)		7.4			7.4			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												
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
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Minimum Split (s)	12.0	40.4	40.4	11.0	40.4	40.4	11.0	40.5	40.5	11.0	40.5	40.5
Total Split (s)	20.0	50.0	50.0	12.0	42.0	42.0	15.0	43.0	43.0	25.0	53.0	53.0
Total Split (%)	15.4%	38.5%	38.5%	9.2%	32.3%	32.3%	11.5%	33.1%	33.1%	19.2%	40.8%	40.8%
Maximum Green (s)	15.0	43.6	43.6	8.0	35.6	35.6	11.0	36.5	36.5	21.0	46.5	46.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8	2.8	1.0	2.8	2.8
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)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
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
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

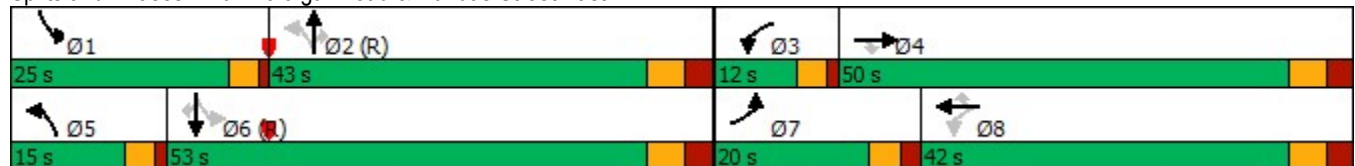
Future Total 2027
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	15.0	43.6	43.6	46.0	35.6	35.6	50.0	36.5	36.5	64.0	46.5	46.5
Actuated g/C Ratio	0.12	0.34	0.34	0.35	0.27	0.27	0.38	0.28	0.28	0.49	0.36	0.36
v/c Ratio	0.90	0.95	0.29	0.93	0.71	0.36	0.54	0.42	0.15	1.01	0.62	0.54
Control Delay	67.3	47.3	6.4	84.6	46.7	6.9	28.2	39.4	0.6	71.3	36.6	11.3
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	67.3	47.3	6.4	84.6	46.7	6.9	28.2	39.4	0.6	71.3	36.6	11.3
LOS	E	D	A	F	D	A	C	D	A	E	D	B
Approach Delay		47.4			45.0			32.7			39.9	
Approach LOS		D			D			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	115
Control Type:	Pretimed
Maximum v/c Ratio:	1.01
Intersection Signal Delay:	42.7
Intersection LOS:	D
Intersection Capacity Utilization:	105.4%
ICU Level of Service:	G
Analysis Period (min):	15
* User Entered Value	

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Future Total 2027
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	352	1418	168	146	826	189	133	484	82	448	952	377
v/c Ratio	0.90	0.95	0.29	0.93	0.71	0.36	0.54	0.42	0.15	1.01	0.62	0.54
Control Delay	67.3	47.3	6.4	84.6	46.7	6.9	28.2	39.4	0.6	71.3	36.6	11.3
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	67.3	47.3	6.4	84.6	46.7	6.9	28.2	39.4	0.6	71.3	36.6	11.3
Queue Length 50th (m)	41.9	161.9	13.5	22.3	79.8	0.0	18.3	42.1	0.0	~79.6	83.2	16.1
Queue Length 95th (m)	m#70.2	#189.2	m15.9	#63.3	97.6	17.5	30.5	54.7	0.0	#158.9	100.4	45.7
Internal Link Dist (m)		524.5			839.5			805.6			390.9	
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Base Capacity (vph)	392	1486	579	157	1158	529	246	1166	558	445	1541	697
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.95	0.29	0.93	0.71	0.36	0.54	0.42	0.15	1.01	0.62	0.54

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.

m Volume for 95th percentile queue is metered by upstream signal.

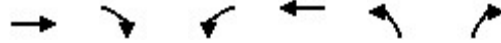
HCM Signalized Intersection Capacity Analysis
6: Trafalgar Road & Dundas Street East

Future Total 2027
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	  			  			  			  		
Traffic Volume (vph)	334	1347	160	139	785	180	126	460	78	426	904	358	
Future Volume (vph)	334	1347	160	139	785	180	126	460	78	426	904	358	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5	
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	
Flpb, ped/bikes	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	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)	3404	4433	1449	1644	4230	1432	1659	4154	1550	1601	4309	1439	
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.20	1.00	1.00	0.34	1.00	1.00	
Satd. Flow (perm)	3404	4433	1449	194	4230	1432	354	4154	1550	566	4309	1439	
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)	352	1418	168	146	826	189	133	484	82	448	952	377	
RTOR Reduction (vph)	0	0	94	0	0	137	0	0	59	0	0	183	
Lane Group Flow (vph)	352	1418	74	146	826	52	133	484	23	448	952	194	
Confl. Peds. (#/hr)			3	3			1		1	1		1	
Heavy Vehicles (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4	8		8	2		2	6		6	
Actuated Green, G (s)	15.0	43.6	43.6	43.6	35.6	35.6	47.5	36.5	36.5	61.5	46.5	46.5	
Effective Green, g (s)	15.0	43.6	43.6	43.6	35.6	35.6	47.5	36.5	36.5	61.5	46.5	46.5	
Actuated g/C Ratio	0.12	0.34	0.34	0.34	0.27	0.27	0.37	0.28	0.28	0.47	0.36	0.36	
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5	
Lane Grp Cap (vph)	392	1486	485	154	1158	392	239	1166	435	434	1541	514	
v/s Ratio Prot	c0.10	c0.32		0.06	0.20		0.05	0.12		c0.17	0.22		
v/s Ratio Perm			0.05	0.26		0.04	0.16		0.01	c0.32		0.13	
v/c Ratio	0.90	0.95	0.15	0.95	0.71	0.13	0.56	0.42	0.05	1.03	0.62	0.38	
Uniform Delay, d1	56.7	42.2	30.3	36.2	42.6	35.6	28.7	38.1	34.1	28.3	34.4	31.0	
Progression Factor	0.85	0.86	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.4	10.6	0.4	59.9	3.8	0.7	9.0	1.1	0.2	51.7	1.9	2.1	
Delay (s)	66.8	46.9	23.3	96.1	46.4	36.3	37.8	39.2	34.4	80.0	36.3	33.1	
Level of Service	E	D	C	F	D	D	D	D	C	F	D	C	
Approach Delay (s)		48.5			51.0			38.3			46.6		
Approach LOS		D			D			D			D		
Intersection Summary													
HCM 2000 Control Delay			47.1									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.04										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	21.9
Intersection Capacity Utilization			105.4%									ICU Level of Service	G
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Total 2027
 PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	0	45	68	0	46	48
Future Volume (vph)	0	45	68	0	46	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.850					0.850
Flt Protected				0.950	0.950	
Satd. Flow (prot)	3042	0	0	3400	1789	1601
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	3042	0	0	3400	1789	1601
Link Speed (k/h)	50			50	50	
Link Distance (m)	882.0			582.1	462.5	
Travel Time (s)	63.5			41.9	33.3	
Confl. Peds. (#/hr)		1			1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	49	74	0	50	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	0	74	50	52
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	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						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Stop			Stop	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Total 2027
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑	↑
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	45	68	0	46	48
Future Volume (vph)	0	45	68	0	46	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	49	74	0	50	52
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	0	49	74	0	50	52
Volume Left (vph)	0	0	74	0	50	0
Volume Right (vph)	0	49	0	0	0	52
Hadj (s)	0.00	-0.67	0.53	0.00	0.53	-0.67
Departure Headway (s)	4.8	4.2	5.3	4.8	5.4	4.1
Degree Utilization, x	0.00	0.06	0.11	0.00	0.07	0.06
Capacity (veh/h)	742	836	654	748	652	835
Control Delay (s)	6.6	6.2	7.8	6.6	7.6	6.2
Approach Delay (s)	6.2		7.8		6.9	
Approach LOS	A		A		A	
Intersection Summary						
Delay			7.0			
Level of Service			A			
Intersection Capacity Utilization			20.4%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2027
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	0	71	76	81	71	96	1349	179	64	1095	75
Future Volume (vph)	38	0	71	76	81	71	96	1349	179	64	1095	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.850			0.930				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3042	0	1615	3328	0	1789	4433	1512	1825	4520	1570
Flt Permitted	0.652			0.706			0.167			0.146		
Satd. Flow (perm)	1228	3042	0	1200	3328	0	315	4433	1512	280	4520	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		193			74				186			78
Link Speed (k/h)		50			50			60				60
Link Distance (m)		582.1			905.4			286.1				583.0
Travel Time (s)		41.9			65.2			17.2				35.0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	13%	2%	2%	2%	4%	8%	0%	2%	4%
Adj. Flow (vph)	40	0	74	79	84	74	100	1405	186	67	1141	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	74	0	79	158	0	100	1405	186	67	1141	78
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												
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
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2				6
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	21.5	21.5		21.5	21.5		8.0	41.6	41.6	41.6	41.6	41.6
Total Split (s)	26.0	26.0		26.0	26.0		12.0	94.0	94.0	82.0	82.0	82.0
Total Split (%)	21.7%	21.7%		21.7%	21.7%		10.0%	78.3%	78.3%	68.3%	68.3%	68.3%
Maximum Green (s)	20.5	20.5		20.5	20.5		8.0	87.4	87.4	75.4	75.4	75.4
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.2	2.2		2.2	2.2		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	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Walk Time (s)	5.0	5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	0
Act Effct Green (s)	20.5	20.5		20.5	20.5		90.0	87.4	87.4	75.4	75.4	75.4
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.75	0.73	0.73	0.63	0.63	0.63

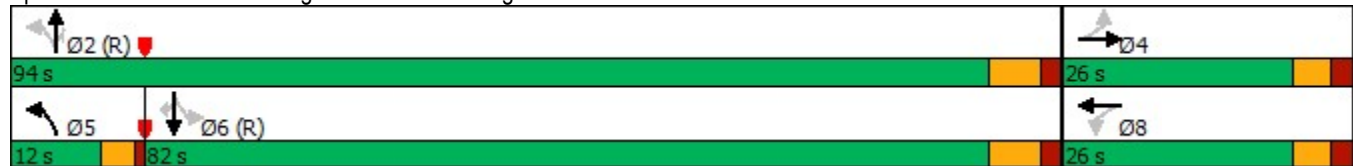
Lanes, Volumes, Timings
 2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2027
 PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.19	0.11		0.39	0.25		0.30	0.44	0.16	0.38	0.40	0.08
Control Delay	45.4	0.3		50.5	24.0		4.8	3.3	0.3	18.8	11.6	2.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	0.3		50.5	24.0		4.8	3.3	0.3	18.8	11.6	2.1
LOS	D	A		D	C		A	A	A	B	B	A
Approach Delay		16.2			32.8			3.0			11.4	
Approach LOS		B			C			A			B	

Intersection Summary	
Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Pretimed
Maximum v/c Ratio:	0.44
Intersection Signal Delay:	8.8
Intersection LOS:	A
Intersection Capacity Utilization	79.6%
ICU Level of Service	D
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2027
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	40	74	79	158	100	1405	186	67	1141	78
v/c Ratio	0.19	0.11	0.39	0.25	0.30	0.44	0.16	0.38	0.40	0.08
Control Delay	45.4	0.3	50.5	24.0	4.8	3.3	0.3	18.8	11.6	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	0.3	50.5	24.0	4.8	3.3	0.3	18.8	11.6	2.1
Queue Length 50th (m)	8.2	0.0	16.7	8.9	2.2	16.2	0.2	7.2	51.8	0.0
Queue Length 95th (m)	18.5	0.0	32.1	18.6	m3.9	20.5	0.8	19.0	62.0	5.5
Internal Link Dist (m)		558.1		881.4		262.1			559.0	
Turn Bay Length (m)	45.0		45.0		55.0		55.0	55.0		55.0
Base Capacity (vph)	209	679	205	629	334	3228	1151	175	2840	1015
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.11	0.39	0.25	0.30	0.44	0.16	0.38	0.40	0.08

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2027
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	0	71	76	81	71	96	1349	179	64	1095	75
Future Volume (vph)	38	0	71	76	81	71	96	1349	179	64	1095	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80	1.00	1.00	*0.80	1.00
Frt	1.00	0.85		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3042		1615	3327		1789	4433	1512	1825	4520	1570
Flt Permitted	0.65	1.00		0.71	1.00		0.17	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	1228	3042		1201	3327		314	4433	1512	281	4520	1570
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	0	74	79	84	74	100	1405	186	67	1141	78
RTOR Reduction (vph)	0	61	0	0	61	0	0	0	51	0	0	29
Lane Group Flow (vph)	40	13	0	79	97	0	100	1405	135	67	1141	49
Heavy Vehicles (%)	2%	2%	2%	13%	2%	2%	2%	4%	8%	0%	2%	4%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	20.5	20.5		20.5	20.5		87.4	87.4	87.4	75.4	75.4	75.4
Effective Green, g (s)	20.5	20.5		20.5	20.5		87.4	87.4	87.4	75.4	75.4	75.4
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.73	0.73	0.73	0.63	0.63	0.63
Clearance Time (s)	5.5	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lane Grp Cap (vph)	209	519		205	568		327	3228	1101	176	2840	986
v/s Ratio Prot		0.00			0.03		0.02	c0.32			0.25	
v/s Ratio Perm	0.03			c0.07			0.20		0.09	0.24		0.03
v/c Ratio	0.19	0.02		0.39	0.17		0.31	0.44	0.12	0.38	0.40	0.05
Uniform Delay, d1	42.6	41.4		44.2	42.5		5.7	6.5	4.9	10.9	11.1	8.6
Progression Factor	1.00	1.00		1.00	1.00		0.75	0.45	0.14	1.00	1.00	1.00
Incremental Delay, d2	2.0	0.1		5.4	0.6		1.9	0.3	0.2	6.2	0.4	0.1
Delay (s)	44.7	41.5		49.6	43.1		6.2	3.2	0.9	17.0	11.5	8.7
Level of Service	D	D		D	D		A	A	A	B	B	A
Approach Delay (s)		42.6			45.3			3.2			11.6	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			10.8				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			16.1		
Intersection Capacity Utilization			79.6%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Total 2027
 PM Peak Hour















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Traffic Volume (vph)	13	5	55	48	8	5	40	194	135	8	183	30
Future Volume (vph)	13	5	55	48	8	5	40	194	135	8	183	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.897			0.989			0.945			0.980	
Flt Protected		0.991			0.962			0.995			0.998	
Satd. Flow (prot)	0	1341	0	0	3413	0	0	3301	0	0	3447	0
Flt Permitted		0.991			0.962			0.995			0.998	
Satd. Flow (perm)	0	1341	0	0	3413	0	0	3301	0	0	3447	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		773.9			580.1			363.3			462.5	
Travel Time (s)		55.7			41.8			26.2			33.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	49%	28%	0%	13%	0%	22%	3%	0%	0%	2%	14%
Adj. Flow (vph)	14	5	60	53	9	5	44	213	148	9	201	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	0	0	67	0	0	405	0	0	243	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			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												
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			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.1%
ICU Level of Service	A
Analysis Period (min)	15























HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Total 2027
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↕↕			↕↕			↕↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	5	55	48	8	5	40	194	135	8	183	30
Future Volume (vph)	13	5	55	48	8	5	40	194	135	8	183	30
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	14	5	60	53	9	5	44	213	148	9	201	33
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total (vph)	79	58	10	151	255	110	134					
Volume Left (vph)	14	53	0	44	0	9	0					
Volume Right (vph)	60	0	5	0	148	0	33					
Hadj (s)	0.05	0.48	-0.26	0.29	-0.39	0.07	-0.09					
Departure Headway (s)	6.1	6.6	5.8	5.5	4.8	5.4	5.3					
Degree Utilization, x	0.13	0.11	0.02	0.23	0.34	0.17	0.20					
Capacity (veh/h)	546	500	559	633	722	633	654					
Control Delay (s)	10.0	9.1	7.7	8.9	9.1	8.3	8.4					
Approach Delay (s)	10.0	8.9		9.1		8.3						
Approach LOS	B	A		A		A						
Intersection Summary												
Delay			8.9									
Level of Service			A									
Intersection Capacity Utilization			38.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Total 2027
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	0	141	127	11	87	60	1517	119	88	1141	13
Future Volume (vph)	20	0	141	127	11	87	60	1517	119	88	1141	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.850			0.866				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3042	0	1825	2897	0	1789	4192	1512	1615	4230	1601
Flt Permitted	0.688			0.660			0.184			0.076		
Satd. Flow (perm)	1296	3042	0	1268	2897	0	347	4192	1512	129	4230	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		156			90				108			59
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		580.1			936.8			414.9			286.1	
Travel Time (s)		41.8			67.4			24.9			17.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	0%	2%	10%	2%	10%	8%	13%	9%	2%
Adj. Flow (vph)	21	0	145	131	11	90	62	1564	123	91	1176	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	145	0	131	101	0	62	1564	123	91	1176	13
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												
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
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	21.5	21.5		21.5	21.5		8.0	41.6	41.6	8.0	41.6	41.6
Total Split (s)	29.0	29.0		29.0	29.0		9.0	75.0	75.0	16.0	82.0	82.0
Total Split (%)	24.2%	24.2%		24.2%	24.2%		7.5%	62.5%	62.5%	13.3%	68.3%	68.3%
Maximum Green (s)	23.5	23.5		23.5	23.5		5.0	68.4	68.4	12.0	75.4	75.4
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.2	2.2		2.2	2.2		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
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.0	6.6	6.6	4.0	6.6	6.6
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Walk Time (s)	5.0	5.0		5.0	5.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			28.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	0
Act Effct Green (s)	23.5	23.5		23.5	23.5		76.0	68.4	68.4	87.0	75.4	75.4
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.63	0.57	0.57	0.72	0.63	0.63

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Total 2027
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.08	0.20		0.53	0.16		0.22	0.65	0.14	0.38	0.44	0.01
Control Delay	40.6	6.0		52.1	11.0		7.3	19.4	3.3	27.9	8.5	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	6.0		52.1	11.0		7.3	19.4	3.3	27.9	8.5	0.0
LOS	D	A		D	B		A	B	A	C	A	A
Approach Delay		10.4			34.2			17.8			9.8	
Approach LOS		B			C			B			A	

Intersection Summary	
Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Pretimed
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	15.5
Intersection LOS:	B
Intersection Capacity Utilization	68.9%
ICU Level of Service	C
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



Queues
4: Trafalgar Road & Wheat Boom Drive

Future Total 2027
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	145	131	101	62	1564	123	91	1176	13
v/c Ratio	0.08	0.20	0.53	0.16	0.22	0.65	0.14	0.38	0.44	0.01
Control Delay	40.6	6.0	52.1	11.0	7.3	19.4	3.3	27.9	8.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	6.0	52.1	11.0	7.3	19.4	3.3	27.9	8.5	0.0
Queue Length 50th (m)	4.1	0.0	27.9	1.1	3.7	100.2	1.5	6.6	32.3	0.0
Queue Length 95th (m)	11.2	7.4	48.4	8.5	7.3	118.0	9.5	23.5	36.8	m0.0
Internal Link Dist (m)		556.1		912.8		390.9			262.1	
Turn Bay Length (m)	45.0		45.0		55.0		55.0	55.0		55.0
Base Capacity (vph)	253	721	248	639	279	2389	908	242	2657	1027
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.20	0.53	0.16	0.22	0.65	0.14	0.38	0.44	0.01





























Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Trafalgar Road & Wheat Boom Drive

Future Total 2027
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Traffic Volume (vph)	20	0	141	127	11	87	60	1517	119	88	1141	13
Future Volume (vph)	20	0	141	127	11	87	60	1517	119	88	1141	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		4.0	6.6	6.6	4.0	6.6	6.6
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80	1.00	1.00	*0.80	1.00
Frt	1.00	0.85		1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3042		1825	2898		1789	4192	1512	1615	4230	1601
Flt Permitted	0.69	1.00		0.66	1.00		0.18	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1297	3042		1268	2898		346	4192	1512	129	4230	1601
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	21	0	145	131	11	90	62	1564	123	91	1176	13
RTOR Reduction (vph)	0	117	0	0	72	0	0	0	46	0	0	5
Lane Group Flow (vph)	21	28	0	131	29	0	62	1564	77	91	1176	8
Heavy Vehicles (%)	2%	2%	2%	0%	2%	10%	2%	10%	8%	13%	9%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	23.5	23.5		23.5	23.5		73.4	68.4	68.4	84.4	75.4	75.4
Effective Green, g (s)	23.5	23.5		23.5	23.5		73.4	68.4	68.4	84.4	75.4	75.4
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.61	0.57	0.57	0.70	0.63	0.63
Clearance Time (s)	5.5	5.5		5.5	5.5		4.0	6.6	6.6	4.0	6.6	6.6
Lane Grp Cap (vph)	253	595		248	567		271	2389	861	239	2657	1005
v/s Ratio Prot		0.01			0.01		0.01	c0.37		c0.04	0.28	
v/s Ratio Perm	0.02			c0.10			0.13		0.05	0.23		0.01
v/c Ratio	0.08	0.05		0.53	0.05		0.23	0.65	0.09	0.38	0.44	0.01
Uniform Delay, d1	39.4	39.2		43.3	39.2		9.4	17.7	11.7	10.9	11.5	8.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	3.02	0.69	1.00
Incremental Delay, d2	0.6	0.2		7.8	0.2		2.0	1.4	0.2	4.3	0.5	0.0
Delay (s)	40.1	39.3		51.1	39.4		11.4	19.1	11.9	37.3	8.4	8.3
Level of Service	D	D		D	D		B	B	B	D	A	A
Approach Delay (s)		39.4			46.0			18.3			10.5	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			18.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			16.1		
Intersection Capacity Utilization			68.9%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings

Future Total 2027

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	1376	209	204	1628	244	287	97	83	175	77	137
Future Volume (vph)	163	1376	209	204	1628	244	287	97	83	175	77	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor			0.95				0.98		0.97	0.99	0.97	
Frt			0.850			0.850			0.850		0.904	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4520	1570	1825	4565	1633	1807	1883	1526	1807	2929	0
Flt Permitted	0.072			0.067			0.477			0.694		
Satd. Flow (perm)	138	4520	1491	129	4565	1633	891	1883	1486	1303	2929	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			185			198			84			138
Link Speed (k/h)		70			70			50				50
Link Distance (m)		647.6			548.5			646.2				363.3
Travel Time (s)		33.3			28.2			46.5				26.2
Confl. Peds. (#/hr)			16	16			13		6	6		13
Peak Hour 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
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Adj. Flow (vph)	165	1390	211	206	1644	246	290	98	84	177	78	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	1390	211	206	1644	246	290	98	84	177	216	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)		7.4			7.4			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												
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
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
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	6.1	1.8	
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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6		7	4				8
Permitted Phases	2		2	6		6	4		4	8		
Detector Phase	5	2	2	1	6	6	7	4	4	8		8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.0	20.0	20.0	9.0	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	15.0	57.0	57.0	21.0	63.0	63.0	22.0	52.0	52.0	30.0	30.0	
Total Split (%)	11.5%	43.8%	43.8%	16.2%	48.5%	48.5%	16.9%	40.0%	40.0%	23.1%	23.1%	
Maximum Green (s)	11.5	53.0	53.0	17.0	59.0	59.0	18.0	48.0	48.0	26.0	26.0	
Yellow Time (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
All-Red Time (s)	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	Max	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0	0	0	0
Act Effct Green (s)	66.9	55.7	55.7	73.2	59.8	59.8	48.0	48.0	48.0	26.8	26.8	
Actuated g/C Ratio	0.51	0.43	0.43	0.56	0.46	0.46	0.37	0.37	0.37	0.21	0.21	
v/c Ratio	0.79	0.72	0.28	0.80	0.78	0.29	0.64	0.14	0.14	0.66	0.30	
Control Delay	54.6	33.7	6.0	20.7	29.6	9.3	38.5	28.0	6.0	61.0	17.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	54.6	33.7	6.0	20.7	29.6	9.3	38.5	28.0	6.0	61.0	17.7	
LOS	D	C	A	C	C	A	D	C	A	E	B	
Approach Delay		32.4			26.4			30.6			37.2	
Approach LOS		C			C			C			D	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 29.9 Intersection LOS: C
 Intersection Capacity Utilization 83.1% ICU Level of Service E
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East



Queues

Future Total 2027

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	165	1390	211	206	1644	246	290	98	84	177	216
v/c Ratio	0.79	0.72	0.28	0.80	0.78	0.29	0.64	0.14	0.14	0.66	0.30
Control Delay	54.6	33.7	6.0	20.7	29.6	9.3	38.5	28.0	6.0	61.0	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	33.7	6.0	20.7	29.6	9.3	38.5	28.0	6.0	61.0	17.7
Queue Length 50th (m)	25.5	122.8	3.9	26.9	173.9	28.1	55.4	16.6	0.0	42.4	8.7
Queue Length 95th (m)	#58.6	146.1	19.3	m25.2	m156.1	m26.6	80.6	29.2	10.6	#69.0	19.7
Internal Link Dist (m)		623.6			524.5			622.2			339.3
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	221	1936	744	295	2099	858	455	695	601	268	712
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	0.75	0.72	0.28	0.70	0.78	0.29	0.64	0.14	0.14	0.66	0.30

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

Future Total 2027

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East


































PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	1376	209	204	1628	244	287	97	83	175	77	137
Future Volume (vph)	163	1376	209	204	1628	244	287	97	83	175	77	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.97	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	1.00
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)	1825	4520	1491	1825	4565	1633	1792	1883	1486	1784	2930	1900
Flt Permitted	0.07	1.00	1.00	0.07	1.00	1.00	0.48	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	138	4520	1491	129	4565	1633	900	1883	1486	1302	2930	1900
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	165	1390	211	206	1644	246	290	98	84	177	78	138
RTOR Reduction (vph)	0	0	106	0	0	107	0	0	53	0	110	0
Lane Group Flow (vph)	165	1390	105	206	1644	139	290	98	31	177	106	0
Confl. Peds. (#/hr)			16	16			13		6	6		13
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	NA
Protected Phases	5	2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		
Actuated Green, G (s)	66.4	55.7	55.7	74.0	59.8	59.8	48.0	48.0	48.0	26.8	26.8	26.8
Effective Green, g (s)	66.4	55.7	55.7	74.0	59.8	59.8	48.0	48.0	48.0	26.8	26.8	26.8
Actuated g/C Ratio	0.51	0.43	0.43	0.57	0.46	0.46	0.37	0.37	0.37	0.21	0.21	0.21
Clearance Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	209	1936	638	259	2099	751	450	695	548	268	604	604
v/s Ratio Prot	0.06	0.31		c0.09	0.36		c0.09	0.05			0.04	
v/s Ratio Perm	0.34		0.07	c0.36		0.09	c0.15		0.02	0.14		
v/c Ratio	0.79	0.72	0.16	0.80	0.78	0.19	0.64	0.14	0.06	0.66	0.18	0.18
Uniform Delay, d1	30.3	30.7	22.8	34.9	29.6	20.7	31.1	27.3	26.4	47.4	42.5	42.5
Progression Factor	1.00	1.00	1.00	0.59	0.98	1.82	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.7	2.3	0.6	1.6	0.3	0.0	3.2	0.4	0.2	12.1	0.6	0.6
Delay (s)	48.0	33.0	23.4	22.2	29.2	37.7	34.3	27.7	26.6	59.5	43.1	43.1
Level of Service	D	C	C	C	C	D	C	C	C	E	D	D
Approach Delay (s)		33.2			29.5			31.5			50.5	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			32.8									C
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			130.0							16.0		
Intersection Capacity Utilization			83.1%									E
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Total 2027
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	404	1387	96	234	1638	308	323	1011	148	282	762	323
Future Volume (vph)	404	1387	96	234	1638	308	323	1011	148	282	762	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98	1.00		0.99	1.00					0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	4476	1541	1789	4565	1555	1789	4520	1617	1706	4476	1601
Flt Permitted	0.950			0.090			0.187			0.112		
Satd. Flow (perm)	3437	4476	1512	169	4565	1535	352	4520	1617	201	4476	1576
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			206			101			201
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		548.5			989.1			711.4			414.9	
Travel Time (s)		28.2			50.9			42.7			24.9	
Confl. Peds. (#/hr)	1		6	6		1	3					3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%
Adj. Flow (vph)	416	1430	99	241	1689	318	333	1042	153	291	786	333
Shared Lane Traffic (%)												
Lane Group Flow (vph)	416	1430	99	241	1689	318	333	1042	153	291	786	333
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)		7.4			7.4			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												
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
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Minimum Split (s)	12.0	40.4	40.4	11.0	40.4	40.4	11.0	40.5	40.5	11.0	40.5	40.5
Total Split (s)	19.0	53.8	53.8	16.0	50.8	50.8	18.0	41.2	41.2	19.0	42.2	42.2
Total Split (%)	14.6%	41.4%	41.4%	12.3%	39.1%	39.1%	13.8%	31.7%	31.7%	14.6%	32.5%	32.5%
Maximum Green (s)	14.0	47.4	47.4	12.0	44.4	44.4	14.0	34.7	34.7	15.0	35.7	35.7
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8	2.8	1.0	2.8	2.8
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)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
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
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

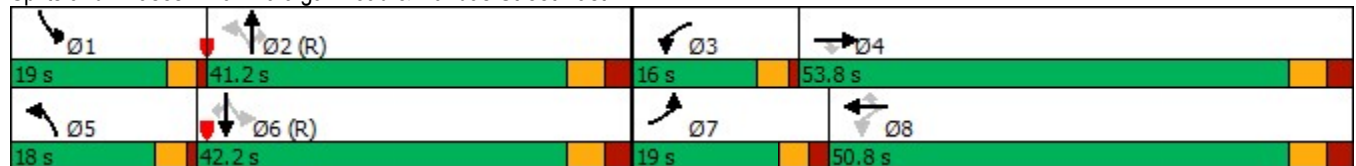
Future Total 2027
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	14.0	47.4	47.4	58.8	44.4	44.4	51.2	34.7	34.7	53.2	35.7	35.7
Actuated g/C Ratio	0.11	0.36	0.36	0.45	0.34	0.34	0.39	0.27	0.27	0.41	0.27	0.27
v/c Ratio	1.12	0.88	0.16	1.07	1.08	0.48	1.14	0.86	0.30	1.14	0.64	0.58
Control Delay	123.4	43.3	6.2	113.3	89.7	14.1	122.6	54.0	15.8	132.7	44.3	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.4	43.3	6.2	113.3	89.7	14.1	122.6	54.0	15.8	132.7	44.3	19.9
LOS	F	D	A	F	F	B	F	D	B	F	D	B
Approach Delay		58.5			81.5			65.1			56.8	
Approach LOS		E			F			E			E	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Pretimed
Maximum v/c Ratio:	1.14
Intersection Signal Delay:	66.8
Intersection LOS:	E
Intersection Capacity Utilization	107.7%
ICU Level of Service	G
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Future Total 2027
PM Peak Hour






































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	416	1430	99	241	1689	318	333	1042	153	291	786	333
v/c Ratio	1.12	0.88	0.16	1.07	1.08	0.48	1.14	0.86	0.30	1.14	0.64	0.58
Control Delay	123.4	43.3	6.2	113.3	89.7	14.1	122.6	54.0	15.8	132.7	44.3	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.4	43.3	6.2	113.3	89.7	14.1	122.6	54.0	15.8	132.7	44.3	19.9
Queue Length 50th (m)	~60.9	160.5	8.7	~51.6	~201.6	20.4	~71.3	106.3	10.1	~70.9	74.0	28.0
Queue Length 95th (m)	#94.0	178.7	m12.1	#104.0	#235.3	47.3	#130.8	126.8	27.8	#127.1	90.7	59.0
Internal Link Dist (m)		524.5			965.1			687.4				390.9
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Base Capacity (vph)	370	1632	612	225	1559	659	293	1206	505	255	1229	578
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	0.88	0.16	1.07	1.08	0.48	1.14	0.86	0.30	1.14	0.64	0.58

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.
- m Volume for 95th percentile queue is metered by upstream signal.

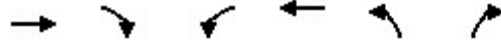
HCM Signalized Intersection Capacity Analysis
6: Trafalgar Road & Dundas Street East

Future Total 2027
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	  			  			  		  	  		
Traffic Volume (vph)	404	1387	96	234	1638	308	323	1011	148	282	762	323	
Future Volume (vph)	404	1387	96	234	1638	308	323	1011	148	282	762	323	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5	
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.98	
Flpb, ped/bikes	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	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)	3437	4476	1512	1789	4565	1535	1789	4520	1617	1706	4476	1576	
Flt Permitted	0.95	1.00	1.00	0.09	1.00	1.00	0.19	1.00	1.00	0.11	1.00	1.00	
Satd. Flow (perm)	3437	4476	1512	170	4565	1535	353	4520	1617	201	4476	1576	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	416	1430	99	241	1689	318	333	1042	153	291	786	333	
RTOR Reduction (vph)	0	0	62	0	0	136	0	0	74	0	0	146	
Lane Group Flow (vph)	416	1430	37	241	1689	182	333	1042	79	291	786	187	
Confl. Peds. (#/hr)	1		6	6		1	3					3	
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4	8		8	2		2	6		6	
Actuated Green, G (s)	14.0	47.4	47.4	56.4	44.4	44.4	48.7	34.7	34.7	50.7	35.7	35.7	
Effective Green, g (s)	14.0	47.4	47.4	56.4	44.4	44.4	48.7	34.7	34.7	50.7	35.7	35.7	
Actuated g/C Ratio	0.11	0.36	0.36	0.43	0.34	0.34	0.37	0.27	0.27	0.39	0.27	0.27	
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5	
Lane Grp Cap (vph)	370	1632	551	223	1559	524	286	1206	431	252	1229	432	
v/s Ratio Prot	c0.12	c0.32		0.10	c0.37		0.13	0.23		c0.13	0.18		
v/s Ratio Perm			0.02	0.37		0.12	0.31		0.05	c0.32		0.12	
v/c Ratio	1.12	0.88	0.07	1.08	1.08	0.35	1.16	0.86	0.18	1.15	0.64	0.43	
Uniform Delay, d1	58.0	38.6	26.9	36.6	42.8	32.0	33.4	45.4	36.7	37.3	41.5	38.8	
Progression Factor	0.79	0.96	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	80.9	5.8	0.2	83.4	49.0	1.8	105.3	8.3	0.9	105.0	2.6	3.1	
Delay (s)	126.6	42.9	28.3	120.0	91.8	33.8	138.7	53.7	37.7	142.3	44.0	42.0	
Level of Service	F	D	C	F	F	C	F	D	D	F	D	D	
Approach Delay (s)		60.1			86.6			70.6			63.8		
Approach LOS		E			F			E			E		
Intersection Summary													
HCM 2000 Control Delay			71.5		HCM 2000 Level of Service						E		
HCM 2000 Volume to Capacity ratio			1.13										
Actuated Cycle Length (s)			130.0		Sum of lost time (s)						21.9		
Intersection Capacity Utilization			107.7%		ICU Level of Service						G		
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Background 2032
 AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	0	57	0	0	43	0
Future Volume (vph)	0	57	0	0	43	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Fr _t	0.850					
Fl _t Protected					0.950	
Satd. Flow (prot)	2927	0	0	3650	1722	1921
Fl _t Permitted					0.950	
Satd. Flow (perm)	2927	0	0	3650	1722	1921
Link Speed (k/h)	50			50	50	
Link Distance (m)	766.8			582.1	462.5	
Travel Time (s)	55.2			41.9	33.3	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	6%	0%	0%	6%	0%
Adj. Flow (vph)	0	69	0	0	52	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	0	0	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	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						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Stop			Stop	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard























Future Background 2032
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑	↑
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	57	0	0	43	0
Future Volume (vph)	0	57	0	0	43	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	0	69	0	0	52	0
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	0	69	0	0	52	0
Volume Left (vph)	0	0	0	0	52	0
Volume Right (vph)	0	69	0	0	0	0
Hadj (s)	0.00	-0.60	0.00	0.00	0.60	0.00
Departure Headway (s)	4.6	4.0	4.7	4.7	5.3	4.6
Degree Utilization, x	0.00	0.08	0.00	0.00	0.08	0.00
Capacity (veh/h)	775	866	766	766	668	772
Control Delay (s)	6.4	6.2	6.5	6.5	7.5	6.4
Approach Delay (s)	6.2		0.0		7.5	
Approach LOS	A		A		A	
Intersection Summary						
Delay			6.7			
Level of Service			A			
Intersection Capacity Utilization			13.3%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2032
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	125	0	126	0	1015	58	32	1168	0
Future Volume (vph)	0	0	0	125	0	126	0	1015	58	32	1168	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt					0.850					0.850		
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1883	3579	0	1659	3042	0	1883	4350	1498	1659	4269	1883
Flt Permitted				0.757						0.205		
Satd. Flow (perm)	1883	3579	0	1322	3042	0	1883	4350	1498	358	4269	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					322					57		
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		582.1			615.5			286.1			646.0	
Travel Time (s)		41.9			44.3			17.2			38.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	10%	5%	2%	2%	6%	9%	10%	8%	2%
Adj. Flow (vph)	0	0	0	134	0	135	0	1091	62	34	1256	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	134	135	0	0	1091	62	34	1256	0
Enter Blocked Intersection	No	No	Yes	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												
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	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		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
Detector 1 Position(m)	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	1.8		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
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
Detector 1 Queue (s)	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
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			Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8			5	2			6

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2032
AM Peak Hour

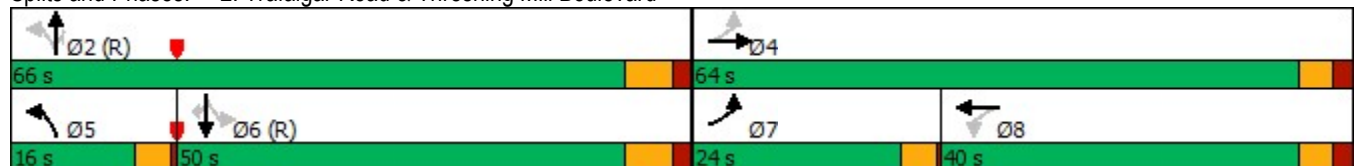


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		10.0	10.0		4.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	8.0	21.5		21.5	21.5		8.0	41.6	41.6	41.6	41.6	41.6
Total Split (s)	24.0	64.0		40.0	40.0		16.0	66.0	66.0	50.0	50.0	50.0
Total Split (%)	18.5%	49.2%		30.8%	30.8%		12.3%	50.8%	50.8%	38.5%	38.5%	38.5%
Maximum Green (s)	20.0	58.5		34.5	34.5		12.0	59.4	59.4	43.4	43.4	43.4
Yellow Time (s)	3.5	3.3		3.3	3.3		3.5	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	0.5	2.2		2.2	2.2		0.5	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lead			Lag	Lag		Lead			Lag	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	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)				18.5	18.5			99.4	99.4	99.4	99.4	
Actuated g/C Ratio				0.14	0.14			0.76	0.76	0.76	0.76	
v/c Ratio				0.71	0.19			0.33	0.05	0.12	0.38	
Control Delay				72.7	0.6			5.6	1.6	6.4	6.0	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				72.7	0.6			5.6	1.6	6.4	6.0	
LOS				E	A			A	A	A	A	
Approach Delay					36.5			5.4			6.0	
Approach LOS					D			A			A	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 8.7
 Intersection Capacity Utilization 45.0%
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2032
AM Peak Hour

























Lane Group	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	134	135	1091	62	34	1256
v/c Ratio	0.71	0.19	0.33	0.05	0.12	0.38
Control Delay	72.7	0.6	5.6	1.6	6.4	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.7	0.6	5.6	1.6	6.4	6.0
Queue Length 50th (m)	33.2	0.0	31.5	0.3	2.0	38.5
Queue Length 95th (m)	51.9	0.0	49.0	4.3	6.6	59.4
Internal Link Dist (m)		591.5	262.1			622.0
Turn Bay Length (m)	45.0			55.0	55.0	
Base Capacity (vph)	350	1043	3325	1158	273	3263
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	0.38	0.13	0.33	0.05	0.12	0.38
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2032
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	0	0	125	0	126	0	1015	58	32	1168	0	
Future Volume (vph)	0	0	0	125	0	126	0	1015	58	32	1168	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				5.5	5.5			6.6	6.6	6.6	6.6		
Lane Util. Factor				1.00	0.95			*0.80	1.00	1.00	*0.80		
Frt				1.00	0.85			1.00	0.85	1.00	1.00		
Flt Protected				0.95	1.00			1.00	1.00	0.95	1.00		
Satd. Flow (prot)				1659	3042			4350	1498	1659	4269		
Flt Permitted				0.76	1.00			1.00	1.00	0.21	1.00		
Satd. Flow (perm)				1322	3042			4350	1498	358	4269		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	0	0	0	134	0	135	0	1091	62	34	1256	0	
RTOR Reduction (vph)	0	0	0	0	116	0	0	0	13	0	0	0	
Lane Group Flow (vph)	0	0	0	134	19	0	0	1091	49	34	1256	0	
Heavy Vehicles (%)	2%	2%	2%	10%	5%	2%	2%	6%	9%	10%	8%	2%	
Turn Type	pm+pt			Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	
Protected Phases	7	4			8		5	2			6		
Permitted Phases	4			8			2		2	6		6	
Actuated Green, G (s)				18.5	18.5			99.4	99.4	99.4	99.4		
Effective Green, g (s)				18.5	18.5			99.4	99.4	99.4	99.4		
Actuated g/C Ratio				0.14	0.14			0.76	0.76	0.76	0.76		
Clearance Time (s)				5.5	5.5			6.6	6.6	6.6	6.6		
Vehicle Extension (s)				3.0	3.0			5.0	5.0	5.0	5.0		
Lane Grp Cap (vph)				188	432			3326	1145	273	3264		
v/s Ratio Prot					0.01			0.25			c0.29		
v/s Ratio Perm				c0.10					0.03	0.09			
v/c Ratio				0.71	0.04			0.33	0.04	0.12	0.38		
Uniform Delay, d1				53.2	48.1			4.8	3.7	4.0	5.1		
Progression Factor				1.00	1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2				12.0	0.0			0.3	0.1	0.9	0.3		
Delay (s)				65.3	48.2			5.1	3.8	4.9	5.4		
Level of Service				E	D			A	A	A	A		
Approach Delay (s)		0.0			56.7			5.0			5.4		
Approach LOS		A			E			A			A		
Intersection Summary													
HCM 2000 Control Delay			10.3		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.47										
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					20.1			
Intersection Capacity Utilization			45.0%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

Lanes, Volumes, Timings
3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Background 2032
AM Peak Hour















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Traffic Volume (vph)	10	17	70	20	3	2	47	76	69	1	142	8
Future Volume (vph)	10	17	70	20	3	2	47	76	69	1	142	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.902			0.989			0.946			0.992	
Flt Protected		0.995			0.961			0.988				
Satd. Flow (prot)	0	1641	0	0	3469	0	0	3221	0	0	3521	0
Flt Permitted		0.995			0.961			0.988				
Satd. Flow (perm)	0	1641	0	0	3469	0	0	3221	0	0	3521	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		187.3			580.1			363.3			462.5	
Travel Time (s)		13.5			41.8			26.2			33.3	
Confl. Peds. (#/hr)			1	1			5		1	1		5
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 (%)	0%	0%	7%	0%	0%	0%	21%	2%	0%	0%	3%	0%
Adj. Flow (vph)	11	19	80	23	3	2	53	86	78	1	161	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	110	0	0	28	0	0	217	0	0	171	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			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												
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			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.1%
ICU Level of Service	A
Analysis Period (min)	15























HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Background 2032
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↕↕			↕↕			↕↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	17	70	20	3	2	47	76	69	1	142	8
Future Volume (vph)	10	17	70	20	3	2	47	76	69	1	142	8
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
Hourly flow rate (vph)	11	19	80	23	3	2	53	86	78	1	161	9
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total (vph)	110	25	4	96	121	82	90					
Volume Left (vph)	11	23	0	53	0	1	0					
Volume Right (vph)	80	0	2	0	78	0	9					
Hadj (s)	-0.33	0.47	-0.40	0.49	-0.44	0.06	-0.02					
Departure Headway (s)	5.1	6.0	5.1	5.5	4.6	5.1	5.1					
Degree Utilization, x	0.16	0.04	0.00	0.15	0.15	0.12	0.13					
Capacity (veh/h)	660	556	646	630	754	672	685					
Control Delay (s)	9.0	8.1	7.0	8.3	7.2	7.6	7.6					
Approach Delay (s)	9.0	7.9		7.7		7.6						
Approach LOS	A	A		A		A						
Intersection Summary												
Delay			8.0									
Level of Service			A									
Intersection Capacity Utilization			34.1%	ICU Level of Service								A
Analysis Period (min)			15									

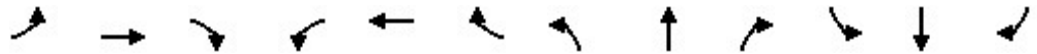
Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Background 2032
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	15	33	151	0	64	0	978	31	36	1258	0
Future Volume (vph)	32	15	33	151	0	64	0	978	31	36	1258	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.897			0.850				0.850			
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1789	3210	0	1659	2821	0	1883	4044	1484	1659	4117	1883
Flt Permitted	0.710			0.481						0.204		
Satd. Flow (perm)	1337	3210	0	840	2821	0	1883	4044	1484	356	4117	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			64				55			
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		580.1			654.7			414.9			286.1	
Travel Time (s)		41.8			47.1			24.9			17.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	10%	2%	10%	2%	14%	10%	10%	12%	2%
Adj. Flow (vph)	34	16	35	162	0	69	0	1052	33	39	1353	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	51	0	162	69	0	0	1052	33	39	1353	0
Enter Blocked Intersection	No	No	Yes	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												
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	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		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
Detector 1 Position(m)	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	1.8		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
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
Detector 1 Queue (s)	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
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	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8		5	2			6	

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Background 2032
AM Peak Hour

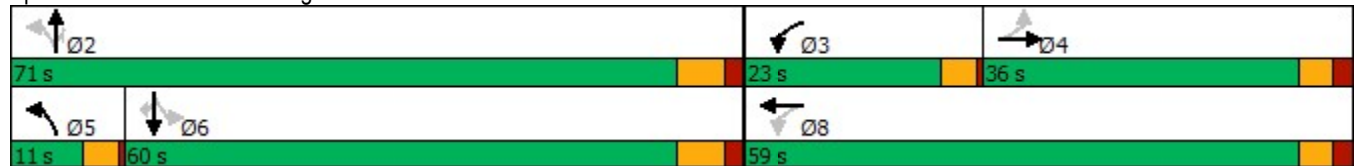


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		4.0	10.0		4.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	21.5	21.5		8.0	21.5		8.0	41.6	41.6	41.6	41.6	41.6
Total Split (s)	36.0	36.0		23.0	59.0		11.0	71.0	71.0	60.0	60.0	60.0
Total Split (%)	27.7%	27.7%		17.7%	45.4%		8.5%	54.6%	54.6%	46.2%	46.2%	46.2%
Maximum Green (s)	30.5	30.5		19.0	53.5		7.0	64.4	64.4	53.4	53.4	53.4
Yellow Time (s)	3.3	3.3		3.5	3.3		3.5	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.2	2.2		0.5	2.2		0.5	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		4.0	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lag	Lag		Lead			Lead			Lag	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	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	None	None	None
Walk Time (s)	5.0	5.0			5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0			11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0			0			0	0	0	0	0
Act Effct Green (s)	10.3	10.3		26.4	24.9			65.3	65.3	65.3	65.3	
Actuated g/C Ratio	0.10	0.10		0.26	0.24			0.64	0.64	0.64	0.64	
v/c Ratio	0.25	0.14		0.49	0.09			0.41	0.03	0.17	0.52	
Control Delay	50.0	22.1		35.5	8.5			10.7	1.2	12.1	12.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	50.0	22.1		35.5	8.5			10.7	1.2	12.1	12.0	
LOS	D	C		D	A			B	A	B	B	
Approach Delay		33.3			27.4			10.4			12.0	
Approach LOS		C			C			B			B	

Intersection Summary

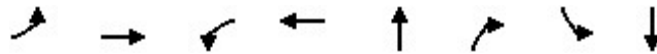
Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 102.3
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 13.3
 Intersection LOS: B
 Intersection Capacity Utilization 57.3%
 ICU Level of Service B
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



4: Trafalgar Road & Wheat Boom Drive

AM Peak Hour

























Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	51	162	69	1052	33	39	1353
v/c Ratio	0.25	0.14	0.49	0.09	0.41	0.03	0.17	0.52
Control Delay	50.0	22.1	35.5	8.5	10.7	1.2	12.1	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	22.1	35.5	8.5	10.7	1.2	12.1	12.0
Queue Length 50th (m)	6.5	1.5	26.2	0.4	42.1	0.0	3.1	59.7
Queue Length 95th (m)	16.7	7.5	43.7	5.4	61.5	2.0	9.9	85.6
Internal Link Dist (m)		556.1		630.7	390.9			262.1
Turn Bay Length (m)	45.0		45.0			55.0	55.0	
Base Capacity (vph)	401	987	383	1514	2579	966	227	2626
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.42	0.05	0.41	0.03	0.17	0.52

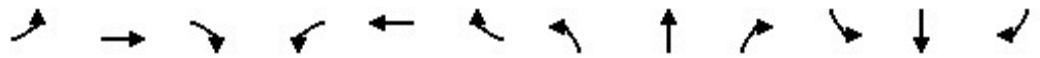
Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: Trafalgar Road & Wheat Boom Drive

Future Background 2032
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	32	15	33	151	0	64	0	978	31	36	1258	0	
Future Volume (vph)	32	15	33	151	0	64	0	978	31	36	1258	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5	5.5		4.0	5.5			6.6	6.6	6.6	6.6		
Lane Util. Factor	1.00	0.95		1.00	0.95			*0.80	1.00	1.00	*0.80		
Frt	1.00	0.90		1.00	0.85			1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1789	3210		1659	2821			4044	1484	1659	4117		
Flt Permitted	0.71	1.00		0.48	1.00			1.00	1.00	0.20	1.00		
Satd. Flow (perm)	1337	3210		841	2821			4044	1484	356	4117		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	34	16	35	162	0	69	0	1052	33	39	1353	0	
RTOR Reduction (vph)	0	32	0	0	48	0	0	0	12	0	0	0	
Lane Group Flow (vph)	34	19	0	162	21	0	0	1052	21	39	1353	0	
Heavy Vehicles (%)	2%	2%	2%	10%	2%	10%	2%	14%	10%	10%	12%	2%	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	
Protected Phases		4		3	8		5	2			6		
Permitted Phases	4			8			2		2	6		6	
Actuated Green, G (s)	8.0	8.0		26.1	26.1			65.2	65.2	65.2	65.2		
Effective Green, g (s)	8.0	8.0		26.1	26.1			65.2	65.2	65.2	65.2		
Actuated g/C Ratio	0.08	0.08		0.25	0.25			0.63	0.63	0.63	0.63		
Clearance Time (s)	5.5	5.5		4.0	5.5			6.6	6.6	6.6	6.6		
Vehicle Extension (s)	3.0	3.0		3.0	3.0			5.0	5.0	5.0	5.0		
Lane Grp Cap (vph)	103	248		323	712			2549	935	224	2596		
v/s Ratio Prot		0.01		c0.07	0.01			0.26			c0.33		
v/s Ratio Perm	0.03			c0.06					0.01	0.11			
v/c Ratio	0.33	0.08		0.50	0.03			0.41	0.02	0.17	0.52		
Uniform Delay, d1	45.2	44.3		32.1	29.1			9.5	7.2	7.9	10.5		
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.9	0.1		1.2	0.0			0.5	0.0	0.8	0.4		
Delay (s)	47.0	44.4		33.3	29.1			10.0	7.2	8.7	10.9		
Level of Service	D	D		C	C			B	A	A	B		
Approach Delay (s)		45.5			32.1			9.9			10.8		
Approach LOS		D			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			13.3									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56										
Actuated Cycle Length (s)			103.4									Sum of lost time (s)	20.1
Intersection Capacity Utilization			57.3%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1882	134	81	1120	143	101	24	67	302	79	54
Future Volume (vph)	43	1882	134	81	1120	143	101	24	67	302	79	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.99			0.98	1.00		0.98	1.00	0.99	
Frt			0.850			0.850			0.850		0.939	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1313	4476	1541	1738	4230	1555	1644	1746	1384	1789	3174	0
Flt Permitted	0.145			0.061			0.589			0.741		
Satd. Flow (perm)	200	4476	1520	112	4230	1531	1015	1746	1361	1389	3174	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			149			95			56
Link Speed (k/h)		70			70			50				50
Link Distance (m)		697.8			548.5			565.2				363.3
Travel Time (s)		35.9			28.2			40.7				26.2
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%
Adj. Flow (vph)	45	1960	140	84	1167	149	105	25	70	315	82	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	1960	140	84	1167	149	105	25	70	315	138	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)		7.4			7.4			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												
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
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
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	6.1	1.8	
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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6		7	4				8
Permitted Phases	2		2	6		6	4		4	8		
Detector Phase	5	2	2	1	6	6	7	4	4	8	8	
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	7.0	20.0	20.0	6.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	38.3	38.3	12.0	38.3	38.3	10.0	40.6	40.6	24.6	24.6	24.6
Total Split (s)	23.0	69.0	69.0	12.0	58.0	58.0	10.0	49.0	49.0	39.0	39.0	39.0
Total Split (%)	17.7%	53.1%	53.1%	9.2%	44.6%	44.6%	7.7%	37.7%	37.7%	30.0%	30.0%	30.0%
Maximum Green (s)	19.0	62.7	62.7	8.0	51.7	51.7	6.0	42.4	42.4	32.4	32.4	32.4
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.5	2.6	2.6	1.0	2.6	2.6	1.0	3.3	3.3	3.3	3.3	3.3
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	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.0	5.0	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	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	7.0
Flash Dont Walk (s)		25.0	25.0		25.0	25.0		27.0	27.0	7.0	7.0	7.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0	0	0	0
Act Effct Green (s)	73.7	64.0	64.0	74.8	66.2	66.2	44.0	41.4	41.4	31.4	31.4	31.4
Actuated g/C Ratio	0.57	0.49	0.49	0.58	0.51	0.51	0.34	0.32	0.32	0.24	0.24	0.24
v/c Ratio	0.26	0.89	0.18	0.53	0.54	0.17	0.28	0.04	0.14	0.94	0.17	0.17
Control Delay	14.9	36.3	6.9	18.3	25.3	9.2	32.4	30.4	3.3	84.4	23.1	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	36.3	6.9	18.3	25.3	9.2	32.4	30.4	3.3	84.4	23.1	23.1
LOS	B	D	A	B	C	A	C	C	A	F	C	C
Approach Delay		34.0			23.2			21.9				65.8
Approach LOS		C			C			C				E

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 33.2
 Intersection LOS: C
 Intersection Capacity Utilization 89.3%
 ICU Level of Service E
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	45	1960	140	84	1167	149	105	25	70	315	138
v/c Ratio	0.26	0.89	0.18	0.53	0.54	0.17	0.28	0.04	0.14	0.94	0.17
Control Delay	14.9	36.3	6.9	18.3	25.3	9.2	32.4	30.4	3.3	84.4	23.1
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	14.9	36.3	6.9	18.3	25.3	9.2	32.4	30.4	3.3	84.4	23.1
Queue Length 50th (m)	4.6	188.2	5.3	10.9	111.5	16.8	18.7	4.4	0.0	78.9	8.5
Queue Length 95th (m)	9.9	215.1	16.6	m13.1	125.8	m25.8	32.7	10.9	5.8	#132.5	17.1
Internal Link Dist (m)		673.8			524.5			541.2			339.3
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	282	2204	799	164	2154	852	372	569	507	346	833
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	0.89	0.18	0.51	0.54	0.17	0.28	0.04	0.14	0.91	0.17

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

Future Background 2032

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East


































AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1882	134	81	1120	143	101	24	67	302	79	54
Future Volume (vph)	43	1882	134	81	1120	143	101	24	67	302	79	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6	
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1313	4476	1520	1738	4230	1531	1641	1746	1361	1781	3175	
Flt Permitted	0.15	1.00	1.00	0.06	1.00	1.00	0.59	1.00	1.00	0.74	1.00	
Satd. Flow (perm)	201	4476	1520	112	4230	1531	1018	1746	1361	1389	3175	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	45	1960	140	84	1167	149	105	25	70	315	82	56
RTOR Reduction (vph)	0	0	51	0	0	74	0	0	48	0	42	0
Lane Group Flow (vph)	45	1960	89	84	1167	75	105	25	22	315	96	0
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		
Actuated Green, G (s)	70.3	64.0	64.0	73.1	65.4	65.4	41.4	41.4	41.4	31.4	31.4	
Effective Green, g (s)	70.3	64.0	64.0	73.1	65.4	65.4	41.4	41.4	41.4	31.4	31.4	
Actuated g/C Ratio	0.54	0.49	0.49	0.56	0.50	0.50	0.32	0.32	0.32	0.24	0.24	
Clearance Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6	
Vehicle Extension (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.0	5.0	3.5	3.5	
Lane Grp Cap (vph)	162	2203	748	159	2128	770	352	556	433	335	766	
v/s Ratio Prot	0.01	c0.44		c0.03	0.28		c0.01	0.01			0.03	
v/s Ratio Perm	0.14		0.06	0.27		0.05	0.08		0.02	c0.23		
v/c Ratio	0.28	0.89	0.12	0.53	0.55	0.10	0.30	0.04	0.05	0.94	0.12	
Uniform Delay, d1	15.4	29.8	17.8	24.7	22.2	16.9	32.4	30.6	30.7	48.4	38.6	
Progression Factor	1.00	1.00	1.00	0.57	1.09	3.01	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	5.9	0.3	2.2	0.7	0.2	0.5	0.1	0.1	34.1	0.1	
Delay (s)	16.3	35.7	18.1	16.3	24.8	51.0	32.8	30.7	30.8	82.5	38.6	
Level of Service	B	D	B	B	C	D	C	C	C	F	D	
Approach Delay (s)		34.1			27.1			31.9			69.2	
Approach LOS		C			C			C			E	
Intersection Summary												
HCM 2000 Control Delay			35.5	HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				20.9				
Intersection Capacity Utilization			89.3%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Background 2032
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	364	1486	176	151	864	197	137	431	86	398	760	376
Future Volume (vph)	364	1486	176	151	864	197	137	431	86	398	760	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor			0.98	1.00			1.00		0.99	1.00		0.99
Fr _t			0.850			0.850			0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	4433	1471	1644	4230	1432	1659	4154	1570	1601	4309	1458
Fl _t Permitted	0.950			0.118			0.301			0.379		
Satd. Flow (perm)	3404	4433	1449	204	4230	1432	525	4154	1550	638	4309	1439
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137			207			171			253
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		548.5			713.0			651.7			414.9	
Travel Time (s)		28.2			36.7			39.1			24.9	
Confl. Peds. (#/hr)			3	3			1		1	1		1
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 (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%
Adj. Flow (vph)	383	1564	185	159	909	207	144	454	91	419	800	396
Shared Lane Traffic (%)												
Lane Group Flow (vph)	383	1564	185	159	909	207	144	454	91	419	800	396
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	Yes	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			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												
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	

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Background 2032
AM Peak Hour

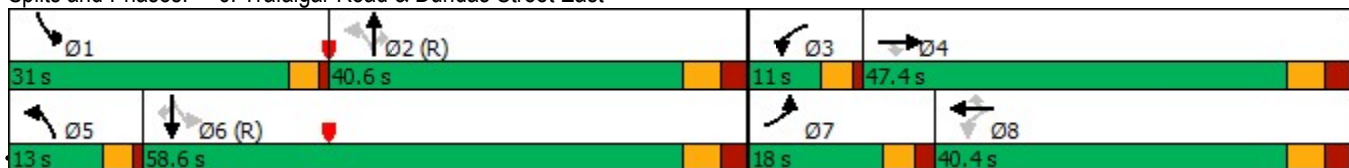


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.4	40.4	11.0	40.4	40.4	11.0	40.5	40.5	11.0	40.5	40.5
Total Split (s)	18.0	47.4	47.4	11.0	40.4	40.4	13.0	40.6	40.6	31.0	58.6	58.6
Total Split (%)	13.8%	36.5%	36.5%	8.5%	31.1%	31.1%	10.0%	31.2%	31.2%	23.8%	45.1%	45.1%
Maximum Green (s)	13.0	41.0	41.0	7.0	34.0	34.0	9.0	34.1	34.1	27.0	52.1	52.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8	2.8	1.0	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	2.0	6.5	6.5
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)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	13.0	41.0	41.0	43.4	34.0	34.0	47.8	36.4	36.4	69.6	52.2	52.2
Actuated g/C Ratio	0.10	0.32	0.32	0.33	0.26	0.26	0.37	0.28	0.28	0.54	0.40	0.40
v/c Ratio	1.13	1.12	0.34	1.10	0.82	0.39	0.53	0.39	0.16	0.78	0.46	0.54
Control Delay	119.4	93.5	7.7	133.0	52.4	7.2	27.1	39.6	0.6	30.3	29.7	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.4	93.5	7.7	133.0	52.4	7.2	27.1	39.6	0.6	30.3	29.7	13.1
LOS	F	F	A	F	D	A	C	D	A	C	C	B
Approach Delay		90.7			55.1			31.9			25.8	
Approach LOS		F			E			C			C	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 57.3
 Intersection LOS: E
 Intersection Capacity Utilization 104.9%
 ICU Level of Service G
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Future Background 2032
AM Peak Hour




































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	383	1564	185	159	909	207	144	454	91	419	800	396
v/c Ratio	1.13	1.12	0.34	1.10	0.82	0.39	0.53	0.39	0.16	0.78	0.46	0.54
Control Delay	119.4	93.5	7.7	133.0	52.4	7.2	27.1	39.6	0.6	30.3	29.7	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.4	93.5	7.7	133.0	52.4	7.2	27.1	39.6	0.6	30.3	29.7	13.1
Queue Length 50th (m)	~56.9	~197.9	15.7	~30.1	91.6	0.0	18.8	40.3	0.0	65.2	62.0	25.6
Queue Length 95th (m)	m#70.6	#232.1	m16.4	#74.6	111.0	18.8	30.7	52.7	0.0	92.6	76.1	55.8
Internal Link Dist (m)		524.5			689.0			627.7			390.9	
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Base Capacity (vph)	340	1398	550	145	1106	527	271	1162	556	556	1730	729
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	1.12	0.34	1.10	0.82	0.39	0.53	0.39	0.16	0.75	0.46	0.54

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: Trafalgar Road & Dundas Street East

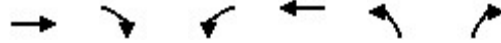
Future Background 2032
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	  			  			  			  		
Traffic Volume (vph)	364	1486	176	151	864	197	137	431	86	398	760	376	
Future Volume (vph)	364	1486	176	151	864	197	137	431	86	398	760	376	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	2.0	6.5	6.5	
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	
Flpb, ped/bikes	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	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)	3404	4433	1449	1644	4230	1432	1659	4154	1550	1601	4309	1439	
Flt Permitted	0.95	1.00	1.00	0.12	1.00	1.00	0.30	1.00	1.00	0.38	1.00	1.00	
Satd. Flow (perm)	3404	4433	1449	204	4230	1432	526	4154	1550	638	4309	1439	
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)	383	1564	185	159	909	207	144	454	91	419	800	396	
RTOR Reduction (vph)	0	0	94	0	0	153	0	0	66	0	0	151	
Lane Group Flow (vph)	383	1564	91	159	909	54	144	454	25	419	800	245	
Confl. Peds. (#/hr)			3	3			1		1	1		1	
Heavy Vehicles (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4	8		8	2		2	6		6	
Actuated Green, G (s)	13.0	41.0	41.0	41.0	34.0	34.0	45.3	36.4	36.4	65.1	52.2	52.2	
Effective Green, g (s)	13.0	41.0	41.0	41.0	34.0	34.0	45.3	36.4	36.4	67.1	52.2	52.2	
Actuated g/C Ratio	0.10	0.32	0.32	0.32	0.26	0.26	0.35	0.28	0.28	0.52	0.40	0.40	
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5	
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	340	1398	456	141	1106	374	260	1163	434	527	1730	577	
v/s Ratio Prot	c0.11	c0.35		0.06	0.21		0.04	0.11		c0.16	0.19		
v/s Ratio Perm			0.06	0.29		0.04	c0.15		0.02	0.25		0.17	
v/c Ratio	1.13	1.12	0.20	1.13	0.82	0.14	0.55	0.39	0.06	0.80	0.46	0.42	
Uniform Delay, d1	58.5	44.5	32.5	40.7	45.2	36.8	30.2	37.8	34.3	21.0	28.6	28.1	
Progression Factor	0.85	0.82	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	73.9	58.6	0.5	114.2	6.9	0.8	2.8	1.0	0.3	8.3	0.9	2.3	
Delay (s)	123.8	95.0	22.7	154.9	52.1	37.7	33.0	38.8	34.5	29.3	29.5	30.3	
Level of Service	F	F	C	F	D	D	C	D	C	C	C	C	
Approach Delay (s)		93.9			62.5			37.0			29.6		
Approach LOS		F			E			D			C		
Intersection Summary													
HCM 2000 Control Delay			61.9		HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			0.89										
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				21.9				
Intersection Capacity Utilization			104.9%		ICU Level of Service				G				
Analysis Period (min)			15										

c Critical Lane Group

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Background 2032
 PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑			↑↑	↘	↗	
Traffic Volume (vph)	0	49	15	0	51	0	
Future Volume (vph)	0	49	15	0	51	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00	
Ped Bike Factor							
Frt	0.850						
Flt Protected				0.950	0.950		
Satd. Flow (prot)	3042	0	0	3400	1789	1883	
Flt Permitted				0.950	0.950		
Satd. Flow (perm)	3042	0	0	3400	1789	1883	
Link Speed (k/h)	50			50	50		
Link Distance (m)	587.6			582.1	462.5		
Travel Time (s)	42.3			41.9	33.3		
Confl. Peds. (#/hr)	1			1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	53	16	0	55	0	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	53	0	0	16	55	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	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							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	14		24	24		14	
Sign Control	Stop			Stop	Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Background 2032
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑	↑
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	49	15	0	51	0
Future Volume (vph)	0	49	15	0	51	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	53	16	0	55	0
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	0	53	16	0	55	0
Volume Left (vph)	0	0	16	0	55	0
Volume Right (vph)	0	53	0	0	0	0
Hadj (s)	0.00	-0.67	0.53	0.00	0.53	0.00
Departure Headway (s)	4.7	4.0	5.2	4.7	5.2	4.7
Degree Utilization, x	0.00	0.06	0.02	0.00	0.08	0.00
Capacity (veh/h)	771	875	668	767	676	771
Control Delay (s)	6.5	6.1	7.1	6.5	7.4	6.5
Approach Delay (s)	6.1		7.1		7.4	
Approach LOS	A		A		A	
Intersection Summary						
Delay			6.8			
Level of Service			A			
Intersection Capacity Utilization			17.5%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2032
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	80	15	77	0	1475	186	66	1182	0
Future Volume (vph)	0	0	0	80	15	77	0	1475	186	66	1182	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt					0.875					0.850		
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1883	3579	0	1615	3131	0	1883	4433	1512	1825	4520	1847
Flt Permitted				0.757						0.124		
Satd. Flow (perm)	1883	3579	0	1287	3131	0	1883	4433	1512	238	4520	1847
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					80				194			
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		582.1			603.1			286.1			393.0	
Travel Time (s)		41.9			43.4			17.2			23.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	13%	2%	2%	2%	4%	8%	0%	2%	4%
Adj. Flow (vph)	0	0	0	83	16	80	0	1536	194	69	1231	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	83	96	0	0	1536	194	69	1231	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			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												
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
Turn Type	pm+pt			Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	21.5		21.5	21.5		8.0	41.6	41.6	41.6	41.6	41.6
Total Split (s)	9.0	31.0		22.0	22.0		22.0	89.0	89.0	67.0	67.0	67.0
Total Split (%)	7.5%	25.8%		18.3%	18.3%		18.3%	74.2%	74.2%	55.8%	55.8%	55.8%
Maximum Green (s)	5.0	25.5		16.5	16.5		18.0	82.4	82.4	60.4	60.4	60.4
Yellow Time (s)	3.5	3.3		3.3	3.3		3.5	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	0.5	2.2		2.2	2.2		0.5	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Walk Time (s)		5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)				16.5	16.5			82.4	82.4	60.4	60.4	
Actuated g/C Ratio				0.14	0.14			0.69	0.69	0.50	0.50	

Lanes, Volumes, Timings
 2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2032
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio				0.47	0.19			0.50	0.18	0.58	0.54	
Control Delay				57.5	14.6			5.7	0.6	44.2	21.5	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				57.5	14.6			5.7	0.6	44.2	21.5	
LOS				E	B			A	A	D	C	
Approach Delay					34.5			5.1			22.7	
Approach LOS					C			A			C	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	80
Control Type:	Pretimed
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	13.9
Intersection LOS:	B
Intersection Capacity Utilization:	69.1%
ICU Level of Service:	C
Analysis Period (min):	15
* User Entered Value	

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2032
PM Peak Hour































Lane Group	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	83	96	1536	194	69	1231
v/c Ratio	0.47	0.19	0.50	0.18	0.58	0.54
Control Delay	57.5	14.6	5.7	0.6	44.2	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	14.6	5.7	0.6	44.2	21.5
Queue Length 50th (m)	18.3	1.7	27.8	0.0	11.0	79.8
Queue Length 95th (m)	34.7	9.5	30.9	2.8	#34.4	94.8
Internal Link Dist (m)		579.1	262.1			369.0
Turn Bay Length (m)	45.0			55.0	55.0	
Base Capacity (vph)	176	499	3043	1099	119	2275
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	0.47	0.19	0.50	0.18	0.58	0.54

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
2: Trafalgar Road & Threshing Mill Boulevard

Future Background 2032
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			  			  		
Traffic Volume (vph)	0	0	0	80	15	77	0	1475	186	66	1182	0	
Future Volume (vph)	0	0	0	80	15	77	0	1475	186	66	1182	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				5.5	5.5			6.6	6.6	6.6	6.6		
Lane Util. Factor				1.00	0.95			*0.80	1.00	1.00	*0.80		
Frt				1.00	0.88			1.00	0.85	1.00	1.00		
Flt Protected				0.95	1.00			1.00	1.00	0.95	1.00		
Satd. Flow (prot)				1615	3131			4433	1512	1825	4520		
Flt Permitted				0.76	1.00			1.00	1.00	0.12	1.00		
Satd. Flow (perm)				1287	3131			4433	1512	239	4520		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0	0	0	83	16	80	0	1536	194	69	1231	0	
RTOR Reduction (vph)	0	0	0	0	69	0	0	0	61	0	0	0	
Lane Group Flow (vph)	0	0	0	83	27	0	0	1536	133	69	1231	0	
Heavy Vehicles (%)	2%	2%	2%	13%	2%	2%	2%	4%	8%	0%	2%	4%	
Turn Type	pm+pt			Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	
Protected Phases	7	4			8		5	2			6		
Permitted Phases	4			8			2		2	6		6	
Actuated Green, G (s)				16.5	16.5			82.4	82.4	60.4	60.4		
Effective Green, g (s)				16.5	16.5			82.4	82.4	60.4	60.4		
Actuated g/C Ratio				0.14	0.14			0.69	0.69	0.50	0.50		
Clearance Time (s)				5.5	5.5			6.6	6.6	6.6	6.6		
Lane Grp Cap (vph)				176	430			3043	1038	120	2275		
v/s Ratio Prot					0.01			c0.35			0.27		
v/s Ratio Perm				c0.06					0.09	c0.29			
v/c Ratio				0.47	0.06			0.50	0.13	0.57	0.54		
Uniform Delay, d1				47.7	45.0			9.0	6.5	20.8	20.3		
Progression Factor				1.00	1.00			0.57	0.36	1.00	1.00		
Incremental Delay, d2				8.8	0.3			0.5	0.2	18.5	0.9		
Delay (s)				56.5	45.3			5.6	2.5	39.3	21.3		
Level of Service				E	D			A	A	D	C		
Approach Delay (s)		0.0			50.5			5.3			22.2		
Approach LOS		A			D			A			C		
Intersection Summary													
HCM 2000 Control Delay			14.7		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.52										
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					20.1			
Intersection Capacity Utilization			69.1%		ICU Level of Service					C			
Analysis Period (min)			15										

c Critical Lane Group

Lanes, Volumes, Timings
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Background 2032
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Traffic Volume (vph)	14	6	60	13	9	6	45	160	102	9	143	32
Future Volume (vph)	14	6	60	13	9	6	45	160	102	9	143	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.899			0.966			0.950			0.974	
Flt Protected		0.992			0.978			0.993			0.998	
Satd. Flow (prot)	0	1341	0	0	3310	0	0	3287	0	0	3412	0
Flt Permitted		0.992			0.978			0.993			0.998	
Satd. Flow (perm)	0	1341	0	0	3310	0	0	3287	0	0	3412	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		623.2			580.1			363.3			462.5	
Travel Time (s)		44.9			41.8			26.2			33.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	49%	28%	0%	13%	0%	22%	3%	0%	0%	2%	14%
Adj. Flow (vph)	15	7	66	14	10	7	49	176	112	10	157	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	31	0	0	337	0	0	202	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			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												
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			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Background 2032
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	6	60	13	9	6	45	160	102	9	143	32
Future Volume (vph)	14	6	60	13	9	6	45	160	102	9	143	32
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	15	7	66	14	10	7	49	176	112	10	157	35

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	88	19	12	137	200	89	114
Volume Left (vph)	15	14	0	49	0	10	0
Volume Right (vph)	66	0	7	0	112	0	35
Hadj (s)	0.06	0.43	-0.32	0.35	-0.37	0.09	-0.12
Departure Headway (s)	5.8	6.3	5.5	5.4	4.7	5.3	5.1
Degree Utilization, x	0.14	0.03	0.02	0.21	0.26	0.13	0.16
Capacity (veh/h)	579	525	591	648	746	657	686
Control Delay (s)	9.7	8.3	7.4	8.6	8.1	7.8	7.8
Approach Delay (s)	9.7	8.0		8.3		7.8	
Approach LOS	A	A		A		A	

Intersection Summary

Delay	8.3
Level of Service	A
Intersection Capacity Utilization	35.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Background 2032
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	79	129	0	93	0	1554	123	90	1172	0
Future Volume (vph)	14	0	79	129	0	93	0	1554	123	90	1172	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.850			0.850				0.850			
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1789	3042	0	1825	2821	0	1883	4192	1512	1615	4230	1883
Flt Permitted	0.574			0.702						0.082		
Satd. Flow (perm)	1081	3042	0	1349	2821	0	1883	4192	1512	139	4230	1883
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		192			186				109			
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		580.1			652.4			414.9			286.1	
Travel Time (s)		41.8			47.0			24.9			17.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	0%	2%	10%	2%	10%	8%	13%	9%	2%
Adj. Flow (vph)	14	0	81	133	0	96	0	1602	127	93	1208	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	81	0	133	96	0	0	1602	127	93	1208	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			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												
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
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	21.5		21.5	21.5		8.0	41.6	41.6	8.0	41.6	41.6
Total Split (s)	8.0	33.0		25.0	25.0		18.0	75.0	75.0	12.0	69.0	69.0
Total Split (%)	6.7%	27.5%		20.8%	20.8%		15.0%	62.5%	62.5%	10.0%	57.5%	57.5%
Maximum Green (s)	4.0	27.5		19.5	19.5		14.0	68.4	68.4	8.0	62.4	62.4
Yellow Time (s)	3.5	3.3		3.3	3.3		3.5	4.6	4.6	3.5	4.6	4.6
All-Red Time (s)	0.5	2.2		2.2	2.2		0.5	2.0	2.0	0.5	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
Total Lost Time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	4.0	6.6	6.6
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Walk Time (s)		5.0		5.0	5.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			28.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)	29.0	27.5		19.5	19.5			68.4	68.4	73.0	62.4	
Actuated g/C Ratio	0.24	0.23		0.16	0.16			0.57	0.57	0.61	0.52	

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

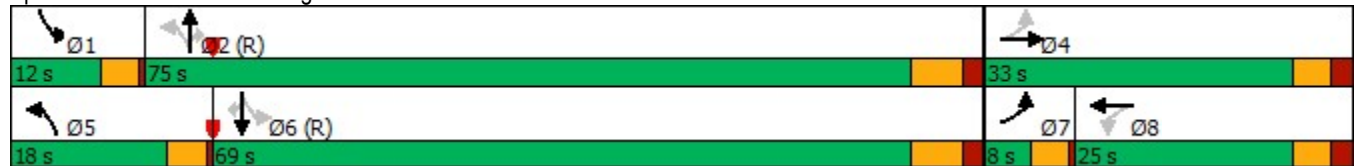
Future Background 2032
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.05	0.10		0.61	0.16			0.67	0.14	0.51	0.55	
Control Delay	35.4	0.2		59.6	0.5			19.7	3.4	37.7	8.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	35.4	0.2		59.6	0.5			19.7	3.4	37.7	8.8	
LOS	D	A		E	A			B	A	D	A	
Approach Delay		5.4			34.8			18.5			10.8	
Approach LOS		A			C			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	80
Control Type:	Pretimed
Maximum v/c Ratio:	0.67
Intersection Signal Delay:	16.3
Intersection LOS:	B
Intersection Capacity Utilization	62.2%
ICU Level of Service	B
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



4: Trafalgar Road & Wheat Boom Drive

PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	81	133	96	1602	127	93	1208
v/c Ratio	0.05	0.10	0.61	0.16	0.67	0.14	0.51	0.55
Control Delay	35.4	0.2	59.6	0.5	19.7	3.4	37.7	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	0.2	59.6	0.5	19.7	3.4	37.7	8.8
Queue Length 50th (m)	2.5	0.0	29.4	0.0	104.0	1.8	9.1	23.2
Queue Length 95th (m)	7.9	0.0	50.5	0.0	122.5	10.0	26.5	26.3
Internal Link Dist (m)		556.1		628.4	390.9			262.1
Turn Bay Length (m)	45.0		45.0			55.0	55.0	
Base Capacity (vph)	284	845	219	614	2389	908	182	2199
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.10	0.61	0.16	0.67	0.14	0.51	0.55

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Trafalgar Road & Wheat Boom Drive

Future Background 2032
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	79	129	0	93	0	1554	123	90	1172	0
Future Volume (vph)	14	0	79	129	0	93	0	1554	123	90	1172	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		5.5	5.5			6.6	6.6	4.0	6.6	
Lane Util. Factor	1.00	0.95		1.00	0.95			*0.80	1.00	1.00	*0.80	
Frt	1.00	0.85		1.00	0.85			1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1789	3042		1825	2821			4192	1512	1615	4230	
Flt Permitted	0.57	1.00		0.70	1.00			1.00	1.00	0.08	1.00	
Satd. Flow (perm)	1081	3042		1348	2821			4192	1512	139	4230	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	14	0	81	133	0	96	0	1602	127	93	1208	0
RTOR Reduction (vph)	0	62	0	0	80	0	0	0	47	0	0	0
Lane Group Flow (vph)	14	19	0	133	16	0	0	1602	80	93	1208	0
Heavy Vehicles (%)	2%	2%	2%	0%	2%	10%	2%	10%	8%	13%	9%	2%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	27.5	27.5		19.5	19.5			68.4	68.4	70.4	62.4	
Effective Green, g (s)	27.5	27.5		19.5	19.5			68.4	68.4	70.4	62.4	
Actuated g/C Ratio	0.23	0.23		0.16	0.16			0.57	0.57	0.59	0.52	
Clearance Time (s)	4.0	5.5		5.5	5.5			6.6	6.6	4.0	6.6	
Lane Grp Cap (vph)	271	697		219	458			2389	861	179	2199	
v/s Ratio Prot	c0.00	0.01			0.01			c0.38		c0.03	0.29	
v/s Ratio Perm	0.01			c0.10					0.05	0.27		
v/c Ratio	0.05	0.03		0.61	0.03			0.67	0.09	0.52	0.55	
Uniform Delay, d1	36.0	35.9		46.7	42.3			18.0	11.7	13.4	19.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	2.33	0.41	
Incremental Delay, d2	0.4	0.1		11.9	0.1			1.5	0.2	8.9	0.8	
Delay (s)	36.4	35.9		58.6	42.5			19.5	11.9	40.1	8.7	
Level of Service	D	D		E	D			B	B	D	A	
Approach Delay (s)		36.0			51.8			18.9			10.9	
Approach LOS		D			D			B			B	

Intersection Summary		
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.62	B
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	62.2%	20.1
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1506	231	225	1757	260	316	107	92	193	85	53
Future Volume (vph)	86	1506	231	225	1757	260	316	107	92	193	85	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor			0.95				0.98		0.97	0.99	0.98	
Frt			0.850			0.850			0.850		0.942	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4520	1570	1825	4565	1633	1807	1883	1526	1807	3118	0
Flt Permitted	0.076			0.070			0.663			0.671		
Satd. Flow (perm)	146	4520	1496	134	4565	1633	1231	1883	1488	1262	3118	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			211			211			93			54
Link Speed (k/h)		70			70			50				50
Link Distance (m)		589.1			548.5			482.3				363.3
Travel Time (s)		30.3			28.2			34.7				26.2
Confl. Peds. (#/hr)			16	16			13		6	6		13
Peak Hour 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
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Adj. Flow (vph)	87	1521	233	227	1775	263	319	108	93	195	86	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	1521	233	227	1775	263	319	108	93	195	140	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)		7.4			7.4			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												
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
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
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	6.1	1.8	
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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			4				8
Permitted Phases	2		2	6		6	4		4	8		
Detector Phase	5	2	2	1	6	6	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.0	20.0	20.0	9.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	16.0	56.0	56.0	18.0	58.0	58.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	13.3%	46.7%	46.7%	15.0%	48.3%	48.3%	38.3%	38.3%	38.3%	38.3%	38.3%	38.3%
Maximum Green (s)	12.0	52.0	52.0	14.0	54.0	54.0	42.0	42.0	42.0	42.0	42.0	42.0
Yellow Time (s)	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	61.0	52.8	52.8	69.8	57.8	57.8	42.0	42.0	42.0	42.0	42.0	42.0
Actuated g/C Ratio	0.51	0.44	0.44	0.58	0.48	0.48	0.35	0.35	0.35	0.35	0.35	0.35
v/c Ratio	0.46	0.77	0.30	0.86	0.81	0.29	0.74	0.16	0.16	0.44	0.12	
Control Delay	22.5	31.8	4.9	58.4	30.3	5.4	46.4	27.8	6.0	33.9	16.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	22.5	31.8	4.9	58.4	30.3	5.4	46.4	27.8	6.0	33.9	16.4	
LOS	C	C	A	E	C	A	D	C	A	C	B	
Approach Delay		27.9			30.2			35.3			26.6	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 29.7
 Intersection LOS: C
 Intersection Capacity Utilization 85.7%
 ICU Level of Service E
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East



Queues

Future Background 2032

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	87	1521	233	227	1775	263	319	108	93	195	140
v/c Ratio	0.46	0.77	0.30	0.86	0.81	0.29	0.74	0.16	0.16	0.44	0.12
Control Delay	22.5	31.8	4.9	58.4	30.3	5.4	46.4	27.8	6.0	33.9	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	31.8	4.9	58.4	30.3	5.4	46.4	27.8	6.0	33.9	16.4
Queue Length 50th (m)	8.5	125.0	2.9	36.7	143.0	6.4	65.4	17.4	0.0	35.1	7.1
Queue Length 95th (m)	19.1	146.6	17.6	#77.9	175.1	21.8	#101.6	30.6	11.0	57.0	14.2
Internal Link Dist (m)		565.1			524.5			458.3			339.3
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	246	1987	775	275	2198	895	430	659	581	441	1126
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	0.35	0.77	0.30	0.83	0.81	0.29	0.74	0.16	0.16	0.44	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

Future Background 2032

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East


































PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1506	231	225	1757	260	316	107	92	193	85	53
Future Volume (vph)	86	1506	231	225	1757	260	316	107	92	193	85	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.98	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	0.94
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)	1825	4520	1496	1825	4565	1633	1763	1883	1488	1787	3119	3119
Flt Permitted	0.08	1.00	1.00	0.07	1.00	1.00	0.66	1.00	1.00	0.67	1.00	1.00
Satd. Flow (perm)	146	4520	1496	135	4565	1633	1231	1883	1488	1263	3119	3119
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	87	1521	233	227	1775	263	319	108	93	195	86	54
RTOR Reduction (vph)	0	0	118	0	0	109	0	0	60	0	35	0
Lane Group Flow (vph)	87	1521	115	227	1775	154	319	108	33	195	105	0
Confl. Peds. (#/hr)			16	16			13		6	6		13
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases	5	2		1	6			4				8
Permitted Phases	2		2	6		6	4		4	8		
Actuated Green, G (s)	61.0	52.8	52.8	70.0	57.8	57.8	42.0	42.0	42.0	42.0	42.0	42.0
Effective Green, g (s)	61.0	52.8	52.8	70.0	57.8	57.8	42.0	42.0	42.0	42.0	42.0	42.0
Actuated g/C Ratio	0.51	0.44	0.44	0.58	0.48	0.48	0.35	0.35	0.35	0.35	0.35	0.35
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	188	1988	658	264	2198	786	430	659	520	442	1091	1091
v/s Ratio Prot	0.03	0.34		c0.09	0.39			0.06				0.03
v/s Ratio Perm	0.20		0.08	c0.41		0.09	c0.26		0.02	0.15		
v/c Ratio	0.46	0.77	0.17	0.86	0.81	0.20	0.74	0.16	0.06	0.44	0.10	0.10
Uniform Delay, d1	21.5	28.4	20.4	33.7	26.4	17.8	34.2	26.9	25.9	30.0	26.2	26.2
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	1.8	2.9	0.6	23.2	3.3	0.6	11.0	0.5	0.2	3.2	0.2	0.2
Delay (s)	23.3	31.2	21.0	56.9	29.7	18.4	45.2	27.4	26.1	33.2	26.4	26.4
Level of Service	C	C	C	E	C	B	D	C	C	C	C	C
Approach Delay (s)		29.6			31.1			38.1			30.3	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			31.2									C
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			120.0							12.0		
Intersection Capacity Utilization			85.7%									E
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Background 2032
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	435	1529	106	256	1780	337	352	931	163	287	708	343
Future Volume (vph)	435	1529	106	256	1780	337	352	931	163	287	708	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98			0.99	1.00					0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	4476	1541	1789	4565	1555	1789	4520	1617	1706	4476	1601
Flt Permitted	0.950			0.092			0.226			0.108		
Satd. Flow (perm)	3437	4476	1512	173	4565	1535	425	4520	1617	194	4476	1576
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			205			123			217
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		548.5			680.7			530.0			414.9	
Travel Time (s)		28.2			35.0			31.8			24.9	
Confl. Peds. (#/hr)	1		6	6		1	3					3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%
Adj. Flow (vph)	448	1576	109	264	1835	347	363	960	168	296	730	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	448	1576	109	264	1835	347	363	960	168	296	730	354
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)		7.4			7.4			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												
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
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Minimum Split (s)	12.0	40.4	40.4	11.0	40.4	40.4	11.0	40.5	40.5	11.0	40.5	40.5
Total Split (s)	20.0	53.0	53.0	17.0	50.0	50.0	16.0	43.0	43.0	17.0	44.0	44.0
Total Split (%)	15.4%	40.8%	40.8%	13.1%	38.5%	38.5%	12.3%	33.1%	33.1%	13.1%	33.8%	33.8%
Maximum Green (s)	15.0	46.6	46.6	13.0	43.6	43.6	12.0	36.5	36.5	13.0	37.5	37.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8	2.8	1.0	2.8	2.8
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)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
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
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

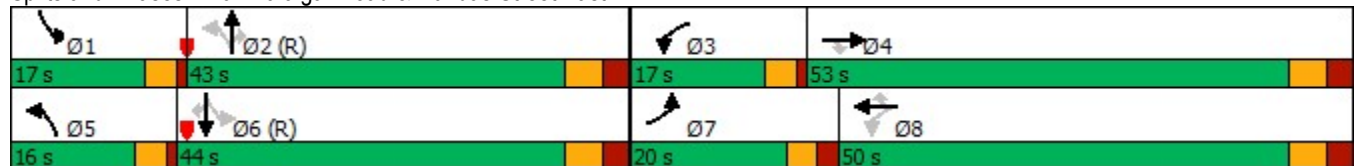
Future Background 2032
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	15.0	46.6	46.6	59.0	43.6	43.6	51.0	36.5	36.5	53.0	37.5	37.5
Actuated g/C Ratio	0.12	0.36	0.36	0.45	0.34	0.34	0.39	0.28	0.28	0.41	0.29	0.29
v/c Ratio	1.13	0.98	0.18	1.10	1.20	0.53	1.24	0.76	0.31	1.29	0.57	0.58
Control Delay	136.9	60.0	7.6	120.9	134.3	16.9	163.1	47.2	12.9	187.7	41.4	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	136.9	60.0	7.6	120.9	134.3	16.9	163.1	47.2	12.9	187.7	41.4	18.9
LOS	F	E	A	F	F	B	F	D	B	F	D	B
Approach Delay		73.5			116.2			71.6			67.0	
Approach LOS		E			F			E			E	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	59.7 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Pretimed
Maximum v/c Ratio:	1.29
Intersection Signal Delay:	85.9
Intersection LOS:	F
Intersection Capacity Utilization	112.9%
ICU Level of Service	H
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Future Background 2032
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	448	1576	109	264	1835	347	363	960	168	296	730	354
v/c Ratio	1.13	0.98	0.18	1.10	1.20	0.53	1.24	0.76	0.31	1.29	0.57	0.58
Control Delay	136.9	60.0	7.6	120.9	134.3	16.9	163.1	47.2	12.9	187.7	41.4	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	136.9	60.0	7.6	120.9	134.3	16.9	163.1	47.2	12.9	187.7	41.4	18.9
Queue Length 50th (m)	~68.5	165.7	2.0	~60.0	~237.1	27.8	~80.1	93.8	8.6	~80.4	66.3	28.7
Queue Length 95th (m)	#101.4	#205.2	14.2	#114.6	#270.4	57.2	#141.5	112.6	26.4	#137.2	81.9	60.4
Internal Link Dist (m)		524.5			656.7			506.0			390.9	
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Base Capacity (vph)	396	1604	604	240	1531	651	292	1269	542	230	1291	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.98	0.18	1.10	1.20	0.53	1.24	0.76	0.31	1.29	0.57	0.58

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: Trafalgar Road & Dundas Street East

Future Background 2032
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	435	1529	106	256	1780	337	352	931	163	287	708	343
Future Volume (vph)	435	1529	106	256	1780	337	352	931	163	287	708	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	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	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)	3437	4476	1512	1789	4565	1535	1789	4520	1617	1706	4476	1576
Flt Permitted	0.95	1.00	1.00	0.09	1.00	1.00	0.23	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	3437	4476	1512	173	4565	1535	425	4520	1617	194	4476	1576
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	448	1576	109	264	1835	347	363	960	168	296	730	354
RTOR Reduction (vph)	0	0	62	0	0	136	0	0	88	0	0	154
Lane Group Flow (vph)	448	1576	47	264	1835	211	363	960	80	296	730	200
Confl. Peds. (#/hr)	1		6	6		1	3					3
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Actuated Green, G (s)	15.0	46.6	46.6	56.6	43.6	43.6	48.5	36.5	36.5	50.5	37.5	37.5
Effective Green, g (s)	15.0	46.6	46.6	56.6	43.6	43.6	48.5	36.5	36.5	50.5	37.5	37.5
Actuated g/C Ratio	0.12	0.36	0.36	0.44	0.34	0.34	0.37	0.28	0.28	0.39	0.29	0.29
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Lane Grp Cap (vph)	396	1604	541	236	1531	514	284	1269	454	226	1291	454
v/s Ratio Prot	c0.13	c0.35		0.11	c0.40		0.12	0.21		c0.13	0.16	
v/s Ratio Perm			0.03	0.37		0.14	0.36		0.05	c0.38		0.13
v/c Ratio	1.13	0.98	0.09	1.12	1.20	0.41	1.28	0.76	0.18	1.31	0.57	0.44
Uniform Delay, d1	57.5	41.3	27.6	38.2	43.2	33.3	35.0	42.7	35.4	35.1	39.3	37.7
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	86.0	18.7	0.3	94.2	96.0	2.4	149.6	4.2	0.8	167.4	1.8	3.1
Delay (s)	143.5	60.0	27.9	132.4	139.2	35.7	184.5	46.9	36.2	202.5	41.1	40.8
Level of Service	F	E	C	F	F	D	F	D	D	F	D	D
Approach Delay (s)		75.9			123.8			79.2			75.7	
Approach LOS		E			F			E			E	
Intersection Summary												
HCM 2000 Control Delay			92.2	HCM 2000 Level of Service				F				
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				21.9				
Intersection Capacity Utilization			112.9%	ICU Level of Service				H				
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Total 2032
 AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	0	57	63	0	43	30
Future Volume (vph)	0	57	63	0	43	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt	0.850					0.850
Flt Protected				0.950	0.950	
Satd. Flow (prot)	2927	0	0	3468	1722	1633
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	2927	0	0	3468	1722	1633
Link Speed (k/h)	50			50	50	
Link Distance (m)	766.8			582.1	462.5	
Travel Time (s)	55.2			41.9	33.3	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	6%	0%	0%	6%	0%
Adj. Flow (vph)	0	69	76	0	52	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	0	76	52	36
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	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						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Stop			Stop	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard























Future Total 2032
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑	↑
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	57	63	0	43	30
Future Volume (vph)	0	57	63	0	43	30
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	0	69	76	0	52	36
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	0	69	76	0	52	36
Volume Left (vph)	0	0	76	0	52	0
Volume Right (vph)	0	69	0	0	0	36
Hadj (s)	0.00	-0.60	0.50	0.00	0.60	-0.70
Departure Headway (s)	4.8	4.2	5.3	4.8	5.5	4.2
Degree Utilization, x	0.00	0.08	0.11	0.00	0.08	0.04
Capacity (veh/h)	747	830	661	751	636	828
Control Delay (s)	6.6	6.4	7.7	6.6	7.7	6.1
Approach Delay (s)	6.4		7.7		7.1	
Approach LOS	A		A		A	
Intersection Summary						
Delay			7.1			
Level of Service			A			
Intersection Capacity Utilization			20.2%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2032
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	51	389	125	24	126	137	1034	58	32	1172	64
Future Volume (vph)	241	51	389	125	24	126	137	1034	58	32	1172	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.867			0.874				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3103	0	1659	3113	0	1789	4350	1498	1659	4269	1601
Flt Permitted	0.561			0.481			0.090			0.208		
Satd. Flow (perm)	1057	3103	0	840	3113	0	170	4350	1498	363	4269	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		241			135				56			88
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		582.1			615.5			286.1			646.0	
Travel Time (s)		41.9			44.3			17.2			38.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	10%	5%	2%	2%	6%	9%	10%	8%	2%
Adj. Flow (vph)	259	55	418	134	26	135	147	1112	62	34	1260	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	259	473	0	134	161	0	147	1112	62	34	1260	69
Enter Blocked Intersection	No	No	Yes	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												
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	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		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
Detector 1 Position(m)	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	1.8		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
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
Detector 1 Queue (s)	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
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	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

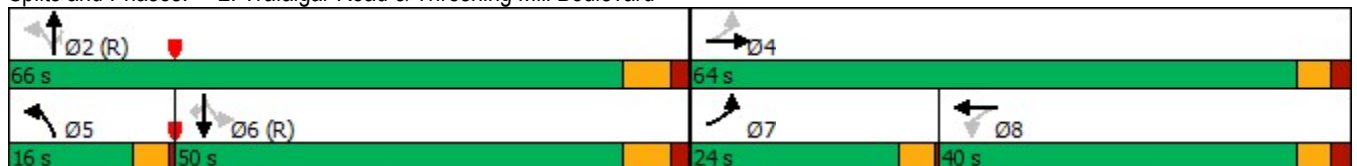
Future Total 2032
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		10.0	10.0		4.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	8.0	21.5		21.5	21.5		8.0	41.6	41.6	41.6	41.6	41.6
Total Split (s)	24.0	64.0		40.0	40.0		16.0	66.0	66.0	50.0	50.0	50.0
Total Split (%)	18.5%	49.2%		30.8%	30.8%		12.3%	50.8%	50.8%	38.5%	38.5%	38.5%
Maximum Green (s)	20.0	58.5		34.5	34.5		12.0	59.4	59.4	43.4	43.4	43.4
Yellow Time (s)	3.5	3.3		3.3	3.3		3.5	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	0.5	2.2		2.2	2.2		0.5	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lead			Lag	Lag		Lead			Lag	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	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	50.0	48.5		25.3	25.3		72.0	69.4	69.4	54.8	54.8	54.8
Actuated g/C Ratio	0.38	0.37		0.19	0.19		0.55	0.53	0.53	0.42	0.42	0.42
v/c Ratio	0.50	0.36		0.82	0.23		0.65	0.48	0.08	0.22	0.70	0.10
Control Delay	31.0	13.5		84.3	10.1		33.8	21.2	5.8	34.4	35.5	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	13.5		84.3	10.1		33.8	21.2	5.8	34.4	35.5	3.8
LOS	C	B		F	B		C	C	A	C	D	A
Approach Delay		19.7			43.8			21.9			33.8	
Approach LOS		B			D			C			C	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 27.6 Intersection LOS: C
 Intersection Capacity Utilization 79.2% ICU Level of Service D
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2032
AM Peak Hour

































Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	259	473	134	161	147	1112	62	34	1260	69
v/c Ratio	0.50	0.36	0.82	0.23	0.65	0.48	0.08	0.22	0.70	0.10
Control Delay	31.0	13.5	84.3	10.1	33.8	21.2	5.8	34.4	35.5	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	13.5	84.3	10.1	33.8	21.2	5.8	34.4	35.5	3.8
Queue Length 50th (m)	46.4	20.6	33.0	2.8	18.1	73.7	0.7	5.6	111.6	0.0
Queue Length 95th (m)	60.5	29.8	53.3	11.2	40.9	101.0	8.7	16.4	149.2	6.8
Internal Link Dist (m)		558.1		591.5		262.1			622.0	
Turn Bay Length (m)	45.0		45.0		55.0		55.0	55.0		55.0
Base Capacity (vph)	519	1528	222	925	247	2321	825	153	1799	725
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.31	0.60	0.17	0.60	0.48	0.08	0.22	0.70	0.10

Intersection Summary

HCM Signalized Intersection Capacity Analysis

2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2032
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			   			   		
Traffic Volume (vph)	241	51	389	125	24	126	137	1034	58	32	1172	64	
Future Volume (vph)	241	51	389	125	24	126	137	1034	58	32	1172	64	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80	1.00	1.00	*0.80	1.00	
Frt	1.00	0.87		1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1789	3104		1659	3114		1789	4350	1498	1659	4269	1601	
Flt Permitted	0.56	1.00		0.48	1.00		0.09	1.00	1.00	0.21	1.00	1.00	
Satd. Flow (perm)	1057	3104		840	3114		169	4350	1498	363	4269	1601	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	259	55	418	134	26	135	147	1112	62	34	1260	69	
RTOR Reduction (vph)	0	151	0	0	109	0	0	0	26	0	0	40	
Lane Group Flow (vph)	259	322	0	134	52	0	147	1112	36	34	1260	29	
Heavy Vehicles (%)	2%	2%	2%	10%	5%	2%	2%	6%	9%	10%	8%	2%	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	
Protected Phases	7	4			8		5	2			6		
Permitted Phases	4			8			2		2	6		6	
Actuated Green, G (s)	48.6	48.6		25.3	25.3		69.3	69.3	69.3	54.7	54.7	54.7	
Effective Green, g (s)	48.6	48.6		25.3	25.3		69.3	69.3	69.3	54.7	54.7	54.7	
Actuated g/C Ratio	0.37	0.37		0.19	0.19		0.53	0.53	0.53	0.42	0.42	0.42	
Clearance Time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	503	1160		163	606		222	2318	798	152	1796	673	
v/s Ratio Prot	c0.08	0.10			0.02		c0.05	0.26			c0.30		
v/s Ratio Perm	0.12			c0.16			0.30		0.02	0.09		0.02	
v/c Ratio	0.51	0.28		0.82	0.09		0.66	0.48	0.04	0.22	0.70	0.04	
Uniform Delay, d1	29.9	28.4		50.2	42.9		21.1	19.0	14.5	24.1	30.9	22.2	
Progression Factor	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	0.1		27.1	0.1		7.2	0.7	0.1	3.4	2.3	0.1	
Delay (s)	30.8	28.6		77.3	42.9		28.3	19.8	14.6	27.5	33.3	22.3	
Level of Service	C	C		E	D		C	B	B	C	C	C	
Approach Delay (s)		29.3			58.6			20.5			32.6		
Approach LOS		C			E			C			C		
Intersection Summary													
HCM 2000 Control Delay			29.7									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.70										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	20.1
Intersection Capacity Utilization			79.2%									ICU Level of Service	D
Analysis Period (min)			15										
c	Critical Lane Group												

Lanes, Volumes, Timings
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Total 2032
 AM Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Traffic Volume (vph)	10	17	70	137	3	2	47	107	130	1	206	8
Future Volume (vph)	10	17	70	137	3	2	47	107	130	1	206	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.902			0.998			0.931			0.994	
Flt Protected		0.995			0.954			0.992				
Satd. Flow (prot)	0	1641	0	0	3475	0	0	3235	0	0	3527	0
Flt Permitted		0.995			0.954			0.992				
Satd. Flow (perm)	0	1641	0	0	3475	0	0	3235	0	0	3527	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		187.3			580.1			363.3			462.5	
Travel Time (s)		13.5			41.8			26.2			33.3	
Confl. Peds. (#/hr)			1	1			5		1	1		5
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 (%)	0%	0%	7%	0%	0%	0%	21%	2%	0%	0%	3%	0%
Adj. Flow (vph)	11	19	80	156	3	2	53	122	148	1	234	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	110	0	0	161	0	0	323	0	0	244	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			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												
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			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.1%
ICU Level of Service	A
Analysis Period (min)	15























HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Total 2032
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	17	70	137	3	2	47	107	130	1	206	8
Future Volume (vph)	10	17	70	137	3	2	47	107	130	1	206	8
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
Hourly flow rate (vph)	11	19	80	156	3	2	53	122	148	1	234	9
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total (vph)	110	158	4	114	209	118	126					
Volume Left (vph)	11	156	0	53	0	1	0					
Volume Right (vph)	80	0	2	0	148	0	9					
Hadj (s)	-0.33	0.50	-0.40	0.42	-0.49	0.05	0.00					
Departure Headway (s)	5.9	6.6	5.7	6.1	5.2	5.8	5.8					
Degree Utilization, x	0.18	0.29	0.01	0.19	0.30	0.19	0.20					
Capacity (veh/h)	565	510	582	564	661	585	593					
Control Delay (s)	10.1	11.0	7.5	9.4	9.2	9.0	9.0					
Approach Delay (s)	10.1	11.0		9.3		9.0						
Approach LOS	B	B		A		A						
Intersection Summary												
Delay			9.6									
Level of Service			A									
Intersection Capacity Utilization			40.1%		ICU Level of Service		A					
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Total 2032
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	15	306	151	1	64	72	1115	31	36	1647	4
Future Volume (vph)	57	15	306	151	1	64	72	1115	31	36	1647	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.857			0.852				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3067	0	1659	2830	0	1789	4044	1484	1659	4117	1601
Flt Permitted	0.709			0.253			0.067			0.187		
Satd. Flow (perm)	1335	3067	0	442	2830	0	126	4044	1484	327	4117	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		199			42				55			88
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		580.1			654.7			414.9			286.1	
Travel Time (s)		41.8			47.1			24.9			17.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	10%	2%	10%	2%	14%	10%	10%	12%	2%
Adj. Flow (vph)	61	16	329	162	1	69	77	1199	33	39	1771	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	345	0	162	70	0	77	1199	33	39	1771	4
Enter Blocked Intersection	No	No	Yes	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												
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	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		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
Detector 1 Position(m)	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	1.8		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
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
Detector 1 Queue (s)	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
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	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8		5	2			6	

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Total 2032
AM Peak Hour

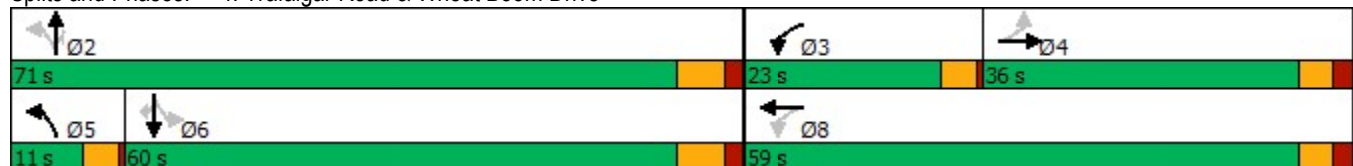
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		4.0	10.0		4.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	21.5	21.5		8.0	21.5		8.0	41.6	41.6	41.6	41.6	41.6
Total Split (s)	36.0	36.0		23.0	59.0		11.0	71.0	71.0	60.0	60.0	60.0
Total Split (%)	27.7%	27.7%		17.7%	45.4%		8.5%	54.6%	54.6%	46.2%	46.2%	46.2%
Maximum Green (s)	30.5	30.5		19.0	53.5		7.0	64.4	64.4	53.4	53.4	53.4
Yellow Time (s)	3.3	3.3		3.5	3.3		3.5	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.2	2.2		0.5	2.2		0.5	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		4.0	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lag	Lag		Lead			Lead			Lag	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	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	None	None	None
Walk Time (s)	5.0	5.0			5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0			11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)	0	0			0			0	0	0	0	0
Act Effct Green (s)	11.8	11.8		30.9	29.4		67.2	64.6	64.6	56.0	56.0	56.0
Actuated g/C Ratio	0.11	0.11		0.29	0.28		0.63	0.61	0.61	0.53	0.53	0.53
v/c Ratio	0.41	0.93dr		0.57	0.09		0.42	0.49	0.04	0.23	0.82	0.00
Control Delay	53.5	25.8		37.4	13.5		17.3	13.1	1.3	21.4	26.5	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	25.8		37.4	13.5		17.3	13.1	1.3	21.4	26.5	0.0
LOS	D	C		D	B		B	B	A	C	C	A
Approach Delay		29.9			30.2			13.0			26.3	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 106.1
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 22.3 Intersection LOS: C
 Intersection Capacity Utilization 75.8% ICU Level of Service D
 Analysis Period (min) 15
 * User Entered Value

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



Queues
4: Trafalgar Road & Wheat Boom Drive

Future Total 2032
AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	61	345	162	70	77	1199	33	39	1771	4
v/c Ratio	0.41	0.93dr	0.57	0.09	0.42	0.49	0.04	0.23	0.82	0.00
Control Delay	53.5	25.8	37.4	13.5	17.3	13.1	1.3	21.4	26.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	25.8	37.4	13.5	17.3	13.1	1.3	21.4	26.5	0.0
Queue Length 50th (m)	11.9	15.0	26.2	2.2	5.3	50.6	0.0	4.2	122.5	0.0
Queue Length 95th (m)	25.9	30.6	43.1	7.3	16.1	81.8	2.1	13.8	#194.1	0.0
Internal Link Dist (m)		556.1		630.7		390.9			262.1	
Turn Bay Length (m)	45.0		45.0		55.0		55.0	55.0		55.0
Base Capacity (vph)	384	1025	347	1451	189	2460	924	172	2171	886
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.34	0.47	0.05	0.41	0.49	0.04	0.23	0.82	0.00

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM Signalized Intersection Capacity Analysis
4: Trafalgar Road & Wheat Boom Drive

Future Total 2032
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	15	306	151	1	64	72	1115	31	36	1647	4
Future Volume (vph)	57	15	306	151	1	64	72	1115	31	36	1647	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		4.0	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80	1.00	1.00	*0.80	1.00
Frt	1.00	0.86		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3067		1659	2831		1789	4044	1484	1659	4117	1601
Flt Permitted	0.71	1.00		0.25	1.00		0.07	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	1335	3067		442	2831		126	4044	1484	327	4117	1601
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	61	16	329	162	1	69	77	1199	33	39	1771	4
RTOR Reduction (vph)	0	177	0	0	30	0	0	0	13	0	0	2
Lane Group Flow (vph)	61	168	0	162	40	0	77	1199	20	39	1771	2
Heavy Vehicles (%)	2%	2%	2%	10%	2%	10%	2%	14%	10%	10%	12%	2%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	11.8	11.8		29.4	29.4		65.4	65.4	65.4	56.0	56.0	56.0
Effective Green, g (s)	11.8	11.8		29.4	29.4		65.4	65.4	65.4	56.0	56.0	56.0
Actuated g/C Ratio	0.11	0.11		0.28	0.28		0.61	0.61	0.61	0.52	0.52	0.52
Clearance Time (s)	5.5	5.5		4.0	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	147	338		276	778		161	2474	907	171	2156	838
v/s Ratio Prot		0.05		c0.07	0.01		0.02	c0.30			c0.43	
v/s Ratio Perm	0.05			c0.09			0.27		0.01	0.12		0.00
v/c Ratio	0.41	0.93dr		0.59	0.05		0.48	0.48	0.02	0.23	0.82	0.00
Uniform Delay, d1	44.3	44.8		31.6	28.5		15.4	11.5	8.2	13.8	21.3	12.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	1.2		3.2	0.0		2.2	0.7	0.0	1.4	3.0	0.0
Delay (s)	46.2	45.9		34.8	28.5		17.6	12.1	8.2	15.2	24.2	12.1
Level of Service	D	D		C	C		B	B	A	B	C	B
Approach Delay (s)		46.0			32.9			12.4			24.0	
Approach LOS		D			C			B			C	

Intersection Summary		
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.76	
Actuated Cycle Length (s)	106.9	Sum of lost time (s) 20.1
Intersection Capacity Utilization	75.8%	ICU Level of Service D
Analysis Period (min)	15	

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

Lanes, Volumes, Timings

Future Total 2032

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	1928	134	81	1206	143	101	24	67	302	79	235
Future Volume (vph)	133	1928	134	81	1206	143	101	24	67	302	79	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.99			0.98	1.00		0.98	1.00	0.99	
Frt			0.850			0.850			0.850		0.888	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1313	4476	1541	1738	4230	1555	1644	1746	1384	1789	2955	0
Flt Permitted	0.099			0.069			0.432			0.741		
Satd. Flow (perm)	137	4476	1520	126	4230	1531	746	1746	1361	1389	2955	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			142			95			245
Link Speed (k/h)		70			70			50				50
Link Distance (m)		697.8			548.5			565.2				363.3
Travel Time (s)		35.9			28.2			40.7				26.2
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%
Adj. Flow (vph)	139	2008	140	84	1256	149	105	25	70	315	82	245
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	2008	140	84	1256	149	105	25	70	315	327	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)		7.4			7.4			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												
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
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
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	6.1	1.8	
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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6		7	4				8
Permitted Phases	2		2	6		6	4		4	8		
Detector Phase	5	2	2	1	6	6	7	4	4	8	8	
Switch Phase												
Minimum Initial (s)	4.0	20.0	20.0	7.0	20.0	20.0	6.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	38.3	38.3	12.0	38.3	38.3	10.0	40.6	40.6	24.6	24.6	
Total Split (s)	23.0	69.0	69.0	12.0	58.0	58.0	10.0	49.0	49.0	39.0	39.0	
Total Split (%)	17.7%	53.1%	53.1%	9.2%	44.6%	44.6%	7.7%	37.7%	37.7%	30.0%	30.0%	
Maximum Green (s)	19.0	62.7	62.7	8.0	51.7	51.7	6.0	42.4	42.4	32.4	32.4	
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.0	3.3	3.3	3.3	3.3	
All-Red Time (s)	0.5	2.6	2.6	1.0	2.6	2.6	1.0	3.3	3.3	3.3	3.3	
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	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.0	5.0	3.5	3.5	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	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)		25.0	25.0		25.0	25.0		27.0	27.0	7.0	7.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0	0	0	
Act Effct Green (s)	77.1	64.0	64.0	68.3	58.3	58.3	44.0	41.4	41.4	31.4	31.4	
Actuated g/C Ratio	0.59	0.49	0.49	0.53	0.45	0.45	0.34	0.32	0.32	0.24	0.24	
v/c Ratio	0.69	0.91	0.18	0.52	0.66	0.19	0.36	0.04	0.14	0.94	0.36	
Control Delay	36.9	38.1	7.2	19.1	31.7	11.5	34.0	30.4	3.3	84.4	11.8	
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	36.9	38.1	7.2	19.1	31.7	11.5	34.0	30.4	3.3	84.4	11.8	
LOS	D	D	A	B	C	B	C	C	A	F	B	
Approach Delay		36.1			29.0			22.8			47.4	
Approach LOS		D			C			C			D	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 34.8
 Intersection LOS: C
 Intersection Capacity Utilization 90.2%
 ICU Level of Service E
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East



Queues

Future Total 2032

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	139	2008	140	84	1256	149	105	25	70	315	327
v/c Ratio	0.69	0.91	0.18	0.52	0.66	0.19	0.36	0.04	0.14	0.94	0.36
Control Delay	36.9	38.1	7.2	19.1	31.7	11.5	34.0	30.4	3.3	84.4	11.8
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	36.9	38.1	7.2	19.1	31.7	11.5	34.0	30.4	3.3	84.4	11.8
Queue Length 50th (m)	15.7	196.5	5.7	10.1	122.4	15.3	18.7	4.4	0.0	78.9	8.5
Queue Length 95th (m)	37.5	224.4	17.0	m11.0	142.0	m23.0	32.7	10.9	5.8	#132.5	20.9
Internal Link Dist (m)		673.8			524.5			541.2			339.3
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	254	2204	798	165	1897	765	293	569	507	346	920
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	0.55	0.91	0.18	0.51	0.66	0.19	0.36	0.04	0.14	0.91	0.36

Intersection Summary

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

Queue shown is maximum after two cycles.






























m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

Future Total 2032

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East


































AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  						 		
Traffic Volume (vph)	133	1928	134	81	1206	143	101	24	67	302	79	235	
Future Volume (vph)	133	1928	134	81	1206	143	101	24	67	302	79	235	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95		
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.98	1.00	0.99		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1313	4476	1520	1738	4230	1531	1643	1746	1361	1781	2954		
Flt Permitted	0.10	1.00	1.00	0.07	1.00	1.00	0.43	1.00	1.00	0.74	1.00		
Satd. Flow (perm)	137	4476	1520	126	4230	1531	746	1746	1361	1389	2954		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	139	2008	140	84	1256	149	105	25	70	315	82	245	
RTOR Reduction (vph)	0	0	49	0	0	78	0	0	48	0	186	0	
Lane Group Flow (vph)	139	2008	91	84	1256	71	105	25	22	315	141	0	
Confl. Peds. (#/hr)	3		1	1		3	2		4	4		2	
Heavy Vehicles (%)	39%	3%	6%	5%	9%	5%	11%	10%	18%	2%	6%	9%	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		
Protected Phases	5	2		1	6		7	4			8		
Permitted Phases	2		2	6		6	4		4	8			
Actuated Green, G (s)	75.7	64.0	64.0	66.0	58.3	58.3	41.4	41.4	41.4	31.4	31.4		
Effective Green, g (s)	75.7	64.0	64.0	66.0	58.3	58.3	41.4	41.4	41.4	31.4	31.4		
Actuated g/C Ratio	0.58	0.49	0.49	0.51	0.45	0.45	0.32	0.32	0.32	0.24	0.24		
Clearance Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	4.0	6.6	6.6	6.6	6.6		
Vehicle Extension (s)	3.0	5.5	5.5	3.0	5.5	5.5	3.0	5.0	5.0	3.5	3.5		
Lane Grp Cap (vph)	200	2203	748	159	1896	686	278	556	433	335	713		
v/s Ratio Prot	c0.07	c0.45		0.03	0.30		c0.02	0.01			0.05		
v/s Ratio Perm	0.33		0.06	0.24		0.05	0.10		0.02	c0.23			
v/c Ratio	0.69	0.91	0.12	0.53	0.66	0.10	0.38	0.04	0.05	0.94	0.20		
Uniform Delay, d1	19.8	30.4	17.8	25.8	28.1	20.7	32.6	30.6	30.7	48.4	39.3		
Progression Factor	1.00	1.00	1.00	0.60	1.04	2.50	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	10.0	7.1	0.3	1.9	1.1	0.2	0.9	0.1	0.1	34.1	0.2		
Delay (s)	29.8	37.5	18.2	17.5	30.4	52.0	33.4	30.7	30.8	82.5	39.4		
Level of Service	C	D	B	B	C	D	C	C	C	F	D		
Approach Delay (s)		35.9			31.8			32.2			60.6		
Approach LOS		D			C			C			E		
Intersection Summary													
HCM 2000 Control Delay			37.8									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.89										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	20.9
Intersection Capacity Utilization			90.2%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Total 2032
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	410	1486	176	151	864	197	137	595	86	534	1202	461
Future Volume (vph)	410	1486	176	151	864	197	137	595	86	534	1202	461
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor			0.98	1.00			1.00		0.99	1.00		0.99
Fr _t			0.850			0.850			0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	4433	1471	1644	4230	1432	1659	4154	1570	1601	4309	1458
Fl _t Permitted	0.950			0.118			0.134			0.255		
Satd. Flow (perm)	3404	4433	1449	204	4230	1432	234	4154	1550	430	4309	1439
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137			207			171			228
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		548.5			713.0			651.7			414.9	
Travel Time (s)		28.2			36.7			39.1			24.9	
Confl. Peds. (#/hr)			3	3			1		1	1		1
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 (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%
Adj. Flow (vph)	432	1564	185	159	909	207	144	626	91	562	1265	485
Shared Lane Traffic (%)												
Lane Group Flow (vph)	432	1564	185	159	909	207	144	626	91	562	1265	485
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	Yes	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			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												
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	

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Total 2032
AM Peak Hour

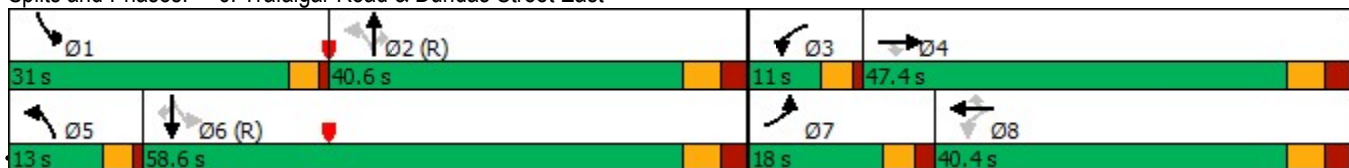


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	40.4	40.4	11.0	40.4	40.4	11.0	40.5	40.5	11.0	40.5	40.5
Total Split (s)	18.0	47.4	47.4	11.0	40.4	40.4	13.0	40.6	40.6	31.0	58.6	58.6
Total Split (%)	13.8%	36.5%	36.5%	8.5%	31.1%	31.1%	10.0%	31.2%	31.2%	23.8%	45.1%	45.1%
Maximum Green (s)	13.0	41.0	41.0	7.0	34.0	34.0	9.0	34.1	34.1	27.0	52.1	52.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8	2.8	1.0	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	2.0	6.5	6.5
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)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	13.0	41.0	41.0	43.4	34.0	34.0	45.6	34.1	34.1	69.6	52.1	52.1
Actuated g/C Ratio	0.10	0.32	0.32	0.33	0.26	0.26	0.35	0.26	0.26	0.54	0.40	0.40
v/c Ratio	1.27	1.12	0.34	1.10	0.82	0.39	0.80	0.57	0.17	1.14	0.73	0.68
Control Delay	173.1	92.7	7.5	133.0	52.4	7.2	57.0	44.1	0.7	112.4	36.2	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.1	92.7	7.5	133.0	52.4	7.2	57.0	44.1	0.7	112.4	36.2	21.7
LOS	F	F	A	F	D	A	E	D	A	F	D	C
Approach Delay		101.4			55.1			41.7			51.7	
Approach LOS		F			E			D			D	

Intersection Summary













Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.27
 Intersection Signal Delay: 67.4
 Intersection LOS: E
 Intersection Capacity Utilization 112.4%
 ICU Level of Service H
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Future Total 2032
AM Peak Hour


































												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	432	1564	185	159	909	207	144	626	91	562	1265	485
v/c Ratio	1.27	1.12	0.34	1.10	0.82	0.39	0.80	0.57	0.17	1.14	0.73	0.68
Control Delay	173.1	92.7	7.5	133.0	52.4	7.2	57.0	44.1	0.7	112.4	36.2	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.1	92.7	7.5	133.0	52.4	7.2	57.0	44.1	0.7	112.4	36.2	21.7
Queue Length 50th (m)	~70.7	~197.9	15.1	~30.1	91.6	0.0	18.8	58.2	0.0	~132.1	113.2	54.5
Queue Length 95th (m)	m#82.9	#232.3	m16.0	#74.6	111.0	18.8	#51.7	73.4	0.0	#201.3	133.4	95.0
Internal Link Dist (m)		524.5			689.0			627.7			390.9	
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Base Capacity (vph)	340	1398	550	145	1106	527	180	1089	532	491	1726	713
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.27	1.12	0.34	1.10	0.82	0.39	0.80	0.57	0.17	1.14	0.73	0.68

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
6: Trafalgar Road & Dundas Street East

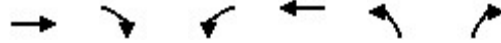
Future Total 2032
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	  			  			  			  		
Traffic Volume (vph)	410	1486	176	151	864	197	137	595	86	534	1202	461	
Future Volume (vph)	410	1486	176	151	864	197	137	595	86	534	1202	461	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	2.0	6.5	6.5	
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	
Flpb, ped/bikes	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	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)	3404	4433	1449	1644	4230	1432	1659	4154	1550	1601	4309	1439	
Flt Permitted	0.95	1.00	1.00	0.12	1.00	1.00	0.13	1.00	1.00	0.26	1.00	1.00	
Satd. Flow (perm)	3404	4433	1449	204	4230	1432	233	4154	1550	430	4309	1439	
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)	432	1564	185	159	909	207	144	626	91	562	1265	485	
RTOR Reduction (vph)	0	0	94	0	0	153	0	0	67	0	0	137	
Lane Group Flow (vph)	432	1564	91	159	909	54	144	626	24	562	1265	348	
Confl. Peds. (#/hr)			3	3			1		1	1		1	
Heavy Vehicles (%)	4%	4%	11%	11%	9%	14%	10%	11%	4%	14%	7%	12%	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4	8		8	2		2	6		6	
Actuated Green, G (s)	13.0	41.0	41.0	41.0	34.0	34.0	43.1	34.1	34.1	65.1	52.1	52.1	
Effective Green, g (s)	13.0	41.0	41.0	41.0	34.0	34.0	43.1	34.1	34.1	67.1	52.1	52.1	
Actuated g/C Ratio	0.10	0.32	0.32	0.32	0.26	0.26	0.33	0.26	0.26	0.52	0.40	0.40	
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5	
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	340	1398	456	141	1106	374	175	1089	406	483	1726	576	
v/s Ratio Prot	c0.13	c0.35		0.06	0.21		0.06	0.15		c0.26	0.29		
v/s Ratio Perm			0.06	0.29		0.04	c0.21		0.02	0.34		0.24	
v/c Ratio	1.27	1.12	0.20	1.13	0.82	0.14	0.82	0.57	0.06	1.16	0.73	0.60	
Uniform Delay, d1	58.5	44.5	32.5	40.7	45.2	36.8	32.2	41.7	35.9	26.8	33.0	30.8	
Progression Factor	0.86	0.81	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	131.8	58.3	0.4	114.2	6.9	0.8	26.3	2.2	0.3	94.3	2.8	4.7	
Delay (s)	182.1	94.1	22.1	154.9	52.1	37.7	58.5	43.9	36.2	121.1	35.8	35.5	
Level of Service	F	F	C	F	D	D	E	D	D	F	D	D	
Approach Delay (s)		105.5			62.5			45.5			56.5		
Approach LOS		F			E			D			E		
Intersection Summary													
HCM 2000 Control Delay			72.3		HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			1.10										
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				21.9				
Intersection Capacity Utilization			112.4%		ICU Level of Service				H				
Analysis Period (min)			15										

c Critical Lane Group

Lanes, Volumes, Timings
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Total 2032
 PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↘	↗
Traffic Volume (vph)	0	49	68	0	51	48
Future Volume (vph)	0	49	68	0	51	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.850					0.850
Flt Protected				0.950	0.950	
Satd. Flow (prot)	3042	0	0	3400	1789	1601
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	3042	0	0	3400	1789	1601
Link Speed (k/h)	50			50	50	
Link Distance (m)	715.9			582.1	462.5	
Travel Time (s)	51.5			41.9	33.3	
Confl. Peds. (#/hr)		1			1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	53	74	0	55	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	0	74	55	52
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	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						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Stop			Stop	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Future Total 2032
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑	↑
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	49	68	0	51	48
Future Volume (vph)	0	49	68	0	51	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	53	74	0	55	52
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	0	53	74	0	55	52
Volume Left (vph)	0	0	74	0	55	0
Volume Right (vph)	0	53	0	0	0	52
Hadj (s)	0.00	-0.67	0.53	0.00	0.53	-0.67
Departure Headway (s)	4.8	4.2	5.3	4.8	5.4	4.2
Degree Utilization, x	0.00	0.06	0.11	0.00	0.08	0.06
Capacity (veh/h)	740	833	651	745	650	833
Control Delay (s)	6.6	6.2	7.8	6.6	7.6	6.2
Approach Delay (s)	6.2		7.8		7.0	
Approach LOS	A		A		A	
Intersection Summary						
Delay			7.1			
Level of Service			A			
Intersection Capacity Utilization			20.4%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2032
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	0	250	80	198	77	292	1482	186	66	1195	207
Future Volume (vph)	105	0	250	80	198	77	292	1482	186	66	1195	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.850			0.958				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3042	0	1615	3428	0	1789	4433	1512	1825	4520	1570
Flt Permitted	0.353			0.591			0.118			0.123		
Satd. Flow (perm)	665	3042	0	1005	3428	0	222	4433	1512	236	4520	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		280			39				194			207
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		582.1			735.5			286.1			448.7	
Travel Time (s)		41.9			53.0			17.2			26.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	13%	2%	2%	2%	4%	8%	0%	2%	4%
Adj. Flow (vph)	109	0	260	83	206	80	304	1544	194	69	1245	216
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	260	0	83	286	0	304	1544	194	69	1245	216
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												
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
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	21.5		21.5	21.5		8.0	41.6	41.6	41.6	41.6	41.6
Total Split (s)	9.0	31.0		22.0	22.0		22.0	89.0	89.0	67.0	67.0	67.0
Total Split (%)	7.5%	25.8%		18.3%	18.3%		18.3%	74.2%	74.2%	55.8%	55.8%	55.8%
Maximum Green (s)	5.0	25.5		16.5	16.5		18.0	82.4	82.4	60.4	60.4	60.4
Yellow Time (s)	3.5	3.3		3.3	3.3		3.5	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	0.5	2.2		2.2	2.2		0.5	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	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Walk Time (s)		5.0		5.0	5.0			7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			28.0	28.0	28.0	28.0	28.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	27.0	25.5		16.5	16.5		85.0	82.4	82.4	60.4	60.4	60.4
Actuated g/C Ratio	0.22	0.21		0.14	0.14		0.71	0.69	0.69	0.50	0.50	0.50

Lanes, Volumes, Timings
 2: Trafalgar Road & Threshing Mill Boulevard

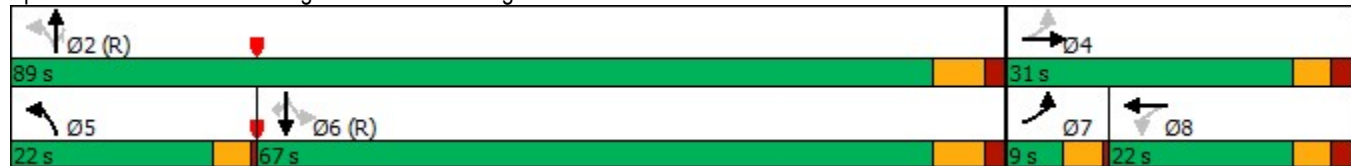
Future Total 2032
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.56	0.30		0.60	0.57		0.78	0.51	0.18	0.58	0.55	0.24
Control Delay	51.0	4.4		67.8	46.5		50.5	6.3	1.1	44.8	21.6	3.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	4.4		67.8	46.5		50.5	6.3	1.1	44.8	21.6	3.2
LOS	D	A		E	D		D	A	A	D	C	A
Approach Delay		18.1			51.3			12.4			20.0	
Approach LOS		B			D			B			C	

Intersection Summary	
Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Pretimed
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	18.9
Intersection LOS:	B
Intersection Capacity Utilization	82.1%
ICU Level of Service	E
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 2: Trafalgar Road & Threshing Mill Boulevard



Queues
2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2032
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	109	260	83	286	304	1544	194	69	1245	216
v/c Ratio	0.56	0.30	0.60	0.57	0.78	0.51	0.18	0.58	0.55	0.24
Control Delay	51.0	4.4	67.8	46.5	50.5	6.3	1.1	44.8	21.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	4.4	67.8	46.5	50.5	6.3	1.1	44.8	21.6	3.2
Queue Length 50th (m)	21.3	0.0	18.6	28.9	51.8	29.2	0.0	11.0	81.0	1.0
Queue Length 95th (m)	37.4	8.6	#39.2	43.1	m72.4	44.8	m5.0	#34.6	96.3	12.9
Internal Link Dist (m)		558.1		711.5		262.1			424.7	
Turn Bay Length (m)	45.0		45.0		55.0		55.0	55.0		55.0
Base Capacity (vph)	196	866	138	504	392	3043	1099	118	2275	893
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.30	0.60	0.57	0.78	0.51	0.18	0.58	0.55	0.24

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: Trafalgar Road & Threshing Mill Boulevard

Future Total 2032
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	0	250	80	198	77	292	1482	186	66	1195	207
Future Volume (vph)	105	0	250	80	198	77	292	1482	186	66	1195	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80	1.00	1.00	*0.80	1.00
Frt	1.00	0.85		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3042		1615	3428		1789	4433	1512	1825	4520	1570
Flt Permitted	0.35	1.00		0.59	1.00		0.12	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	665	3042		1005	3428		222	4433	1512	237	4520	1570
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	0	260	83	206	80	304	1544	194	69	1245	216
RTOR Reduction (vph)	0	205	0	0	34	0	0	0	61	0	0	103
Lane Group Flow (vph)	109	55	0	83	252	0	304	1544	133	69	1245	113
Heavy Vehicles (%)	2%	2%	2%	13%	2%	2%	2%	4%	8%	0%	2%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	25.5	25.5		16.5	16.5		82.4	82.4	82.4	60.4	60.4	60.4
Effective Green, g (s)	25.5	25.5		16.5	16.5		82.4	82.4	82.4	60.4	60.4	60.4
Actuated g/C Ratio	0.21	0.21		0.14	0.14		0.69	0.69	0.69	0.50	0.50	0.50
Clearance Time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	6.6	6.6	6.6
Lane Grp Cap (vph)	188	646		138	471		387	3043	1038	119	2275	790
v/s Ratio Prot	c0.02	0.02			0.07		c0.12	0.35			0.28	
v/s Ratio Perm	c0.10			0.08			c0.42		0.09	0.29		0.07
v/c Ratio	0.58	0.09		0.60	0.54		0.79	0.51	0.13	0.58	0.55	0.14
Uniform Delay, d1	41.3	37.9		48.7	48.2		22.8	9.0	6.5	20.9	20.4	16.0
Progression Factor	1.00	1.00		1.00	1.00		2.18	0.64	0.93	1.00	1.00	1.00
Incremental Delay, d2	12.4	0.3		17.9	4.3		9.9	0.4	0.2	19.0	1.0	0.4
Delay (s)	53.7	38.2		66.6	52.5		59.5	6.2	6.2	39.9	21.4	16.3
Level of Service	D	D		E	D		E	A	A	D	C	B
Approach Delay (s)		42.7			55.7			14.1			21.5	
Approach LOS		D			E			B			C	
Intersection Summary												
HCM 2000 Control Delay			22.8			HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)		20.1				
Intersection Capacity Utilization			82.1%			ICU Level of Service		E				
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Total 2032
 PM Peak Hour















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Traffic Volume (vph)	14	6	60	113	9	6	45	209	196	9	197	32
Future Volume (vph)	14	6	60	113	9	6	45	209	196	9	197	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.899			0.993			0.935			0.980	
Flt Protected		0.992			0.958			0.995			0.998	
Satd. Flow (prot)	0	1341	0	0	3441	0	0	3278	0	0	3448	0
Flt Permitted		0.992			0.958			0.995			0.998	
Satd. Flow (perm)	0	1341	0	0	3441	0	0	3278	0	0	3448	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		656.1			580.1			363.3			462.5	
Travel Time (s)		47.2			41.8			26.2			33.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	49%	28%	0%	13%	0%	22%	3%	0%	0%	2%	14%
Adj. Flow (vph)	15	7	66	124	10	7	49	230	215	10	216	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	141	0	0	494	0	0	261	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			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												
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			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.0%
	ICU Level of Service A
Analysis Period (min)	15























HCM Unsignalized Intersection Capacity Analysis
 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Future Total 2032
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	6	60	113	9	6	45	209	196	9	197	32
Future Volume (vph)	14	6	60	113	9	6	45	209	196	9	197	32
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	15	7	66	124	10	7	49	230	215	10	216	35
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total (vph)	88	129	12	164	330	118	143					
Volume Left (vph)	15	124	0	49	0	10	0					
Volume Right (vph)	66	0	7	0	215	0	35					
Hadj (s)	0.06	0.49	-0.32	0.30	-0.44	0.07	-0.09					
Departure Headway (s)	6.6	7.0	6.1	5.9	5.2	6.0	5.8					
Degree Utilization, x	0.16	0.25	0.02	0.27	0.48	0.20	0.23					
Capacity (veh/h)	503	478	534	588	674	575	593					
Control Delay (s)	10.8	11.0	8.1	9.9	11.6	9.2	9.3					
Approach Delay (s)	10.8	10.8		11.0		9.3						
Approach LOS	B	B		B		A						
Intersection Summary												
Delay			10.5									
Level of Service			B									
Intersection Capacity Utilization			43.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

Future Total 2032
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	0	230	129	11	93	165	1846	123	90	1422	13
Future Volume (vph)	20	0	230	129	11	93	165	1846	123	90	1422	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	45.0		0.0	55.0		55.0	55.0		55.0
Storage Lanes	1		0	1		0	1		1	1		1
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	*0.80	1.00	1.00	*0.80	1.00
Frt		0.850			0.865				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3042	0	1825	2892	0	1789	4192	1512	1615	4230	1601
Flt Permitted	0.568			0.604			0.080			0.064		
Satd. Flow (perm)	1070	3042	0	1160	2892	0	151	4192	1512	109	4230	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		171			96				95			132
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		580.1			800.2			414.9			286.1	
Travel Time (s)		41.8			57.6			24.9			17.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	0%	2%	10%	2%	10%	8%	13%	9%	2%
Adj. Flow (vph)	21	0	237	133	11	96	170	1903	127	93	1466	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	237	0	133	107	0	170	1903	127	93	1466	13
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												
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
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	21.5		21.5	21.5		8.0	41.6	41.6	8.0	41.6	41.6
Total Split (s)	8.0	33.0		25.0	25.0		18.0	75.0	75.0	12.0	69.0	69.0
Total Split (%)	6.7%	27.5%		20.8%	20.8%		15.0%	62.5%	62.5%	10.0%	57.5%	57.5%
Maximum Green (s)	4.0	27.5		19.5	19.5		14.0	68.4	68.4	8.0	62.4	62.4
Yellow Time (s)	3.5	3.3		3.3	3.3		3.5	4.6	4.6	3.5	4.6	4.6
All-Red Time (s)	0.5	2.2		2.2	2.2		0.5	2.0	2.0	0.5	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
Total Lost Time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	4.0	6.6	6.6
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Walk Time (s)		5.0		5.0	5.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			28.0	28.0		28.0	28.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)	29.0	27.5		19.5	19.5		83.0	68.4	68.4	73.0	62.4	62.4
Actuated g/C Ratio	0.24	0.23		0.16	0.16		0.69	0.57	0.57	0.61	0.52	0.52

Lanes, Volumes, Timings
4: Trafalgar Road & Wheat Boom Drive

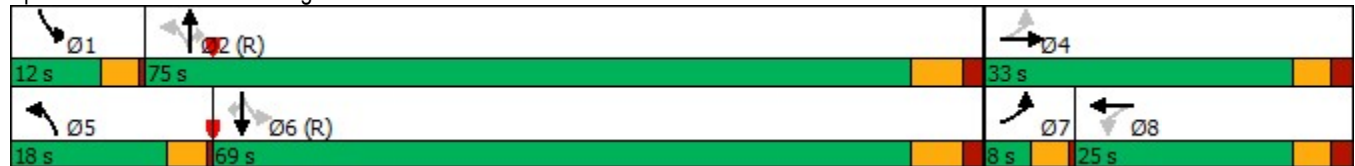
Future Total 2032
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.07	0.29		0.71	0.19		0.58	0.80	0.14	0.56	0.67	0.01
Control Delay	35.8	12.6		68.8	11.7		24.3	23.5	4.2	42.3	11.5	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	12.6		68.8	11.7		24.3	23.5	4.2	42.3	11.5	0.0
LOS	D	B		E	B		C	C	A	D	B	A
Approach Delay		14.5			43.3			22.5			13.3	
Approach LOS		B			D			C			B	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	80
Control Type:	Pretimed
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	19.8
Intersection LOS:	B
Intersection Capacity Utilization	75.3%
ICU Level of Service	D
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 4: Trafalgar Road & Wheat Boom Drive



Queues
4: Trafalgar Road & Wheat Boom Drive

Future Total 2032
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	21	237	133	107	170	1903	127	93	1466	13
v/c Ratio	0.07	0.29	0.71	0.19	0.58	0.80	0.14	0.56	0.67	0.01
Control Delay	35.8	12.6	68.8	11.7	24.3	23.5	4.2	42.3	11.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	12.6	68.8	11.7	24.3	23.5	4.2	42.3	11.5	0.0
Queue Length 50th (m)	3.8	6.4	30.0	1.1	15.4	139.7	3.1	10.8	36.5	0.0
Queue Length 95th (m)	10.4	17.0	#58.2	9.1	38.0	163.4	11.6	m27.8	44.3	m0.0
Internal Link Dist (m)		556.1		776.2		390.9			262.1	
Turn Bay Length (m)	45.0		45.0		55.0		55.0	55.0		55.0
Base Capacity (vph)	282	828	188	550	295	2389	902	166	2199	895
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.29	0.71	0.19	0.58	0.80	0.14	0.56	0.67	0.01

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: Trafalgar Road & Wheat Boom Drive

Future Total 2032
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	20	0	230	129	11	93	165	1846	123	90	1422	13	
Future Volume (vph)	20	0	230	129	11	93	165	1846	123	90	1422	13	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	4.0	6.6	6.6	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80	1.00	1.00	*0.80	1.00	
Frt	1.00	0.85		1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1789	3042		1825	2893		1789	4192	1512	1615	4230	1601	
Flt Permitted	0.57	1.00		0.60	1.00		0.08	1.00	1.00	0.06	1.00	1.00	
Satd. Flow (perm)	1070	3042		1161	2893		152	4192	1512	109	4230	1601	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	21	0	237	133	11	96	170	1903	127	93	1466	13	
RTOR Reduction (vph)	0	132	0	0	80	0	0	0	41	0	0	6	
Lane Group Flow (vph)	21	105	0	133	27	0	170	1903	86	93	1466	7	
Heavy Vehicles (%)	2%	2%	2%	0%	2%	10%	2%	10%	8%	13%	9%	2%	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	7	4			8		5	2		1	6		
Permitted Phases	4			8			2		2	6		6	
Actuated Green, G (s)	27.5	27.5		19.5	19.5		80.4	68.4	68.4	70.4	62.4	62.4	
Effective Green, g (s)	27.5	27.5		19.5	19.5		80.4	68.4	68.4	70.4	62.4	62.4	
Actuated g/C Ratio	0.23	0.23		0.16	0.16		0.67	0.57	0.57	0.59	0.52	0.52	
Clearance Time (s)	4.0	5.5		5.5	5.5		4.0	6.6	6.6	4.0	6.6	6.6	
Lane Grp Cap (vph)	269	697		188	470		292	2389	861	164	2199	832	
v/s Ratio Prot	0.00	c0.03			0.01		c0.07	c0.45		0.04	0.35		
v/s Ratio Perm	0.02			c0.11			0.32		0.06	0.29		0.00	
v/c Ratio	0.08	0.15		0.71	0.06		0.58	0.80	0.10	0.57	0.67	0.01	
Uniform Delay, d1	36.1	36.9		47.6	42.5		18.5	20.3	11.8	17.1	21.2	13.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.71	0.47	1.00	
Incremental Delay, d2	0.6	0.5		20.1	0.2		8.2	2.9	0.2	11.8	1.4	0.0	
Delay (s)	36.7	37.4		67.6	42.7		26.7	23.2	12.0	40.9	11.4	13.9	
Level of Service	D	D		E	D		C	C	B	D	B	B	
Approach Delay (s)		37.3			56.5			22.8			13.2		
Approach LOS		D			E			C			B		
Intersection Summary													
HCM 2000 Control Delay			22.0									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.75										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	20.1
Intersection Capacity Utilization			75.3%									ICU Level of Service	D
Analysis Period (min)			15										






























c Critical Lane Group

Lanes, Volumes, Timings

Future Total 2032

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (vph)	228	1580	231	225	1836	260	316	107	92	193	85	207
Future Volume (vph)	228	1580	231	225	1836	260	316	107	92	193	85	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		75.0	110.0		75.0	55.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor			0.95				0.98		0.97	0.99	0.97	
Frt			0.850			0.850			0.850		0.894	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4520	1570	1825	4565	1633	1807	1883	1526	1807	2885	0
Flt Permitted	0.076			0.074			0.526			0.671		
Satd. Flow (perm)	146	4520	1496	142	4565	1633	983	1883	1488	1262	2885	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202			202			93			207
Link Speed (k/h)		70			70			50				50
Link Distance (m)		619.0			548.5			586.5				363.3
Travel Time (s)		31.8			28.2			42.2				26.2
Confl. Peds. (#/hr)			16	16			13		6	6		13
Peak Hour 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
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Adj. Flow (vph)	230	1596	233	227	1855	263	319	108	93	195	86	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	1596	233	227	1855	263	319	108	93	195	295	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)		7.4			7.4			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												
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
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
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	6.1	1.8	
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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			4				8
Permitted Phases	2		2	6		6	4		4	8		
Detector Phase	5	2	2	1	6	6	4	4	4	8		8
Switch Phase												
Minimum Initial (s)	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	8.0	20.0	20.0	9.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	16.0	56.0	56.0	18.0	58.0	58.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	13.3%	46.7%	46.7%	15.0%	48.3%	48.3%	38.3%	38.3%	38.3%	38.3%	38.3%	38.3%
Maximum Green (s)	12.0	52.0	52.0	14.0	54.0	54.0	42.0	42.0	42.0	42.0	42.0	42.0
Yellow Time (s)	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	64.8	52.8	52.8	67.2	54.0	54.0	42.0	42.0	42.0	42.0	42.0	42.0
Actuated g/C Ratio	0.54	0.44	0.44	0.56	0.45	0.45	0.35	0.35	0.35	0.35	0.35	0.35
v/c Ratio	0.93	0.80	0.30	0.86	0.90	0.31	0.93	0.16	0.16	0.44	0.26	
Control Delay	74.4	33.2	5.4	57.9	38.0	6.4	71.9	27.8	6.0	33.9	9.2	
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	74.4	33.2	5.4	57.9	38.0	6.4	71.9	27.8	6.0	33.9	9.2	
LOS	E	C	A	E	D	A	E	C	A	C	A	
Approach Delay		34.7			36.4			51.0				19.0
Approach LOS		C			D			D				B

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 35.6
 Intersection LOS: D
 Intersection Capacity Utilization 92.3%
 ICU Level of Service F
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East



Queues

Future Total 2032

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	230	1596	233	227	1855	263	319	108	93	195	295
v/c Ratio	0.93	0.80	0.30	0.86	0.90	0.31	0.93	0.16	0.16	0.44	0.26
Control Delay	74.4	33.2	5.4	57.9	38.0	6.4	71.9	27.8	6.0	33.9	9.2
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	74.4	33.2	5.4	57.9	38.0	6.4	71.9	27.8	6.0	33.9	9.2
Queue Length 50th (m)	38.3	134.7	4.2	36.3	164.8	8.0	71.8	17.4	0.0	35.1	7.2
Queue Length 95th (m)	#86.2	157.2	19.0	#76.6	191.1	23.9	#127.4	30.6	11.0	57.0	17.0
Internal Link Dist (m)		595.0			524.5			562.5			339.3
Turn Bay Length (m)	140.0		75.0	110.0		75.0	55.0			40.0	
Base Capacity (vph)	246	1987	770	276	2054	845	344	659	581	441	1144
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	0.93	0.80	0.30	0.82	0.90	0.31	0.93	0.16	0.16	0.44	0.26

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

Future Total 2032

5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East


































PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	1580	231	225	1836	260	316	107	92	193	85	207
Future Volume (vph)	228	1580	231	225	1836	260	316	107	92	193	85	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.97	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89	1.00
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)	1825	4520	1496	1825	4565	1633	1776	1883	1488	1787	2885	2885
Flt Permitted	0.08	1.00	1.00	0.07	1.00	1.00	0.53	1.00	1.00	0.67	1.00	1.00
Satd. Flow (perm)	146	4520	1496	142	4565	1633	983	1883	1488	1263	2885	2885
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	230	1596	233	227	1855	263	319	108	93	195	86	209
RTOR Reduction (vph)	0	0	113	0	0	111	0	0	60	0	135	0
Lane Group Flow (vph)	230	1596	120	227	1855	152	319	108	33	195	160	0
Confl. Peds. (#/hr)			16	16			13		6	6		13
Heavy Vehicles (%)	0%	2%	4%	0%	1%	0%	1%	2%	7%	1%	7%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases	5	2		1	6			4				8
Permitted Phases	2		2	6		6	4		4	8		
Actuated Green, G (s)	64.8	52.8	52.8	67.2	54.0	54.0	42.0	42.0	42.0	42.0	42.0	42.0
Effective Green, g (s)	64.8	52.8	52.8	67.2	54.0	54.0	42.0	42.0	42.0	42.0	42.0	42.0
Actuated g/C Ratio	0.54	0.44	0.44	0.56	0.45	0.45	0.35	0.35	0.35	0.35	0.35	0.35
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	246	1988	658	264	2054	734	344	659	520	442	1009	1009
v/s Ratio Prot	0.09	0.35		c0.09	0.41			0.06				0.06
v/s Ratio Perm	c0.41		0.08	0.39		0.09	c0.32		0.02	0.15		
v/c Ratio	0.93	0.80	0.18	0.86	0.90	0.21	0.93	0.16	0.06	0.44	0.16	0.16
Uniform Delay, d1	35.4	29.1	20.5	33.3	30.6	20.0	37.5	26.9	25.9	30.0	26.8	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	39.7	3.5	0.6	23.2	7.0	0.6	33.2	0.5	0.2	3.2	0.3	0.3
Delay (s)	75.1	32.6	21.1	56.6	37.6	20.7	70.7	27.4	26.1	33.2	27.2	27.2
Level of Service	E	C	C	E	D	C	E	C	C	C	C	C
Approach Delay (s)		36.1			37.5			53.7			29.6	
Approach LOS		D			D			D			C	
Intersection Summary												
HCM 2000 Control Delay			37.8									D
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			120.0								12.0	
Intersection Capacity Utilization			92.3%									F
ICU Level of Service												
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

Future Total 2032
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	509	1529	106	256	1780	337	352	1314	163	332	985	422
Future Volume (vph)	509	1529	106	256	1780	337	352	1314	163	332	985	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98			0.99	1.00					0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	4476	1541	1789	4565	1555	1789	4520	1617	1706	4476	1601
Flt Permitted	0.950			0.092			0.110			0.107		
Satd. Flow (perm)	3437	4476	1512	173	4565	1535	207	4520	1617	192	4476	1576
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			205			96			211
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		548.5			775.6			621.1			414.9	
Travel Time (s)		28.2			39.9			37.3			24.9	
Confl. Peds. (#/hr)	1		6	6		1	3					3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%
Adj. Flow (vph)	525	1576	109	264	1835	347	363	1355	168	342	1015	435
Shared Lane Traffic (%)												
Lane Group Flow (vph)	525	1576	109	264	1835	347	363	1355	168	342	1015	435
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)		7.4			7.4			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												
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
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Minimum Split (s)	12.0	40.4	40.4	11.0	40.4	40.4	11.0	40.5	40.5	11.0	40.5	40.5
Total Split (s)	20.0	53.0	53.0	17.0	50.0	50.0	16.0	43.0	43.0	17.0	44.0	44.0
Total Split (%)	15.4%	40.8%	40.8%	13.1%	38.5%	38.5%	12.3%	33.1%	33.1%	13.1%	33.8%	33.8%
Maximum Green (s)	15.0	46.6	46.6	13.0	43.6	43.6	12.0	36.5	36.5	13.0	37.5	37.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8	2.8	1.0	2.8	2.8
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)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
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
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0

Lanes, Volumes, Timings
6: Trafalgar Road & Dundas Street East

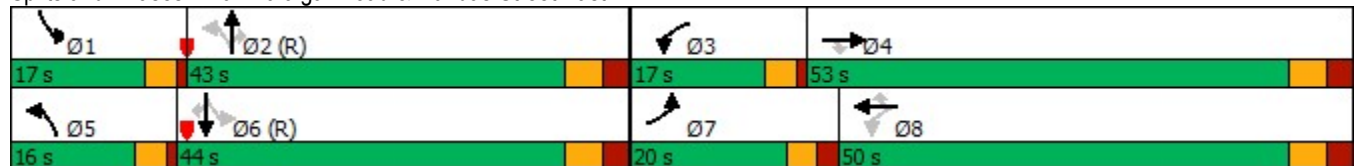
Future Total 2032
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)	15.0	46.6	46.6	59.0	43.6	43.6	51.0	36.5	36.5	53.0	37.5	37.5
Actuated g/C Ratio	0.12	0.36	0.36	0.45	0.34	0.34	0.39	0.28	0.28	0.41	0.29	0.29
v/c Ratio	1.33	0.98	0.18	1.10	1.20	0.53	1.60	1.07	0.32	1.49	0.79	0.72
Control Delay	207.0	60.0	7.6	120.9	134.3	16.9	315.8	90.0	17.9	271.6	47.8	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	207.0	60.0	7.6	120.9	134.3	16.9	315.8	90.0	17.9	271.6	47.8	28.4
LOS	F	E	A	F	F	B	F	F	B	F	D	C
Approach Delay		92.4			116.2			127.0			85.8	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	59.7 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Pretimed
Maximum v/c Ratio:	1.60
Intersection Signal Delay:	105.8
Intersection LOS:	F
Intersection Capacity Utilization	115.0%
ICU Level of Service	H
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 6: Trafalgar Road & Dundas Street East



Queues
6: Trafalgar Road & Dundas Street East

Future Total 2032
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	525	1576	109	264	1835	347	363	1355	168	342	1015	435
v/c Ratio	1.33	0.98	0.18	1.10	1.20	0.53	1.60	1.07	0.32	1.49	0.79	0.72
Control Delay	207.0	60.0	7.6	120.9	134.3	16.9	315.8	90.0	17.9	271.6	47.8	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	207.0	60.0	7.6	120.9	134.3	16.9	315.8	90.0	17.9	271.6	47.8	28.4
Queue Length 50th (m)	~89.6	165.7	2.0	~60.0	~237.1	27.8	~116.8	~159.7	13.9	~105.6	99.9	52.9
Queue Length 95th (m)	#124.2	#205.2	14.2	#114.6	#270.4	57.2	#177.4	#193.4	32.7	#165.1	119.4	92.6
Internal Link Dist (m)		524.5			751.6			597.1			390.9	
Turn Bay Length (m)	110.0		83.0	160.0		75.0	120.0		50.0	40.0		50.0
Base Capacity (vph)	396	1604	604	240	1531	651	227	1269	523	229	1291	604
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0.98	0.18	1.10	1.20	0.53	1.60	1.07	0.32	1.49	0.79	0.72

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: Trafalgar Road & Dundas Street East

Future Total 2032
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			  			  	
Traffic Volume (vph)	509	1529	106	256	1780	337	352	1314	163	332	985	422
Future Volume (vph)	509	1529	106	256	1780	337	352	1314	163	332	985	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	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	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)	3437	4476	1512	1789	4565	1535	1789	4520	1617	1706	4476	1576
Flt Permitted	0.95	1.00	1.00	0.09	1.00	1.00	0.11	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	3437	4476	1512	173	4565	1535	206	4520	1617	192	4476	1576
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	525	1576	109	264	1835	347	363	1355	168	342	1015	435
RTOR Reduction (vph)	0	0	62	0	0	136	0	0	69	0	0	150
Lane Group Flow (vph)	525	1576	47	264	1835	211	363	1355	99	342	1015	285
Confl. Peds. (#/hr)	1		6	6		1	3					3
Heavy Vehicles (%)	3%	3%	6%	2%	1%	5%	2%	2%	1%	7%	3%	2%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8	2		2	6		6
Actuated Green, G (s)	15.0	46.6	46.6	56.6	43.6	43.6	48.5	36.5	36.5	50.5	37.5	37.5
Effective Green, g (s)	15.0	46.6	46.6	56.6	43.6	43.6	48.5	36.5	36.5	50.5	37.5	37.5
Actuated g/C Ratio	0.12	0.36	0.36	0.44	0.34	0.34	0.37	0.28	0.28	0.39	0.29	0.29
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5	6.5	4.0	6.5	6.5
Lane Grp Cap (vph)	396	1604	541	236	1531	514	222	1269	454	225	1291	454
v/s Ratio Prot	c0.15	c0.35		0.11	c0.40		0.15	0.30		c0.15	0.23	
v/s Ratio Perm			0.03	0.37		0.14	c0.46		0.06	0.44		0.18
v/c Ratio	1.33	0.98	0.09	1.12	1.20	0.41	1.64	1.07	0.22	1.52	0.79	0.63
Uniform Delay, d1	57.5	41.3	27.6	38.2	43.2	33.3	34.1	46.8	35.8	36.9	42.6	40.2
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	163.2	18.7	0.3	94.2	96.0	2.4	305.3	45.5	1.1	255.4	4.9	6.4
Delay (s)	220.7	60.0	27.9	132.4	139.2	35.7	339.4	92.2	36.9	292.3	47.4	46.6
Level of Service	F	E	C	F	F	D	F	F	D	F	D	D
Approach Delay (s)		96.6			123.8			134.9			94.0	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			112.7									F
HCM 2000 Volume to Capacity ratio			1.40									
Actuated Cycle Length (s)			130.0						21.9			
Intersection Capacity Utilization			115.0%									H
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

SimTraffic Outputs

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	NB	NB
Directions Served	R	L	L
Maximum Queue (m)	19.0	14.1	9.7
Average Queue (m)	7.9	3.4	3.4
95th Queue (m)	16.2	11.1	10.2
Link Distance (m)	446.8	442.9	442.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	25.6	13.8	39.7	48.0	80.1	71.5
Average Queue (m)	5.6	5.1	16.9	20.1	46.3	37.2
95th Queue (m)	17.8	12.0	33.8	40.9	68.4	64.8
Link Distance (m)	500.0	500.0	268.3	268.3	307.6	307.6
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	19.2	9.7	8.7	19.0	12.0	17.7	16.5
Average Queue (m)	9.2	4.5	0.7	8.8	6.2	8.4	5.5
95th Queue (m)	16.5	11.4	4.4	16.2	11.6	14.2	13.1
Link Distance (m)	441.5	196.7	196.7	335.3	335.3	442.9	442.9
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	14.4	18.0	68.2	68.0	66.3	60.6
Average Queue (m)	2.2	4.3	30.7	35.6	33.7	27.9
95th Queue (m)	9.9	13.5	61.3	64.9	53.5	48.0
Link Distance (m)	521.7	521.7	386.8	386.8	268.3	268.3
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	30.9	113.1	106.2	103.9	45.0	38.6	22.8	32.4	38.8	12.7	43.0	15.0
Average Queue (m)	7.1	82.1	73.8	59.2	10.2	16.2	6.3	11.3	18.7	2.8	16.6	3.4
95th Queue (m)	21.9	107.3	98.4	87.0	25.5	31.8	16.8	26.0	35.3	10.0	36.7	10.8
Link Distance (m)		505.2	505.2	505.2			523.2	523.2	523.2			414.2
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	140.0				75.0	110.0				75.0	55.0	
Storage Blk Time (%)				1	0						0	
Queuing Penalty (veh)				1	0						0	

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	29.1	42.2	81.4	52.6
Average Queue (m)	9.0	35.3	24.0	10.1
95th Queue (m)	21.3	48.9	72.2	29.9
Link Distance (m)	414.2		335.3	335.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		40.0		
Storage Blk Time (%)		13	0	
Queuing Penalty (veh)		4	1	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	T	T	T	R	L
Maximum Queue (m)	50.5	88.8	122.2	124.3	130.1	85.5	47.2	90.4	81.5	68.4	30.4	50.0
Average Queue (m)	28.7	36.6	84.1	91.2	91.6	41.9	20.1	59.0	52.5	36.2	15.3	17.0
95th Queue (m)	46.8	67.6	109.8	115.9	121.6	95.2	37.5	80.5	74.5	63.1	26.0	36.4
Link Distance (m)			523.2	523.2	523.2			520.5	520.5	520.5		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0
Storage Blk Time (%)		0	1		12	1				0		
Queuing Penalty (veh)		0	2		18	2				0		

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	TR	L	T	T	R
Maximum Queue (m)	60.7	58.7	42.5	163.1	142.4	52.5
Average Queue (m)	34.7	29.2	39.6	86.1	69.6	32.3
95th Queue (m)	56.1	53.5	50.1	153.6	125.2	64.6
Link Distance (m)	400.0	400.0		386.8	386.8	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)			40.0			50.0
Storage Blk Time (%)			38	17	12	1
Queuing Penalty (veh)			90	47	22	2

Network Summary

Network wide Queuing Penalty: 189

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	NB	NB
Directions Served	R	L	L
Maximum Queue (m)	14.9	8.7	8.5
Average Queue (m)	7.2	3.3	4.9
95th Queue (m)	14.4	10.1	11.5
Link Distance (m)	433.5	443.0	443.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	31.3	17.3	54.8	59.5	69.9	63.4
Average Queue (m)	8.5	5.2	28.1	31.0	41.0	31.6
95th Queue (m)	22.6	13.1	52.3	53.9	61.4	54.3
Link Distance (m)	645.3	645.3	268.3	268.3	367.1	367.1
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	26.9	15.4	9.9	19.1	14.9	14.8	19.3
Average Queue (m)	11.2	3.7	1.0	9.9	8.1	8.0	6.5
95th Queue (m)	21.8	11.3	5.7	17.4	12.0	12.5	13.8
Link Distance (m)	476.5	401.2	401.2	335.5	335.5	443.0	443.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	14.8	21.8	94.0	96.3	67.6	64.6
Average Queue (m)	3.4	7.8	45.2	48.6	30.1	27.3
95th Queue (m)	11.4	18.6	85.3	91.1	53.0	48.1
Link Distance (m)	639.5	639.5	386.8	386.8	268.3	268.3
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	27.4	85.4	84.0	65.4	25.4	67.9	80.4	87.2	96.9	76.9	57.3	100.3
Average Queue (m)	9.3	57.0	48.8	30.9	12.4	30.1	29.8	37.5	39.9	12.9	42.4	26.4
95th Queue (m)	21.2	81.0	75.8	58.1	22.0	53.3	69.4	80.7	84.9	44.2	63.0	76.2
Link Distance (m)		508.0	508.0	508.0			523.2	523.2	523.2			473.8
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	140.0				75.0	110.0				75.0	55.0	
Storage Blk Time (%)				0					2	0	8	1
Queuing Penalty (veh)				0					2	0	7	2

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	22.7	42.0	52.9	36.1
Average Queue (m)	7.4	25.3	8.2	9.0
95th Queue (m)	16.6	43.2	32.8	22.9
Link Distance (m)	473.8		335.5	335.5
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		40.0		
Storage Blk Time (%)		5	0	
Queuing Penalty (veh)		2	0	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	T	R	L	T	T	T	R	L
Maximum Queue (m)	63.3	68.8	102.9	108.3	109.2	85.4	78.6	135.7	137.8	136.0	77.5	104.1
Average Queue (m)	36.8	42.1	66.7	73.4	71.6	17.1	37.0	101.8	98.7	93.0	55.4	55.1
95th Queue (m)	58.7	64.9	96.3	103.6	103.6	56.8	68.5	128.7	128.1	127.7	99.9	103.0
Link Distance (m)			523.2	523.2	523.2			613.1	613.1	613.1		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0
Storage Blk Time (%)			0		5	0				14	1	2
Queuing Penalty (veh)			0		4	0				35	4	6

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	TR	L	T	T	R
Maximum Queue (m)	114.3	115.2	42.4	131.1	116.4	52.5
Average Queue (m)	63.3	66.4	39.1	70.7	61.5	33.5
95th Queue (m)	99.8	98.9	50.3	124.5	108.3	63.9
Link Distance (m)	565.5	565.5		386.8	386.8	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)			40.0			50.0
Storage Blk Time (%)	0		38	17	10	1
Queuing Penalty (veh)	0		94	33	22	3

Network Summary

Network wide Queuing Penalty: 216

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	NB
Directions Served	TR	L
Maximum Queue (m)	18.2	14.5
Average Queue (m)	8.0	5.5
95th Queue (m)	15.2	12.1
Link Distance (m)	420.9	437.5
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	T	T	T	R	L	T	T	T
Maximum Queue (m)	43.4	18.3	39.8	42.1	48.0	16.6	49.9	81.5	70.6	68.9
Average Queue (m)	19.7	6.7	15.4	13.5	15.7	3.5	11.0	59.2	48.0	40.4
95th Queue (m)	40.2	13.9	32.1	32.3	34.9	11.8	33.2	78.1	66.6	61.2
Link Distance (m)		513.8	259.0	259.0	259.0			514.3	514.3	514.3
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	45.0					55.0	55.0			
Storage Blk Time (%)	1		0		0		0	7		1
Queuing Penalty (veh)	0		0		0		0	2		0

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	21.9	10.5	5.2	23.1	14.3	18.5	16.5
Average Queue (m)	10.0	4.9	0.5	10.1	8.8	9.8	6.3
95th Queue (m)	17.7	12.3	3.6	18.4	12.1	14.9	14.3
Link Distance (m)	616.4			331.8	331.8	437.5	437.5
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Queuing and Blocking Report
AM Peak Hour

01-18-2024

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	TR	T	T	T	R	L	T	T
Maximum Queue (m)	18.6	11.3	46.7	65.6	24.8	79.0	80.1	75.6	56.6	39.3	58.1	44.2
Average Queue (m)	4.0	1.9	29.4	5.1	9.1	31.1	34.7	37.5	7.0	12.6	33.1	23.7
95th Queue (m)	11.9	6.9	50.7	36.8	19.5	64.5	70.9	70.1	28.9	31.2	53.6	38.5
Link Distance (m)		550.5		452.5	452.5	383.2	383.2	383.2			259.0	259.0
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0		45.0						55.0	55.0		
Storage Blk Time (%)			4	0		1		2	0		1	
Queuing Penalty (veh)			0	0		0		1	0		0	

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	SB
Directions Served	T
Maximum Queue (m)	45.8
Average Queue (m)	28.5
95th Queue (m)	45.0
Link Distance (m)	259.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	29.4	107.9	105.6	97.5	76.9	41.9	72.9	75.6	80.7	57.8	43.2	19.4
Average Queue (m)	9.2	70.7	67.7	56.9	15.2	14.9	30.1	38.9	41.0	10.2	19.5	3.9
95th Queue (m)	23.7	99.4	96.1	90.8	46.9	31.6	63.8	74.1	73.0	29.7	37.7	12.4
Link Distance (m)		665.5	665.5	665.5			519.4	519.4	519.4			609.0
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	140.0				75.0	110.0				75.0	55.0	
Storage Blk Time (%)				2	0				0	0	0	
Queuing Penalty (veh)				2	0				0	0	0	

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	28.8	42.3	108.4	85.7
Average Queue (m)	9.7	38.7	48.3	18.3
95th Queue (m)	21.6	49.0	103.1	53.3
Link Distance (m)	609.0		331.8	331.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		40.0		
Storage Blk Time (%)		29	1	
Queuing Penalty (veh)		10	2	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	
Directions Served	L	L	T	T	T	R	L	T	T	T	T	R	L
Maximum Queue (m)	79.3	106.0	113.4	126.3	132.6	85.5	100.6	86.8	80.6	78.0	60.0	56.6	
Average Queue (m)	41.3	53.1	73.9	84.8	87.8	41.2	38.3	56.1	54.0	44.4	19.4	22.8	
95th Queue (m)	71.3	89.3	107.8	117.4	124.5	99.4	82.8	78.2	76.1	72.7	40.9	45.5	
Link Distance (m)			519.4	519.4	519.4			733.6	733.6	733.6			
Upstream Blk Time (%)													
Queuing Penalty (veh)													
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0	
Storage Blk Time (%)		0	0		7	1	0			0	0		
Queuing Penalty (veh)		0	0		11	2	0			0	0		

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	T	R
Maximum Queue (m)	59.9	55.5	44.4	28.3	42.4	181.1	132.4	95.3	52.5
Average Queue (m)	34.9	31.1	18.6	8.8	41.1	93.5	57.1	43.2	34.7
95th Queue (m)	52.5	50.4	40.0	21.0	46.8	165.2	107.4	80.9	62.2
Link Distance (m)	633.8	633.8	633.8			383.2	383.2	383.2	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				50.0	40.0				50.0
Storage Blk Time (%)			0	0	42	9		4	4
Queuing Penalty (veh)			0	0	95	33		14	9

Network Summary

Network wide Queuing Penalty: 184

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	NB
Directions Served	TR	L
Maximum Queue (m)	14.5	13.9
Average Queue (m)	6.8	5.7
95th Queue (m)	13.7	12.0
Link Distance (m)	523.0	437.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	T	T	T	R	L	T	T	T
Maximum Queue (m)	41.2	22.7	30.2	37.1	40.3	20.7	44.2	69.1	56.9	43.0
Average Queue (m)	17.0	7.4	11.4	13.1	16.2	4.6	9.1	44.5	33.2	25.4
95th Queue (m)	36.0	15.7	26.7	31.0	33.0	14.4	25.6	62.5	52.1	40.3
Link Distance (m)		757.3	259.0	259.0	259.0			432.9	432.9	432.9
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	45.0					55.0	55.0			
Storage Blk Time (%)	1						0	1		
Queuing Penalty (veh)	0						0	0		

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	25.4	15.5	8.7	22.7	19.1	15.6	19.6
Average Queue (m)	12.3	5.1	1.1	11.7	10.4	9.1	8.1
95th Queue (m)	23.2	13.2	5.7	19.5	16.1	13.7	15.9
Link Distance (m)	474.3			332.4	332.4	437.0	437.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	T	T	T	R	L	T	T	T
Maximum Queue (m)	11.1	15.0	45.0	30.1	97.4	106.4	111.2	57.5	38.2	58.9	45.2	45.4
Average Queue (m)	1.6	2.3	20.4	12.1	51.2	53.6	61.8	22.9	14.8	28.9	21.0	21.0
95th Queue (m)	6.8	8.2	38.9	24.5	91.8	95.3	103.6	60.9	28.3	50.0	39.1	39.0
Link Distance (m)		550.5		897.1	384.2	384.2	384.2			259.0	259.0	259.0
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0		45.0					55.0	55.0			
Storage Blk Time (%)			1		6		8	0	0	0		0
Queuing Penalty (veh)			0		0		10	2	0	0		0

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	27.7	122.7	111.8	101.2	77.2	61.2	70.9	169.2	173.3	64.8	57.3	102.4
Average Queue (m)	10.9	83.1	75.1	58.5	19.7	34.4	38.1	51.4	55.2	15.0	44.4	26.7
95th Queue (m)	21.9	111.8	103.6	89.2	49.2	55.1	66.0	120.5	123.7	48.8	63.1	72.1
Link Distance (m)		554.1	554.1	554.1			519.6	519.6	519.6			497.6
Upstream Blk Time (%)								0	0			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (m)	140.0				75.0	110.0				75.0	55.0	
Storage Blk Time (%)		0		1	0				1	0	6	0
Queuing Penalty (veh)		0		2	0				1	0	6	1

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	19.3	42.1	73.9	40.4
Average Queue (m)	6.3	30.4	14.9	12.9
95th Queue (m)	14.8	46.4	48.5	29.8
Link Distance (m)	497.6		332.4	332.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		40.0		
Storage Blk Time (%)		8	0	
Queuing Penalty (veh)		3	0	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	
Directions Served	L	L	T	T	T	R	L	T	T	T	T	R	L
Maximum Queue (m)	111.2	112.5	422.5	409.8	290.5	85.5	162.3	321.5	315.8	283.4	77.5	122.5	
Average Queue (m)	101.3	105.4	253.1	225.6	110.5	23.0	133.1	203.9	197.0	167.2	66.9	100.5	
95th Queue (m)	129.8	129.2	482.2	445.4	277.8	71.6	194.8	386.1	376.2	296.4	100.8	151.9	
Link Distance (m)			519.6	519.6	519.6			679.4	679.4	679.4			
Upstream Blk Time (%)			1	0	0								
Queuing Penalty (veh)			7	2	0								
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0	
Storage Blk Time (%)	6	54	30		5	0	31	18		35	2	47	
Queuing Penalty (veh)	29	250	122		4	1	172	43		107	11	127	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	T	R
Maximum Queue (m)	278.7	267.4	127.9	52.5	42.4	151.0	116.8	100.7	52.5
Average Queue (m)	143.4	129.5	48.4	21.7	40.4	86.2	62.1	50.0	39.9
95th Queue (m)	287.1	265.9	85.1	50.1	48.5	167.6	118.5	89.9	62.6
Link Distance (m)	487.4	487.4	487.4			384.2	384.2	384.2	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				50.0	40.0				50.0
Storage Blk Time (%)	19		6	0	44	8		4	7
Queuing Penalty (veh)	56		8	1	98	21		13	17

Network Summary

Network wide Queuing Penalty: 1114

Queuing and Blocking Report
AM Peak Hour

01-18-2024

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	WB	NB	NB
Directions Served	TR	LT	L	R
Maximum Queue (m)	19.0	16.6	16.3	7.1
Average Queue (m)	8.4	8.8	5.8	3.6
95th Queue (m)	16.7	15.6	13.1	9.0
Link Distance (m)	634.7	556.2	437.5	437.5
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	T	R	L
Maximum Queue (m)	40.3	15.0	35.9	46.6	54.0	25.7	22.1	41.1	46.1	47.2	16.2	49.8
Average Queue (m)	17.7	2.7	13.0	22.5	3.3	11.2	7.7	15.5	16.7	17.3	3.6	10.0
95th Queue (m)	35.6	9.9	25.5	42.0	23.2	21.5	17.8	32.4	36.5	38.2	11.9	31.4
Link Distance (m)		556.2	556.2		921.5	921.5		259.0	259.0	259.0		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0			45.0			55.0				55.0	55.0
Storage Blk Time (%)	1			2	0					0		0
Queuing Penalty (veh)	0			0	0					0		0

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (m)	93.6	81.2	74.9	10.4
Average Queue (m)	61.4	52.3	42.7	2.3
95th Queue (m)	84.5	74.1	64.7	8.8
Link Distance (m)	563.7	563.7	563.7	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				55.0
Storage Blk Time (%)	8		1	
Queuing Penalty (veh)	2		0	

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	18.8	16.5	8.9	25.9	16.3	19.3	23.1
Average Queue (m)	10.2	9.2	1.1	11.4	10.2	10.7	10.6
95th Queue (m)	16.6	14.9	5.9	20.3	15.4	16.2	18.1
Link Distance (m)	734.1	550.5	550.5	332.0	332.0	437.5	437.5
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	T	R	L
Maximum Queue (m)	27.1	8.9	51.9	47.2	95.7	22.0	19.5	70.3	73.8	79.5	47.8	45.4
Average Queue (m)	7.1	1.0	16.2	32.1	11.5	6.9	6.1	33.0	36.2	42.1	6.9	15.5
95th Queue (m)	18.2	4.7	40.1	52.5	58.7	16.7	15.9	65.8	71.7	74.4	30.4	41.9
Link Distance (m)		550.5	550.5		738.3	738.3		384.0	384.0	384.0		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0			45.0			55.0				55.0	55.0
Storage Blk Time (%)				9	1			1		3	0	0
Queuing Penalty (veh)				0	2			0		1	0	0

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (m)	116.1	94.1	101.3	4.9
Average Queue (m)	65.9	51.4	52.4	0.2
95th Queue (m)	168.7	150.8	125.8	2.1
Link Distance (m)	259.0	259.0	259.0	
Upstream Blk Time (%)	1	0	0	
Queuing Penalty (veh)	3	0	0	
Storage Bay Dist (m)				55.0
Storage Blk Time (%)	13		3	
Queuing Penalty (veh)	5		0	

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	50.1	116.7	114.0	110.4	77.4	39.9	82.9	98.3	104.2	77.5	44.8	22.2
Average Queue (m)	20.2	75.7	70.7	60.4	15.4	15.3	40.5	49.8	52.6	19.1	17.5	3.8
95th Queue (m)	40.4	106.8	102.3	96.3	50.1	30.8	76.9	88.1	92.8	56.9	35.4	13.5
Link Distance (m)		606.7	606.7	606.7			519.6	519.6	519.6			821.5
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	140.0					75.0	110.0				75.0	55.0
Storage Blk Time (%)					2	0				2	0	0
Queuing Penalty (veh)					3	1				2	0	0

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	21.7	42.3	99.6	77.8
Average Queue (m)	7.2	38.2	38.6	25.1
95th Queue (m)	17.7	48.7	92.3	53.6
Link Distance (m)	821.5		332.0	332.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		40.0		
Storage Blk Time (%)		25	1	
Queuing Penalty (veh)		9	2	

Queuing and Blocking Report
AM Peak Hour

01-18-2024

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	
Directions Served	L	L	T	T	T	R	L	T	T	T	T	R	L
Maximum Queue (m)	89.9	101.1	114.9	123.0	133.6	85.5	99.8	87.7	86.8	75.7	64.0	51.7	
Average Queue (m)	45.6	52.8	68.1	77.2	81.7	32.3	49.9	54.1	55.4	46.2	19.4	22.6	
95th Queue (m)	75.0	82.5	101.1	109.9	115.3	84.3	107.7	75.8	78.2	70.2	42.1	42.1	
Link Distance (m)			519.6	519.6	519.6			845.9	845.9	845.9			
Upstream Blk Time (%)													
Queuing Penalty (veh)													
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0	
Storage Blk Time (%)		0	0		5	0				0	0		
Queuing Penalty (veh)		0	1		8	1				0	0		

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	T	R
Maximum Queue (m)	55.4	61.1	55.8	42.1	42.4	361.3	335.0	295.5	52.5
Average Queue (m)	33.4	33.8	22.7	8.0	42.3	282.3	155.4	90.3	39.0
95th Queue (m)	49.0	52.2	46.3	22.5	42.6	410.9	340.6	231.0	67.4
Link Distance (m)	808.4	808.4	808.4			384.0	384.0	384.0	
Upstream Blk Time (%)						7	0	0	
Queuing Penalty (veh)						37	2	0	
Storage Bay Dist (m)				50.0	40.0				50.0
Storage Blk Time (%)			0	0	68	20		12	3
Queuing Penalty (veh)			0	0	204	86		43	8

Network Summary

Network wide Queuing Penalty: 423

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	WB	NB	NB
Directions Served	TR	LT	L	R
Maximum Queue (m)	14.5	17.8	11.4	14.1
Average Queue (m)	6.9	9.1	5.4	5.6
95th Queue (m)	13.7	15.5	11.2	10.9
Link Distance (m)	867.7	556.3	436.0	436.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	T	T	R	L	T
Maximum Queue (m)	20.8	21.6	43.6	25.8	35.1	29.7	38.3	36.4	36.6	25.5	34.8	65.1
Average Queue (m)	7.0	7.9	16.5	9.3	12.9	10.7	12.2	15.1	16.7	6.7	10.1	41.2
95th Queue (m)	16.8	16.1	35.0	19.7	27.5	23.7	27.6	31.8	33.0	18.7	22.7	59.7
Link Distance (m)		556.3		885.0	885.0		259.0	259.0	259.0			572.6
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0		45.0			55.0				55.0	55.0	
Storage Blk Time (%)			1								0	1
Queuing Penalty (veh)			0								0	0

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	58.1	48.0	34.0
Average Queue (m)	34.1	28.6	6.2
95th Queue (m)	53.2	45.1	19.2
Link Distance (m)	572.6	572.6	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			55.0
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		0	0

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	27.2	15.7	10.2	27.2	22.2	17.2	21.4
Average Queue (m)	12.7	7.8	1.9	13.4	11.9	9.5	10.1
95th Queue (m)	22.8	14.5	7.9	21.8	18.4	13.8	17.3
Link Distance (m)	761.3	550.5	550.5	332.5	332.5	436.0	436.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	T	T	R	L	T
Maximum Queue (m)	16.1	18.1	44.8	10.0	31.6	50.2	111.6	114.8	126.5	57.5	36.7	69.2
Average Queue (m)	3.5	5.9	21.5	2.2	12.4	12.0	55.5	58.7	69.1	21.1	14.3	32.3
95th Queue (m)	10.9	13.7	39.3	8.5	24.4	33.5	101.0	108.2	122.0	59.0	30.6	58.7
Link Distance (m)		550.5		919.4	919.4		383.7	383.7	383.7			259.0
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0		45.0			55.0				55.0	55.0	
Storage Blk Time (%)			1			0	6		11	0	0	1
Queuing Penalty (veh)			0			0	4		13	1	1	1

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	48.7	49.3	9.0
Average Queue (m)	25.3	24.7	0.7
95th Queue (m)	42.6	43.6	4.7
Link Distance (m)	259.0	259.0	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			55.0
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Queuing and Blocking Report
PM Peak Hour

01-18-2024

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	58.8	105.8	101.2	104.1	77.1	59.1	80.7	92.6	100.6	77.4	57.3	108.1
Average Queue (m)	24.0	74.0	67.5	56.4	19.6	31.8	51.7	59.7	63.1	25.2	44.9	29.5
95th Queue (m)	44.4	98.8	93.4	84.9	47.3	52.5	80.4	86.9	91.8	73.4	64.3	83.5
Link Distance (m)		634.7	634.7	634.7			519.5	519.5	519.5			624.7
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	140.0				75.0	110.0				75.0	55.0	
Storage Blk Time (%)				1	0				2	0	9	1
Queuing Penalty (veh)				2	0				3	1	9	2

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	26.3	42.2	72.3	64.2
Average Queue (m)	6.8	31.1	17.8	24.8
95th Queue (m)	17.2	48.2	52.2	48.2
Link Distance (m)	624.7		332.5	332.5
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		40.0		
Storage Blk Time (%)		11	0	
Queuing Penalty (veh)		4	0	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	
Directions Served	L	L	T	T	T	R	L	T	T	T	T	R	L
Maximum Queue (m)	111.2	112.5	474.4	456.5	403.4	85.0	162.4	278.2	277.5	254.6	77.5	122.5	
Average Queue (m)	109.5	112.1	346.6	270.0	104.2	22.1	127.2	172.2	172.6	157.0	67.6	116.6	
95th Queue (m)	112.0	114.1	520.3	498.6	257.1	69.5	201.6	277.8	272.2	228.7	101.2	144.2	
Link Distance (m)			519.5	519.5	519.5			972.1	972.1	972.1			
Upstream Blk Time (%)			0										
Queuing Penalty (veh)			1										
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0	
Storage Blk Time (%)	9	74	48		4	0	26	16		40	2	72	
Queuing Penalty (veh)	40	342	193		3	1	143	37		122	9	230	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	T	R
Maximum Queue (m)	392.3	383.3	282.7	52.5	42.4	272.7	250.7	123.6	52.5
Average Queue (m)	255.0	241.7	97.1	34.0	42.0	158.3	106.2	63.0	42.4
95th Queue (m)	464.4	450.5	221.3	68.9	44.5	294.0	213.9	105.8	65.4
Link Distance (m)	689.5	689.5	689.5			383.7	383.7	383.7	
Upstream Blk Time (%)						0			
Queuing Penalty (veh)						0			
Storage Bay Dist (m)				50.0	40.0				50.0
Storage Blk Time (%)	34		19	1	70	15		10	5
Queuing Penalty (veh)	99		28	2	184	41		35	13

Network Summary

Network wide Queuing Penalty: 1567

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	NB
Directions Served	TR	L
Maximum Queue (m)	21.1	13.3
Average Queue (m)	8.3	5.4
95th Queue (m)	16.6	12.0
Link Distance (m)	751.7	436.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	TR	T	T	T	R	L	T	T	T
Maximum Queue (m)	46.8	26.0	32.3	46.2	49.9	56.8	26.5	22.7	57.7	54.0	50.7
Average Queue (m)	28.3	1.7	10.9	17.6	20.9	21.7	3.9	5.6	21.3	16.2	15.1
95th Queue (m)	47.7	18.6	22.2	38.5	43.3	46.9	15.4	15.6	43.8	38.0	36.5
Link Distance (m)		595.1	595.1	259.0	259.0	259.0			635.9	635.9	635.9
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (m)	45.0						55.0	55.0			
Storage Blk Time (%)	4	0		0		0	0		0		0
Queuing Penalty (veh)	0	0		0		0	0		0		0

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	20.0	10.4	7.0	22.5	15.8	19.4	19.7
Average Queue (m)	10.9	4.7	0.6	10.3	9.1	10.3	6.6
95th Queue (m)	17.3	12.1	4.0	19.0	12.8	15.8	15.5
Link Distance (m)	174.0			332.1	332.1	436.3	436.3
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Queuing and Blocking Report
AM Peak Hour

03/13/2024

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	T	T	T	R	L	T
Maximum Queue (m)	20.7	5.0	16.7	46.9	47.7	24.2	52.5	59.2	55.9	30.4	23.4	78.2
Average Queue (m)	5.5	0.6	4.7	29.7	3.1	8.2	20.6	25.1	28.4	3.6	5.6	35.5
95th Queue (m)	14.5	3.2	12.8	48.2	28.7	18.8	45.2	52.8	54.1	16.1	15.8	62.8
Link Distance (m)		550.5	550.5		637.3	637.3	383.9	383.9	383.9			259.0
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0			45.0						55.0	55.0	
Storage Blk Time (%)				3	0		0		0	0		1
Queuing Penalty (veh)				0	0		0		0	0		0

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	SB	SB
Directions Served	T	T
Maximum Queue (m)	60.9	70.0
Average Queue (m)	27.1	30.4
95th Queue (m)	50.2	59.4
Link Distance (m)	259.0	259.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		1
Queuing Penalty (veh)		0

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	32.3	113.9	114.1	124.1	76.6	39.5	76.6	85.8	93.7	77.1	45.9	21.3
Average Queue (m)	9.1	79.1	76.1	69.2	20.3	15.1	30.8	39.0	43.4	13.6	20.9	4.7
95th Queue (m)	23.5	111.2	109.5	108.0	60.9	31.4	63.6	73.2	80.2	43.1	39.0	16.3
Link Distance (m)		683.8	683.8	683.8			519.4	519.4	519.4			543.1
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	140.0				75.0	110.0				75.0	55.0	
Storage Blk Time (%)				4	0				1	0	0	
Queuing Penalty (veh)				6	1				1	0	0	

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	30.9	42.3	115.9	71.7
Average Queue (m)	9.7	39.6	56.7	17.0
95th Queue (m)	22.2	48.2	117.8	47.2
Link Distance (m)	543.1		332.1	332.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		40.0		
Storage Blk Time (%)		36	1	
Queuing Penalty (veh)		14	2	

Queuing and Blocking Report
AM Peak Hour

03/13/2024

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	
Directions Served	L	L	T	T	T	R	L	T	T	T	T	R	L
Maximum Queue (m)	111.0	112.5	238.4	227.1	219.6	85.5	154.3	225.5	217.6	175.4	69.0	63.8	
Average Queue (m)	82.2	96.6	139.3	137.4	142.2	58.5	114.0	138.3	129.8	58.1	21.7	25.1	
95th Queue (m)	124.6	131.5	231.3	217.0	221.2	112.7	193.7	307.4	291.2	112.2	46.4	52.3	
Link Distance (m)			519.4	519.4	519.4			696.0	696.0	696.0			
Upstream Blk Time (%)													
Queuing Penalty (veh)													
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0	
Storage Blk Time (%)	1	17	11		25	1	32	14		1	0		
Queuing Penalty (veh)	6	84	40		44	4	91	21		1	0		

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	T	R
Maximum Queue (m)	60.7	61.4	49.6	30.7	42.3	183.4	133.5	90.3	52.5
Average Queue (m)	37.8	35.0	20.6	10.0	41.0	85.5	53.8	40.3	34.4
95th Queue (m)	56.1	54.6	42.8	23.9	45.5	162.1	102.8	71.8	61.1
Link Distance (m)	629.7	629.7	629.7			383.9	383.9	383.9	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				50.0	40.0				50.0
Storage Blk Time (%)			0	0	36	7		2	3
Queuing Penalty (veh)			0	0	91	28		9	7

Network Summary

Network wide Queuing Penalty: 453

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	WB	NB
Directions Served	TR	LT	L
Maximum Queue (m)	16.5	12.2	12.9
Average Queue (m)	7.4	3.3	6.3
95th Queue (m)	14.2	10.8	11.5
Link Distance (m)	573.7	556.3	437.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	TR	T	T	T	R	L	T	T	T
Maximum Queue (m)	44.8	9.4	31.8	51.0	49.2	52.0	25.0	57.3	89.5	76.5	69.0
Average Queue (m)	16.5	2.3	8.9	20.3	21.7	25.1	9.3	18.8	61.9	50.7	41.4
95th Queue (m)	34.3	7.7	20.0	41.6	43.4	46.6	20.8	46.8	83.2	72.7	61.1
Link Distance (m)		582.7	582.7	259.0	259.0	259.0			382.6	382.6	382.6
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (m)	45.0						55.0	55.0			
Storage Blk Time (%)	1			0		0		0	8		1
Queuing Penalty (veh)	0			0		0		0	5		0

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	26.0	16.2	10.0	21.2	16.7	17.2	18.4
Average Queue (m)	12.9	4.6	1.8	11.8	9.3	9.7	9.5
95th Queue (m)	22.4	13.2	7.6	19.6	13.9	14.4	16.1
Link Distance (m)	609.4			331.5	331.5	437.8	437.8
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	TR	T	T	T	R	L	T	T
Maximum Queue (m)	12.2	13.9	44.8	35.7	30.1	96.3	104.5	119.2	57.5	49.0	76.5	60.4
Average Queue (m)	2.1	2.5	24.2	3.6	13.0	47.2	50.7	59.8	17.2	17.5	35.7	26.5
95th Queue (m)	7.9	8.5	43.4	30.9	25.5	93.0	96.4	108.6	53.4	38.6	62.6	50.8
Link Distance (m)		550.5		635.0	635.0	383.6	383.6	383.6			259.0	259.0
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0		45.0						55.0	55.0		
Storage Blk Time (%)			5	1		5		9	0	0	3	
Queuing Penalty (veh)			0	1		0		11	1	2	3	

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	SB
Directions Served	T
Maximum Queue (m)	59.0
Average Queue (m)	24.5
95th Queue (m)	48.0
Link Distance (m)	259.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	28.2	125.0	118.1	101.1	76.7	85.2	117.6	121.9	124.2	77.5	57.4	155.1
Average Queue (m)	10.2	84.2	76.4	60.6	22.3	35.4	57.4	68.3	72.1	32.9	49.9	49.9
95th Queue (m)	22.7	112.2	106.3	89.5	54.9	70.0	112.9	120.0	125.4	83.9	67.0	123.2
Link Distance (m)		575.2	575.2	575.2			519.3	519.3	519.3			460.3
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	140.0				75.0	110.0				75.0	55.0	
Storage Blk Time (%)				1	0	0	0		7	0	19	1
Queuing Penalty (veh)				2	0	0	1		15	2	20	3

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	25.2	42.2	64.3	33.3
Average Queue (m)	9.9	28.2	11.8	10.4
95th Queue (m)	20.6	46.3	39.1	24.0
Link Distance (m)	460.3		331.5	331.5
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	40.0			
Storage Blk Time (%)		8	1	
Queuing Penalty (veh)		3	1	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	
Directions Served	L	L	T	T	T	R	L	T	T	T	T	R	L
Maximum Queue (m)	111.2	112.5	473.4	466.8	307.9	85.5	162.5	670.2	661.0	634.1	77.5	122.5	
Average Queue (m)	106.0	109.1	307.9	258.7	125.2	36.2	157.8	482.7	473.5	438.8	71.3	121.8	
95th Queue (m)	128.3	129.8	479.9	450.6	268.2	94.2	187.5	751.7	738.7	710.2	96.2	128.9	
Link Distance (m)			519.3	519.3	519.3			663.9	663.9	663.9			
Upstream Blk Time (%)			1	0	0			13	8	10			
Queuing Penalty (veh)			5	1	0			0	0	0			
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0	
Storage Blk Time (%)	11	68	43		19	0	65	52		54	4	90	
Queuing Penalty (veh)	54	346	188		20	2	387	134		183	21	263	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	T	R
Maximum Queue (m)	496.7	495.2	479.6	52.5	42.4	319.8	289.2	175.0	52.5
Average Queue (m)	382.6	368.5	185.9	34.1	42.1	219.1	146.6	80.8	42.7
95th Queue (m)	602.0	601.3	510.6	66.4	45.3	363.0	296.4	204.1	66.8
Link Distance (m)	507.9	507.9	507.9			383.6	383.6	383.6	
Upstream Blk Time (%)	33	16	2			5	0	0	
Queuing Penalty (veh)	0	0	0			21	2	0	
Storage Bay Dist (m)				50.0	40.0				50.0
Storage Blk Time (%)	49		17	1	78	15		9	9
Queuing Penalty (veh)	155		28	2	188	43		33	21

Network Summary

Network wide Queuing Penalty: 2171

Queuing and Blocking Report
AM Peak Hour

03/12/2024

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	WB	NB	NB
Directions Served	TR	LT	L	R
Maximum Queue (m)	16.9	16.4	17.7	7.3
Average Queue (m)	7.7	8.8	6.1	3.5
95th Queue (m)	14.5	14.5	13.0	7.9
Link Distance (m)	751.7	556.4	436.3	436.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	T	R	L
Maximum Queue (m)	47.2	82.6	100.7	47.1	78.6	58.2	57.3	95.4	98.2	96.6	57.1	57.3
Average Queue (m)	36.5	18.4	49.8	31.6	14.5	14.2	29.7	44.8	50.7	52.8	13.3	17.9
95th Queue (m)	54.0	59.2	87.1	50.4	60.4	35.8	55.8	81.7	87.7	91.7	43.9	57.8
Link Distance (m)		556.4	556.4		595.1	595.1		259.0	259.0	259.0		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0			45.0			55.0				55.0	55.0
Storage Blk Time (%)	9	0		11	1		0	4		9	0	0
Queuing Penalty (veh)	2	0		1	2		1	5		5	1	0

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (m)	371.6	357.5	321.9	57.5
Average Queue (m)	158.7	151.4	128.6	17.0
95th Queue (m)	348.8	338.3	290.2	54.7
Link Distance (m)	635.9	635.9	635.9	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				55.0
Storage Blk Time (%)	56		31	0
Queuing Penalty (veh)	18		20	1

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	21.0	28.0	6.8	26.1	21.6	21.7	22.0
Average Queue (m)	10.0	12.9	0.7	11.8	11.8	10.6	9.9
95th Queue (m)	17.0	23.0	4.6	19.9	18.4	17.8	16.9
Link Distance (m)	174.0	550.5	550.5	332.1	332.1	436.3	436.3
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	T	R	L
Maximum Queue (m)	30.4	14.1	79.4	46.9	75.2	29.4	51.4	90.8	96.5	96.8	46.5	57.4
Average Queue (m)	10.4	1.9	43.3	30.7	7.4	9.2	16.7	32.2	33.0	40.5	4.9	24.8
95th Queue (m)	24.1	7.7	74.0	49.4	48.1	21.2	37.6	70.8	76.2	82.1	24.9	67.8
Link Distance (m)		550.5	550.5		637.3	637.3		383.9	383.9	383.9		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0			45.0			55.0				55.0	55.0
Storage Blk Time (%)				7	0		0	3		4	0	0
Queuing Penalty (veh)				0	0		0	2		1	0	1

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (m)	276.4	275.6	276.7	13.3
Average Queue (m)	217.2	205.0	180.7	0.9
95th Queue (m)	339.4	333.9	314.4	11.7
Link Distance (m)	259.0	259.0	259.0	
Upstream Blk Time (%)	30	7	2	
Queuing Penalty (veh)	166	41	11	
Storage Bay Dist (m)				55.0
Storage Blk Time (%)	75		22	0
Queuing Penalty (veh)	27		1	0

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	142.3	349.6	352.3	337.0	77.5	36.7	94.5	101.0	108.5	77.5	46.6	29.1
Average Queue (m)	48.3	149.7	145.6	134.7	32.0	16.5	55.8	62.6	65.4	26.3	19.4	5.4
95th Queue (m)	123.5	372.8	366.6	347.5	85.0	32.1	91.6	97.2	104.3	72.8	39.2	18.9
Link Distance (m)		683.8	683.8	683.8			519.4	519.4	519.4			543.1
Upstream Blk Time (%)		1	1	0								
Queuing Penalty (veh)		0	0	0								
Storage Bay Dist (m)	140.0				75.0	110.0				75.0	55.0	
Storage Blk Time (%)	0	14		17	0		0		3	0	0	0
Queuing Penalty (veh)	1	19		22	3		0		5	1	0	0

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	43.8	42.3	234.0	201.3
Average Queue (m)	10.9	40.5	113.0	54.4
95th Queue (m)	27.4	47.0	260.5	151.3
Link Distance (m)	543.1		332.1	332.1
Upstream Blk Time (%)			1	0
Queuing Penalty (veh)			2	1
Storage Bay Dist (m)		40.0		
Storage Blk Time (%)		53	5	
Queuing Penalty (veh)		21	14	

Queuing and Blocking Report
AM Peak Hour

03/12/2024

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	
Directions Served	L	L	T	T	T	R	L	T	T	T	T	R	L
Maximum Queue (m)	111.2	112.5	527.4	534.8	533.0	85.5	157.7	292.5	284.9	205.1	76.9	100.3	
Average Queue (m)	108.5	112.0	404.0	360.4	295.9	62.2	137.3	182.0	173.6	68.7	26.6	41.9	
95th Queue (m)	116.7	115.8	637.4	641.4	606.5	115.0	193.1	394.5	381.1	163.8	60.2	82.3	
Link Distance (m)			519.4	519.4	519.4			696.0	696.0	696.0			
Upstream Blk Time (%)			25	6	1								
Queuing Penalty (veh)			195	42	6								
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0	
Storage Blk Time (%)	13	73	51		19	1	44	21		2	0	0	
Queuing Penalty (veh)	64	360	207		33	4	125	31		3	0	0	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	T	R
Maximum Queue (m)	95.4	79.5	72.3	48.6	42.4	397.8	395.7	401.2	52.5
Average Queue (m)	52.9	48.5	34.5	11.0	42.3	382.7	261.4	194.2	48.0
95th Queue (m)	79.0	72.2	62.7	28.4	42.4	411.8	494.2	413.6	65.1
Link Distance (m)	629.7	629.7	629.7			383.9	383.9	383.9	
Upstream Blk Time (%)						31	5	1	
Queuing Penalty (veh)						218	32	5	
Storage Bay Dist (m)				50.0	40.0				50.0
Storage Blk Time (%)	0		1	0	71	17		20	7
Queuing Penalty (veh)	0		1	0	284	90		92	26

Network Summary

Network wide Queuing Penalty: 2215

Intersection: 1: Ernest Appelbe Boulevard & Threshing Mill Boulevard

Movement	EB	WB	NB	NB
Directions Served	TR	LT	L	R
Maximum Queue (m)	15.2	14.8	17.0	18.0
Average Queue (m)	7.3	8.6	6.1	5.6
95th Queue (m)	14.6	14.2	12.5	12.2
Link Distance (m)	701.9	556.6	437.2	437.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	T	T	R	L	T
Maximum Queue (m)	43.0	101.0	46.3	46.5	56.7	57.1	69.1	60.2	54.4	41.2	57.3	126.3
Average Queue (m)	20.3	27.2	20.1	21.6	27.8	33.8	22.6	25.4	27.1	11.0	21.2	69.3
95th Queue (m)	38.2	67.6	40.7	38.5	48.7	57.0	54.2	49.2	48.8	27.8	52.5	112.9
Link Distance (m)		556.6		715.1	715.1		259.0	259.0	259.0			438.9
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	45.0		45.0			55.0				55.0	55.0	
Storage Blk Time (%)	0		2	0		4	0		0	0	0	17
Queuing Penalty (veh)	0		1	0		18	1		0	0	1	11

Intersection: 2: Trafalgar Road & Threshing Mill Boulevard

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	115.2	91.2	57.5
Average Queue (m)	59.6	50.2	24.4
95th Queue (m)	101.1	78.2	54.2
Link Distance (m)	438.9	438.9	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			55.0
Storage Blk Time (%)		3	0
Queuing Penalty (veh)		6	1

Intersection: 3: Ernest Appelbe Boulevard & Wheat Boom Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	27.3	21.3	12.8	23.1	22.2	17.2	21.8
Average Queue (m)	12.2	11.2	2.8	12.7	12.6	9.8	10.8
95th Queue (m)	22.7	18.2	9.9	20.4	19.4	15.1	17.5
Link Distance (m)	642.7	550.5	550.5	332.0	332.0	437.2	437.2
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	T	T	R	L	T
Maximum Queue (m)	13.4	61.1	47.4	154.7	34.9	57.3	131.8	130.5	138.5	57.5	57.4	264.3
Average Queue (m)	2.5	21.3	32.1	38.8	15.0	28.8	61.9	57.3	66.5	14.0	35.0	151.1
95th Queue (m)	9.0	50.5	54.2	125.9	28.8	58.7	119.2	119.2	130.9	45.7	75.1	291.9
Link Distance (m)		550.5		782.8	782.8		383.6	383.6	383.6			259.0
Upstream Blk Time (%)												11
Queuing Penalty (veh)												55
Storage Bay Dist (m)	45.0		45.0			55.0				55.0	55.0	
Storage Blk Time (%)			34	10		0	7		10	0	0	61
Queuing Penalty (veh)			2	12		3	12		12	1	2	55

Intersection: 4: Trafalgar Road & Wheat Boom Drive

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	266.0	228.8	37.6
Average Queue (m)	136.6	99.1	2.2
95th Queue (m)	281.8	220.2	16.0
Link Distance (m)	259.0	259.0	
Upstream Blk Time (%)	1	0	
Queuing Penalty (veh)	5	1	
Storage Bay Dist (m)			55.0
Storage Blk Time (%)		11	0
Queuing Penalty (veh)		1	0

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	142.5	559.2	555.4	508.6	77.5	102.1	123.8	130.8	139.4	77.5	57.4	157.6
Average Queue (m)	87.1	224.4	214.3	175.3	43.9	34.6	71.2	79.9	83.5	30.8	49.6	55.9
95th Queue (m)	175.8	513.1	500.9	426.8	94.3	70.9	123.6	131.8	137.3	81.8	68.3	131.2
Link Distance (m)		605.9	605.9	605.9			519.6	519.6	519.6			565.0
Upstream Blk Time (%)		7	4	1								
Queuing Penalty (veh)		0	0	0								
Storage Bay Dist (m)	140.0				75.0	110.0				75.0	55.0	
Storage Blk Time (%)	1	38		18	1	0	1		11	0	23	3
Queuing Penalty (veh)	4	80		41	3	0	2		22	3	25	9

Intersection: 5: Oak Park Boulevard/Ernest Appelbe Boulevard & Dundas Street East

Movement	NB	SB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (m)	37.0	42.3	160.7	139.7
Average Queue (m)	9.9	33.1	43.2	35.9
95th Queue (m)	26.7	49.1	139.8	93.0
Link Distance (m)	565.0		332.0	332.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		40.0		
Storage Blk Time (%)		31	1	
Queuing Penalty (veh)		13	2	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	
Directions Served	L	L	T	T	T	R	L	T	T	T	T	R	L
Maximum Queue (m)	111.2	112.5	530.4	533.3	535.1	85.5	162.5	769.0	766.8	771.6	77.5	122.5	
Average Queue (m)	109.7	112.3	465.5	391.2	288.9	30.2	159.4	552.9	544.4	522.9	70.8	122.4	
95th Queue (m)	112.1	112.9	614.4	658.2	624.3	84.9	183.9	864.6	858.0	837.3	97.8	122.7	
Link Distance (m)			519.6	519.6	519.6			758.4	758.4	758.4			
Upstream Blk Time (%)			29	6	1			18	12	10			
Queuing Penalty (veh)			178	38	8			0	0	0			
Storage Bay Dist (m)	110.0	110.0				83.0	160.0				75.0	120.0	
Storage Blk Time (%)	12	77	36		15	0	55	48		56	3	92	
Queuing Penalty (veh)	61	391	184		16	2	327	124		189	18	385	

Intersection: 6: Trafalgar Road & Dundas Street East

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	T	R	L	T	T	T	R
Maximum Queue (m)	612.4	607.5	604.2	52.5	42.4	390.3	396.1	397.5	52.5
Average Queue (m)	560.8	554.3	478.2	32.5	42.3	366.0	238.9	195.9	49.2
95th Queue (m)	708.8	710.3	749.3	69.5	42.6	443.6	469.8	404.6	63.8
Link Distance (m)	599.6	599.6	599.6			383.6	383.6	383.6	
Upstream Blk Time (%)	64	36	7			39	4	0	
Queuing Penalty (veh)	0	0	0			225	25	3	
Storage Bay Dist (m)				50.0	40.0				50.0
Storage Blk Time (%)	41		43	1	81	19		25	12
Queuing Penalty (veh)	130		71	3	275	62		111	40

Network Summary

Network wide Queuing Penalty: 3265

Appendix D

Background Developments

Table 1 Background Development Traffic

Background Development	Peak Hour Trips					
	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Oakvillage 3 - Tower B	28	87	115	81	51	132
MC OakVillage GP Inc	4	12	16	13	8	21
MC Oakvillage	43	125	165	135	94	188
Oakvillage Block 14 & Emshih Developments	106	251	357	328	239	567
3064 Trafalgar Road Inc.	43	136	179	128	83	211
MC OakVillage Phase 4A/B	31	99	130	88	55	143
MC Oakvillage Phase 4C	17	53	70	48	30	78
HCDSB North Oakville #4 Elementary School	268*	229*	497*	49*	58*	107*



Table 2 – Proposed Site Trip Distribution

Origin / Destination	% of Trips (AM)	% of Trips (PM)
North	30%	5%
South	70%	95%
Total	100%	100%

The estimated site trips generated by the proposed development as assigned to the study area road network for the weekday a.m. and p.m. peak hours is illustrated in **Figure 4**.

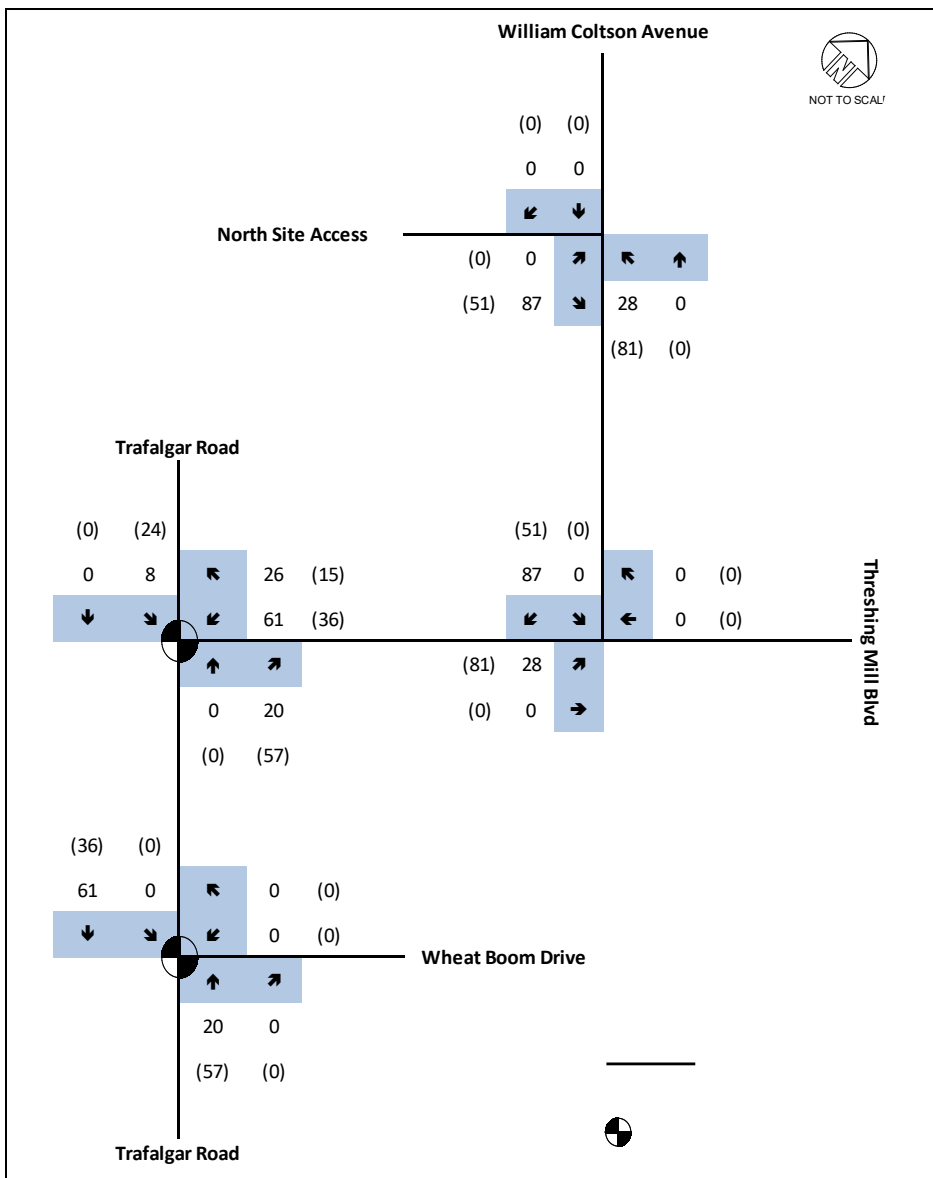


Figure 3 - Estimated Site Trips

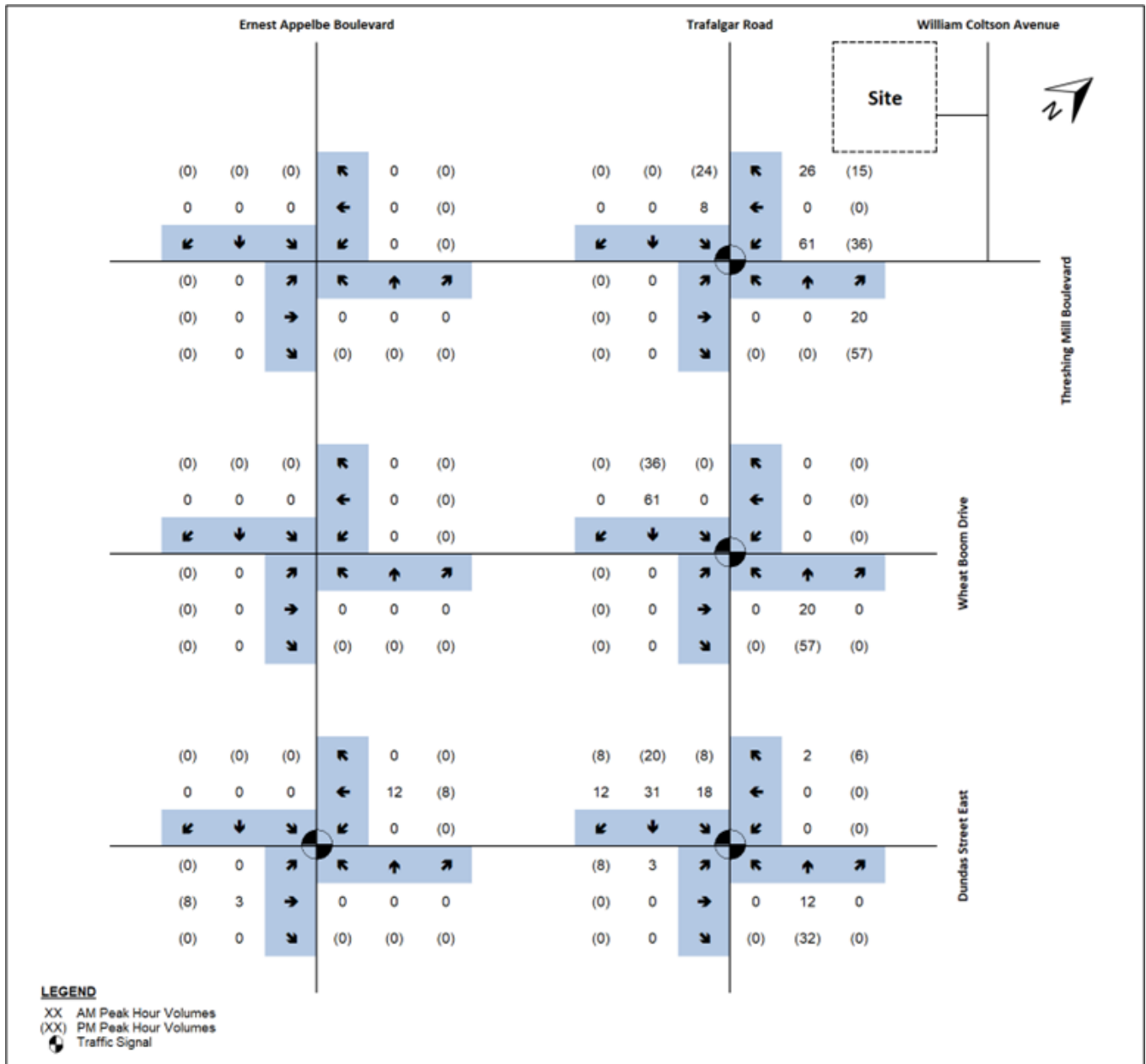
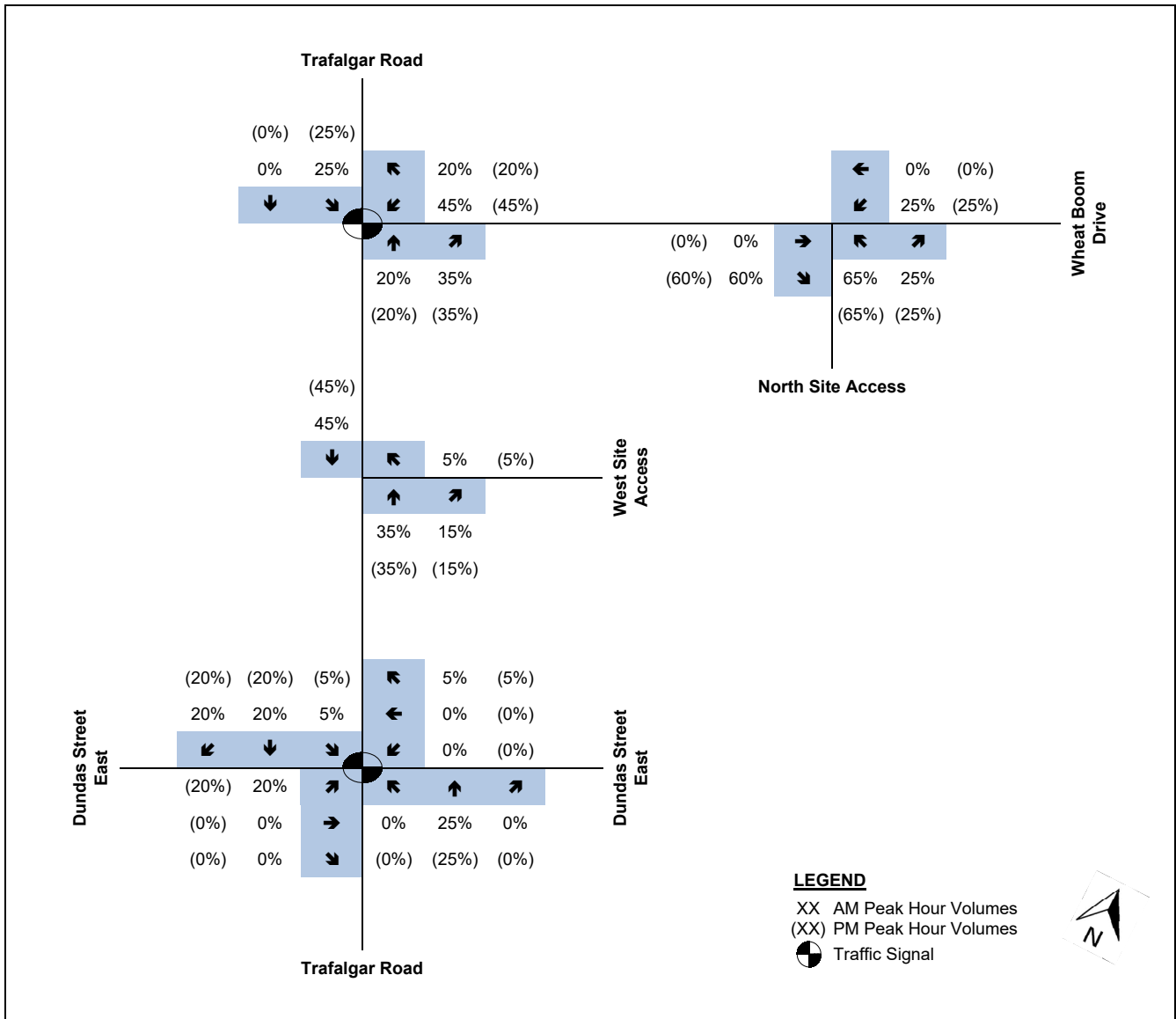
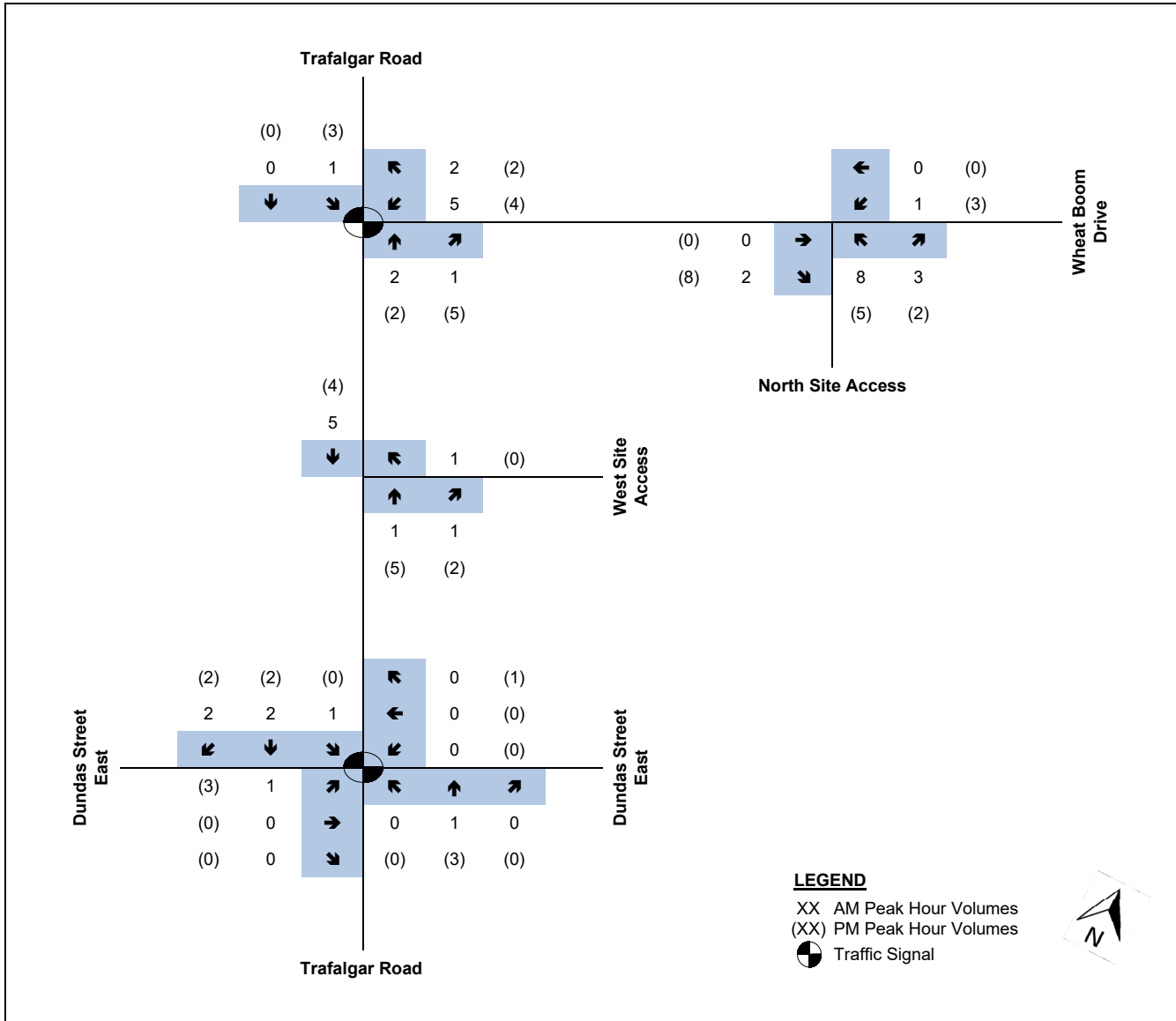


Figure 1 Oakville 3 – Tower B

Oakville 2 Trip Distribution



Oakville 2 Trip Assignment



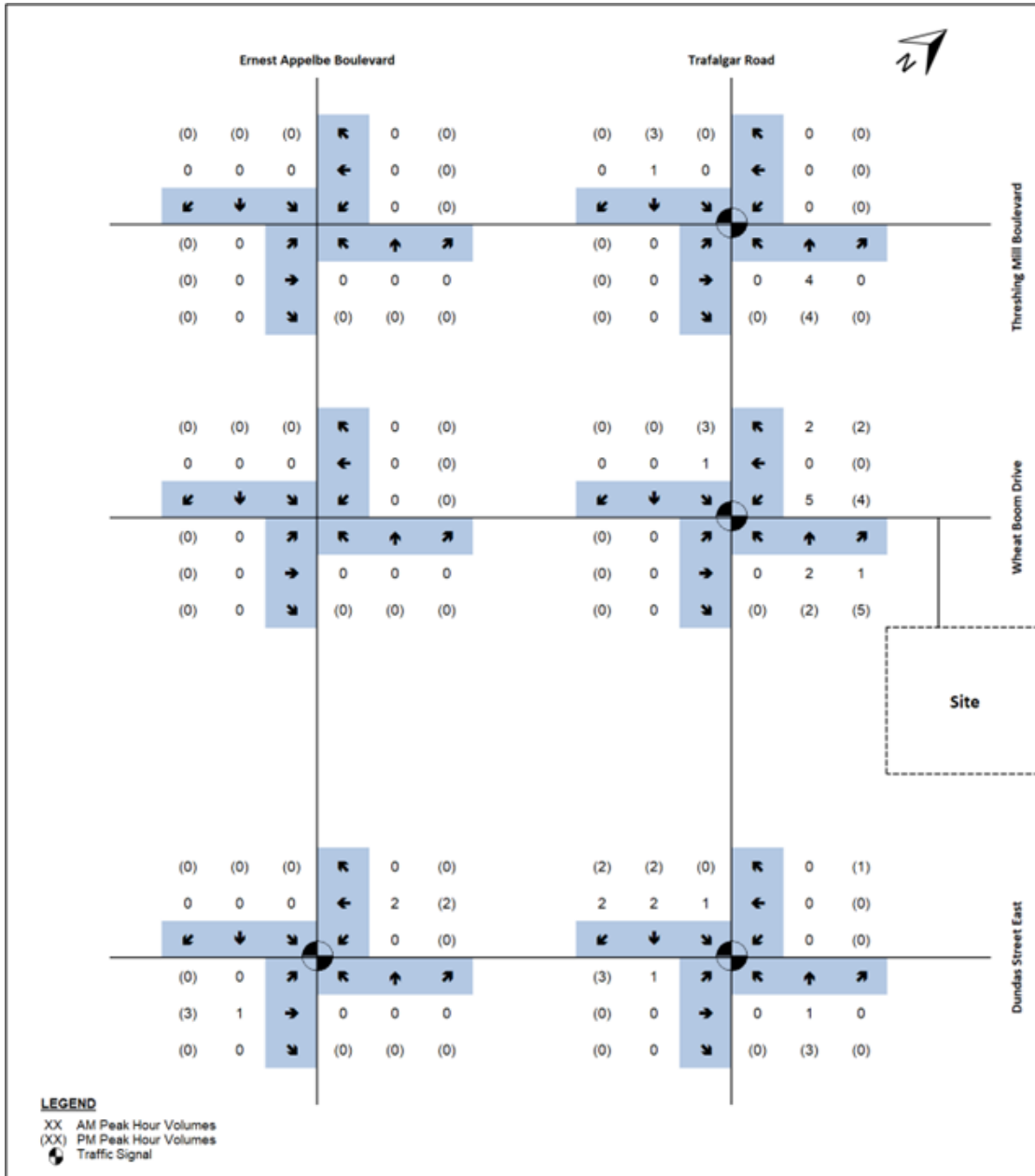


Figure 2

MC Oakville GP Inc

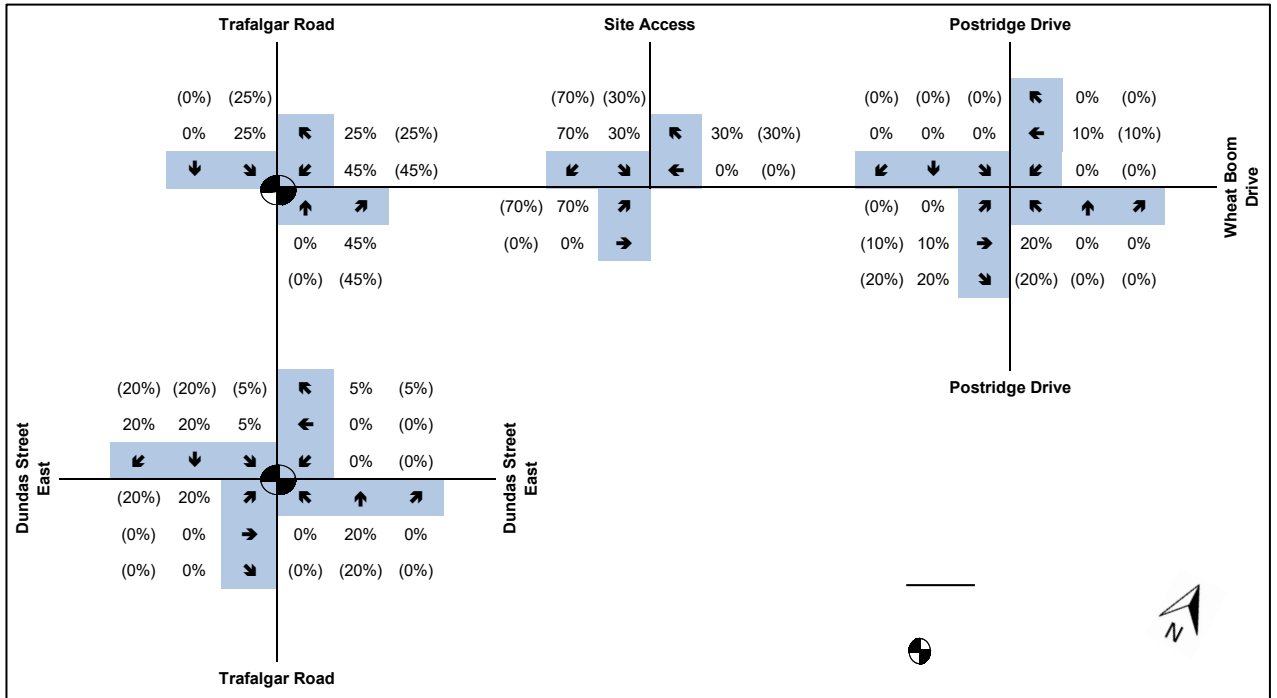


Figure 5: Trip Distribution Percentages

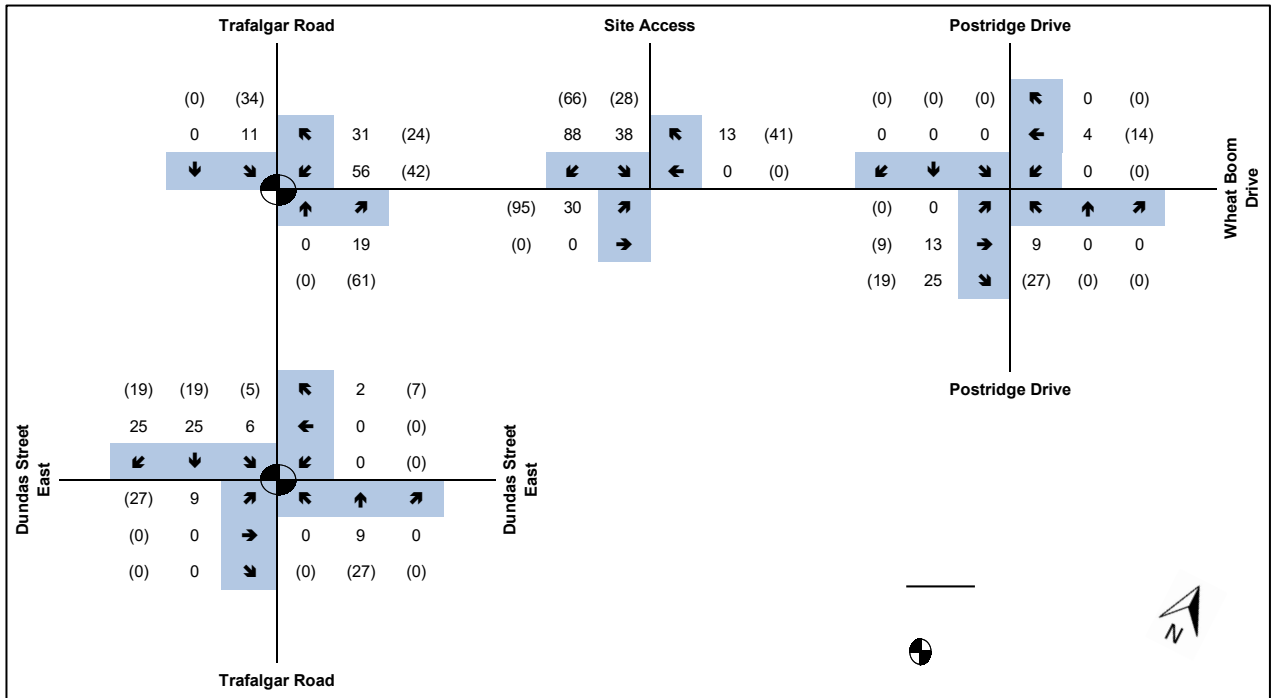


Figure 6: Site Generated Trips

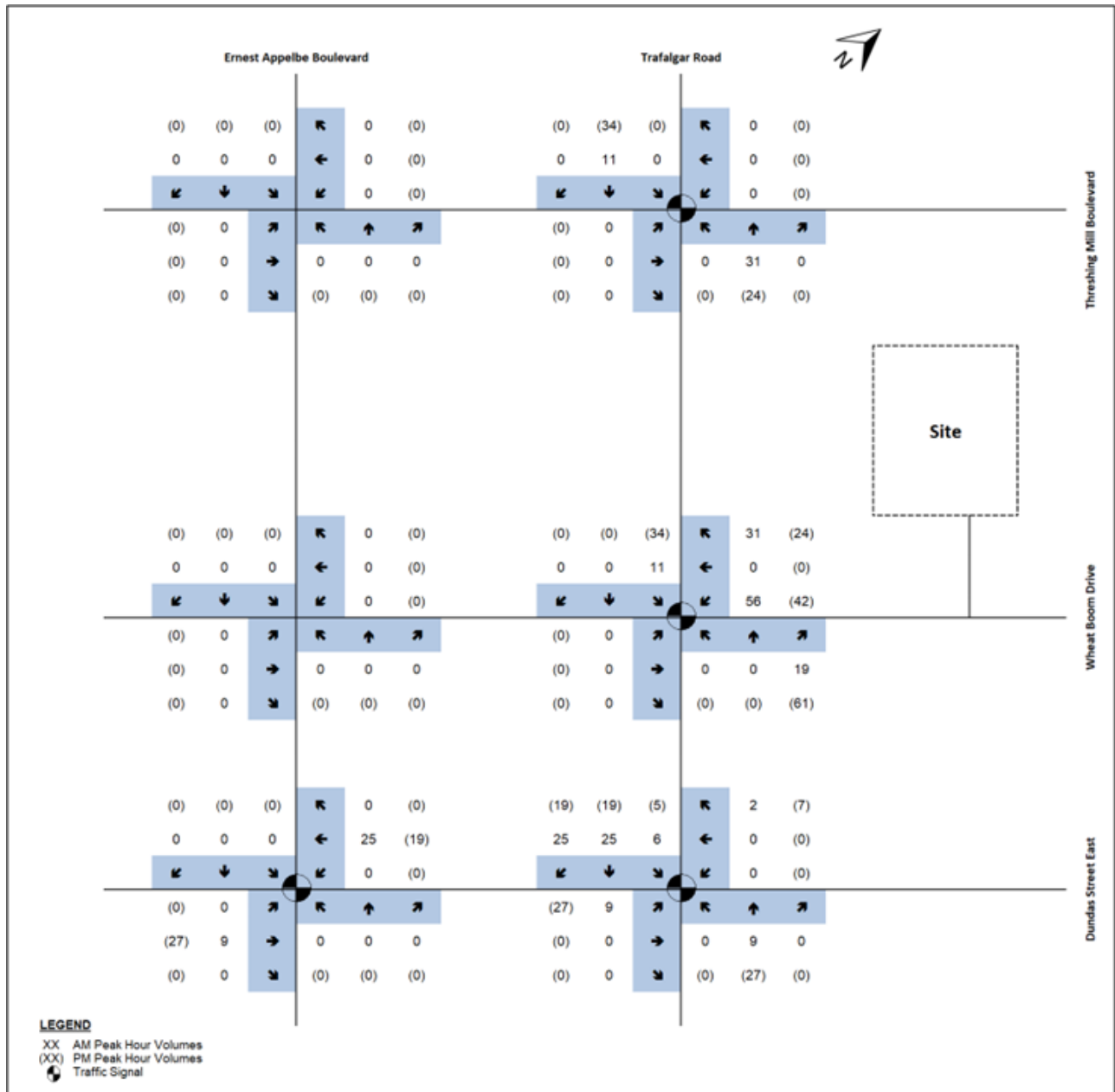


Figure 3 MC Oakvillage



The site trips generated by the proposed development assigned to the adjacent road network during the weekday AM and PM peak hours is shown in **Figure 6**.

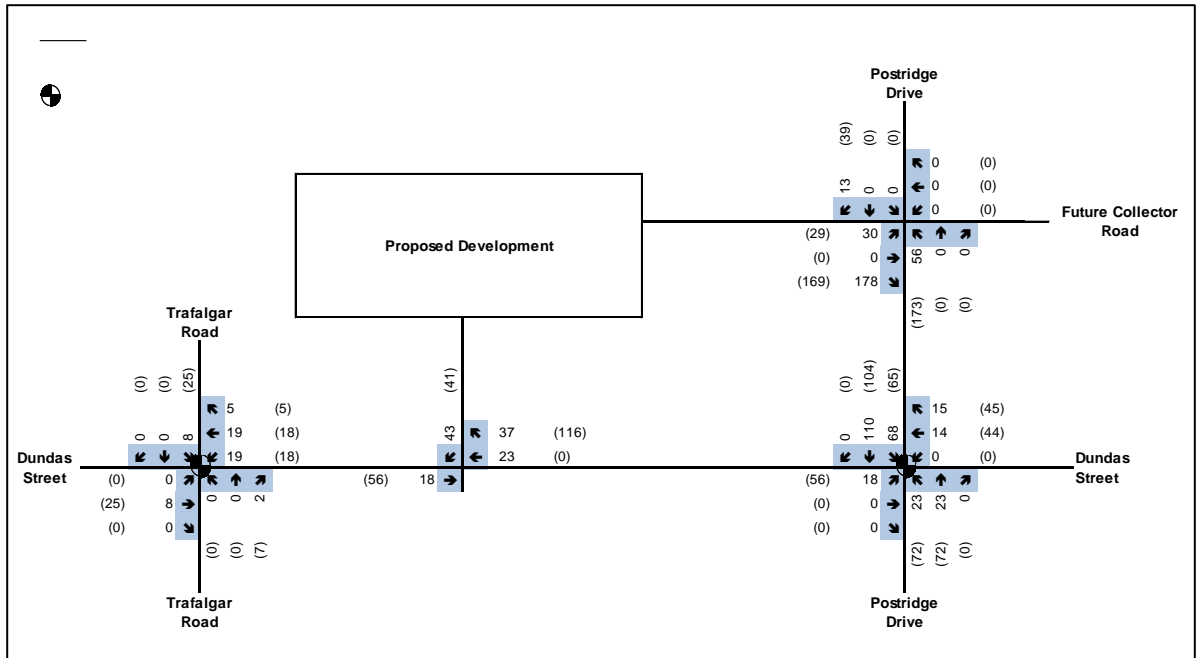


Figure 6 Estimated Site Trips

5.4 Vehicle swept Path Analysis

Vehicle swept path analysis was undertaken for Regional waste collection vehicles and MSU (medium-sized unit) delivery vehicles servicing the proposed site. The results of the analysis, which are provided in **Appendix D**, confirm the proposed site plan can accommodate the required movements of the aforementioned vehicle types.

6. Total Traffic Volumes

The future total traffic volumes in the weekday peak study hours for the 2020 and 2023 planning horizons were derived by combining the projected future background traffic with the corresponding estimate of site generated traffic.

Figure 7 and **Figure 8** summarize the peak hour future total traffic volumes assigned to the study area for the 2020 and 2020 planning horizons, respectively.

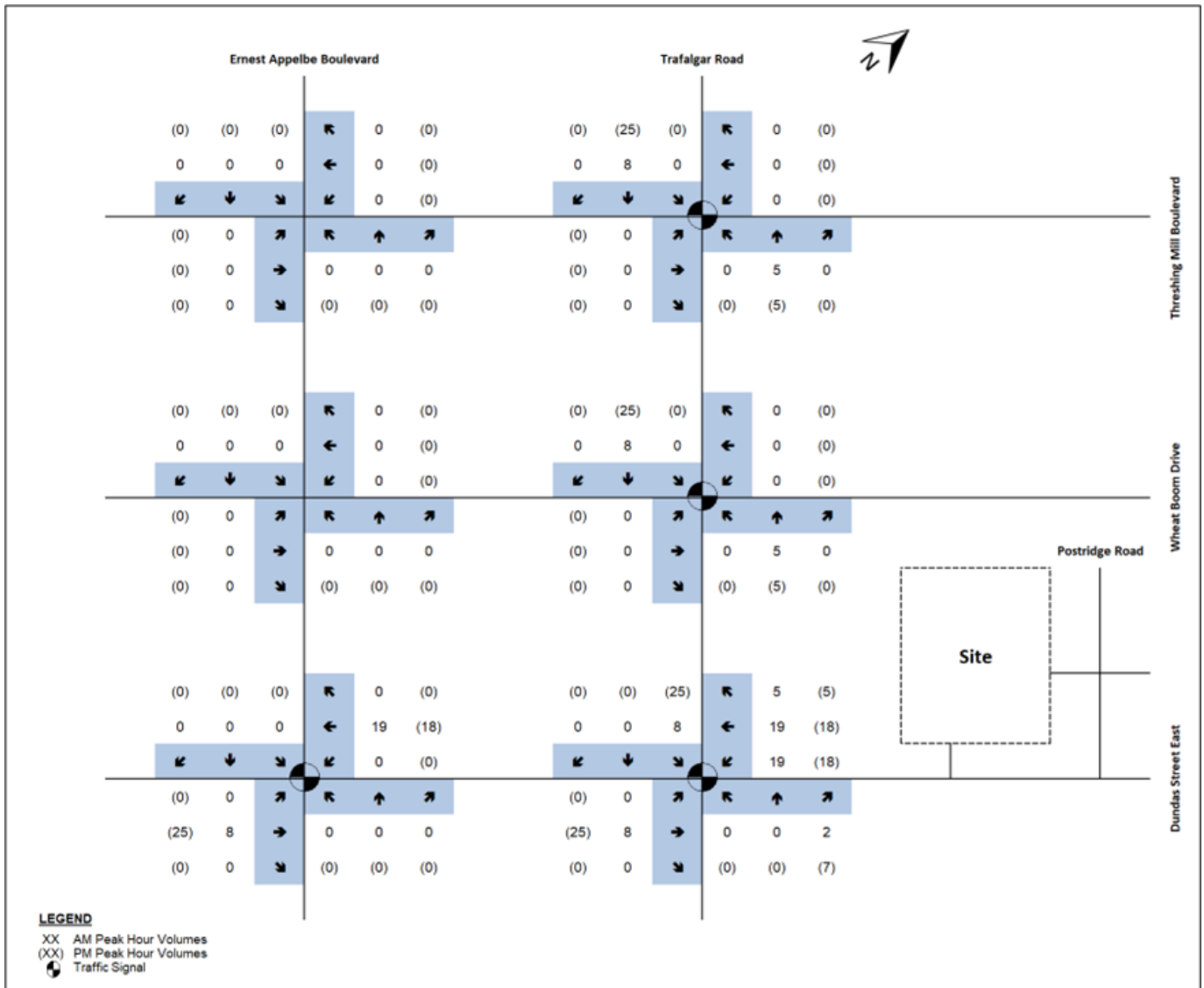


Figure 4 Oakville Block 14 & Emshih Developments

Table 5 summarizes the site’s trip generation with a 13% modal split applied. The site is forecast to generate approximately 178 new AM peak hour trips and 211 new PM peak hour trips.

When modal split is considered, the subject site is forecast to generate approximately seven (7) more vehicle trips during the AM peak hour and approximately ten (10) more vehicle trips during the PM peak hour than what was estimated in the September TIS.

The expected change in trip generation is well within the daily variation of traffic along Trafalgar Road. The operational results in the September TIS can be relied upon in assessing the site’s transportation impacts.

TABLE 5: TRIP GENERATION WITH MODAL SPLIT

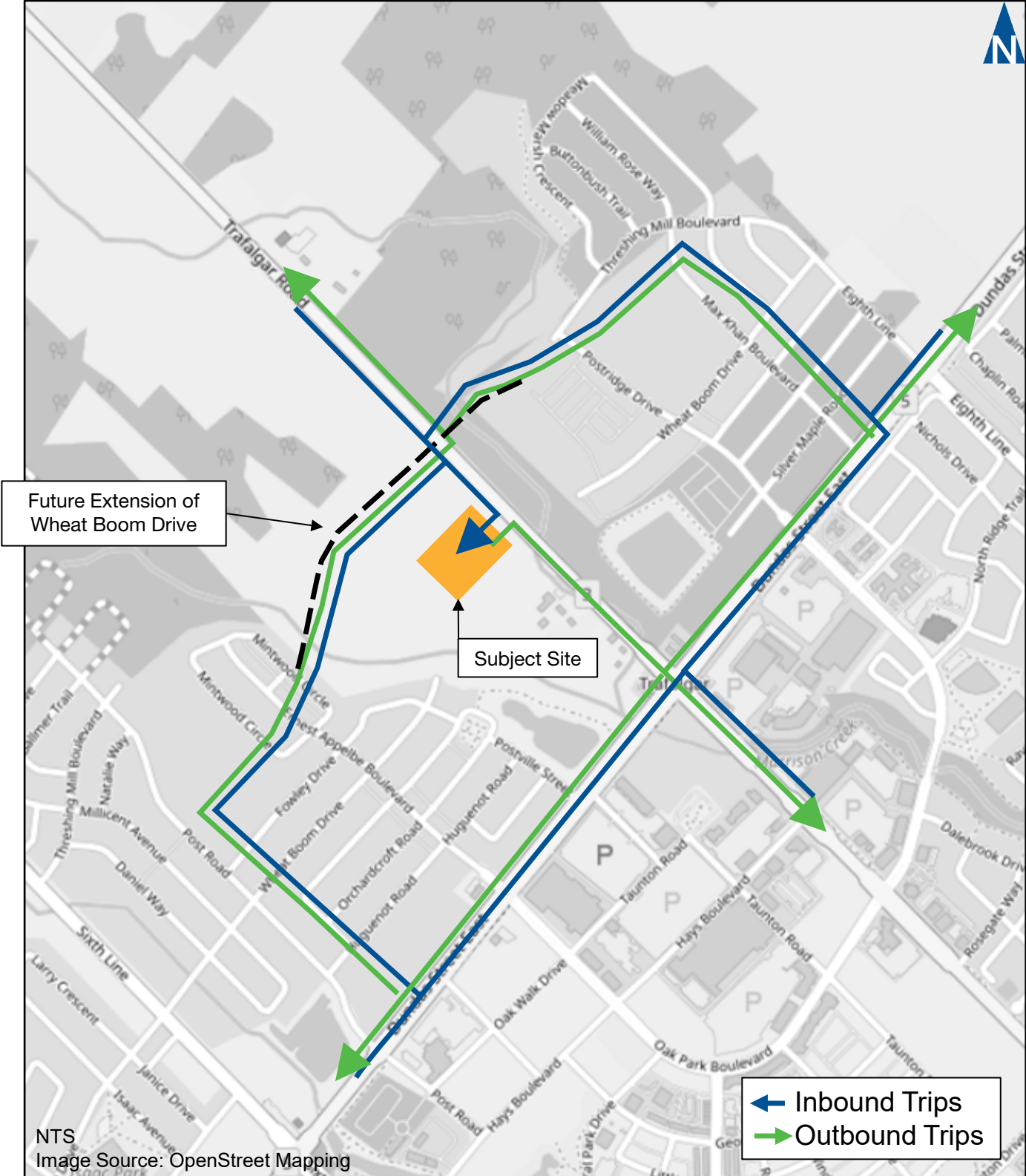
Land Use	Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
ITE 222 – Multifamily Housing (High-Rise)	686	49	156	205	147	95	242
Modal Split Reduction	13%	-6	-20	-27	-19	-12	-31
Net Trip Generation		43	136	178	128	83	211
September 2019 TIS Net Trip Generation		41	129	171	123	78	201
Difference		2	7	7	5	5	10

Halton Comment 24

TIS states “To assess the implications of the combination of mixed traffic lanes and HOV Lanes, the analyses assumed that the HOV lanes would carry 20 percent of overall through traffic on Trafalgar Road and Dundas Street West in addition to the right-turning traffic. Since HOV lanes cannot be explicitly modelled in Synchro, this required a two-step modelling process:-For the first model, Trafalgar Road and Dundas Street East was assumed to operate with two (2) through lanes in each direction, carrying 80 percent of through traffic and no right-turns. Left-turns and cross-street operations on Wheat Boom Drive were modelled as forecast; and-For the second model, the remaining 20 percent of through traffic and all right-turns were placed into a [single] shared through lane on Trafalgar Road and Dundas Street East while keeping the right-turn lanes at the signalized intersections.” Confirmation is required that this modeling method will provide results that are similar/same as assuming a 0.80 lane utilization factor applied in support of the assumption that 20% of lane capacity will be assigned to HOV usage.

Response

Supplementary analysis has been completed for the Year 2024 total traffic horizon for the study area intersections with a 0.80 lane utilization factor applied. **Table 6A-B** summarizes the level of service conditions for the AM and PM peak hours. The operational tables also provide a comparison to the results outlined in the September TIS.



Site Generated Traffic Routing Options

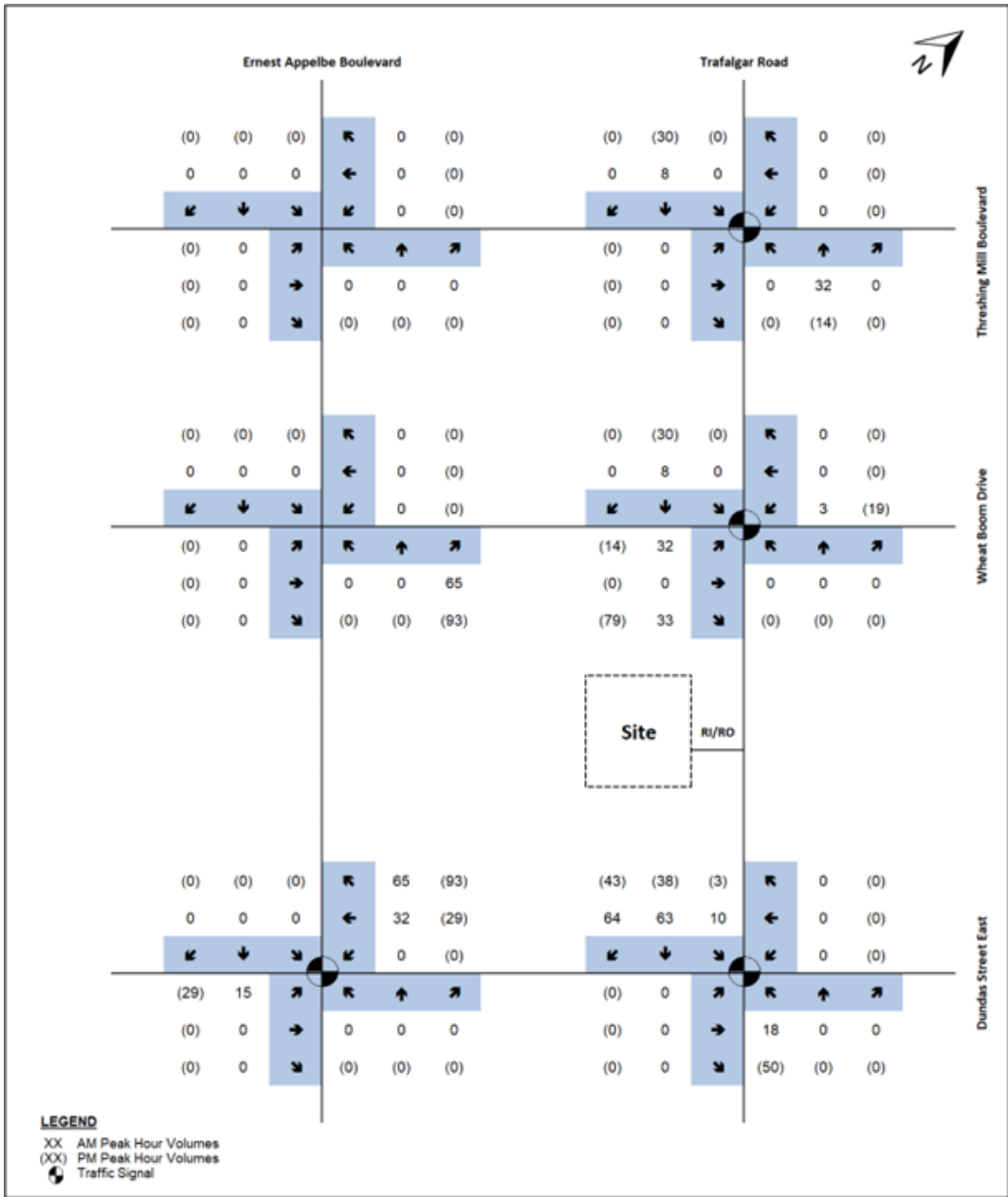


Figure 5 3064 Trafalgar Road Inc.

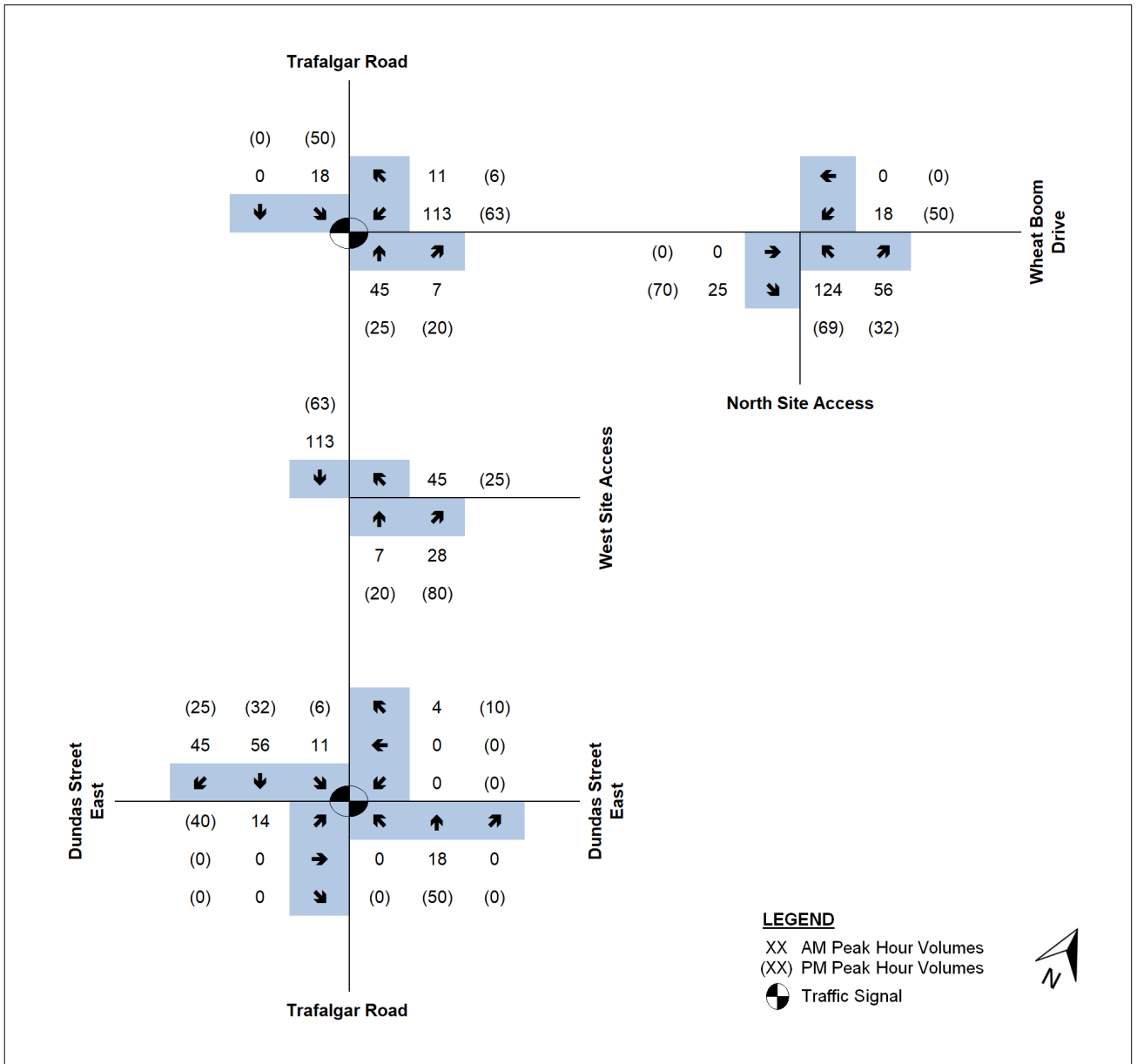


Figure 8 Site Trips Assignment

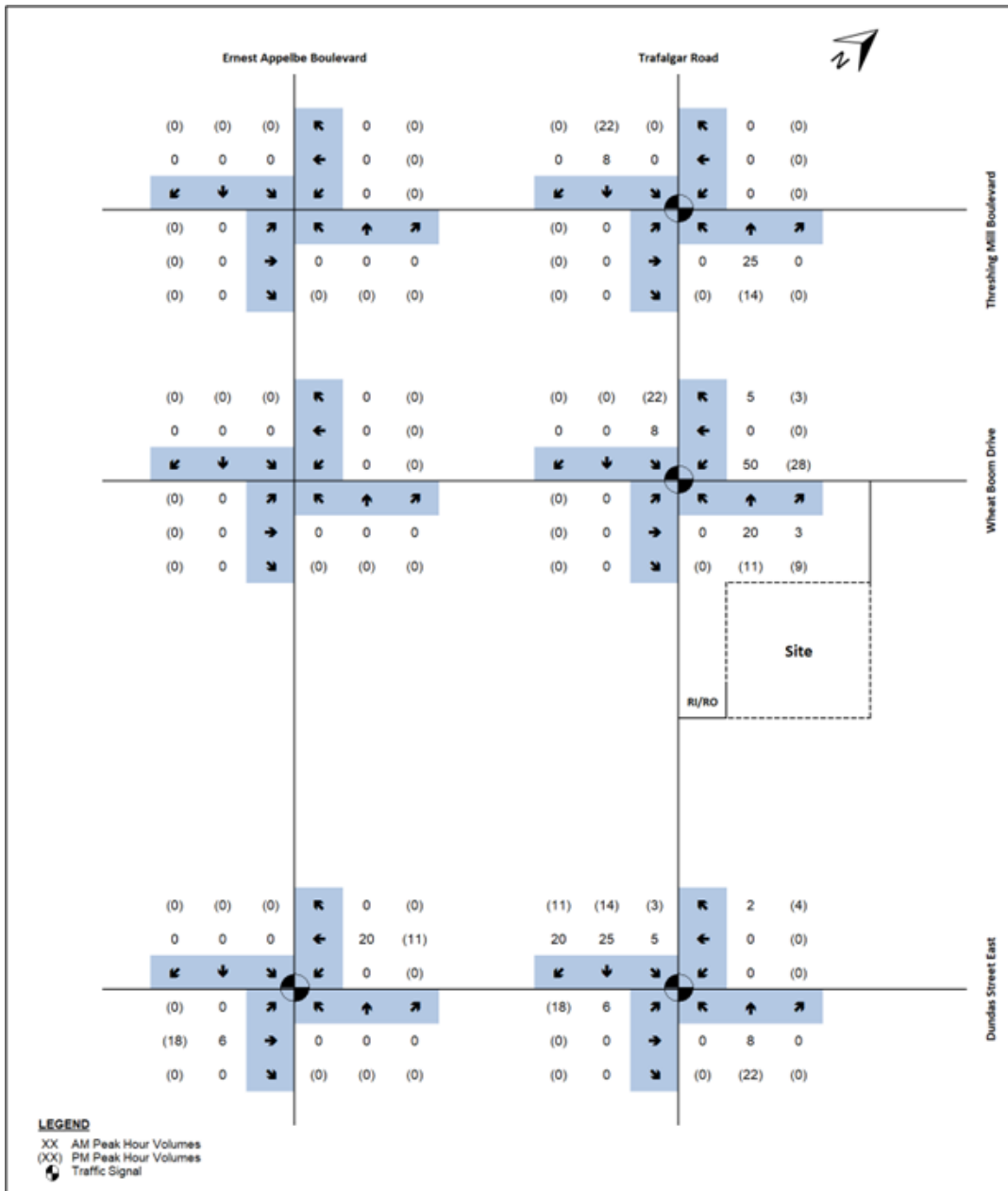


Figure 6 MC Oakville Phase 4A/B

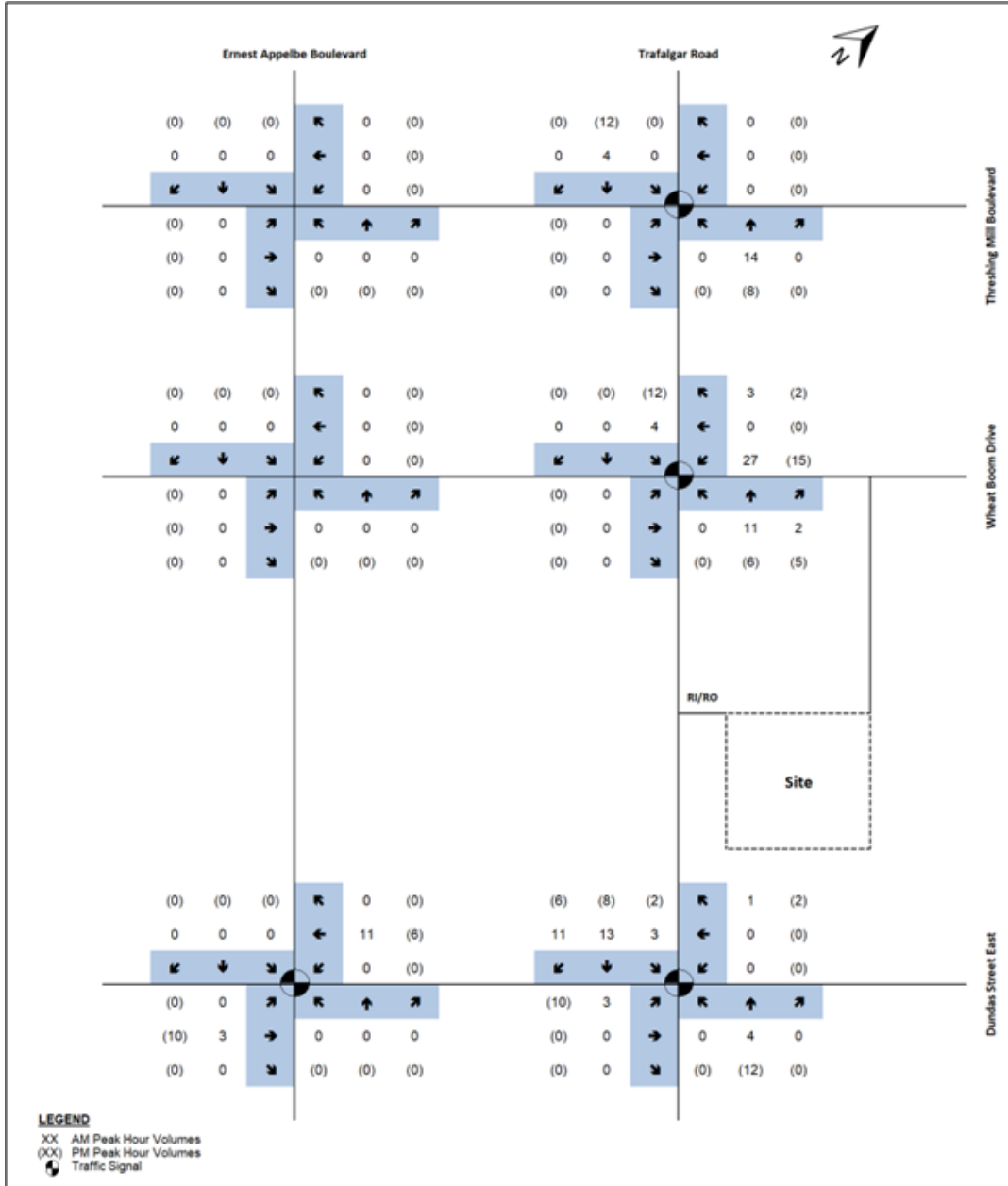


Figure 7 MC Oakville Phase 4 C

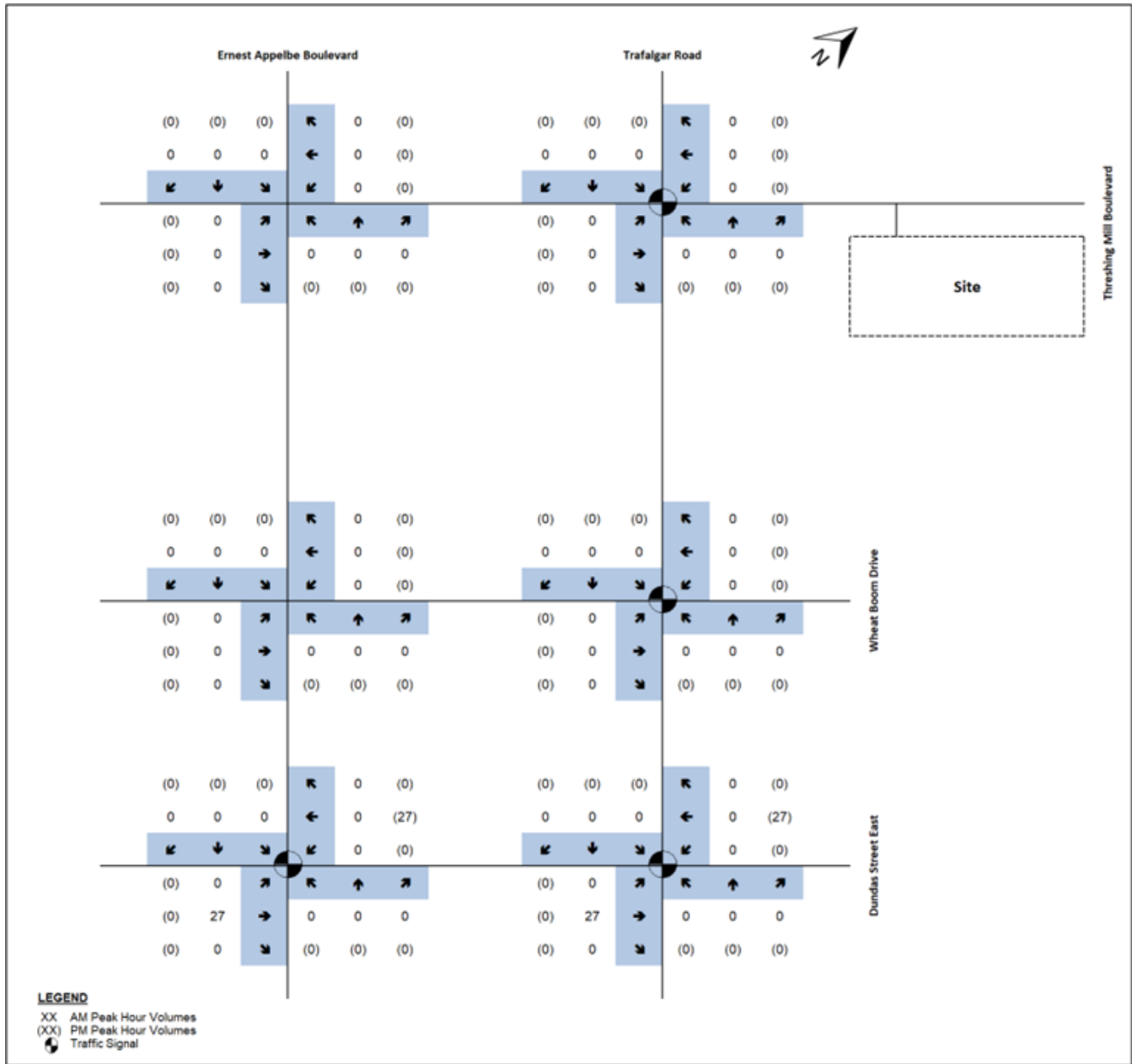


Figure 8 HCDSB North Oakville #4 Elementary School (Future Background 2027 Only)

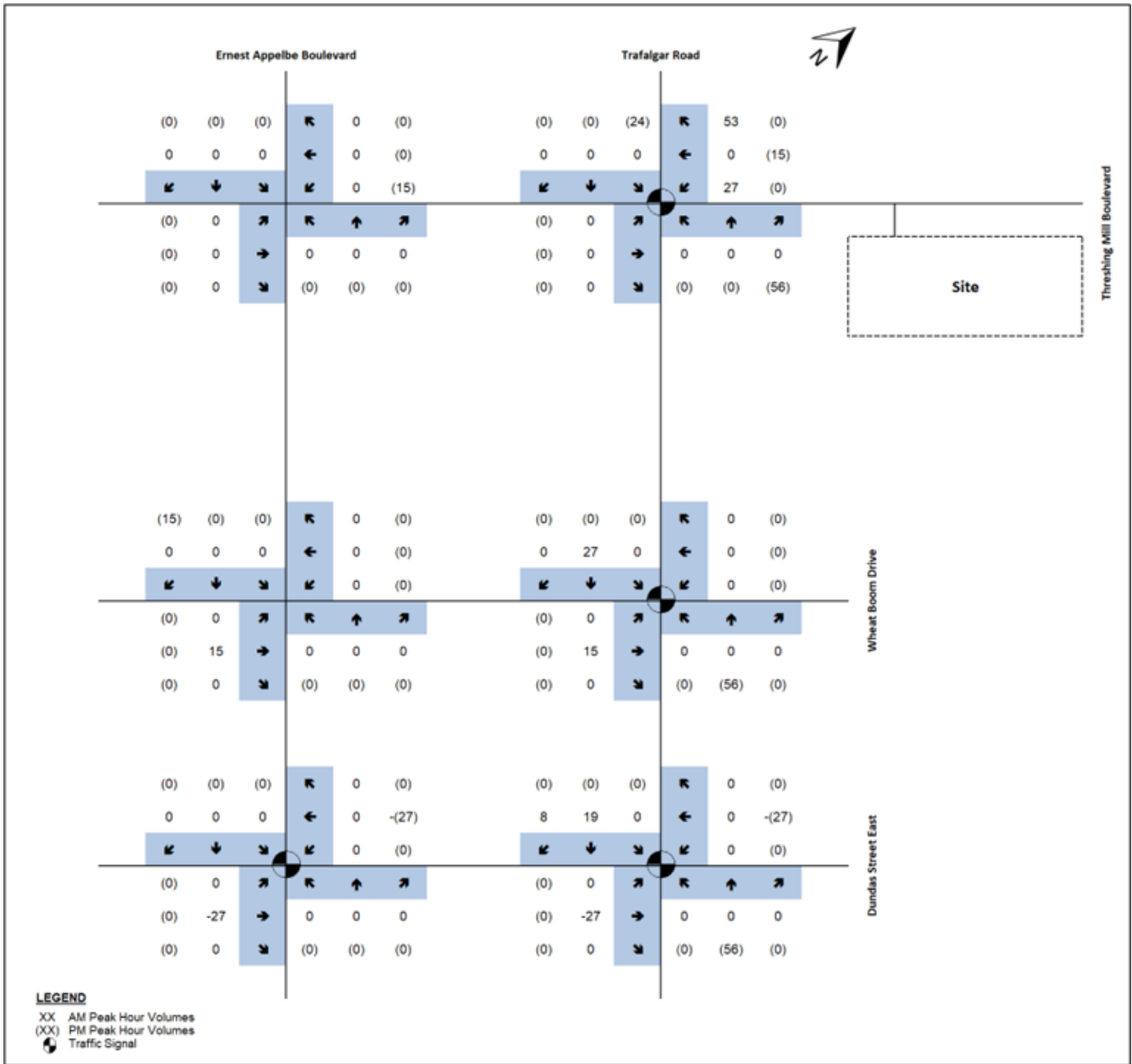


Figure 8 HCDSB North Oakville #4 Elementary School ((Future Total 2027 Onwards))

Appendix E

Transportation Tomorrow Survey 2016

AM Outbound

Tue Jan 18 2022 16:18:39 GMT-0500 (Eastern Standard Time) - Run Time: 2688ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
 Column: 2006 GTA zone of origin - gta06_orig

RowG:
 ColG:(4181,4182,4183)
 TblG:

Filters:
 Start time of trip - start_time In 600-900

Trip 2016
 Table:

.1	N	S	E	W	N Trips	S Trips	E Trips	W Trips
PD 1 of Toronto	502	0.333333	0.333333	0.333333	167.3333	167.3333	167.3333	0
PD 3 of Toronto	37	0.333333	0.333333	0.333333	12.33333	12.33333	12.33333	0
PD 4 of Toronto	27	0.333333	0.333333	0.333333	9	9	9	0
PD 5 of Toronto	21	0.333333	0.333333	0.333333	7	7	7	0
PD 7 of Toronto	18	0.333333	0.333333	0.333333	6	6	6	0
PD 8 of Toronto	60	0.333333	0.333333	0.333333	20	20	20	0
PD 10 of Toron	27	1			27	0	0	0
PD 11 of Toron	58	0.333333	0.333333	0.333333	19.33333	19.33333	19.33333	0
PD 12 of Toron	33	1			33	0	0	0
PD 13 of Toron	22	0.333333	0.333333	0.333333	7.333333	7.333333	7.333333	0
PD 16 of Toron	65	0.333333	0.333333	0.333333	21.66667	21.66667	21.66667	0
Oshawa		0.5	0.5		0	0	0	0
Vaughan	96	1			96	0	0	0
Caledon		1			0	0	0	0
Brampton	129	1			129	0	0	0
Mississauga	1112	0.333333	0.333333	0.333333	370.6667	370.6667	370.6667	0
Halton Hills		1			0	0	0	0
Milton	20	1			20	0	0	0
Oakville	1979		0.5		0.5	0	989.5	0
Burlington	128		0.5		0.5	0	64	0
Flamborough		0.333333	0.333333		0.333333	0	0	0
Hamilton	185	0.333333	0.333333		0.333333	61.66667	61.66667	0
Lincoln	14	0.5	0.5		7	7	0	0
Niagara-on-the-	16		1		0	16	0	0
St. Catharines	42	0.5	0.5		21	21	0	0
Waterloo	36	1			36	0	0	0
Brantford	46	0.5	0.5		23	23	0	0
Erin		1			0	0	0	0

4673

North	South	East	West
1094.333	1822.833	640.6667	1115.167
23%	39%	14%	24%

AM Inbound

Tue Jan 18 2022 16:21:44 GMT-0500 (Eastern Standard Time) - Run Time: 2459ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
 Column: 2006 GTA zone of destination - gta06_dest

RowG:
 ColG:(4181,4182,4183)
 TblG:

Filters:
 Start time of trip - start_time In 600-900

Trip 2016
 Ontario

.1	N	S	E	W	N Trips	S Trips	E Trips	W Trips
PD 1 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
PD 3 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
PD 4 of Toronto	15	0.333333	0.333333	0.333333	5	5	5	0
PD 5 of Toronto	29	0.333333	0.333333	0.333333	9.666667	9.666667	9.666667	0
PD 7 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
PD 8 of Toronto	10	0.333333	0.333333	0.333333	3.333333	3.333333	3.333333	0
PD 10 of Toron	13	1			13	0	0	0
PD 11 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
PD 12 of Toronto		1			0	0	0	0
PD 13 of Toron	19	0.333333	0.333333	0.333333	6.333333	6.333333	6.333333	0
PD 16 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
Oshawa		0.5	0.5		0	0	0	0
Vaughan	14	1			14	0	0	0
Caledon	14	1			14	0	0	0
Brampton		1			0	0	0	0
Mississauga	405	0.333333	0.333333	0.333333	135	135	135	0
Halton Hills	52	1			52	0	0	0
Milton	51	1			51	0	0	0
Oakville	1143		0.5		0.5	0	571.5	0
Burlington	389		0.5		0.5	0	194.5	0
Flamborough	35	0.333333	0.333333		0.333333	11.66667	11.66667	0
Hamilton	107	0.333333	0.333333		0.333333	35.66667	35.66667	0
Lincoln	14	0.5	0.5		7	7	0	0
Niagara-on-the-Lake			1		0	0	0	0
St. Catharines		0.5	0.5		0	0	0	0
Waterloo		1			0	0	0	0
Brantford		0.5	0.5		0	0	0	0
Erin	57	1			57	0	0	0

2367

North	South	East	West
414.6667	979.6667	159.3333	813.3333
18%	41%	7%	34%

TOTAL

		North	South	East	West	
AM	Outbound	23%	39%	14%	24%	100%
	Inbound	18%	41%	7%	34%	100%
PM	Outbound	17%	42%	7%	35%	100%
	Inbound	24%	39%	15%	22%	100%

PM Outbound

Tue Jan 18 2022 16:20:42 GMT-0500 (Eastern Standard Time) - Run Time: 2574ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
 Column: 2006 GTA zone of origin - gta06_orig

RowG:
 ColG:(4181,4182,4183)
 TblG:

Filters:
 Start time of trip - start_time In 1600-1900

Trip 2016
 Table:

.1	N	S	E	W	N Trips	S Trips	E Trips	W Trips
PD 1 of Toronto	18	0.333333	0.333333	0.333333	6	6	6	0
PD 3 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
PD 4 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
PD 5 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
PD 7 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
PD 8 of Toronto	10	0.333333	0.333333	0.333333	3.333333	3.333333	3.333333	0
PD 10 of Toronto		1			0	0	0	0
PD 11 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
PD 12 of Toronto		1			0	0	0	0
PD 13 of Toronto	19	0.333333	0.333333	0.333333	6.333333	6.333333	6.333333	0
PD 16 of Toronto		0.333333	0.333333	0.333333	0	0	0	0
Oshawa		0.5	0.5		0	0	0	0
Vaughan		1			0	0	0	0
Caledon		1			0	0	0	0
Brampton	63	1			63	0	0	0
Mississauga	472	0.333333	0.333333	0.333333	157.3333	157.3333	157.3333	0
Halton Hills	41	1			41	0	0	0
Milton	56	1			56	0	0	0
Oakville	1507		0.5		0	753.5	0	753.5
Burlington	201		0.5		0	100.5	0	100.5
Flamborough	18	0.333333	0.333333	0.333333	6	6	0	6
Hamilton	107	0.333333	0.333333	0.333333	35.66667	35.66667	0	35.66667
Lincoln		0.5	0.5		0	0	0	0
Niagara-on-the-Lake			1		0	0	0	0
St. Catharines		0.5	0.5		0	0	0	0
Waterloo		1			0	0	0	0
Brantford		0.5	0.5		0	0	0	0
Erin	57	1			57	0	0	0

2569

North	South	East	West
431.6667	1068.667	173	895.6667
17%	42%	7%	35%

PM Inbound

Tue Jan 18 2022 16:21:25 GMT-0500 (Eastern Standard Time) - Run Time: 3021ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
 Column: 2006 GTA zone of destination - gta06_dest

RowG:
 ColG:(4181,4182,4183)
 TblG:

Filters:
 Start time of trip - start_time In 1600-1900

Trip 2016
 Table:

.1	N	S	E	W	N Trips	S Trips	E Trips	W Trips
PD 1 of Toronto	539	0.333333	0.333333	0.333333	179.6667	179.6667	179.6667	0
PD 3 of Toronto	89	0.333333	0.333333	0.333333	29.66667	29.66667	29.66667	0
PD 4 of Toronto	27	0.333333	0.333333	0.333333	9	9	9	0
PD 5 of Toronto	21	0.333333	0.333333	0.333333	7	7	7	0
PD 7 of Toronto	18	0.333333	0.333333	0.333333	6	6	6	0
PD 8 of Toronto	78	0.333333	0.333333	0.333333	26	26	26	0
PD 10 of Toronto	27	1			27	0	0	0
PD 11 of Toronto	37	0.333333	0.333333	0.333333	12.33333	12.33333	12.33333	0
PD 12 of Toronto	11	1			11	0	0	0
PD 13 of Toronto	22	0.333333	0.333333	0.333333	7.333333	7.333333	7.333333	0
PD 16 of Toronto	45	0.333333	0.333333	0.333333	15	15	15	0
Oshawa	19	0.5	0.5		9.5	9.5	0	0
Vaughan	76	1			76	0	0	0
Caledon		1			0	0	0	0
Brampton	87	1			87	0	0	0
Mississauga	1165	0.333333	0.333333	0.333333	388.3333	388.3333	388.3333	0
Halton Hills		1			0	0	0	0
Milton	16	1			16	0	0	0
Oakville	1800		0.5		0	900	0	900
Burlington	82		0.5		0	41	0	41
Flamborough		0.333333	0.333333	0.333333	0	0	0	0
Hamilton	171	0.333333	0.333333	0.333333	57	57	0	57
Lincoln		0.5	0.5		0	0	0	0
Niagara-on-the-Lake	16		1		0	16	0	0
St. Catharines	27	0.5	0.5		13.5	13.5	0	0
Waterloo	66	1			66	0	0	0
Brantford	35	0.5	0.5		17.5	17.5	0	0
Erin		1			0	0	0	0

4474

North	South	East	West
1060.833	1734.833	680.3333	998
24%	39%	15%	22%

outbound am

Wed Jan 26 2022 14:36:00 GMT-0500 (Eastern Standard Time) - Run Time: 3216ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
 Column: 2006 GTA zone of origin - gta06_orig

RowG:
 ColG:(4034,4035,4037)
 TblG:

Filters:
 Start time of trip - start_time In 600-900

Trip 2016
 Table:

.1		
Transit excludir	75	1%
Cycle	66	1%
Auto driver	5564	66%
GO rail only	461	5%
Joint GO rail ar	213	3%
Auto passenge	1132	13%
School bus	445	5%
Taxi passenger		0%
Paid rideshare		0%
Walk	431	5%
8387		

AM TOTAL

Transit excluding GO rail	161	1%
Cycle	283	2%
Auto driver	9444	66%
GO rail only	461	3%
Joint GO rail and local transit	213	1%
Auto passenger	1914	13%
School bus	546	4%
Taxi passenger	0	0%
Paid rideshare	0	0%
Walk	1212	9%
14234		

inbound am

Wed Jan 26 2022 14:37:20 GMT-0500 (Eastern Standard Time) - Run Time: 2719ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
 Column: 2006 GTA zone of destination - gta06_dest

RowG:
 ColG:(4034,4035,4037)
 TblG:

Filters:
 Start time of trip - start_time In 600-900

Trip 2016
 Table:

.1		
Transit excludir	86	1%
Cycle	217	4%
Auto driver	3880	66%
GO rail only		0%
Joint GO rail and local transit		0%
Auto passenge	782	13%
School bus	101	2%
Taxi passenger		0%
Paid rideshare		0%
Walk	781	13%
5847		

outbound pm

Wed Jan 26 2022 14:36:37 GMT-0500 (Eastern Standard Time) - Run Time: 2709ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
 Column: 2006 GTA zone of origin - gta06_orig

RowG:
 ColG:(4034,4035,4037)
 TblG:

Filters:
 Start time of trip - start_time In 1600-1900

Trip 2016
 Table:

.1		
Transit excludir	150	2%
Cycle	76	1%
Auto driver	5235	74%
GO rail only		0%
Joint GO rail ar	79	1%
Auto passenge	1234	18%
School bus		0%
Taxi passenger	14	0%
Paid rideshare		0%
Walk	251	4%
7039		

PM TOTAL

Transit excludir	305	2%
Cycle	217	1%
Auto driver	12312	74%
GO rail only	409	2%
Joint GO rail ar	268	2%
Auto passenger	2848	17%
School bus	16	0%
Taxi passenger	14	0%
Paid rideshare	23	0%
Walk	295	2%
16707	100%	

inbound pm

Wed Jan 26 2022 14:37:06 GMT-0500 (Eastern Standard Time) - Run Time: 2662ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
 Column: 2006 GTA zone of destination - gta06_dest

RowG:
 ColG:(4034,4035,4037)
 TblG:

Filters:
 Start time of trip - start_time In 1600-1900

Trip 2016
 Table:

.1		
Transit excludir	155	2%
Cycle	141	1%
Auto driver	7077	73%
GO rail only	409	4%
Joint GO rail ar	189	2%
Auto passenge	1614	17%
School bus	16	0%
Taxi passenger		0%
Paid rideshare	23	0%
Walk	44	0%
9668		

Transportation	Percentage Split	
	AM	PM
Transit	6%	6%
Auto driver	66%	74%
Auto passer	17%	17%
Active Tra	11%	3%
TOTAL	100%	100%

