



# **Joshua Creek Phase 4 Proposed Residential Development**

## **Traffic Impact Study**

**GHD** | 6705 Millcreek Drive Mississauga Ontario L5N 5M4 Canada  
11194035 | 800 | Report No 1 | April 2020



## Executive Summary

GHD was retained to prepare an Traffic Impact Study (TIS) in support of the proposed Joshua Creek Phase 4 residential development located within the Bressa Draft plan north of Dundas Street and east of 8<sup>th</sup> Line within the North Oakville East Secondary Plan in the Town of Oakville. This report is an update to a previous traffic study undertaken by GHD for phase 1 and 2 of the Dunoak and Bressa draft plan and determines the site related traffic and the subsequent traffic-related impacts on the adjacent road network during the weekday a.m. and p.m. peak hours from the proposed Phase 4 of the development. These impacts are based on projected future background traffic and road network conditions derived for a 2022 and 2027 planning horizon.

### *Proposed Site Characteristics*

The subject site is located north of Dundas Street and east of 8<sup>th</sup> Line within North Oakville East Secondary Plan in the Town of Oakville. The site is readily accessible to pedestrians, public transit and vehicular traffic.

The findings of the draft Plan review found that significant road user safety concerns pertaining to horizontal curves in road alignment and/or sightlines at internal site intersections were not identified, and it is expected that the proposed road network configuration will provide an acceptable level of road user safety.

### *New Site Traffic*

With a targeted 10% transit modal split, build-out of the proposed development is expected to generate approximately 96 new two-way vehicle trips during the a.m. peak hour consisting of 24 inbound and 72 outbound trips. During the p.m. peak hour it is expected to generate 129 new two-way vehicle trips consisting of 81 inbound and 48 outbound trips.

The distribution of site traffic was derived after reviewing the 2016 Transportation Tomorrow Survey (TTS) summary data for the Town of Oakville

### *Future Traffic Operations*

Existing capacity constraints have been identified at the intersection along Dundas Street East, which as expected will continue to worsen under future conditions with further corridor growth on and due to the implementation HOV lanes. It is recommended the Region review the intersection's operations, the adopted growth assumptions, and the existing intersection signal timings, to determine where further intersection improvements can be made to mitigate the existing and future capacity constraints.

Under future 2022 and 2027 conditions, the incremental impact of the site generated traffic is expected to be nominal, with no recommended geometric improvements to the study area intersections in response to the subject development. While several intersections and specific movements are expected to operate with reduced capacity and some operational concerns, these are a direct result of background corridor growth and background development traffic. Any recommended improvements are in response to the background traffic demands.



The intersection of Ninth Line at Dundas Street East is expected to be nearing capacity under 2022 future background conditions as a result of general corridor growth and build-out of nearby background developments, with similar operating characteristics continuing into the 2027 future total conditions with the addition of site generated traffic. It is expected that upon build-out of the subject development and the surrounding future developments, the Region will be optimizing signal timings and overall coordination of the Dundas Street East corridor in response to expected changes in traffic flow.

***Recommended Geometric Improvements***

With the future planned cross-section along Dundas Street East there are no additional required/recommended geometric improvements along the Dundas Street East corridor.

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

GHD



William Maria, P. Eng.  
Senior Project Manager



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# 1. Introduction

## 1.1 Objective and Retainer

GHD Ltd. was retained to prepare a Transportation Impact Study and Transit Facilities Plan for the proposed Joshua Creek Phase 4, located north of Dundas Street and east of 8<sup>th</sup> Line within North Oakville East Secondary Plan in the Town of Oakville.

The following key issues are addressed by this study:

- Establish baseline traffic conditions for the study area and update the existing traffic conditions to derive the future background operating conditions for the study intersections at a future 2022 and 2027 planning horizon;
- Apply Institute of Transportation Engineer's (ITE) Trip Generation data to estimate traffic generation and distribute the development traffic to the adjacent road network to determine the future impacts in the context of all local transportation modes;
- Determine existing and future (background and total) traffic conditions during the critical peak hours by conducting intersectional capacity analysis; and,
- Review the site plan in the context of operational, geometric and safety issues, and provide recommendations on how to address any deficiencies (if any are revealed) by identifying the transportation system requirements and ensuring that sufficient intersection capacity is available to accommodate the additional site generated traffic on the adjacent road network.

# 2. Site Characteristics

## 2.1 Site Location

The subject site is located north of Dundas Street and east of Meadowridge Drive and forms Phase 4 of the Joshua Creek Composite Plan that falls under Bressa Subdivision in the Town of Oakville. The location of the site within the local transportation network is shown in **Figure 1**.

The subject site's location provides access to the collector and arterial roadway network and exposes future residents to frequent transit service on Dundas Street West.



**Figure 1 Site Location**

## 2.2 Study Area

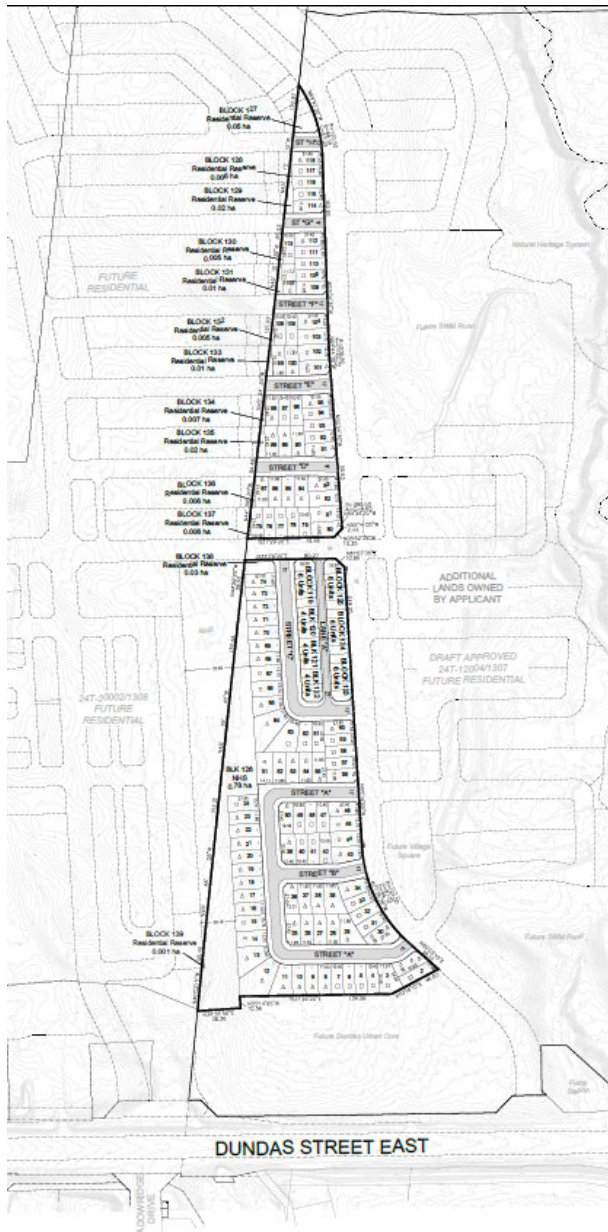
The study area includes the following intersections which is consistent with the previous traffic impact study completed for the Bressa and Dunoak subdivisions:

- Dundas Street with Eight Line;
- Dundas Street with Prince Michael Drive;
- Dundas Street with Meadowridge Drive;
- Dundas Street with Street A; and
- Dundas Street with Ninth Line

All intersections currently exist and operate as signalized intersections within the study area.

## 2.3 Site Plan

A site plan for the subject site was prepared by Korsiak Urban Planning is shown in **Figure 2**.



**Figure 2 Phase 4 Site Plan**

## 2.4 Site Plan Characteristics

The proposed development consists of the following:

- 118 single-family detached homes;
- 36 townhouse units.

Access to Phase 4 is propose via Street A connection to Dundas Street with multiple intersection connections.





## 3. Existing Conditions

### 3.1 Existing Road network

The following describes the existing road infrastructure within the study area.

**Dundas Street East** is an east-west major arterial road under the jurisdiction of Halton Region fronting the southern limit of the site. It currently has a six lane urban cross-section with a posted speed limit of 70 km/h. Dundas Street West has a signalized intersection with Eighth Line, Prince Michael Drive, Meadowridge Drive and Ninth Line; consisting of auxiliary right and left-turn lanes in both the eastbound direction and westbound directions.

**Eighth Line** is a north-south collector road under the jurisdiction of Town of Oakville that currently forms a signalized intersection with Dundas Street West. It has a posted speed limit of 50 km/h. It consists of an auxiliary left-turn lane and a right-turn lane in the southbound direction at Dundas Street East, and only a single auxiliary left-turn in the northbound direction.

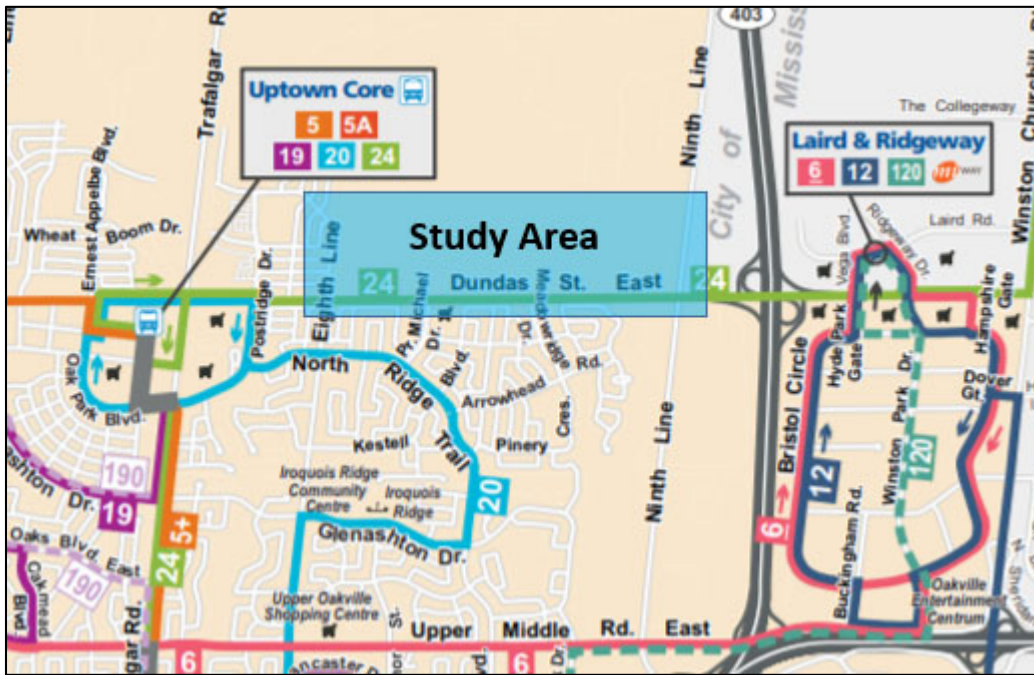
**Prince Michael Drive** is a north-south collector road under the jurisdiction of the Town of Oakville. It consists of dedicated protected bicycle lanes in both the northbound and southbound approach. It has a posted speed limit of 50 km/h.

**Ninth Line** is a north-south collector road under the jurisdiction of Halton Region. It currently has a four lane cross-section with a posted speed limit of 60 km/h. It forms a signalized intersection with Dundas Street East, consisting of auxiliary left-turn lane and right-turn lane in the southbound and dual auxiliary left-turn lane and right-turn lane in the northbound direction. It consists of dedicated protected bicycle lanes north of Dundas Street East, and shared bicycle lanes south of Dundas Street East.

### 3.2 Existing Transit Services

Within the study area, bus service is provide in close proximity to the site. Oakville Transit provides transit via Routes #24, #80 and #20. There is currently a bus terminal in close proximity, which provide many additional transit routes for passengers. Uptown Core Terminal is approximately 2.5 km west from the subject site.

A map for the transit route for Oakville Transit is illustrated below in **Figure 3**.



**Figure 3 Oakville Transit Routes**

***Oakville Transit Route 24 (South Common)***

Route 24 offers weekday and weekend service with approximately 15 minute headways during peak periods. There is currently a far side transit stops situated in the study area, at both westbound and eastbound approaches.

***Oakville Transit Route 20 (Northridge)***

Route 20 offers weekday and weekend service with approximately 15 minute headways during peak periods. There is currently a nearside transit stop situated at the intersection of Eighth Line and North Ridge Trail south of the study area.

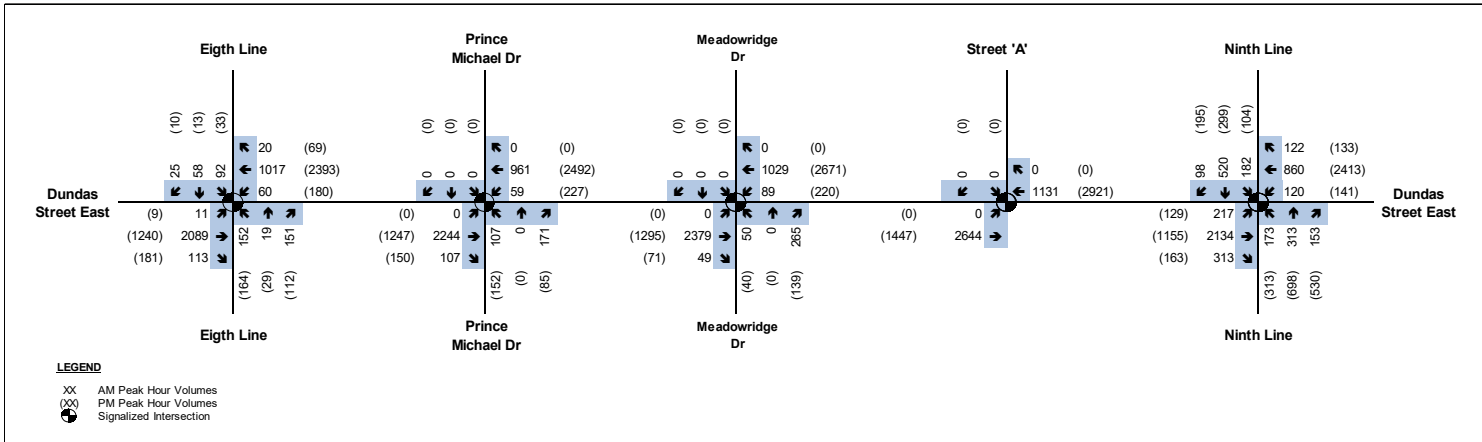
***Oakville Transit Route 80 (Holy Trinity SS)***

Route 80 offers weekday service only with one bus operating during peak periods. There is currently a nearside transit stop situated at the intersection of Eighth Line and North Ridge Trail south of the study area.

**3.3 Existing Traffic Data**

GHD collected turning movements' counts in February 2019 during the weekday a.m. and p.m. peak hours at each of the study intersections. Additionally, signal timing plans were provided by Halton Region for the signalized intersections along the corridor of Dundas Street East.

The turning movement counts and signal timing plans are included in **Appendix B. Figure 4** summarizes the existing 2019 traffic volumes during each of the peak hours.



**Figure 4 Existing Traffic volumes**

## 4. Background Traffic

### 4.1 Future Road Improvements

Regional long term road improvements have been identified within the study area, as per the Region's Transportation Master Plan. As a result of the planned improvements and input from staff, the analysis was based off the following:

- Existing 2019: Analyzed using existing 6 general lanes; and
- Future Conditions 2022 and 2027: Analyzed using 4 general lanes plus HOV lane.

### 4.2 Study Horizon Years

Planning horizons of 2022 and 2027 was selected to correspond with build-out in 2022 and a five year period from the anticipated build-out of the development.

### 4.3 Future Background Developments

Since this study builds upon the previous traffic work undertaken for the Dunoak and Bressa subdivisions, the following traffic impact studies were reviewed and used to forecast the future 2022 and 2027 background development traffic at the study area intersections were adopted from the studies accordingly:

- TIS completed by URS Canada Inc. in November 2013 for the proposed Shieldbay Developments subdivision development on the north side of Dundas Street East between Postridge Drive and Eight Line;
- TIS completed by Sernas Group Inc. (A GHD Company) in December 2012 for the proposed Minto Communities subdivision development located on the northeast corner of Dundas Street and Trafalgar Road; and



- TIS completed by GHD in February 2018 for the proposed Redoak residential subdivision development located at the northeast corner of Dundas Street East and Eight Line.
- TIS completed by GHD in April 2019 for the proposed Dunoak and Bressa residential subdivisions located north of Dundas Street between Eighth Line and Ninth Line.

The a.m. and p.m. peak hour site trips were used in establishing the future background traffic volumes for the horizon years. A copy of the proposed a.m. and p.m. peak hour site trips for each development are provided in **Appendix C**.

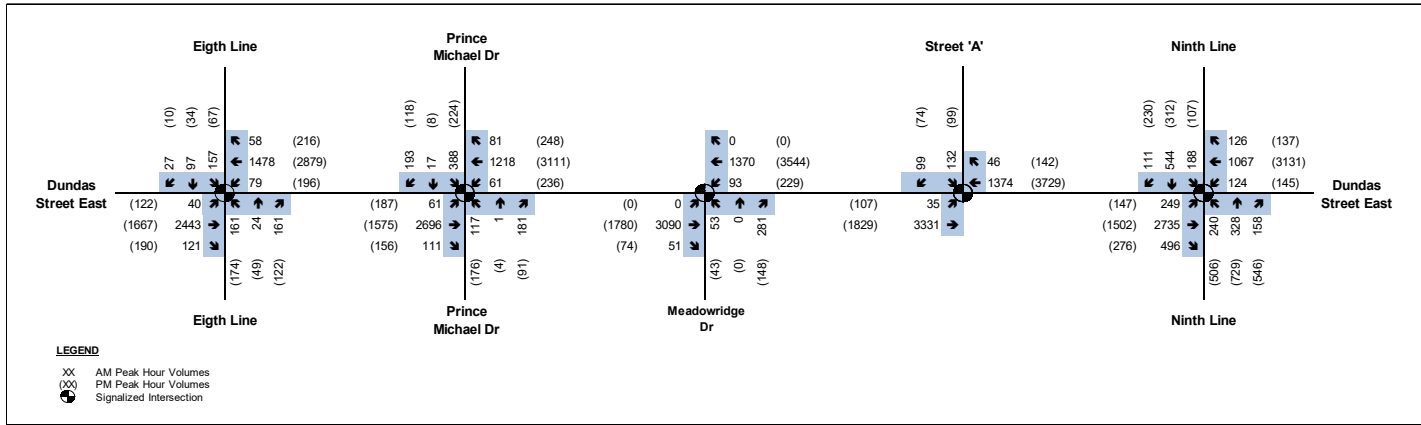
#### **4.4 Future Background Growth**

As advised by the Region, a 1.5% annual growth rate was adopted for Dundas Street East and Ninth Line during both study peak hours. This rate was applied to the through movements only at each of the regional jurisdiction intersections to account for general corridor growth.

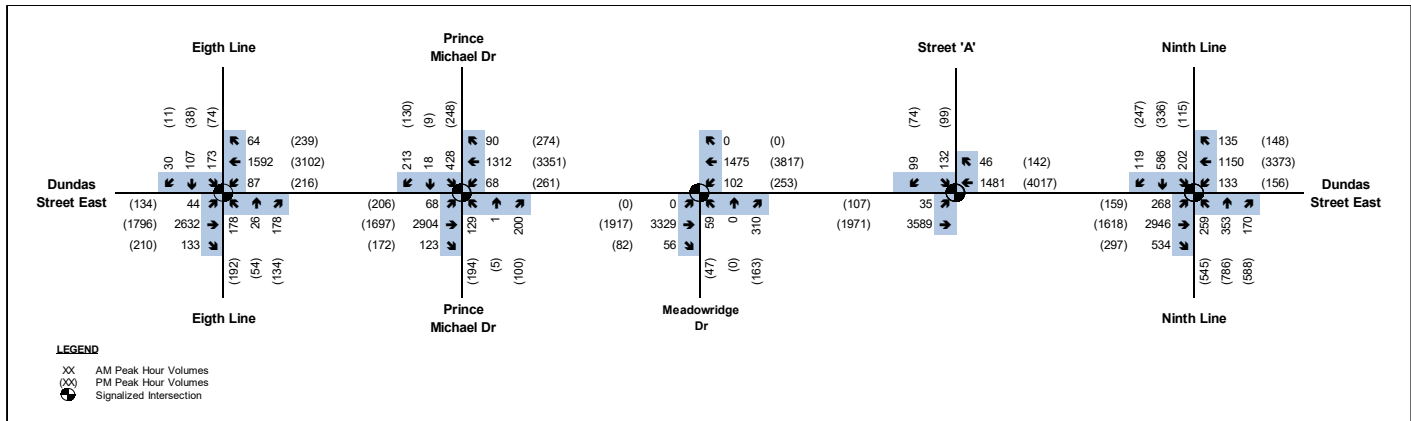
A conservative 2.0% annual growth rate was adopted and applied to all movements for the existing 2019 data for all Town jurisdiction corridors. This rate was applied to the through/turning movements at each of the town's jurisdiction intersections to account for general corridor growth.

#### **4.5 Future Total Background Traffic Volumes**

Future background traffic volumes were derived with the forecasted corridor growth volumes along with added background development traffic volumes within the vicinity of the site. The background traffic volumes at the 2022 build-out year and the 2027 planning horizon during the weekday a.m. and p.m. peak hours, are provided in **Figure 5** and **Figure 6**, respectively.



**Figure 5 Future Background Traffic Volumes 2022**



**Figure 6 Future Background Traffic Volumes 2027**



## 4.6 Site Trip Generation

Utilizing the Institute of Transportation Engineer’s (ITE) Trip Generation Manual 10th Edition, trip generation estimates were calculated for the proposed buildings based on ITE Land Use Codes (LUC) for Single-Family Detached Housing (#210) and Multifamily Housing (Low-Rise) (#220).

**Table 2** summarizes the trip generation calculations. A comparison of the fitted curve equations and average rates for each individual Land Use Code was completed, therefore whichever calculation resulted in a greater trip generation was applied as a conservative measure.

As requested by the Region, a transit modal split of 10% was utilized to reflect Halton’s Transportation Master Plan assumption for the 2022 and 2027 traffic conditions.

The resultant trip rates, entering and exiting proportions, and estimated total site trips for Joshua Creek Phase 4 are summarized in **Table 1** below. A printed report which summarizes each Land Use for each individual peak hour is included in **Appendix A**.

**Table 1 Phase 4 Site Trip Generation**

Land Use Code	Units/GF A ft <sup>2</sup>	Parameters	Peak Hour Trip Generation					
			Weekday a.m.			Weekday p.m.		
			In	Out	Total	In	Out	Total
Single-Family Detached Housing (210)	118 units	Trip Rate	0.186	0.568	0.754	0.636	0.372	1.008
		Trip Ratio	25%	75%	-	63%	37%	-
		Total Trips	22	67	89	75	44	119
		Transit Reduction	2	7	9	8	4	12
		Gross Trips	20	60	80	67	40	107
Multifamily Housing Low-Rise (220)	36 units	Trip Rate	0.111	0.389	0.500	0.417	0.250	0.667
		Trip Ratio	23%	77%	-	63%	37%	-
		Total Trips	4	14	18	15	9	24
		Transit Reduction	0	2	2	1	1	2
		Gross Trips	4	12	16	15	9	24
		Gross Trips	4	12	16	14	8	22
<b>Total New Primary Trips</b>			<b>24</b>	<b>72</b>	<b>96</b>	<b>81</b>	<b>48</b>	<b>129</b>

Based on these assumptions and the proposed land uses, it is estimated that the proposed development will generate approximately 96 new two-way vehicle trips during the a.m. peak hour consisting of 24 inbound and 72 outbound trips. During the p.m. peak hour it is expected to generate 129 new two-way vehicle trips consisting of 81 inbound and 48 outbound trips.

## 4.7 Site Distribution and Assignment

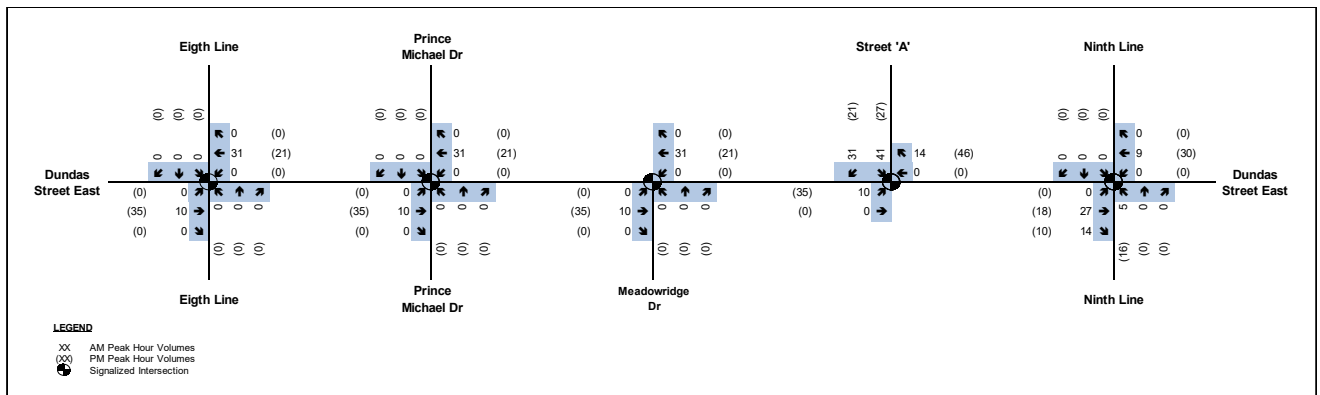
The distribution of site traffic was derived after reviewing the 2016 Transportation Tomorrow Survey (TTS) summary data for the Town of Oakville, provided in **Appendix E**. The estimated trip distribution percentages are presented in **Table 2**.



**Table 2 Site Trip Distribution**

To/From	Road	Distribution	Inbound Route	Outbound Route
South	Ninth Line	20%	Northbound left-turn from Ninth Line onto Dundas Street E	Eastbound right-turn from Dundas Street E onto Ninth Line
East	Dundas Street East	37%	Westbound right-turn into given street from Dundas Street E	Southbound left-turn from given street onto Dundas Street E
West	Dundas Street East	43%	Eastbound left-turn into given street from Dundas Street E	Southbound right-turn from given street onto Dundas Street E
<b>Total</b>		<b>100%</b>		

The estimated site trips generated by the proposed development assigned to the adjacent road network for the weekday a.m. and p.m. peak hours are shown below in **Figure 7**.



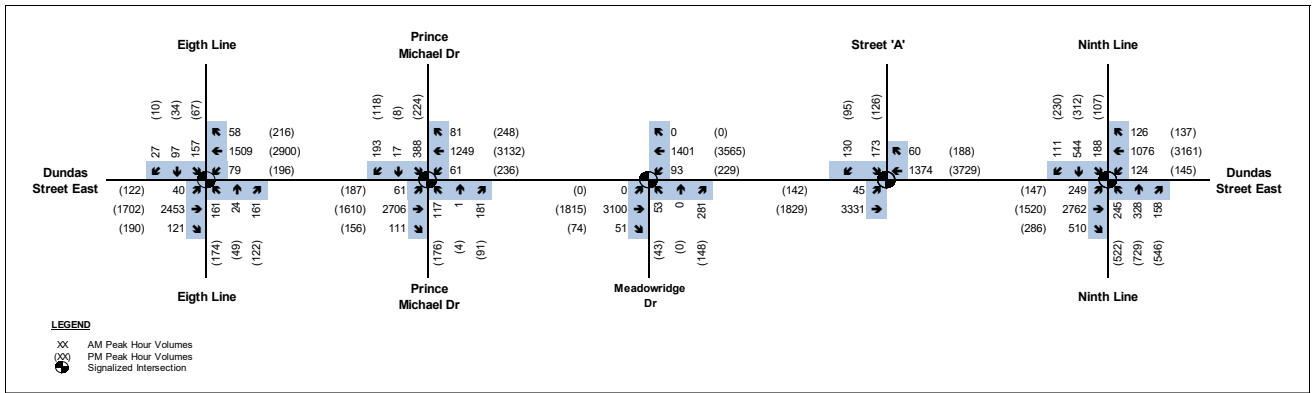
**Figure 7 Site Traffic**



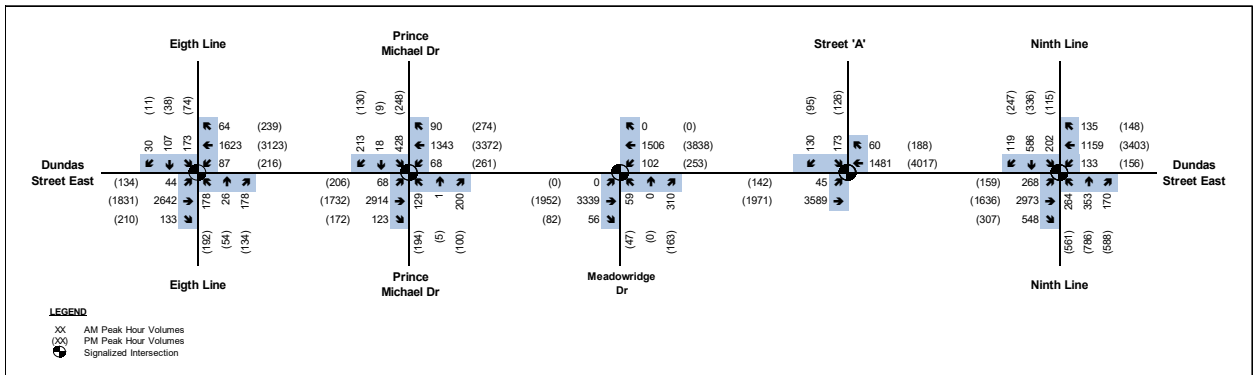
## 5. Future Total Conditions

The future total traffic conditions in the weekday a.m. and p.m. peak hours for the 2022 and 2027 planning horizons was derived by combining the future background traffic volumes with the corresponding estimates of site trips generated by the proposed development. The 2022 and 2027 future total traffic volumes at the study area intersections are summarized in **Figure 8** and **Figure 9**, respectively.





**Figure 8 Future Total Traffic Volumes 2022**



**Figure 9 Future Total Traffic Volumes 2027**



## 6. Capacity Analysis

### 6.1 Intersection Capacity Analysis

The capacity analysis identifies how well study intersections are currently operating and expected to operate in the future planning horizon year. The analysis contained within this report utilizes the Highway Capacity Manual (HCM) 2000 techniques within the Synchro Version 10 software package. The reported intersection volume-to-capacity (v/c) are a measure of the saturation volumes for each turning movement, while the level-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 movement.

To account for the road capacity effect of the proposed HOV lanes along Dundas Street East 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.

In accordance with the Region of Halton and North Oakville's Transportation Impact Study guidelines, the analysis includes identification for all v/c ratios, Los indicators and 95<sup>th</sup> percentile queue lengths for all movements at all study intersections. Critical intersections and movements shall be highlighted (in **bold**). 'Critical' intersections and movements for a signalized intersections include:

- V/C ratios for overall intersections operations increase to 0.85 or above;
- V/C ratios for individual through or turning movements increase to 1.00 or higher; or
- Queue length for individual movements that are projected to, or exceed, the storage length.

The following tables summarize the capacity results for the site related key movements at the study intersections during the weekday am and pm peak hours.



## 6.2 Dundas Street East and Eighth Line (Signalized)

The capacity analysis of this intersection is summarized in **Table 3** from the detailed Synchro/HCM capacity sheets provided in Appendix D.

**Table 3 Capacity Analysis for Dundas Street East & Eighth Line**

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delays	95th Percentile Queue	Movement v/c (LOS) Delays	95th Percentile Queue
Existing 2019	<u>Overall: 0.67 (C) 34</u> EBL = 0.02 (A) 6 EBT = 0.88 (C) 34 EBR = 0.11 (B) 18 WBL = 0.14 (B) 13 WBT = 0.46 (C) 26 WBR = 0.01 (B) 17 NBL = 0.72 (E) 62 NBT = 0.07 (D) 46 NBR = 0.24 (D) 48 SBL = 0.42 (D) 50 SBT = 0.2 (D) 47 SBR = 0.02 (D) 46	EBL = 5 m EBT = 205 m EBR = 20 m WBL = 10 m WBT = 90 m WBR = 5 m NBL = 60 m NBT = 10 m NBR = 30 m SBL = 40 m SBT = 25 m SBR = 0 m	<u>Overall: 0.69 (B) 12</u> EBL = 0.12 (B) 12 EBT = 0.4 (B) 13 EBR = 0.13 (B) 10 WBL = 0.51 (B) 14 WBT = 0.68 (A) 5 WBR = 0.04 (A) 5 NBL = 0.72 (E) 62 NBT = 0.1 (D) 46 NBR = 0.07 (D) 46 SBL = 0.15 (D) 47 SBT = 0.04 (D) 46 SBR = 0.01 (D) 46	EBL = 5 m EBT = 90 m EBR = 15 m WBL = 35 m WBT = 85 m WBR = 5 m NBL = 60 m NBT = 15 m NBR = 15 m SBL = 20 m SBT = 10 m SBR = 0 m
Background 2022	<u>Overall: 0.8 (E) 62</u> EBL = 0.1 (B) 10 EBT = <b>1.1</b> (F) 84 EBR = 0.11 (B) 18 WBL = 0.18 (C) 20 WBT = 0.72 (D) 35 WBR = 0.04 (D) 35 NBL = 0.72 (E) 62 NBT = 0.08 (D) 46 NBR = 0.23 (D) 47 SBL = 0.66 (E) 57 SBT = 0.31 (D) 48 SBR = 0.02 (D) 45	EBL = 10 m EBT = 325 m EBR = 20 m WBL = 20 m WBT = 160 m WBR = 15 m NBL = 60 m NBT = 15 m NBR = 30 m SBL = 60 m SBT = 35 m SBR = 0 m	<u>Overall: 0.94 (C) 33</u> EBL = 0.6 (D) 38 EBT = 0.66 (C) 21 EBR = 0.16 (B) 14 WBL = 0.65 (D) 45 WBT = <b>1.03</b> (D) 39 WBR = 0.17 (B) 16 NBL = 0.73 (E) 62 NBT = 0.15 (D) 46 NBR = 0.08 (D) 45 SBL = 0.28 (D) 48 SBT = 0.1 (D) 46 SBR = 0.01 (D) 45	EBL = 35 m EBT = 175 m EBR = 25 m WBL = 35 m WBT = 115 m WBR = 10 m NBL = 65 m NBT = 20 m NBR = 15 m SBL = 30 m SBT = 15 m SBR = 0 m
Background (Optimized)	<u>Overall: 0.8 (D) 51</u> EBL = 0.1 (A) 10 EBT = <b>1.05</b> (E) 65 EBR = 0.11 (B) 17 WBL = 0.2 (B) 20 WBT = 0.69 (C) 29 WBR = 0.04 (D) 35 NBL = 0.73 (E) 63 NBT = 0.08 (D) 46 NBR = 0.28 (D) 48 SBL = 0.66 (E) 58	EBL = 10 m EBT = 315 m EBR = 20 m WBL = 20 m WBT = 150 m WBR = 15 m NBL = 60 m NBT = 15 m NBR = 30 m SBL = 60 m		



Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delays	95th Percentile Queue	Movement v/c (LOS) Delays	95th Percentile Queue
	SBT = 0.31 (D) 48 SBR = 0.02 (D) 45	SBT = 35 m SBR = 0 m		
Total 2022	<u>Overall: 0.8 (D) 51</u> EBL = 0.11 (B) 10 EBT = <b>1.05</b> (E) 67 EBR = 0.11 (B) 17 WBL = 0.2 (B) 20 WBT = 0.7 (C) 30 WBR = 0.04 (D) 35 NBL = 0.73 (E) 63 NBT = 0.08 (D) 46 NBR = 0.28 (D) 48 SBL = 0.66 (E) 58 SBT = 0.31 (D) 48 SBR = 0.02 (D) 45	EBL = 10 m EBT = 320 m EBR = 20 m WBL = 15 m WBT = 155 m WBR = 15 m NBL = 60 m NBT = 15 m NBR = 30 m SBL = 60 m SBT = 35 m SBR = 0 m	<u>Overall: 0.95 (D) 35</u> EBL = 0.6 (D) 38 EBT = 0.67 (C) 21 EBR = 0.16 (B) 14 WBL = 0.66 (D) 46 WBT = <b>1.04</b> (D) 42 WBR = 0.18 (B) 16 NBL = 0.73 (E) 62 NBT = 0.15 (D) 46 NBR = 0.08 (D) 45 SBL = 0.28 (D) 48 SBT = 0.1 (D) 46 SBR = 0.01 (D) 45	EBL = 35 m EBT = 180 m EBR = 30 m WBL = 35 m WBT = 115 m WBR = 10 m NBL = 65 m NBT = 20 m NBR = 15 m SBL = 30 m SBT = 15 m SBR = 0 m
Total 2027	<u>Overall: 0.87 (E) 64</u> EBL = 0.13 (B) 12 EBT = <b>1.13</b> (F) 98 EBR = 0.13 (B) 17 WBL = 0.24 (C) 20 WBT = 0.75 (C) 31 WBR = 0.04 (C) 29 NBL = 0.74 (E) 62 NBT = 0.08 (D) 44 NBR = 0.32 (D) 47 SBL = 0.67 (E) 56 SBT = 0.31 (D) 47 SBR = 0.02 (D) 44	EBL = 10 m EBT = 360 m EBR = 20 m WBL = 20 m WBT = 170 m WBR = 10 m NBL = 65 m NBT = 15 m NBR = 35 m SBL = 60 m SBT = 40 m SBR = 5 m	<u>Overall: 1.03 (E) 64</u> EBL = 0.62 (D) 39 EBT = 0.76 (C) 26 EBR = 0.19 (B) 16 WBL = 0.69 (D) 50 WBT = <b>1.16</b> (F) 98 WBR = 0.2 (B) 17 NBL = 0.74 (E) 61 NBT = 0.16 (D) 44 NBR = 0.1 (D) 44 SBL = 0.29 (D) 46 SBT = 0.11 (D) 44 SBR = 0.01 (D) 43	EBL = 40 m EBT = 205 m EBR = 30 m WBL = 35 m WBT = 260 m WBR = 10 m NBL = 70 m NBT = 25 m NBR = 20 m SBL = 30 m SBT = 20 m SBR = 0 m

With the exiting traffic counts and the provided signal timing plans, under the existing conditions, the intersection is expected to operate very satisfactorily with substantial reserve capacity, acceptable levels of delay, and negligible queueing.

With additional corridor growth and background developments, under 2022 future background conditions the intersection is expected to be operating generally well with all individual movements operating at a v/c ratio below 1 except for the eastbound through movement in the a.m. peak hour and the westbound through movement in the p.m. peak hour. With signal optimization the intersection is expected to operate at an overall LOS D at a reported v/c ratio of 0.8 (a.m. peak).

With the addition of site trips, the overall average delay is expected to increase by 1 second only (51 sec) in the a.m. peak and 2 seconds (35) in the p.m. peak hours. Therefore, the operational impact of the added site traffic is considered nominal, and is generally not expected to be identifiable from a driver's perspective. By 2027, capacity constraints are expected for the eastbound through movement at a reported v/c ratio of 1.13 in the a.m. peak hour and for the



westbound through movement at a reported v/c ratio of 1.16 in the p.m. peak hour. Nevertheless, this is evident that this is due to corridor traffic growth. It is recommended the Region further monitor this intersections operations and the adopted growth assumptions.

No further improvements are recommended at this intersection in response to expected site traffic.

### 6.3 Dundas Street East and Prince Michael Drive (Signalized)

The capacity analysis of this intersection is summarized in Table 4 from the detailed Synchro/HCM capacity sheets provided in Appendix D

**Table 4 Capacity Analysis for Dundas Street East & Prince Michael Drive**

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delays	95th Percentile Queue	Movement v/c (LOS) Delays	95th Percentile Queue
Existing 2019	<u>Overall: 0.61 (A) 7</u> EBT = 0.63 (A) 2 EBR = 0.09 (A) 0 WBL = 0.41 (C) 32 WBT = 0.27 (A) 3 NBL = 0.57 (E) 59 NBR = 0.43 (E) 56	EBT = 20 m EBR = 5 m WBL = 20 m WBT = 25 m NBL = 45 m NBR = 40 m	<u>Overall: 0.66 (B) 13</u> EBT = 0.39 (A) 7 EBR = 0.1 (A) 2 WBL = 0.59 (B) 10 WBT = 0.64 (B) 13 NBL = 0.65 (E) 60 NBR = 0.05 (D) 50	EBT = 30 m EBR = 5 m WBL = 30 m WBT = 235 m NBL = 60 m NBR = 15 m
Background 2022	<u>Overall: 1.06 (C) 28</u> EBL = 0.37 (A) 6 EBT = 1.01 (B) 19 EBR = 0.1 (A) 1 WBL = 1.03 (F) 145 WBT = 0.5 (A) 10 WBR = 0.05 (A) 3 NBL = 0.27 (C) 34 NBTR = 0.37 (D) 35 SBL = 1.13 (F) 134 SBT = 0.03 (C) 31 SBR = 0.29 (C) 34	EBL = 5 m EBT = 35 m EBR = 5 m WBL = 50 m WBT = 40 m WBR = 5 m NBL = 40 m NBTR = 60 m SBL = 180 m SBT = 10 m SBR = 45 m	<u>Overall: 1.11 (F) 104</u> EBL = 0.68 (E) 59 EBT = 0.68 (C) 22 EBR = 0.13 (C) 23 WBL = 0.79 (D) 39 WBT = 1.3 (F) 174 WBR = 0.23 (C) 22 NBL = 0.57 (D) 48 NBTR = 0.07 (D) 41 SBL = 0.79 (E) 63 SBT = 0.02 (D) 40 SBR = 0.1 (D) 41	EBL = 100 m EBT = 125 m EBR = 30 m WBL = 45 m WBT = 465 m WBR = 30 m NBL = 60 m NBTR = 15 m SBL = 80 m SBT = 5 m SBR = 20 m
Total 2022	<u>Overall: 1.06 (C) 28</u> EBL = 0.39 (A) 6 EBT = 1.01 (C) 21 EBR = 0.1 (A) 1 WBL = 1.03 (F) 146 WBT = 0.51 (A) 10 WBR = 0.05 (A) 3 NBL = 0.27 (C) 34 NBTR = 0.37 (D) 35 SBL = 1.13 (F) 134 SBT = 0.03 (C) 31 SBR = 0.3 (C) 34	EBL = 5 m EBT = 35 m EBR = 5 m WBL = 50 m WBT = 45 m WBR = 5 m NBL = 40 m NBTR = 60 m SBL = 180 m SBT = 10 m SBR = 50 m	<u>Overall: 1.11 (F) 106</u> EBL = 0.68 (E) 58 EBT = 0.69 (C) 22 EBR = 0.13 (C) 24 WBL = 0.8 (D) 41 WBT = 1.31 (F) 178 WBR = 0.23 (C) 23 NBL = 0.57 (D) 48 NBTR = 0.07 (D) 41 SBL = 0.79 (E) 63 SBT = 0.02 (D) 40 SBR = 0.1 (D) 41	EBL = 100 m EBT = 125 m EBR = 30 m WBL = 45 m WBT = 470 m WBR = 30 m NBL = 60 m NBTR = 15 m SBL = 80 m SBT = 5 m SBR = 20 m



Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delays	95th Percentile Queue	Movement v/c (LOS) Delays	95th Percentile Queue
Total 2027	<b>Overall: 1.2 (D) 50</b> EBL = 0.51 (A) 5 EBT = <b>1.09</b> (D) 49 EBR = 0.11 (A) 1 WBL = 1.15 (F) 183 WBT = 0.55 (B) 11 WBR = 0.06 (A) 6 NBL = 0.3 (C) 34 NBTR = 0.41 (D) 36 SBL = <b>1.31</b> (F) 204 SBT = 0.03 (C) 31 SBR = 0.36 (D) 35	EBL = 5 m EBT = 35 m EBR = 5 m WBL = 50 m WBT = 55 m WBR = 5 m NBL = 45 m NBTR = 65 m SBL = 205 m SBT = 10 m SBR = 55 m	<b>Overall: 1.2 (F) 131</b> EBL = 0.83 (E) 70 EBT = 0.78 (C) 28 EBR = 0.15 (C) 30 WBL = 0.85 (D) 40 WBT = <b>1.41</b> (F) 224 WBR = 0.26 (C) 24 NBL = 0.58 (D) 47 NBTR = 0.07 (D) 39 SBL = 0.83 (E) 66 SBT = 0.02 (D) 39 SBR = 0.13 (D) 40	EBL = 100 m EBT = 140 m EBR = 30 m WBL = 50 m WBT = 475 m WBR = 30 m NBL = 65 m NBTR = 15 m SBL = 90 m SBT = 10 m SBR = 20 m

Under existing conditions, this signalized intersection is expected to operate very well, with substantial reserve capacity, acceptable levels of delay, and no queueing concerns.

With additional corridor growth and background developments, under 2022 future background conditions the intersection is expected to be operating at capacity with couple of movements operating with a reported v/c ratio above 1.0.

With the addition of site trips, under future total 2022 conditions the overall average delay per vehicle is expected to increase by less than 1 second (28 sec) in the a.m. peak and by 2 seconds (106 sec) in the p.m. peak hours. Therefore, the operational impact of the added site traffic is nominal, and is generally not expected to be identifiable from a driver's perspective. By 2027, the intersection continues to worsen with couple of movements operating at v/c ratio over 1.0. In addition, the average delay per vehicle is expected to increase by 22 sec (50 sec) for the a.m. peak and 24 seconds (131 sec) in the p.m. peak hours. Nevertheless, this is evident that this is due to corridor traffic growth. It is recommended the Region further monitor this intersections operations and the adopted growth assumptions.

The capacity issues along Dundas Street are prevalent given the proposed continued growth along Dundas Street. It is expected that some of this growth will redistribute to the future William Halton Parkway once it is constructed and delays become excessive for drivers. Therefore, there are no additional required geometric or operational improvements recommended for this intersection.

#### 6.4 Dundas Street East and Meadowridge Drive (Signalized)

The capacity analysis of this intersection is summarized in **Table 5** from the detailed Synchro/HCM capacity sheets provided in Appendix D.



**Table 5 Capacity Analysis for Dundas Street East & Meadowridge Drive**

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delays	95th Percentile Queue	Movement v/c (LOS) Delays	95th Percentile Queue
Existing 2019	Overall: 0.74 (C) 21 EBT = 0.98 (C) 24 EBR = 0.05 (A) 9 WBL = 0.19 (D) 36 WBT = 0.29 (A) 1 NBL = 0.22 (D) 51 NBR = 0.66 (E) 61	EBT = 260 m EBR = 5 m WBL = 15 m WBT = 10 m NBL = 25 m NBR = 60 m	Overall: 0.64 (A) 7 EBT = 0.38 (A) 7 EBR = 0.05 (A) 5 WBL = 0.56 (C) 24 WBT = 0.65 (A) 2 NBL = 0.28 (E) 57 NBR = 0.09 (E) 56	EBT = 35 m EBR = 5 m WBL = 15 m WBT = 30 m NBL = 25 m NBR = 20 m
Background 2022	Overall: 1.01 (F) 130 EBT = <b>1.39</b> (F) 200 EBR = 0.05 (B) 16 WBL = 0.19 (D) 40 WBT = 0.43 (A) 2 NBL = 0.22 (D) 50 NBR = 0.67 (E) 62	EBT = 425 m EBR = 5 m WBL = 20 m WBT = 25 m NBL = 25 m NBR = 60 m	Overall: 0.93 (B) 14 EBT = 0.61 (B) 15 EBR = 0.05 (A) 6 WBL = 0.73 (D) 53 WBT = 0.95 (A) 9 NBL = 0.29 (E) 58 NBR = 0.09 (E) 56	EBT = 200 m EBR = 10 m WBL = 35 m WBT = 40 m NBL = 25 m NBR = 20 m
Background 2022 (Optimized)	Overall: 1.02 (F) 100 EBT = <b>1.29</b> (F) 150 EBR = 0.05 (B) 12 WBL = 0.25 (D) 41 WBT = 0.44 (A) 2 NBL = 0.18 (D) 47 NBR = 0.74 (E) 63	EBT = 405 m EBR = 5 m WBL = 20 m WBT = 20 m NBL = 25 m NBR = 75 m		
Total 2022	Overall: 1.02 (F) 100 EBT = <b>1.29</b> (F) 152 EBR = 0.05 (B) 12 WBL = 0.25 (D) 40 WBT = 0.45 (A) 2 NBL = 0.18 (D) 47 NBR = 0.74 (E) 63	EBT = 405 m EBR = 5 m WBL = 20 m WBT = 25 m NBL = 25 m NBR = 75 m	Overall: 93 (B) 14 EBT = 0.62 (B) 15 EBR = 0.06 (A) 6 WBL = 0.74 (D) 54 WBT = 0.96 (A) 9 NBL = 0.29 (E) 58 NBR = 0.09 (E) 56	EBT = 205 m EBR = 10 m WBL = 35 m WBT = 45 m NBL = 25 m NBR = 20 m
Total 2027	Overall: 1.1 (F) 129 EBT = <b>1.39</b> (F) 198 EBR = 0.05 (B) 13 WBL = 0.3 (D) 43 WBT = 0.5 (A) 3 NBL = 0.18 (D) 45 NBR = 0.77 (E) 63	EBT = 405 m EBR = 5 m WBL = 25 m WBT = 25 m NBL = 25 m NBR = 80 m	Overall: 1. (C) 27 EBT = 0.68 (B) 17 EBR = 0.06 (A) 6 WBL = 0.78 (E) 59 WBT = <b>1.04</b> (C) 28 NBL = 0.31 (E) 58 NBR = 0.1 (E) 56	EBT = 220 m EBR = 10 m WBL = 40 m WBT = 45 m NBL = 25 m NBR = 20 m

Under existing conditions all movements are currently operating well with acceptable levels of delay, and no critical queueing concerns.

With additional corridor growth and background developments, under 2022 future background conditions the intersection is expected to be operating at capacity in the a.m. peaks hour only with a reported v/c ratio of 1.01 with the eastbound through movement operating at v/c ratio of 1.39. The



intersection continues to operate well in the p.m. peak hour with all individual movements operating at v/c ratio below 1.0.

With signal optimization the intersection performs better in the a.m. peak hour with an overall average delay per vehicle of 100 seconds in comparison with average overall delay of 130 seconds (before optimization).

With the addition of site traffic, under 2022 future total conditions overall average delay per vehicle is expected to increase by less than 1 second in the a.m. (100 sec) and p.m. (14) peak hours. Therefore, the operational impact of the added site traffic is expected be nominal impact, and is generally not expected to be identifiable from a driver’s perspective.

By 2027, capacity constraints are expected for the eastbound through movement at a reported v/c ratio of 1.39 in the a.m. peak hour and for the westbound through movement at a reported v/c ratio of 1.04 in the p.m. peak hour. It is recommended the Region further monitor this intersections operations and the adopted growth assumptions.

The capacity issues along Dundas Street are prevalent given the proposed continued growth along Dundas Street. It is expected that some of this growth will redistribute to the future William Halton Parkway once it is constructed and delays become excessive for drivers. Therefore, there are no additional required geometric or operational improvements recommended for this intersection.

## 6.5 Dundas Street East and Ninth Line (Signalized)

The capacity analysis of this intersection is summarized in **Table 6** from the detailed Synchro/HCM capacity sheets provided in Appendix D

**Table 6 Capacity Analysis for Dundas Street East & Ninth Line**

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delays	95th Percentile Queue	Movement v/c (LOS) Delays	95th Percentile Queue
Existing 2019	Overall: <b>0.89 (C)</b> 28 EBL = 0.58 (A) 5 EBT = 0.88 (B) 17 EBR = 0.3 (A) 7 WBL = 0.74 (D) 42 WBT = 0.41 (C) 24 WBR = 0.08 (B) 20 NBL = 0.93 (F) 86 NBT = 0.47 (D) 47 NBR = 0.13 (D) 43 SBL = 0.62 (D) 42 SBT = 0.77 (D) 55 SBR = 0.06 (D) 43	EBL = 10 m EBT = 225 m EBR = 20 m WBL = 50 m WBT = 75 m WBR = 10 m NBL = 65 m NBT = 55 m NBR = 20 m SBL = 55 m SBT = 90 m SBR = 10 m	Overall: <b>0.95 (D)</b> 53 EBL = 0.75 (D) 53 EBT = 0.47 (D) 45 EBR = 0.1 (F) 137 WBL = 0.49 (B) 17 WBT = 0.97 (D) 44 WBR = 0.08 (B) 18 NBL = 0.94 (E) 78 NBT = 0.95 (E) 74 NBR = 0.93 (E) 72 SBL = 0.49 (D) 37 SBT = 0.38 (D) 44 SBR = 0.28 (D) 43	EBL = 50 m EBT = 125 m EBR = 45 m WBL = 25 m WBT = 255 m WBR = 10 m NBL = 125 m NBT = 150 m NBR = 170 m SBL = 35 m SBT = 50 m SBR = 40 m
Background 2022	Overall: <b>1.18 (F)</b> 82 EBL = 0.77 (C) 26 EBT = <b>1.2 (F)</b> 130	EBL = 45 m EBT = 395 m EBR = 65 m	Overall: <b>1.42 (F)</b> 145 EBL = 0.86 (E) 58 EBT = 0.7 (D) 40	EBL = 60 m EBT = 155 m EBR = 60 m





Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delays	95th Percentile Queue	Movement v/c (LOS) Delays	95th Percentile Queue
	EBR = 0.49 (C) 33 WBL = 0.72 (D) 42 WBT = 0.55 (C) 27 WBR = 0.08 (C) 20 NBL = <b>1.2</b> (F) 171 NBT = 0.47 (D) 47 NBR = 0.11 (D) 43 SBL = 0.6 (D) 42 SBT = 0.76 (D) 54 SBR = 0.07 (D) 43	WBL = 50 m WBT = 105 m WBR = 10 m NBL = 100 m NBT = 55 m NBR = 20 m SBL = 55 m SBT = 90 m SBR = 10 m	EBR = 0.23 (E) 55 WBL = 0.78 (D) 46 WBT = <b>1.42</b> (F) 227 WBR = 0.08 (B) 18 NBL = 1.55 (F) 309 NBT = <b>1.01</b> (F) 87 NBR = <b>1.13</b> (F) 131 SBL = 0.5 (D) 38 SBT = 0.39 (D) 44 SBR = 0.4 (D) 44	WBL = 55 m WBT = 480 m WBR = 10 m NBL = 255 m NBT = 160 m NBR = 200 m SBL = 35 m SBT = 50 m SBR = 55 m
Total 2022	<u>Overall: <b>1.2</b> (F) 84</u> EBL = 0.77 (C) 26 EBT = <b>1.21</b> (F) 134 EBR = 0.51 (C) 32 WBL = 0.72 (D) 42 WBT = 0.56 (C) 27 WBR = 0.08 (C) 20 NBL = <b>1.23</b> (F) 180 NBT = 0.47 (D) 47 NBR = 0.11 (D) 43 SBL = 0.6 (D) 42 SBT = 0.76 (D) 54 SBR = 0.07 (D) 43	EBL = 45 m EBT = 400 m EBR = 65 m WBL = 50 m WBT = 105 m WBR = 10 m NBL = 100 m NBT = 55 m NBR = 20 m SBL = 55 m SBT = 90 m SBR = 10 m	<u>Overall: <b>1.45</b> (F) 149</u> EBL = 0.86 (E) 57 EBT = 0.71 (D) 39 EBR = 0.24 (D) 53 WBL = 0.79 (D) 48 WBT = <b>1.44</b> (F) 234 WBR = 0.08 (B) 18 NBL = <b>1.6</b> (F) 330 NBT = <b>1.01</b> (F) 87 NBR = <b>1.13</b> (F) 131 SBL = 0.5 (D) 38 SBT = 0.39 (D) 44 SBR = 0.4 (D) 44	EBL = 60 m EBT = 155 m EBR = 60 m WBL = 55 m WBT = 485 m WBR = 10 m NBL = 260 m NBT = 160 m NBR = 205 m SBL = 35 m SBT = 50 m SBR = 55 m
Total 2027	<u>Overall: <b>1.32</b> (F) 110</u> EBL = 0.86 (C) 30 EBT = <b>1.33</b> (F) 187 EBR = 0.56 (C) 34 WBL = 0.76 (D) 47 WBT = 0.63 (C) 30 WBR = 0.08 (C) 22 NBL = <b>1.35</b> (F) 231 NBT = 0.48 (D) 46 NBR = 0.16 (D) 43 SBL = 0.65 (D) 43 SBT = 0.79 (D) 55 SBR = 0.07 (D) 42	EBL = 50 m EBT = 400 m EBR = 65 m WBL = 55 m WBT = 115 m WBR = 15 m NBL = 120 m NBT = 60 m NBR = 25 m SBL = 60 m SBT = 95 m SBR = 15 m	<u>Overall: <b>1.58</b> (F) 180</u> EBL = 0.93 (E) 71 EBT = 0.76 (D) 37 EBR = 0.27 (D) 44 WBL = 0.86 (E) 64 WBT = <b>1.55</b> (F) 283 WBR = 0.1 (B) 19 NBL = <b>1.78</b> (F) 410 NBT = <b>1.1</b> (F) 117 NBR = <b>1.25</b> (F) 178 SBL = 0.52 (D) 38 SBT = 0.42 (D) 44 SBR = 0.45 (D) 45	EBL = 65 m EBT = 145 m EBR = 60 m WBL = 65 m WBT = 540 m WBR = 15 m NBL = 290 m NBT = 175 m NBR = 230 m SBL = 35 m SBT = 55 m SBR = 60 m

With the exiting traffic counts and the provided signal timing plans, this intersection is expected to operate generally well with all movements operating at a v/c ratio below 1 for both peak hours

With additional corridor growth and background developments, under 2022 future background conditions the intersection is expected to be operating over capacity with a reported overall v/c ratio of 1.18 in the a.m. peak hour and 1.42 in the p.m. peak hour.



With the addition of site trips, under 2022 future total conditions, the average overall delay per vehicle is expected to increase by 2 seconds (84 sec) in the a.m. peak and 4 seconds (149 sec) in the p.m. peak hours. Therefore, the operational impact of the added site traffic is expected be nominal impact, and is generally not expected to be identifiable from a driver’s perspective.

With the addition of corridor growth, under 2027 future total conditions, the average overall delay per vehicle is expected to increase by 26 seconds (110 sec) in the a.m. peak and 31seconds (180 sec) in the p.m. peak hours. This increase in delay is as a result of the adopted corrido growth and not as a result of the proposed development.

It is recommended the Region review the intersection’s operations and the adopted growth assumptions to determine where further intersection improvements can be made. This is a future background capacity issue that requires migration prior to additional corridor growth being added to the intersection.

The capacity issues along Dundas Street are prevalent given the proposed continued growth along Dundas Street. It is expected that some of this growth will redistribute to the future William Halton Parkway once it is constructed and delays become excessive for drivers. Therefore, there are no additional required geometric or operational improvements recommended for this intersection.

## 6.6 Dundas Street East and Street ‘A’ (Signalized)

The capacity analysis of this intersection is summarized in **Table 7** from the detailed Synchro/HCM capacity sheets provided in Appendix D.

**Table 7 Capacity Analysis for Dundas Street East & Street ‘A’**

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delays	95th Percentile Queue	Movement v/c (LOS) Delays	95th Percentile Queue
Background 2022	Overall: <b>0.88 (C)</b> 24 EBL = 0.17 (A) 8 EBT = 0.96 (C) 32 WBT = 0.39 (A) 1 WBR = 0.03 (A) 0 SBL = 0.51 (E) 58 SBR = 0.16 (D) 50	EBL = 5 m EBT = 145 m WBT = 10 m WBR = 0 m SBL = 55 m SBR = 25 m	Overall: <b>1.0 (E)</b> 61 EBL = 0.61 (E) 77 EBT = 0.52 (A) 2 WBT = 1.17 (F) 91 WBR = 0.1 (A) 1 SBL = 0.39 (E) 55 SBR = 0.09 (D) 49	EBL = 40 m EBT = 40 m WBT = 40 m WBR = 0 m SBL = 45 m SBR = 20 m
Total 2022	Overall: <b>0.91 (C)</b> 23 EBL = 0.22 (A) 8 EBT = 0.96 (C) 29 WBT = 0.39 (A) 1 WBR = 0.04 (A) 0 SBL = 0.66 (E) 65 SBR = 0.29 (D) 53	EBL = 5 m EBT = 165 m WBT = 10 m WBR = 0 m SBL = 70 m SBR = 35 m	Overall: <b>1.03 (E)</b> 61 EBL = 0.82 (F) 94 EBT = 0.52 (A) 2 WBT = 1.17 (F) 91 WBR = 0.13 (A) 1 SBL = 0.5 (E) 58 SBR = 0.18 (D) 51	EBL = 55 m EBT = 45 m WBT = 40 m WBR = 0 m SBL = 50 m SBR = 25 m
Total 2027	Overall: <b>0.97 (C)</b> 34 EBL = 0.26 (A) 9 EBT = <b>1.03 (D)</b> 47	EBL = 5 m EBT = 165 m	Overall: <b>1.1 (F)</b> 86 EBL = 0.82 (F) 88 EBT = 0.56 (A) 4	EBL = 50 m EBT = 75 m



Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delays	95th Percentile Queue	Movement v/c (LOS) Delays	95th Percentile Queue
	WBT = 0.42 (A) 1 WBR = 0.04 (A) 0 SBL = 0.66 (E) 65 SBR = 0.29 (D) 53	WBT = 10 m WBR = 0 m SBL = 70 m SBR = 35 m	WBT = <b>1.27</b> (F) 132 WBR = 0.14 (A) 1 SBL = 0.5 (E) 58 SBR = 0.18 (D) 51	WBT = 35 m WBR = 0 m SBL = 50 m SBR = 25 m

Under 2022 future background conditions, this intersection is expected to operate well with all movements operating at v/c ratio below 1. However, the intersection is expected to operate at with capacity constraints at the westbound through movements in the p.m. peak hour.

Since the intersection is operating close to capacity in the p.m. peak hour under 2022 future background conditions, a lost time of -3 seconds was for the eastbound left turning movement (p.m. peak) to better simulate future conditions, it is expected that vehicles will utilize yellow time and gaps efficiently to access the site development.

With the addition of site trips under 2022 future total conditions, the intersection continues to operate with all movements operating with a v/c ratio below 1 except for the westbound through movement (p.m.). The average delay per vehicle at the eastbound left turning movements is expected to increase by less than 1 second in the a.m. peak hour and 17 seconds in the p.m. peak hour. The increase in delay is as a result of the high opposing traffic on Dundas Street and not as a result of site traffic. The impact of site dev is expected to be minimal.

By 2027, capacity constraints are expected for the eastbound through movement at a reported v/c ratio 1.03 in the a.m. peak hour and at the westbound through movement at a reported v/c ratio of 1.27 in the p.m. peak hour. It is recommended the Region further monitor the Dundas Street corridor and adopted growth assumptions once the HOV lane is introduced.

Therefore no improvements are recommended at the intersection in response to the subject development.

## 7. Safety Analysis

### 7.1 Draft Plan Review

GHD undertook a review of the proposed layout of the draft plan from a traffic operational and safety perspective, with the following key findings:

- The north-south Street 'A' is proposed to have a right-of-way width of 19 metres, which is considered acceptable from a transportation perspective.
- The internal site local roads are proposed to have a right-of-way width of 17 metres, which is considered acceptable from a transportation perspective.
- 3 ninety degree bends are proposed within the internal local road network, which is considered acceptable for local roads based on common subdivision planning practice.



- All intersections but five are configured as t-intersections, with local road intersection spacing meeting the 40 metre minimum for t-intersections and 60 metre minimum for four-legged intersections (measured centreline-to-centreline) as recommended per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads.
- All internal intersections are proposed as one-way stop controlled.

## 8. Transit Facilities Plan (TFP)

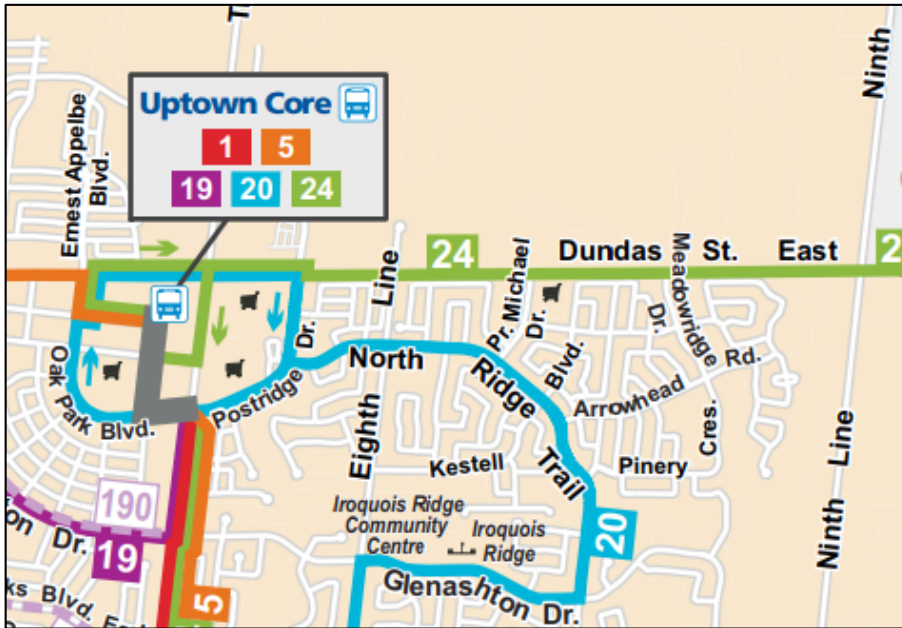
The objective of the TFP is to:

- Identify the location and design of transit streets, transit stops and related passenger amenities for each bus stop, and transit-priority treatments at intersections where applicable;
- Demonstrate that roadway design will appropriately and adequately accommodate anticipated transit services to the satisfaction of the Town; and
- Identify and associated property requirements.

### 8.1 Planned Transit Services

Dundas Street on the south perimeter of the development is a primary transit (busway) corridor planned to have future BRT service, which in addition to the Uptown Core area on the south side of Dundas Street currently has good transit service. The existing transit route servicing the vicinity of the site is Oakville Transit Route #24 running east-west on Dundas Street East, as shown in **Figure 10**. Far-side transit stops are available on Dundas Street for both directions at the intersections of Eighth Line, Prince Michael Drive and Meadowridge Drive. This route provides connections to the South Common Centre, Uptown Core, Oakville GO and Sheridan College.

External to the development, Street 'A' (north-south) along the east limit of the site plan and Street 'E' (east-west) bisecting the site plan are planned as a local transit corridor. Both of these roads form part of the Bressa subdivision.



**Figure 10** Oakville Transit Map

## 9. Transit Facilities Design Criteria and Plan

### 9.1 Transit Corridor – Cross-Section Design

Table 8 presents the proposed design criteria of the Street A and E Connector/Transit Corridors.

**Table 8** Cross Section Design Criteria

Design Criteria	Bressa Street A and E
Road Type	Connector/Transit Corridor
Type of Urban Area	Neighbourhood Centre
Lane Pattern	2.25m curbside parking 3.75m travel lane 3.50m travel lane
Face-of-Curb to Face-of-Curb Width	9.5m
Right-of-Way Width	19.0m
Boulevard Width	4.25m each side
Sidewalk Provisions	Both Sides
Cycling Facilities	n/a
Transit Facility Location	Boulevards



## 9.2 Transit Stops

### 9.2.1 Transit Stop Classification

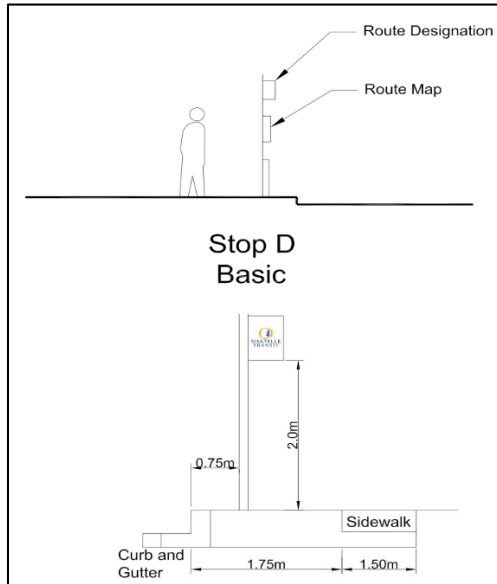
As per Exhibit 21 of the Town of Oakville’s North Oakville Secondary Plan Transit Plan, Connector/Transit Corridors in general urban and suburban areas are to have Stop ‘C’ or Stop ‘D’ transit stops.

As per Exhibit 22 of the Town of Oakville’s North Oakville Secondary Plan Transit Plan Developer’s Toolkit (DT), **Table 9** presents the Town’s warrant for determining the recommended bus stop amenities. Streets A and E through the Preliminary Development Plan has been awarded a maximum of 4 points, which as per the DT warrants the implementation of Stop ‘D’ – Basic, as shown in **Figure 11**.

As per Exhibit 3 of the DT, Local Service corridors along Connector and local roads such as Streets A and E are recommended to have a service frequency of 15-30 minutes. The low end of that range was used for calculating the warrant.

**Table 9 Warrants for Bus Stop Levels of Amenities**

Activity	Justification	Point Value	Points Awarded
High Boarding / Transfer Location	Local Road Connector Arterial / Avenue	1 2 10	2
Mobility Needs Location	Seniors group home, medical clinics, libraries, hospital, shopping malls	7	0
Activity Location	Apartment, secondary and post-secondary schools	3	0
Exposure to Elements	A stop with high speed traffic (60 km/h or more) or on a road with more than two lanes	3	0
Wait Time	Headways of 20 minutes (or more) between buses	2	2
Request	Request from Public	2	0
<b>Total Points Awarded</b>			<b>4pts</b>



**Figure 11 Stop 'D' Basic**

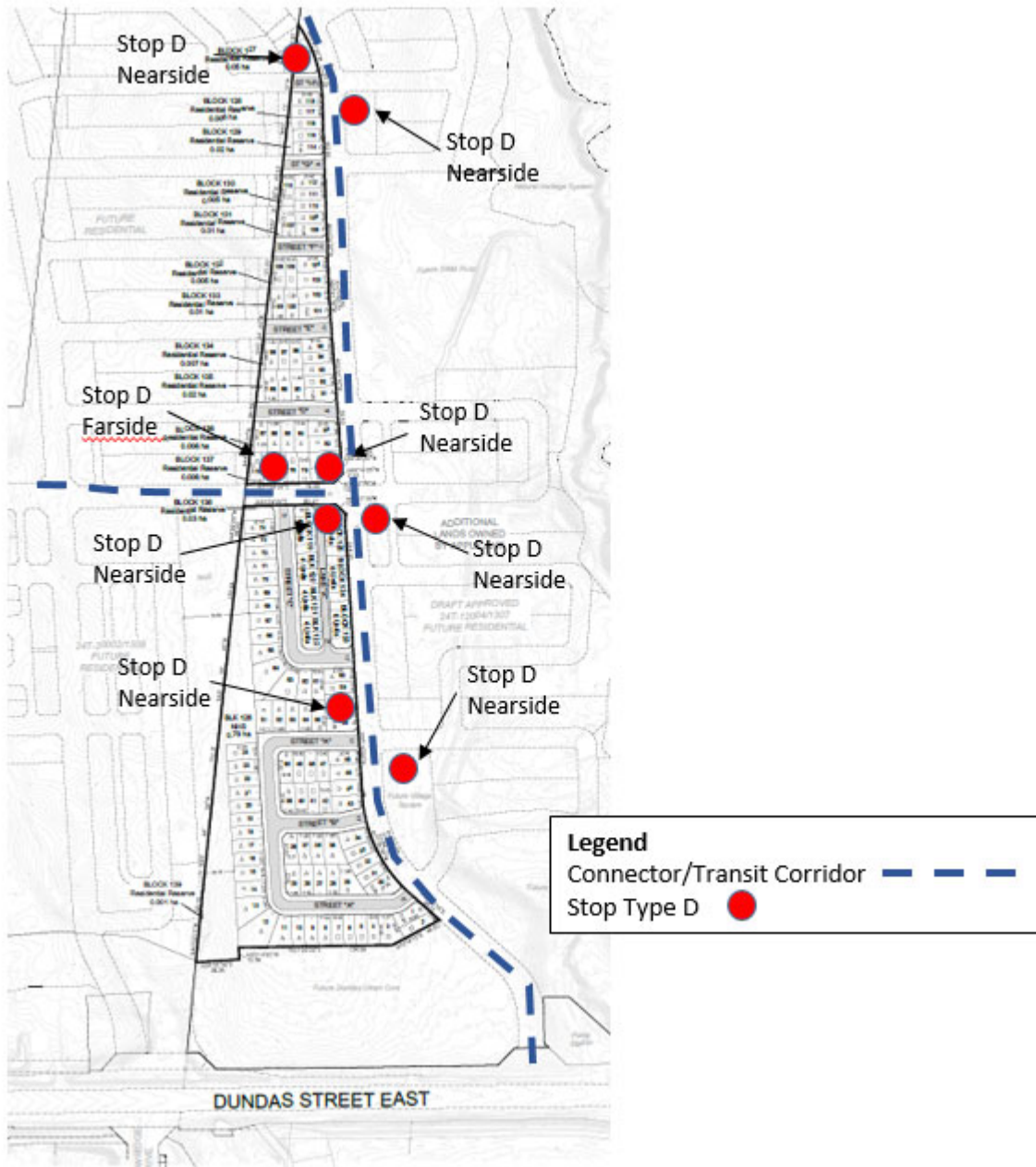
As per Exhibit 23 of the DT, the proposed passenger amenities at Stop 'D' transit facilities are as follows:

- Sign and post;
- Route designation;
- Route schedules;
- Route maps; and
- Shelter pads.

### **9.2.2 Transit Stop Location**

Type 'D' Transit Stops will be implemented at the maximum spacing of 250 metres along a transit route as per the DT. Therefore the following Stop 'D' transit stops are recommended in the Preliminary Development Plan:

- A northbound nearside transit stop on Street A at the north leg of Street B;
- A southbound nearside transit stop on Street A at the north leg of Street B;
- A northbound nearside transit stop on Street A at Street E/D;
- A southbound nearside transit stop on Street A at Street E/D;
- A eastbound nearside transit stop on Street A at Street E/D;
- A westbound farside transit stop on Street A at Street E/D;
- A northbound nearside transit stop on Street A at Street G;
- A southbound nearside transit stop on Street A at Street G;



**Figure 12 Proposed Transit Stop Locations**





## 10. Conclusions and Recommendations

The subject development proposal is within the North Oakville East Secondary Plan. The Joshua Creek Phase 4 site plan consists of 118 single family detached units, 36 townhouse units,

The overall development combined is estimated to will generate approximately 96 new two-way vehicle trips during the a.m. peak hour consisting of 24 inbound and 72 outbound trips. During the p.m. peak hour it is expected to generate 129 new two-way vehicle trips consisting of 81 inbound and 48 outbound trips.

The findings of the site plan review found that significant road user safety concerns pertaining to horizontal curves in road alignment and/or sightlines at internal site intersections were not identified, and it is expected that the proposed road network configuration will provide an acceptable level of road user safety.

Existing capacity constraints have been identified at the intersection along Dundas Street East, which as expected will continue to worsen under future conditions with the anticipated corridor growth and due to the implementation HOV lanes. It is recommended the Region review the intersection's operations, the adopted growth assumptions, and the existing intersection signal timings, to determine where further intersection improvements can be made to mitigate the existing and future capacity constraints.

Under future 2022 and 2027 conditions, the incremental impact of the site generated traffic is expected to be nominal, with no recommended geometric improvements to the study area intersections in response to the subject development. While several intersections and specific movements are expected to operate with reduced capacity and some operational concerns, these are a direct result of background corridor growth and background development traffic. Any recommended improvements are in response to the background traffic demands.

It is in GHD's opinion that the capacity issues along Dundas Street are prevalent given the proposed continued growth along Dundas Street. It is expected that some of this growth will redistribute to the future William Halton Parkway once it is constructed and delays become excessive for drivers. Therefore, there are no additional required geometric or operational improvements recommended for this intersection.

As per the DT's bus stop amenities warrant, Street 'A' at the eastern limit of the development warrants the implementation of Stop 'D' – Basic transit stop type, which includes:

- Sign and post;
- Route designation;
- Route schedules;
- Route maps; and
- Shelter pads.



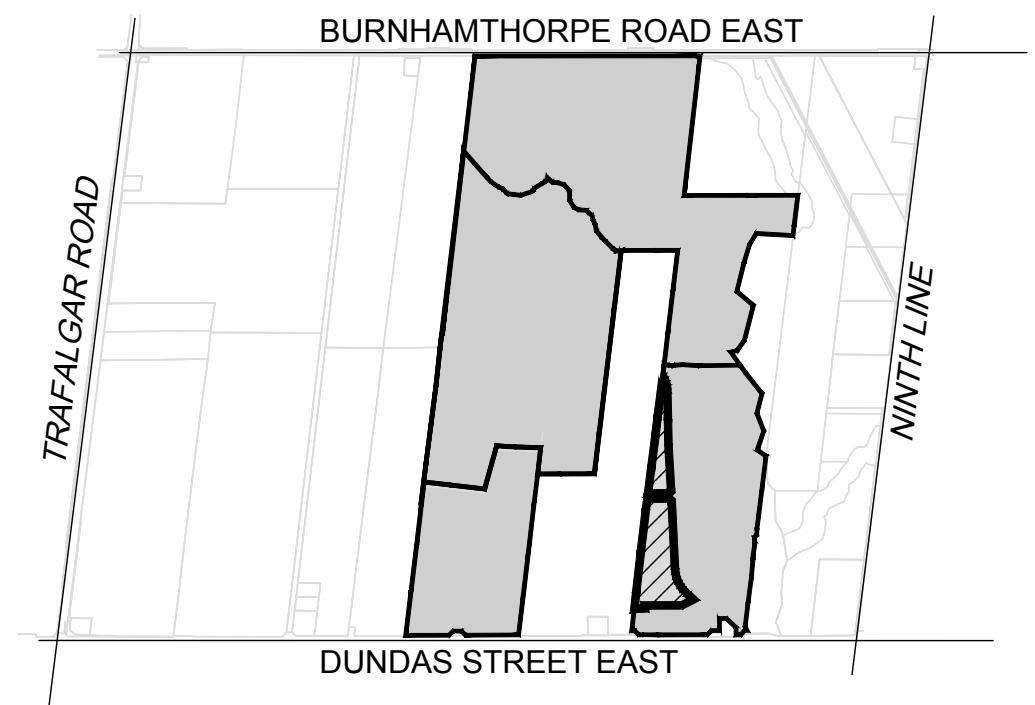
## **Appendices**

**Appendix A**  
**Site Plan & Trip Gen**

**DRAFT PLAN OF SUBDIVISION 24T-Mattamy (Joshua Creek) Limited PHASE 4**

PART OF LOT 7  
CONCESSION 1, NORTH OF DUNDAS STREET

GEOGRAPHIC TOWNSHIP OF TRAFALGAR  
NOW IN THE  
TOWN OF OAKVILLE  
REGIONAL MUNICIPALITY OF HALTON



**KEY MAP**  
N.T.S.

Subject Lands  
 Additional Lands Owned by Applicant

**OWNER'S AUTHORIZATION**

I HEREBY AUTHORIZE KORSIAK URBAN PLANNING TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF OAKVILLE FOR APPROVAL.

SIGNED \_\_\_\_\_ DATE \_\_\_\_\_  
Gary Gregoris, A.S.O.

GARY GREGORIS  
MATTAMY (JOSHUA CREEK) LIMITED  
433 STEELES AVENUE EAST SUITE 110  
MILTON, ON L9T 8Z4

**SURVEYOR'S CERTIFICATE**

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE CORRECTLY AND ACCURATELY SHOWN.

SIGNED DATE February 27, 2020  
Ross DenBroeder, Ontario Land Surveyor

**rpe** R-PE Surveying LTD.  
ONTARIO LAND SURVEYORS  
643 CHRISLEA ROAD, SUITE 7, WOODBRIDGE, ONTARIO L4L 8A3  
Tel: (416) 635-5000 Fax: (416) 635-5001

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

- A) SHOWN ON PLAN
- B) SHOWN ON PLAN
- C) SHOWN ON PLAN
- D) SHOWN ON PLAN
- E) SHOWN ON PLAN
- F) SHOWN ON PLAN
- G) SHOWN ON PLAN
- H) MUNICIPAL AND PIPED WATER TO BE PROVIDED
- I) CLAY LOAM
- J) SHOWN ON PLAN
- K) SANITARY AND STORM SEWERS TO BE PROVIDED
- L) SHOWN ON PLAN

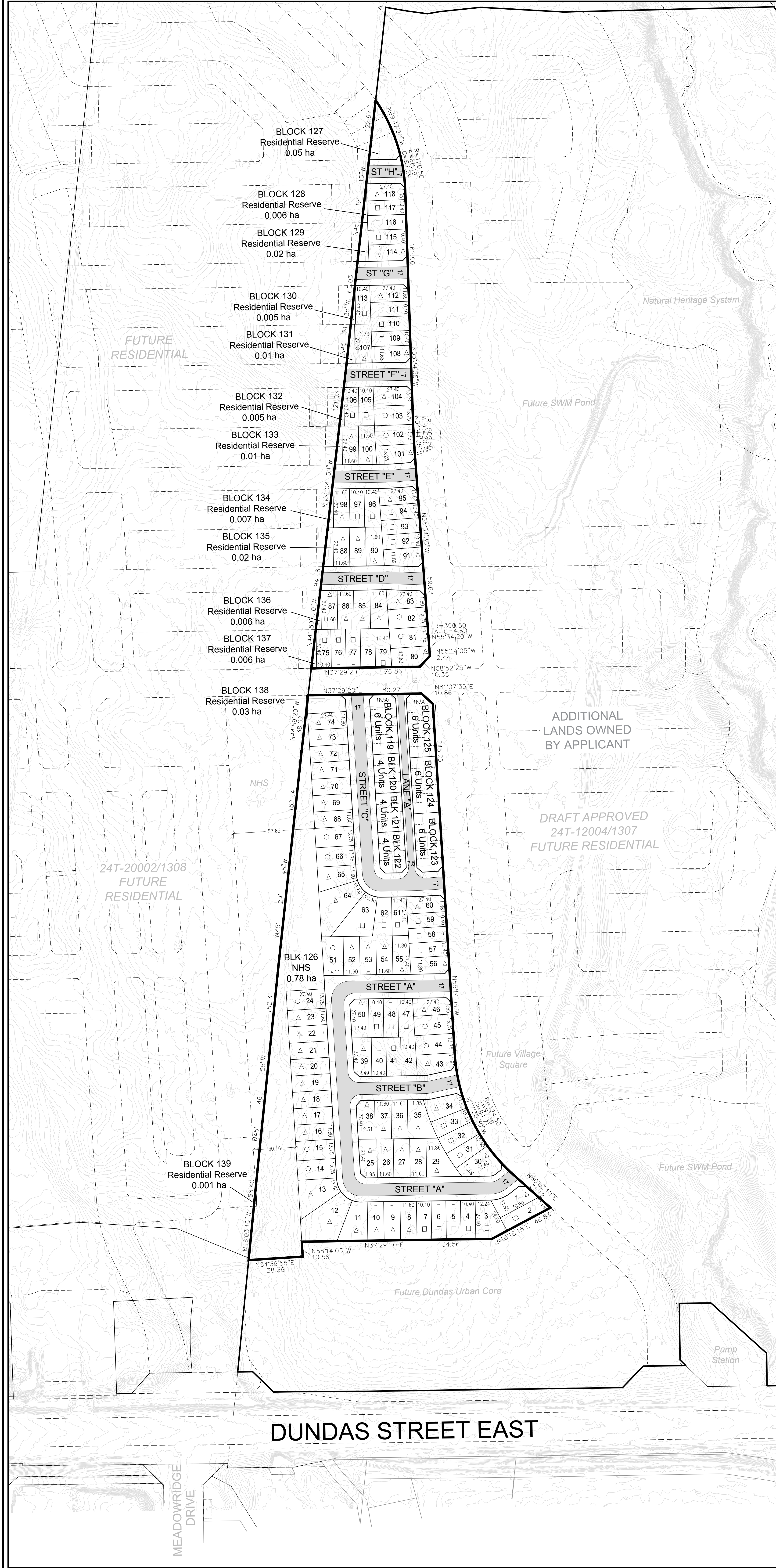
**LAND USE SCHEDULE**

Land Use	Lots/Blocks	Block Total	Area (ha)	Units
△ Single Detached (11.6m)	1, 8-13, 16-23, 25-30, 34-39, 43, 46, 50, 52-56, 60, 64, 65, 68-74, 80, 83-91, 95, 98-101, 104, 107, 108, 112, 114, 118	66	2.32	66
□ Single Detached (10.4m)	2-7, 31-33, 40-42, 47-49, 57-59, 61-63, 75-79, 92-94, 96, 97, 105, 106, 109-111, 113, 115-117	40	1.21	40
○ Single Detached (13.75m)	14, 15, 24, 44, 45, 51, 66, 67, 81, 82, 102, 103	12	0.45	12
Rear Lane Townhouses (6.05m)	119-125	7	0.46	36
Natural Heritage System (NHS)	126	1	0.78	
Residential Reserve	127-139	13	0.18	
7.5m ROW (127m)			0.10	
17m ROW (835m)			1.44	
<b>Totals</b>	139	139	6.94	154

**24T-12004 SDE CALCULATIONS**

Unit Type	Lots/Blocks	Units	SDE*
Single Detached	1-118	118	118.0
Townhouse	119-125	36	27.4
<b>Total</b>		154	145.4

\* SDE Factors:  
Detached - 1.00  
Townhouse - 0.76



**DUNDAS STREET EAST**

Mar 31, 2020	Original Submission	A	SP
DATE	REVISION	DWG	BY

**NOTES:**  
- Pavement illustration is diagrammatic  
- Connector or Avenue to Connector or Avenue daylight triangle = 7.5m  
- All other daylight triangles = 3.5m



SCALE 1:1250 March 31, 2020  
DRAWN BY: SP CHECKED BY: KC



**Single Detached**

AM	Land Use	Single-Family Detached Housing	
	211 Dwelling Units	118	
	Land Use Code	210 AM Peak of Adjacent Street Traffic, 1Hr 7-9	
	Eqn	$\ln(T) = 0.71\ln(X) + 4.8$	ITE 9th pg 395
	IN	25%	Avg.Rate 0.74
	Out	75%	
	Pass by	0%	
	Internal	0%	
	Transit Reduction	10%	

Source ITE	IN	OUT	Total	Avg	Eqn
Gross	22	67	89	87	89
Gross Rate	0.186	0.568	0.754		
Pass By	0	0	0		
Internal	0	0	0		
Transit Reduction	2	7	9		
New	20	60	80		
Rate	0.169	0.509	0.678		

**Single Detached**

PM	Land Use	Single-Family Detached Housing	
	211 Dwelling Units	118	
	Land Use Code	230 PM Peak of Adjacent Street Traffic, 1Hr 4-6pm	
	Eqn	$\ln(T) = 0.96\ln(X) + 0.2$	ITE 9th pg 396
	IN	63%	Avg.Rate 0.96
	Out	37%	
	Pass by	0%	
	Internal	0%	
	Transit Reduction	10%	

Source ITE	IN	OUT	Total	Avg	Eqn
Gross	75	44	119	117	119
Gross Rate	0.636	0.372	1.008		
Pass By	0	0	0		
Internal	0	0	0		
Transit Reduction	8	4	12		
New	67	40	107		
Rate	0.568	0.339	0.907		

**Townhouse**

AM	Land Use	Residential Condominium/Townhouse	
	Dwelling Units	36	
	Land Use Code	220 AM Peak of Adjacent Street Traffic, 1Hr 7-9	
	Eqn	$\ln(T) = 0.95\ln(X) - 0.51$	ITE 9th pg 395
	IN	23%	Avg.Rate 0.46
	Out	77%	
	Pass by	0%	
	Internal	0%	
	Transit Reduction	10%	

Source ITE	IN	OUT	Total	Avg	Eqn
Gross	4	14	18	17	18
Gross Rate	0.111	0.389	0.500		
Pass By	0	0	0		
Internal	0	0	0		
Transit Reduction	0	2	2		
New	4	12	16		
Rate	0.111	0.333	0.444		

**Townhouse**

PM	Land Use	Residential Condominium/Townhouse	
	Dwelling Units	36	
	Land Use Code	220 PM Peak of Adjacent Street Traffic, 1Hr 4-6pm	
	Eqn	$\ln(T) = 0.89\ln(X) - 0.02$	ITE 9th pg 396
	IN	63%	Avg.Rate 0.56
	Out	37%	
	Pass by	0%	
	Internal	0%	
	Transit Reduction	10%	

Source ITE	IN	OUT	Total	Avg	Eqn
Gross	15	9	24	20	24
Gross Rate	0.417	0.250	0.667		
Pass By	0	0	0		
Internal	0	0	0		
Transit Reduction	1	1	2		
New	14	8	22		
Rate	0.389	0.222	0.611		

	IN	OUT	TOTAL
Morning	24	72	96
Afternoon	81	48	129



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**DATA SOURCE:**  
 Trip Gen Manual, 10th Ed   
New data edition is available. [Click here to upgrade.](#)

**SEARCH BY LAND USE CODE:**

**LAND USE GROUP:**  
 (200-299) Residential

**LAND USE :**  
 220 - Multifamily Housing (Low-Rise)

**LAND USE SUBCATEGORY:**  
 All Sites

**INDEPENDENT VARIABLE (IV):**  
 Dwelling Units

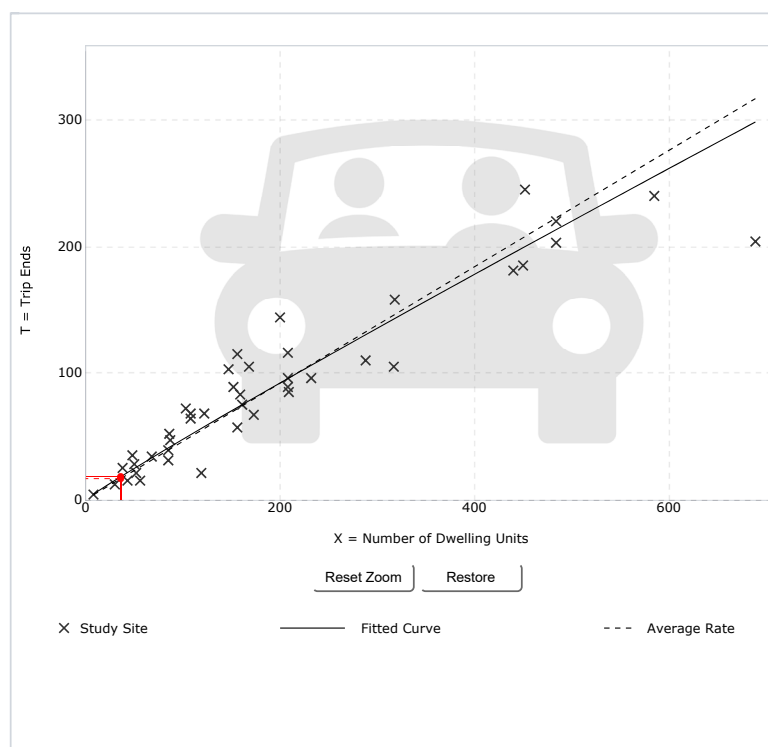
**TIME PERIOD:**  
 Weekday, Peak Hour of Adjacent Street Traffic

**SETTING/LOCATION:**  
 General Urban/Suburban

**TRIP TYPE:**  
 Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

**Data Plot and Equation**



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

**DATA STATISTICS**

**Land Use:**  
 Multifamily Housing (Low-Rise) (220) [Click for more details](#)

**Independent Variable:**  
 Dwelling Units

**Time Period:**  
 Weekday  
 Peak Hour of Adjacent Street Traffic  
 One Hour Between 7 and 9 a.m.

**Setting/Location:**  
 General Urban/Suburban

**Trip Type:**  
 Vehicle

**Number of Studies:**  
 42

**Avg. Num. of Dwelling Units:**  
 199

**Average Rate:**  
 0.46

**Range of Rates:**  
 0.18 - 0.74

**Standard Deviation:**  
 0.12

**Fitted Curve Equation:**  
 $\ln(T) = 0.95 \ln(X) - 0.51$

**R<sup>2</sup>:**  
 0.90

**Directional Distribution:**  
 23% entering, 77% exiting

**Calculated Trip Ends:**  
 Average Rate: 17 (Total), 4 (Entry), 13 (Exit)  
 Fitted Curve: 18 (Total), 4 (Entry), 14 (Exit)

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**DATA SOURCE:**  
 Trip Gen Manual, 10th Ed   
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**SEARCH BY LAND USE CODE:**

**LAND USE GROUP:**  
 (200-299) Residential

**LAND USE :**  
 220 - Multifamily Housing (Low-Rise)

**LAND USE SUBCATEGORY:**  
 All Sites

**INDEPENDENT VARIABLE (IV):**  
 Dwelling Units

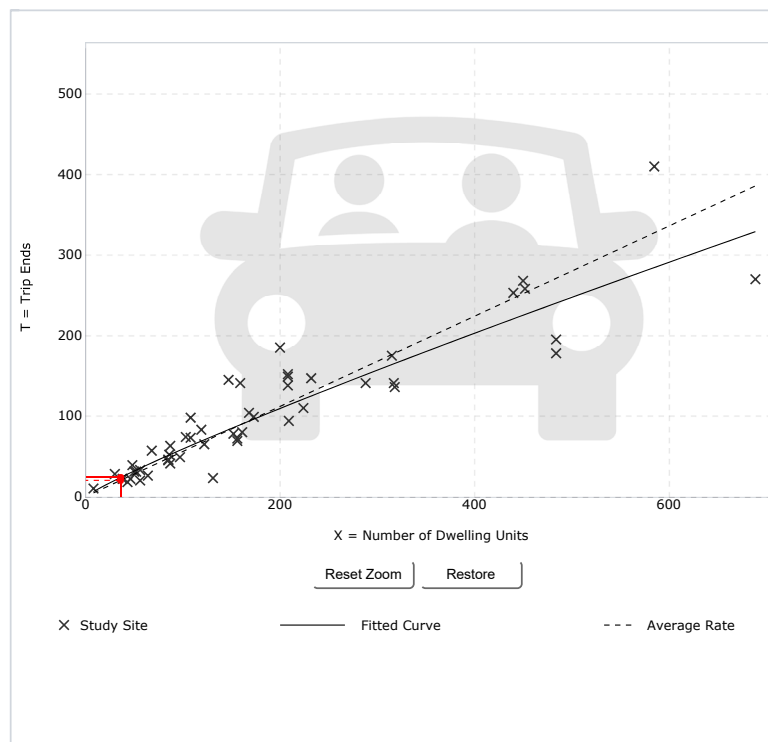
**TIME PERIOD:**  
 Weekday, Peak Hour of Adjacent Street Traffic

**SETTING/LOCATION:**  
 General Urban/Suburban

**TRIP TYPE:**  
 Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

**Data Plot and Equation**



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

**DATA STATISTICS**

**Land Use:**  
 Multifamily Housing (Low-Rise) (220) [Click for more details](#)

**Independent Variable:**  
 Dwelling Units

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

**Setting/Location:**  
 General Urban/Suburban

**Trip Type:**  
 Vehicle

**Number of Studies:**  
 50

**Avg. Num. of Dwelling Units:**  
 187

**Average Rate:**  
 0.56

**Range of Rates:**  
 0.18 - 1.25

**Standard Deviation:**  
 0.16

**Fitted Curve Equation:**  
 $\ln(T) = 0.89 \ln(X) - 0.02$

**R<sup>2</sup>:**  
 0.86

**Directional Distribution:**  
 63% entering, 37% exiting

**Calculated Trip Ends:**  
 Average Rate: 20 (Total), 13 (Entry), 7 (Exit)  
 Fitted Curve: 24 (Total), 15 (Entry), 9 (Exit)

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**DATA SOURCE:**  
 Trip Gen Manual, 10th Ed   
 New data edition is available. [Click here to upgrade.](#)

**SEARCH BY LAND USE CODE:**

**LAND USE GROUP:**

**LAND USE :**

**LAND USE SUBCATEGORY:**

**INDEPENDENT VARIABLE (IV):**

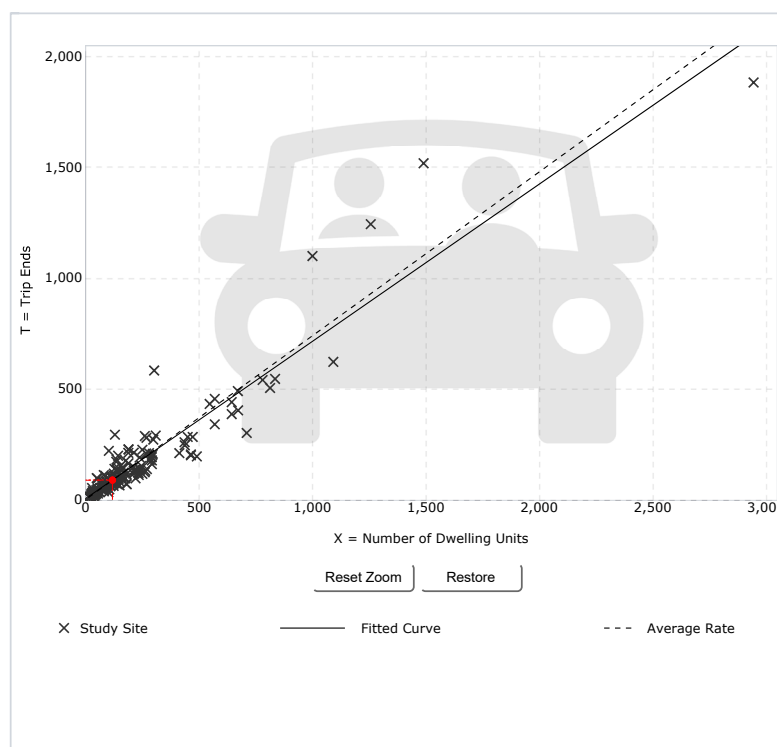
**TIME PERIOD:**

**SETTING/LOCATION:**

**TRIP TYPE:**

**ENTER IV VALUE TO CALCULATE TRIPS:**

**Data Plot and Equation**



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

**DATA STATISTICS**

**Land Use:**  
 Single-Family Detached Housing (210) [Click for more details](#)

**Independent Variable:**  
 Dwelling Units

**Time Period:**  
 Weekday  
 Peak Hour of Adjacent Street Traffic  
 One Hour Between 7 and 9 a.m.

**Setting/Location:**  
 General Urban/Suburban

**Trip Type:**  
 Vehicle

**Number of Studies:**  
 173

**Avg. Num. of Dwelling Units:**  
 219

**Average Rate:**  
 0.74

**Range of Rates:**  
 0.33 - 2.27

**Standard Deviation:**  
 0.27

**Fitted Curve Equation:**  
 $T = 0.71(X) + 4.80$

**R<sup>2</sup>:**  
 0.89

**Directional Distribution:**  
 25% entering, 75% exiting

**Calculated Trip Ends:**  
 Average Rate: 87 (Total), 22 (Entry), 65 (Exit)  
 Fitted Curve: 89 (Total), 22 (Entry), 67 (Exit)

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**DATA SOURCE:**  
 Trip Gen Manual, 10th Ed   
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**SEARCH BY LAND USE CODE:**

**LAND USE GROUP:**

**LAND USE :**

**LAND USE SUBCATEGORY:**

**INDEPENDENT VARIABLE (IV):**

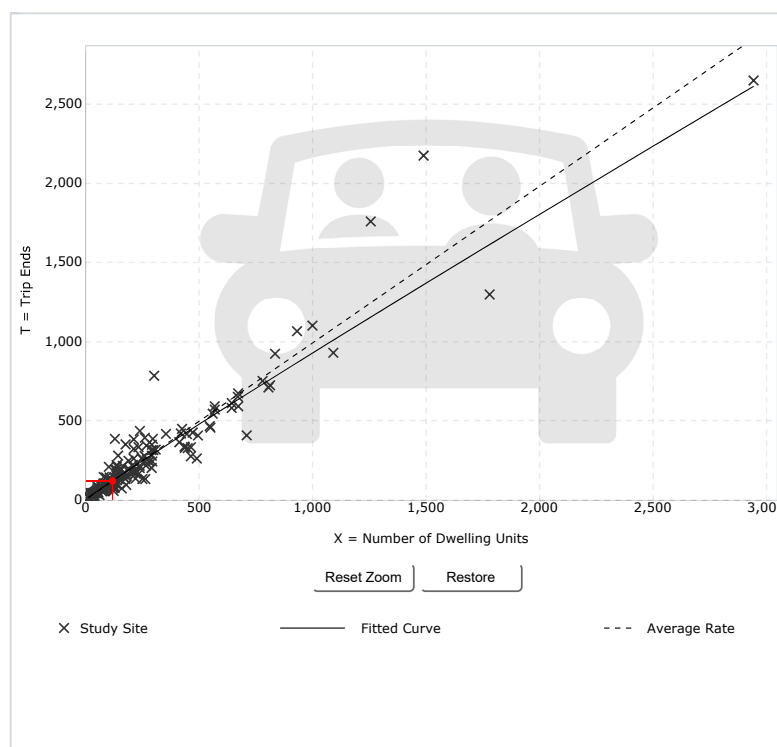
**TIME PERIOD:**

**SETTING/LOCATION:**

**TRIP TYPE:**

**ENTER IV VALUE TO CALCULATE TRIPS:**

**Data Plot and Equation**



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

**DATA STATISTICS**

**Land Use:**  
 Single-Family Detached Housing (210) [Click for more details](#)

**Independent Variable:**  
 Dwelling Units

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

**Setting/Location:**  
 General Urban/Suburban

**Trip Type:**  
 Vehicle

**Number of Studies:**  
 190

**Avg. Num. of Dwelling Units:**  
 242

**Average Rate:**  
 0.99

**Range of Rates:**  
 0.44 - 2.98

**Standard Deviation:**  
 0.31

**Fitted Curve Equation:**  
 $\ln(T) = 0.96 \ln(X) + 0.20$

**R<sup>2</sup>:**  
 0.92

**Directional Distribution:**  
 63% entering, 37% exiting

**Calculated Trip Ends:**  
 Average Rate: 117 (Total), 74 (Entry), 43 (Exit)  
 Fitted Curve: 119 (Total), 75 (Entry), 44 (Exit)

ADD-ONS

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## **Appendix B**

### **Traffic Data**

# Ontario Traffic Inc.

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:45:00

**To:** 8:45:00

**Municipality:** Oakville  
**Site #:** 1902900001  
**Intersection:** Dundas St E & Ninth Line  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

North Leg Total: 1452  
 North Entering: 800  
 North Peds: 0  
 Peds Cross:  $\bowtie$

Heavys	0	0	0	0
Trucks	0	2	0	2
Cars	98	518	182	798
<b>Totals</b>	<b>98</b>	<b>520</b>	<b>182</b>	



Heavys	0
Trucks	5
Cars	647
<b>Totals</b>	<b>652</b>

East Leg Total: 3571  
 East Entering: 1102  
 East Peds: 0  
 Peds Cross:  $\bowtie$

Heavys	Trucks	Cars	Totals
0	95	1036	1131

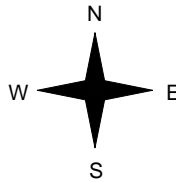


Ninth Line

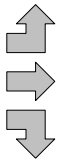
Cars	Trucks	Heavys	Totals
122	0	0	122
786	74	0	860
118	2	0	120
<b>1026</b>	<b>76</b>	<b>0</b>	



Dundas St E



Heavys	Trucks	Cars	Totals
0	0	217	217
0	25	2109	2134
0	1	312	313
<b>0</b>	<b>26</b>	<b>2638</b>	



Ninth Line



Dundas St E



Cars	Trucks	Heavys	Totals
2439	30	0	2469

Peds Cross:  $\bowtie$   
 West Peds: 0  
 West Entering: 2664  
 West Leg Total: 3795

Cars	948	Cars	152	308	148	608
Trucks	5	Trucks	21	5	5	31
Heavys	0	Heavys	0	0	0	0
<b>Totals</b>	<b>953</b>	<b>Totals</b>	<b>173</b>	<b>313</b>	<b>153</b>	



Peds Cross:  $\bowtie$   
 South Peds: 0  
 South Entering: 639  
 South Leg Total: 1592

## Comments

# Ontario Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

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

### One Hour Peak

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

**Municipality:** Oakville  
**Site #:** 1902900001  
**Intersection:** Dundas St E & Ninth Line  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

North Leg Total: 1558  
North Entering: 598  
North Peds: 0  
Peds Cross:  $\times$

Heavys	0	0	0	0
Trucks	0	2	2	4
Cars	195	297	102	594
Totals	195	299	104	



Heavys	0
Trucks	6
Cars	954
Totals	960

East Leg Total: 4476  
East Entering: 2687  
East Peds: 0  
Peds Cross:  $\times$

Heavys	0
Trucks	25
Cars	2896
Totals	2921

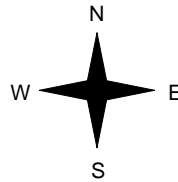


Ninth Line

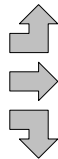
Cars	133	0	0	133
Trucks	2393	20	0	2413
Heavys	138	3	0	141
Totals	2664	23	0	



Dundas St E



Heavys	0
Trucks	0
Cars	129
Totals	129
Heavys	0
Trucks	35
Cars	1120
Totals	1155
Heavys	0
Trucks	4
Cars	159
Totals	163
Heavys	0
Trucks	39
Cars	1408
Totals	



Dundas St E



Cars	1726	63	0	1789
Trucks				
Heavys				
Totals				

Peds Cross:  $\times$   
West Peds: 0  
West Entering: 1447  
West Leg Total: 4368

Cars	594	308	692	504	1504
Trucks	9	5	6	26	37
Heavys	0	0	0	0	0
Totals	603	313	698	530	



Peds Cross:  $\times$   
South Peds: 0  
South Entering: 1541  
South Leg Total: 2144

## Comments

# Ontario Traffic Inc.

## Total Count Diagram

**Municipality:** Oakville  
**Site #:** 1902900001  
**Intersection:** Dundas St E & Ninth Line  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

North Leg Total: 5571  
 North Entering: 2631  
 North Peds: 1  
 Peds Cross:  $\times$

Heavys	0	0	0	0
Trucks	1	9	5	15
Cars	548	1505	563	2616
<b>Totals</b>	<b>549</b>	<b>1514</b>	<b>568</b>	



Heavys	0
Trucks	24
Cars	2916
<b>Totals</b>	<b>2940</b>

East Leg Total: 15364  
 East Entering: 7140  
 East Peds: 0  
 Peds Cross:  $\times$

Heavys	Trucks	Cars	Totals
0	262	7476	7738

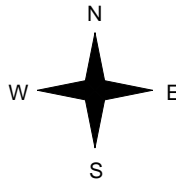


Ninth Line

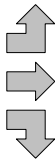
Cars	Trucks	Heavys	Totals
440	2	0	442
6020	205	0	6225
463	10	0	473
<b>6923</b>	<b>217</b>	<b>0</b>	



Dundas St E



Heavys	Trucks	Cars	Totals
0	1	610	611
0	145	6276	6421
0	20	830	850
0	166	7716	



Ninth Line

Dundas St E



Cars	Trucks	Heavys	Totals
8016	208	0	8224

Peds Cross:  $\times$   
 West Peds: 0  
 West Entering: 7882  
 West Leg Total: 15620

Cars	2798
Trucks	39
Heavys	0
<b>Totals</b>	<b>2837</b>



Cars	908	1866	1177	3951
Trucks	56	21	58	135
Heavys	0	0	0	0
<b>Totals</b>	<b>964</b>	<b>1887</b>	<b>1235</b>	

Peds Cross:  $\times$   
 South Peds: 1  
 South Entering: 4086  
 South Leg Total: 6923

### Comments

# Ontario Traffic Inc. Traffic Count Summary

Intersection: Dundas St E & Ninth Line

Count Date: 19-Feb-19

Municipality: Oakville

<b>North Approach Totals</b>						North/South Total Approaches	<b>South Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	194	414	43	651	1	1193	8:00:00	136	268	138	542	0
9:00:00	177	510	107	794	0	1413	9:00:00	188	289	142	619	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	82	283	207	572	0	1982	17:00:00	305	654	451	1410	1
18:00:00	115	307	192	614	0	2129	18:00:00	335	676	504	1515	0
<b>Totals:</b>	<b>568</b>	<b>1514</b>	<b>549</b>	<b>2631</b>	<b>1</b>	<b>6717</b>		<b>964</b>	<b>1887</b>	<b>1235</b>	<b>4086</b>	<b>1</b>
<b>East Approach Totals</b>						East/West Total Approaches	<b>West Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	94	718	86	898	0	3452	8:00:00	181	2131	242	2554	0
9:00:00	103	817	106	1026	0	3527	9:00:00	204	2007	290	2501	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	134	2350	111	2595	0	3998	17:00:00	99	1147	157	1403	0
18:00:00	142	2340	139	2621	0	4045	18:00:00	127	1136	161	1424	0
<b>Totals:</b>	<b>473</b>	<b>6225</b>	<b>442</b>	<b>7140</b>	<b>0</b>	<b>15022</b>		<b>611</b>	<b>6421</b>	<b>850</b>	<b>7882</b>	<b>0</b>
<b>Calculated Values for Traffic Crossing Major Street</b>												
Hours Ending:	7:00	8:00	9:00	16:00		17:00	18:00	18:00	18:00			
Crossing Values:	0	744	875	0		1041	2609	1126	2609			











# Ontario Traffic Inc.

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:45:00

**To:** 8:45:00

**Municipality:** Oakville  
**Site #:** 1902900002  
**Intersection:** Dundas St E & Meadowridge Dr  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

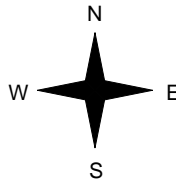
East Leg Total: 3762  
 East Entering: 1118  
 East Peds: 0  
 Peds Cross: ∞

Heavys	Trucks	Cars	Totals
0	97	982	1079



Dundas St E

Heavys	Trucks	Cars	Totals
0	28	2351	2379
0	1	48	49
0	29	2399	



Meadowridge Dr

Cars	Trucks	Heavys	Totals
933	96	0	1029
88	1	0	89
1021	97	0	



Dundas St E

Cars	Trucks	Heavys	Totals
2616	28	0	2644

Peds Cross: ∞  
 South Peds: 0  
 South Entering: 315  
 South Leg Total: 453

Peds Cross: ∞  
 West Peds: 0  
 West Entering: 2428  
 West Leg Total: 3507

Cars	136
Trucks	2
Heavys	0
<b>Totals</b>	<b>138</b>



Cars	49	265	314
Trucks	1	0	1
Heavys	0	0	0
<b>Totals</b>	<b>50</b>	<b>265</b>	

## Comments

# Ontario Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 16:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 17:00:00

**To:** 18:00:00

**Municipality:** Oakville  
**Site #:** 1902900002  
**Intersection:** Dundas St E & Meadowridge Dr  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

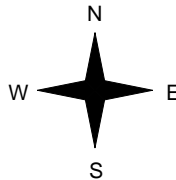
East Leg Total: 4325  
 East Entering: 2891  
 East Peds: 0  
 Peds Cross: ∞

Heavys	Trucks	Cars	Totals
0	22	2689	2711



Dundas St E

Heavys	Trucks	Cars	Totals
0	37	1258	1295
0	0	71	71
0	37	1329	



Meadowridge Dr

Cars	Trucks	Heavys	Totals
------	--------	--------	--------



2649	22	0	2671
220	0	0	220
2869	22	0	

Dundas St E



Cars	Trucks	Heavys	Totals
1397	37	0	1434

Peds Cross: ∞  
 West Peds: 0  
 West Entering: 1366  
 West Leg Total: 4077

Cars	291
Trucks	0
Heavys	0
Totals	291



Cars	40	139	179
Trucks	0	0	0
Heavys	0	0	0
Totals	40	139	

Peds Cross: ∞  
 South Peds: 0  
 South Entering: 179  
 South Leg Total: 470

## Comments

# Ontario Traffic Inc.

## Total Count Diagram

**Municipality:** Oakville  
**Site #:** 1902900002  
**Intersection:** Dundas St E & Meadowridge Dr  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

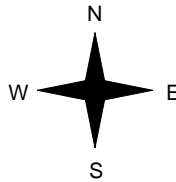
East Leg Total: 15666  
 East Entering: 7748  
 East Peds: 1  
 Peds Cross: X

Heavys	Trucks	Cars	Totals
0	240	7114	7354



Dundas St E

Heavys	Trucks	Cars	Totals
0	163	6967	7130
0	1	207	208
0	164	7174	



Meadowridge Dr

Cars	Trucks	Heavys	Totals
6962	239	0	7201
536	11	0	547
7498	250	0	



Dundas St E

Cars	Trucks	Heavys	Totals
7746	172	0	7918



Peds Cross: X  
 West Peds: 1  
 West Entering: 7338  
 West Leg Total: 14692

Cars	743	Cars	152	779	931
Trucks	12	Trucks	1	9	10
Heavys	0	Heavys	0	0	0
Totals	755	Totals	153	788	



Peds Cross: X  
 South Peds: 2  
 South Entering: 941  
 South Leg Total: 1696

### Comments

# Ontario Traffic Inc. Traffic Count Summary

Intersection: Dundas St E & Meadowridge Dr													Count Date: 19-Feb-19		Municipality: Oakville							
North Approach Totals						North/South Total Approaches	South Approach Totals															
Includes Cars, Trucks, & Heavys					Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys					Total Peds									
Left	Thru	Right	Grand Total	Left				Thru	Right	Grand Total												
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0										
8:00:00	0	0	0	0	0	245	8:00:00	18	0	227	245	0										
9:00:00	0	0	0	0	0	345	9:00:00	58	0	287	345	0										
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0										
17:00:00	0	0	0	0	0	172	17:00:00	37	0	135	172	2										
18:00:00	0	0	0	0	0	179	18:00:00	40	0	139	179	0										
Totals:						0	0	0	0	0	941	Totals:						153	0	788	941	2
East Approach Totals						East/West Total Approaches	West Approach Totals															
Includes Cars, Trucks, & Heavys					Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys					Total Peds									
Left	Thru	Right	Grand Total	Left				Thru	Right	Grand Total												
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0										
8:00:00	43	841	0	884	1	3207	8:00:00	0	2304	19	2323	1										
9:00:00	91	1059	0	1150	0	3463	9:00:00	0	2261	52	2313	0										
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0										
17:00:00	193	2630	0	2823	0	4159	17:00:00	0	1270	66	1336	0										
18:00:00	220	2671	0	2891	0	4257	18:00:00	0	1295	71	1366	0										
Totals:						547	7201	0	7748	1	15086	Totals:						0	7130	208	7338	1
<b>Calculated Values for Traffic Crossing Major Street</b>																						
Hours Ending:	7:00	8:00	9:00	16:00		17:00	17:00	18:00	18:00													
Crossing Values:	0	20	58	0		37	37	40	40													











# Ontario Traffic Inc.

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:30:00

**To:** 8:30:00

**Municipality:** Oakville  
**Site #:** 1902900003  
**Intersection:** Dundas St E & Prince Michael Dr  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

East Leg Total: 3435  
 East Entering: 1020  
 East Peds: 2  
 Peds Cross: ∞

Heavys	Trucks	Cars	Totals
0	108	960	1068

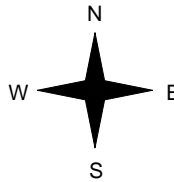


Dundas St E

Heavys	Trucks	Cars	Totals
0	28	2216	2244
0	4	103	107
0	32	2319	



Prince Michael Dr



Cars	Trucks	Heavys	Totals
854	107	0	961
59	0	0	59
913	107	0	



Dundas St E

Cars	Trucks	Heavys	Totals
2386	29	0	2415

Peds Cross: ∞  
 South Peds: 1  
 South Entering: 278  
 South Leg Total: 444

Peds Cross: ∞  
 West Peds: 2  
 West Entering: 2351  
 West Leg Total: 3419

Cars	162	Cars	106	170	276
Trucks	4	Trucks	1	1	2
Heavys	0	Heavys	0	0	0
Totals	166	Totals	107	171	

## Comments

# Ontario Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 16:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 16:45:00

**To:** 17:45:00

**Municipality:** Oakville  
**Site #:** 1902900003  
**Intersection:** Dundas St E & Prince Michael Dr  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

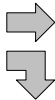
East Leg Total: 4051  
 East Entering: 2719  
 East Peds: 0  
 Peds Cross: ∞

Heavys	Trucks	Cars	Totals
0	21	2623	2644

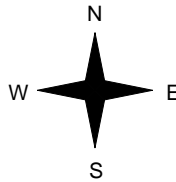


Dundas St E

Heavys	Trucks	Cars	Totals
0	40	1207	1247
0	3	147	150
0	43	1354	



Prince Michael Dr



Cars	Trucks	Heavys	Totals
2471	21	0	2492
226	1	0	227
2697	22	0	



Dundas St E

Cars	Trucks	Heavys	Totals
1292	40	0	1332



Peds Cross: ∞  
 West Peds: 0  
 West Entering: 1397  
 West Leg Total: 4041

Cars	373	Cars	152	85	237
Trucks	4	Trucks	0	0	0
Heavys	0	Heavys	0	0	0
<b>Totals</b>	<b>377</b>	<b>Totals</b>	<b>152</b>	<b>85</b>	



Peds Cross: ∞  
 South Peds: 5  
 South Entering: 237  
 South Leg Total: 614

## Comments

# Ontario Traffic Inc.

## Total Count Diagram

**Municipality:** Oakville  
**Site #:** 1902900003  
**Intersection:** Dundas St E & Prince Michael Dr  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

East Leg Total: 14447  
 East Entering: 7337  
 East Peds: 3  
 Peds Cross: 8

Heavys	Trucks	Cars	Totals
0	239	7018	7257

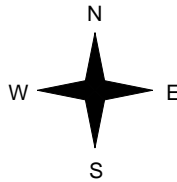


Dundas St E

Heavys	Trucks	Cars	Totals
0	157	6516	6673
0	12	489	501
0	169	7005	



Prince Michael Dr



Cars	Trucks	Heavys	Totals
6542	234	0	6776
559	2	0	561
7101	236	0	



Dundas St E

Cars	Trucks	Heavys	Totals
6952	158	0	7110



Peds Cross: 8  
 West Peds: 8  
 West Entering: 7174  
 West Leg Total: 14431

Cars 1048	Cars 476	436	912
Trucks 14	Trucks 5	1	6
Heavys 0	Heavys 0	0	0
Totals 1062	Totals 481	437	



Peds Cross: 8  
 South Peds: 14  
 South Entering: 918  
 South Leg Total: 1980

### Comments

# Ontario Traffic Inc. Traffic Count Summary

Intersection: Dundas St E & Prince Michael Dr    Count Date: 19-Feb-19    Municipality: Oakville

<b>North Approach Totals</b>						<b>South Approach Totals</b>						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0	215	8:00:00	69	0	146	215	3
9:00:00	0	0	0	0	0	249	9:00:00	108	0	141	249	1
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0	229	17:00:00	156	0	73	229	8
18:00:00	0	0	0	0	0	225	18:00:00	148	0	77	225	2
<b>Totals:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>918</b>		<b>481</b>	<b>0</b>	<b>437</b>	<b>918</b>	<b>14</b>
<b>East Approach Totals</b>						<b>West Approach Totals</b>						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	46	820	0	866	0	3106	8:00:00	0	2168	72	2240	1
9:00:00	67	1041	0	1108	2	3328	9:00:00	0	2074	146	2220	2
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	211	2444	0	2655	1	3989	17:00:00	0	1200	134	1334	3
18:00:00	237	2471	0	2708	0	4088	18:00:00	0	1231	149	1380	2
<b>Totals:</b>	<b>561</b>	<b>6776</b>	<b>0</b>	<b>7337</b>	<b>3</b>	<b>14511</b>		<b>0</b>	<b>6673</b>	<b>501</b>	<b>7174</b>	<b>8</b>
<b>Calculated Values for Traffic Crossing Major Street</b>												
Hours Ending:	0:00	0:00	7:00	8:00			9:00	16:00	17:00	18:00		
Crossing Values:	0	0	0	70			112	0	160	150		











# Ontario Traffic Inc.

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:45:00

**To:** 8:45:00

**Municipality:** Oakville  
**Site #:** 1902900004  
**Intersection:** Dundas St E & Eighth Line  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

North Leg Total: 225  
 North Entering: 175  
 North Peds: 0  
 Peds Cross:  $\bowtie$

Heavys	0	0	0	0
Trucks	0	1	0	1
Cars	25	57	92	174
<b>Totals</b>	<b>25</b>	<b>58</b>	<b>92</b>	



Heavys 0  
 Trucks 2  
 Cars 48  
 Totals 50

East Leg Total: 3429  
 East Entering: 1097  
 East Peds: 1  
 Peds Cross:  $\bowtie$

Heavys	0	Trucks	95	Cars	1099	Totals	1194
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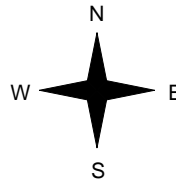


Eighth Line

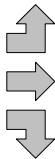
Cars	20	Trucks	0	Heavys	0	Totals	20
Cars	922	Trucks	95	Heavys	0	Totals	1017
Cars	60	Trucks	0	Heavys	0	Totals	60
<b>Totals</b>	<b>1002</b>	<b>95</b>	<b>0</b>				



Dundas St E



Heavys	0	Trucks	1	Cars	10	Totals	11
Heavys	0	Trucks	29	Cars	2060	Totals	2089
Heavys	0	Trucks	3	Cars	110	Totals	113
<b>Totals</b>	<b>0</b>	<b>33</b>	<b>2180</b>				



Dundas St E



Peds Cross:  $\bowtie$   
 West Peds: 0  
 West Entering: 2213  
 West Leg Total: 3407

Cars	227
Trucks	4
Heavys	0
<b>Totals</b>	<b>231</b>



Cars	152	18	148	318
Trucks	0	1	3	4
Heavys	0	0	0	0
<b>Totals</b>	<b>152</b>	<b>19</b>	<b>151</b>	

Peds Cross:  $\bowtie$   
 South Peds: 1  
 South Entering: 322  
 South Leg Total: 553

## Comments

# Ontario Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 16:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 16:45:00

**To:** 17:45:00

**Municipality:** Oakville  
**Site #:** 1902900004  
**Intersection:** Dundas St E & Eighth Line  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

North Leg Total: 163  
 North Entering: 56  
 North Peds: 0  
 Peds Cross:  $\times$

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	10	13	33	56
Totals	10	13	33	



Heavys	0
Trucks	1
Cars	106
Totals	107

East Leg Total: 4027  
 East Entering: 2642  
 East Peds: 2  
 Peds Cross:  $\times$

Heavys	Trucks	Cars	Totals
0	20	2547	2567

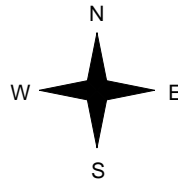


Eighth Line

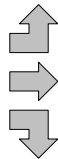
Cars	Trucks	Heavys	Totals
69	0	0	69
2374	19	0	2393
180	0	0	180
2623	19	0	



Dundas St E



Heavys	Trucks	Cars	Totals
0	0	9	9
0	42	1198	1240
0	3	178	181
0	45	1385	



Dundas St E



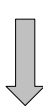
Cars	Trucks	Heavys	Totals
1343	42	0	1385



Eighth Line

Peds Cross:  $\times$   
 West Peds: 1  
 West Entering: 1430  
 West Leg Total: 3997

Cars	371	Cars	163	28	112	303
Trucks	3	Trucks	1	1	0	2
Heavys	0	Heavys	0	0	0	0
Totals	374	Totals	164	29	112	



Peds Cross:  $\times$   
 South Peds: 0  
 South Entering: 305  
 South Leg Total: 679

## Comments

# Ontario Traffic Inc.

## Total Count Diagram

**Municipality:** Oakville  
**Site #:** 1902900004  
**Intersection:** Dundas St E & Eighth Line  
**TFR File #:** 1  
**Count date:** 19-Feb-19

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Dundas St E runs W/E

North Leg Total: 702  
 North Entering: 397  
 North Peds: 0  
 Peds Cross:  $\bowtie$

Heavys	0	0	0	0
Trucks	2	1	0	3
Cars	68	103	223	394
<b>Totals</b>	<b>70</b>	<b>104</b>	<b>223</b>	



Heavys	0
Trucks	8
Cars	297
<b>Totals</b>	<b>305</b>

East Leg Total: 14379  
 East Entering: 7225  
 East Peds: 6  
 Peds Cross:  $\bowtie$

Heavys	Trucks	Cars	Totals
0	241	7003	7244

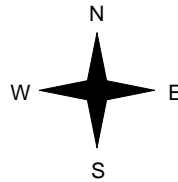


Eighth Line

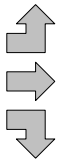
Cars	Trucks	Heavys	Totals
179	3	0	182
6372	234	0	6606
437	0	0	437
<b>6988</b>	<b>237</b>	<b>0</b>	



Dundas St E



Heavys	Trucks	Cars	Totals
0	3	38	41
0	161	6296	6457
0	11	530	541
0	175	6864	



Dundas St E



Cars	Trucks	Heavys	Totals
6987	167	0	7154

Peds Cross:  $\bowtie$   
 West Peds: 4  
 West Entering: 7039  
 West Leg Total: 14283

Cars	1070
Trucks	12
Heavys	0
<b>Totals</b>	<b>1082</b>



Cars	563	80	468	1111
Trucks	5	2	6	13
Heavys	0	0	0	0
<b>Totals</b>	<b>568</b>	<b>82</b>	<b>474</b>	

Peds Cross:  $\bowtie$   
 South Peds: 4  
 South Entering: 1124  
 South Leg Total: 2206

### Comments

# Ontario Traffic Inc. Traffic Count Summary

Intersection: Dundas St E & Eighth Line

Count Date: 19-Feb-19

Municipality: Oakville

<b>North Approach Totals</b>						North/South Total Approaches	<b>South Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	71	27	28	126	0	345	8:00:00	83	6	130	219	1
9:00:00	86	47	17	150	0	472	9:00:00	164	20	138	322	1
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	24	19	11	54	0	326	17:00:00	153	24	95	272	2
18:00:00	42	11	14	67	0	378	18:00:00	168	32	111	311	0
<b>Totals:</b>	<b>223</b>	<b>104</b>	<b>70</b>	<b>397</b>	<b>0</b>	<b>1521</b>		<b>568</b>	<b>82</b>	<b>474</b>	<b>1124</b>	<b>4</b>
<b>East Approach Totals</b>						East/West Total Approaches	<b>West Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	30	840	16	886	1	2991	8:00:00	4	2013	88	2105	1
9:00:00	66	1029	26	1121	1	3251	9:00:00	15	2003	112	2130	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	172	2388	70	2630	1	4022	17:00:00	12	1220	160	1392	1
18:00:00	169	2349	70	2588	3	4000	18:00:00	10	1221	181	1412	2
<b>Totals:</b>	<b>437</b>	<b>6606</b>	<b>182</b>	<b>7225</b>	<b>6</b>	<b>14264</b>		<b>41</b>	<b>6457</b>	<b>541</b>	<b>7039</b>	<b>4</b>
<b>Calculated Values for Traffic Crossing Major Street</b>												
Hours Ending:	7:00	8:00	9:00	16:00		17:00	17:00	18:00	18:00			
Crossing Values:	0	183	298	0		203	203	247	247			











# 18. APPENDIX D: PROGRAM REFERENCE CARD

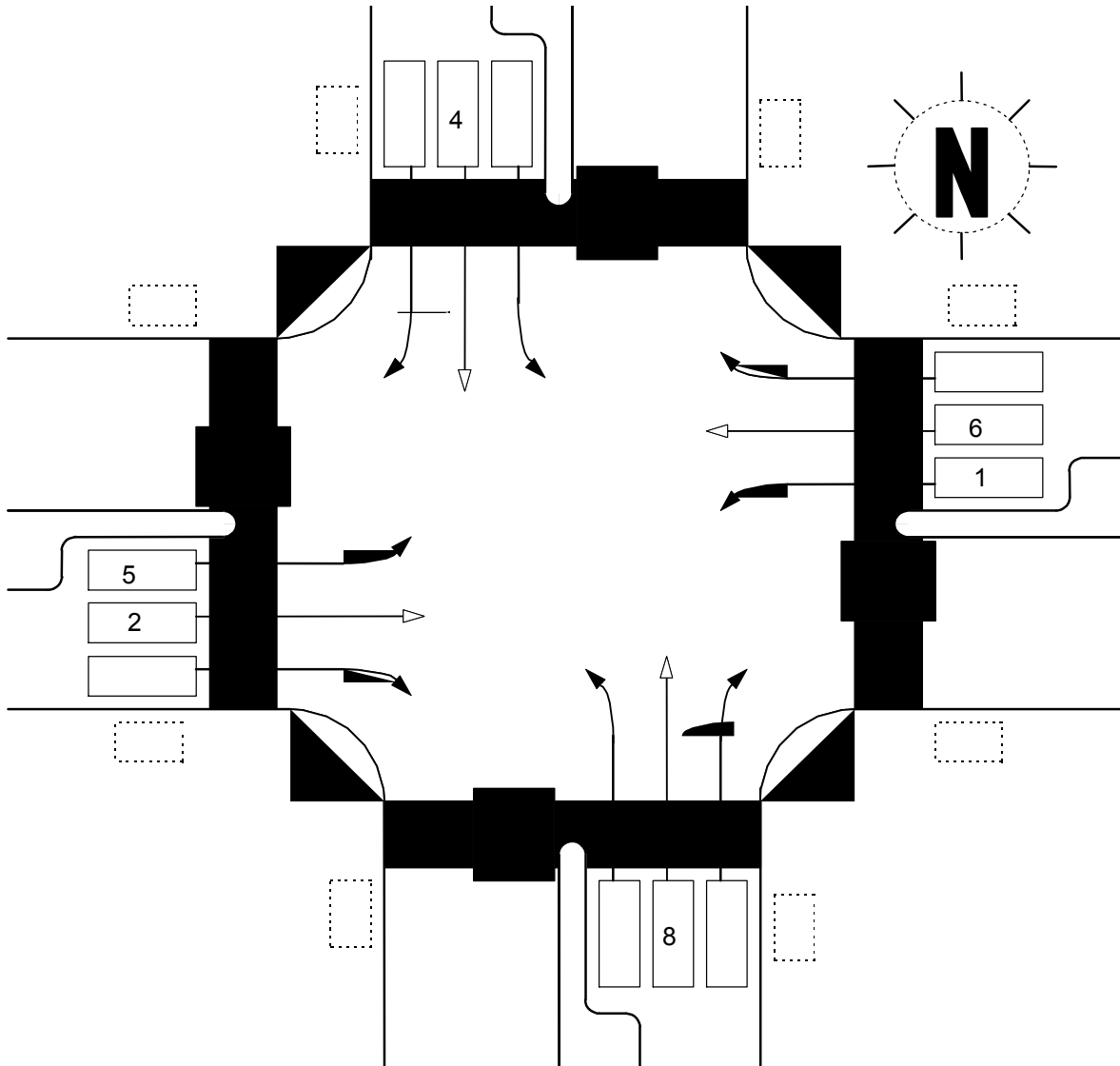
## ASC/3

### PROGRAM REFERENCE CARD

INTERSECTION Dundas Street & Eighth Line

CONTROLLER NUMBER \_\_\_\_\_ ENTERED BY: \_\_\_\_\_ DATE 03 / 27 / 17

BOOT: \_\_\_\_\_ MAIN: \_\_\_\_\_ HELP: \_\_\_\_\_ DATA BASE \_\_\_\_\_



## CONFIGURATION SUBMENU

### 1-1-1. PHASE RING ASSIGNMENT

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

### 1-1-2. PHASE COMPATIBILITY

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

### 1-2. PHASES IN USE / EXCLUSIVE PED

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASES IN USE																
EXCLUSIVE PED																

### 1-1-4. BACKUP PREVENT PHASES

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

### 1-1-5 SIMULTANEOUS GAP

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

### 1-1-3. PHASE RING SEQUENCE

CONTROLLER 1			SEQUENCE 1																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 2																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 3																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 4																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 5																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 6																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 7																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 8																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				

1-1-3. PHASE RING SEQUENCE (CONT)

CONTROLLER 1		SEQUENCE 9																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 10																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 11																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 12																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 13																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 14																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 15																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 16																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			

### 1-3. PHASE TO LOAD SWITCH (MMU) ASSIGNMENT

LOAD SWITCH	PHASE / OVERLAP	TYPE	DIMMING				AUTO FLASH	
			RED	YELLOW	GREEN	PHASE	COLOR	TOGETHER
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

### 1-4-2. MMU PROGRAM

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

### 1-4-1. SDLC OPTIONS

TERM & FACIL	BIU NUMBER							
	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
DETECTOR RACK	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
MMU ENABLE								
MMU STOP TIME								
DIAGNOSTIC ENABLE (TEST FIXTURE)								
CONTROLLER PEER TO PEER ENABLE								
DISABLE 3 CRITICAL RFEs LOCKUP								

### 1-4-3. COLOR CHECK DISABLE

DISABLE ALL COLOR CHECKS																
MMU CHANNEL	1	2	3	4	5	6	7	8								
GREEN / WALK																
YELLOW / PC																
RED / DW																
MMU CHANNEL	9	10	11	12	13	14	15	16								
GREEN / WALK																
YELLOW / PC																
RED / DW																



### 1-5-1 GLOBAL PORT PARAMETERS

NTCIP BACKUP TIME (SECONDS)	
PORT 2 PRIORITY	
PORT 3A PRIORITY	
PORT 3B PRIORITY	
ETHERNET PRIORITY	

### 1-5-1 PORT 2 (TERMINAL)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-5-3 PORT 3A (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
ELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-7-1 ADMINISTRATION

SUPERVISOR ACCESS CODE	
ENABLE CRC CHECK OF DATA BASE	
CRC OF PROGRAM DATA BASE	
REQUEST DOWNLOAD OF PROGRAMMED DATA	

### 1-7-2 DISPLAY OPTIONS

KEY CLICK ENABLE	
BACKLIGHT ENABLE	

### 1-5-4. PORT 3B (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-5-5 ETHERNET PORT CONFIGURATION

IP ADDRESS					
ADDRESS MASK					
FTP SERVER ADDRESS					
DEFAULT GATEWAY ADDRESS					

### 1-6-1 ENABLE EVENT LOGS

CRITICAL RFE'S (MMU/TE)	
3 CRITICAL RFE ERRORS IN 24 HOURS	
NON-CRITICAL RFE'S (DET/TEST)	
DETECTOR ERRORS	
COORDINATION ERRORS	
MMU FLASH FAULTS	
LOCAL FLASH FAULTS	
PREEMPT	
POWER ON/OFF	
LOW BATTERY	
ACCESS	
DATA CHANGE	
CONTROLLER DOWNLOAD	
ALARM 1	
ALARM 2	
ALARM 3	
ALARM 4	
ALARM 5	
ALARM 6	
ALARM 7	
ALARM 8	
ALARM 9	
ALARM 10	
ALARM 11	
ALARM 12	
ALARM 13	
ALARM 14	
ALARM 15	
ALARM 16	



1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
-------------------	--	--	--	--

IF				
THEN				
ELSE				

THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
IF				

LOGIC GATE NUMBER				
IF				

THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

## CONTROLLER SUBMENU

### 2-1. CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN	7	20	7	10	7	20	7	10								
BICYCLE MINIMUM GREEN																
CONDITIONAL SERVICE MINIMUM GREEN																
DELAYED GREEN																
WALK		7		7		7		7								
WALK 2																
WALK MAX																
PEDESTRIAN CLEARANCE		24		32		24		32								
PEDESTRIAN CLEARANCE 2																
PEDESTRIAN CLEARANCE MAX																
PEDESTRIAN CARRY OVER																
VEHICLE EXTENSION	3.5	5.5	3.5	3.5	3.5	5.5	3.5	3.5								
VEHICLE EXTENSION 2																
MAX1	15	46		25	15	46		25								
MAX2	20	60		30	20	60		30								
MAX3																
DYNAMIC MAX																
DYNAMIC MAX STEP																
YELLOW CHANGE	3.0	4.2		3.3	3.0	4.2		3.3								
RED CLRANCE	1.0	2.5		3.7	1.0	2.5		3.7								
RED MAX																
RED REVERT																
ACTUATIONS BEFORE GAP REDUCTION																
SECONDS PER ACTIONS ADDED TO INITIAL																
MAXIMUM ADDED INITIAL GREEN																
TIME BEFORE GAP REDUCTION																
CARS WAITING BEFORE GAP REDUCTION																
STEP TO REDUCE																
TIME TO REDUCE TO MINIMUM																
MININIMUM GAP																

## 2-2 VEHICLE OVERLAP

OVERLAP A PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP C PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP B PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP D PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP E PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP G PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP F PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP H PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	



## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP I PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP K PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP J PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP L PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP M PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP O PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP N PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP P PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-3 PEDESTRIAN OVERLAP

PEDESTRIAN OVERLAP CONSISTS OF PHASES																
PEDESTRIAN OVERLAP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																

## 2-4 GUARANTEED MINIMUM TIMES

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN																
WALK																
PEDESTRIAN CLEARANCE																
YELLOW CHANGE																
RED CLEARANCE																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
MINIMUM GREEN																

### 2-5 START / FLASH DATA

POWER START																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
OVERLAP																
POWER START RED									FLASH TIME							
REMOTE (AUTOMATIC) FLASH																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ENTRY																
EXIT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
EXIT																
EXIT REMOTE FLASH									MINIMUM AUTOMATIC FLASH							
MINIMUM RECALL									CYCLE THROUGH PHASES							

### 2-6-1 CONTROLLER OPTIONS

PEDESTRIAN CLEARANCE PROTECT																
UNIT RED REVERT																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
GUARANTEE D PASSAGE																
NON-ACT I																
NON ACT II																
DUAL ENTRY																
PED RESERVICE																
REST IN WALK																
FLASHING WALK																
PED CLEAR > YELLOW																
PED CLEAR > ALL RED																
INIT GREEN + VEHICLE EXIT																

### 2-7 ACTUATED / PRE-TIMED MODE PHASES

ENABLE PRE-TIMED OPERATION																
FREE INPUT DISABLED PRE-TIMED																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
PRE - TIMED																

## COORDINATOR SUBMENU

### 3-1 COORDINATOR OPTIONS

MANUAL PATTERN	Auto		
INTERCONNECT SOURCE	TBC	INTERCONNECT FORMAT	
TRANSITION	Smooth	ECPI COORDINATION	Yes
OFFSET REFERENCE	Lead	DWELL / ADD TIME	
DELAY COORD WALK TO LOCAL ZERO	No	FORCE OFF	Float
FORCE OFF ADDED INITIAL GREEN	No	USE PED TIME FOR SMOOTH TRANSITION	No
PEDESTRIAN RECALL	No	PEDESTRIAN RESERVICE	Yes
ENABLE MANUAL SYNC INPUT		LOCAL ZERO OVERRIDE	No
RE-SYNC COUNT	No	MAX SELECT	MaxInh
MULTISYNC	No		

### 3-2 COORDINATOR PATTERN

COORDINATOR PATTERN	1	SPLIT PATTERN																																																																		
CYCLE LENGTH (SECONDS)	130	SEQUENCE																																																																		
OFFSET VALUE	23	OFFSETS IN . . .	Per																																																																	
SPLITS IN	Per																																																																			
CROSSING ARTERY PATTERN																																																																				
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																																																																		
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	1																																																																	
ACTUATED COORDINATION	Yes	TIMING PLAN																																																																		
ACTUATED REST IN WALK		PHASE RESERVICE																																																																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="width: 25%;">1</td> <td style="width: 25%;">2</td> <td style="width: 25%;">3</td> <td style="width: 25%;">4</td> </tr> <tr> <td>RING SPLIT EXTENSION (SECONDS)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SPLIT DEMAND PATTERN</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5">RING DISPLACEMENT</td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td></td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td></td> <td>9</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td></td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>PREFER ENCE 1 PHASES</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PREFER ENCE 2 PHASES</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5">SPECIAL FUNCTION</td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td></td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> </table>					1	2	3	4	RING SPLIT EXTENSION (SECONDS)					SPLIT DEMAND PATTERN					RING DISPLACEMENT						1	2	3	4		5	6	7	8		9	0	1	2		3	4	5	6	PREFER ENCE 1 PHASES					PREFER ENCE 2 PHASES					SPECIAL FUNCTION						1	2	3	4		5	6	7	8
	1	2	3	4																																																																
RING SPLIT EXTENSION (SECONDS)																																																																				
SPLIT DEMAND PATTERN																																																																				
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	9	0	1	2																																																																
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PREFER ENCE 2 PHASES																																																																				
SPECIAL FUNCTION																																																																				
	1	2	3	4																																																																
	5	6	7	8																																																																

COORDINATOR PATTERN	2	SPLIT PATTERN																																																			
CYCLE LENGTH (SECONDS)	120	SEQUENCE																																																			
OFFSET VALUE	37	OFFSETS IN	Per																																																		
SPLITS IN	Per																																																				
CROSSING ARTERY PATTERN																																																					
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																																																			
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	2																																																		
ACTUATED COORDINATION	Yes	TIMING PLAN																																																			
ACTUATED REST IN WALK		PHASE RESERVICE																																																			
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	1	2	3	4																																																	
RING SPLIT EXTENSION (SECONDS)																																																					
SPLIT DEMAND PATTERN																																																					
RING DISPLACEMENT																																																					
	1	2	3	4																																																	
	5	6	7	8																																																	
	9	0	1	2																																																	
	3	4	5	6																																																	
PREFER ENCE 1 PHASES																																																					
PREFER ENCE 2 PHASES																																																					

COORDINATOR PATTERN	3	SPLIT PATTERN																																																			
CYCLE LENGTH (SECONDS)	130	SEQUENCE																																																			
OFFSET VALUE	1	OFFSETS IN	Per																																																		
SPLITS IN	Per																																																				
CROSSING ARTERY PATTERN																																																					
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																																																			
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	3																																																		
ACTUATED COORDINATION	Yes	TIMING PLAN																																																			
ACTUATED REST IN WALK		PHASE RESERVICE																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="width: 25%;">1</td> <td style="width: 25%;">2</td> <td style="width: 25%;">3</td> <td style="width: 25%;">4</td> </tr> <tr> <td>RING SPLIT EXTENSION (SECONDS)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SPLIT DEMAND PATTERN</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5">RING DISPLACEMENT</td> </tr> <tr> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td></td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td></td> <td>9</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td></td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>PREFER ENCE 1 PHASES</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PREFER ENCE 2 PHASES</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					1	2	3	4	RING SPLIT EXTENSION (SECONDS)					SPLIT DEMAND PATTERN					RING DISPLACEMENT						1	2	3	4		5	6	7	8		9	0	1	2		3	4	5	6	PREFER ENCE 1 PHASES					PREFER ENCE 2 PHASES				
	1	2	3	4																																																	
RING SPLIT EXTENSION (SECONDS)																																																					
SPLIT DEMAND PATTERN																																																					
RING DISPLACEMENT																																																					
	1	2	3	4																																																	
	5	6	7	8																																																	
	9	0	1	2																																																	
	3	4	5	6																																																	
PREFER ENCE 1 PHASES																																																					
PREFER ENCE 2 PHASES																																																					

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN	4		
CYCLE LENGTH (SECONDS)	100	SPLIT PATTERN	
OFFSET VALUE	44		
SPLITS IN	Per	OFFSETS IN	Per
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	4
ACTUATED COORDINATION	Yes	TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)		3	4
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		10	11
			13
			15
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN	5		
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	5
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)		3	4
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		10	11
			13
			15
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)		3	4
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		10	11
			13
			15
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)		3	4
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		10	11
			13
			15
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

Per  
Per

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			



COORDINATOR PATTERN																
CYCLE LENGTH (SECONDS)		SPLIT PATTERN														
OFFSET VALUE		SEQUENCE														
SPLITS IN		OFFSETS IN														
CROSSING ARTERY PATTERN																
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH														
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN														
ACTUATED COORDINATION		TIMING PLAN														
ACTUATED REST IN WALK		PHASE RESERVICE														
RING SPLIT EXTENSION (SECONDS)		1	2	3	4											
SPLIT DEMAND PATTERN																
RING DISPLACEMENT																
		1	2	3	4	5		8	9	1	1	1	1	1	1	1
										0	1		3		5	
PREFERENCE 1 PHASES																
PREFERENCE 2 PHASES																

COORDINATOR PATTERN																
CYCLE LENGTH (SECONDS)		SPLIT PATTERN														
OFFSET VALUE		SEQUENCE														
SPLITS IN		OFFSETS IN														
CROSSING ARTERY PATTERN																
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH														
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN														
ACTUATED COORDINATION		TIMING PLAN														
ACTUATED REST IN WALK		PHASE RESERVICE														
RING SPLIT EXTENSION (SECONDS)		1	2	3	4											
SPLIT DEMAND PATTERN																
RING DISPLACEMENT																
		1	2	3	4	5	6	7	8	9	1	1	1	1	1	1
											0	1	2	3	4	5
PREFERENCE 1 PHASES																
PREFERENCE 2 PHASES																

### 3-3 SPLIT PATTERN

SPLIT PATTERN NUMBER		1																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		9	54	0	37	9	54	0	37											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		2																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		10	50	0	40	10	50	0	40											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		3																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		12	51	0	37	9	54	0	37											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		4																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		11	42	0	47	11	42	0	47											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

### 3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

### 3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

### 3-4 AUTO PERMISSIVE MINIMUM GREEN TIME

PHASE	1	2	3	4	5	6	7	8								
MINIMUM GREEN																
PHASE	9	10	11	12	13	14	15	16								
MINIMUM GREEN																

### 3-5 SPLIT DEMAND

PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
DEMAND 1																	
DEMAND 2																	
DEMAND	1		2														
DETECTOR																	
CALL TIME (SECONDS)																	
CYCLE COUNT																	

# PREEMPTOR SUBMENU

## 4-1 PREEMPTOR

PREEMPTOR NUMBER	1																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/ EXIT YELLOW /RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION									EXIT TIMING PLAN											
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT									PREEMPTOR ACTIVE OUT IN DWELL											
OTHER PRIORITY PREEMPTOR OUT									NON-PRIORITY PREEMPTOR OUT											
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

PREEMPTOR NUMBER	2																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/EXIT YELLOW/RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION									EXIT TIMING PLAN											
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT									PREEMPTOR ACTIVE OUT IN DWELL											
OTHER PRIORITY PREEMPTOR OUT									NON-PRIORITY PREEMPTOR OUT											
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

## 4-2 LOW PRIORITY PREEMPTOR SELECTION

FILTERED INPUT	SOLID	PULSING
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		3															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		4															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		5															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH																	
FLASH EXIT COLOR																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION					EXIT TIMING PLAN												
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL												
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT												
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		6															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH																	
FLASH EXIT COLOR																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION					EXIT TIMING PLAN												
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL												
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT												
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

**4-1 PREEMPTOR (CONTINUED)**

PREEMPTOR NUMBER		7															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		8															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	



### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		9															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		10															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

# TIME BASE SUBMENU

## 5-1 CLOCK/CALENDAR DATA

DATE SET:	
TIME SET:	
MANUAL ACTION PLAN	
SYNC REFERENCE TIME	
SYNC REFERENCE	
DAYLIGHT SAVINGS	
TIME RESET INPUT TIME SET	
STANDARD TIME FROM GMT	

## 5-2 SCHEDULE

SCHEDULE NUMBER	1
DAY PLAN NUMBER	1

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
		X	X	X	X	X				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	1
DAY PLAN NUMBER	2

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
	X						X			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										



PATTERN		1		SYSTEM OVERRIDE													
VEHICLE DETECTOR PLAN				DETECTOR LOG													
FLASH																	
RED REST				VEHICLE DET DIAGNOSTIC PLAN													
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN													
TIMING PLAN				DIMMING ENABLE													
PHASE		1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
PED RECALL																	
WALK 2																	
VEH EXT 2																	
VEH RECALL																	
MAX RECALL																	
MAX 2																	
MAX 3																	
CS INHIBIT																	
PHASE OMIT																	
SPEC FUNCTION																(1-8)	
AUX FUNCTION				(1-3)													
		1	2	3	4	5	6	7	8	9	10						
LP 1-10																	
LP 11-20																	
LP 21-30																	
LP 31-40																	
LP 41-50																	
LP 51-60																	
LP 61-70																	
LP 71-80																	
LP 81-90																	
LP 91-100																	

ACTION PLAN		3		SYSTEM OVERRIDE													
VEHICLE DETECTOR PLAN				DETECTOR LOG													
FLASH																	
RED REST				VEHICLE DET DIAGNOSTIC PLAN													
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN													
TIMING PLAN				DIMMING ENABLE													
PHASE		1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
PED RECALL																	
WALK 2																	
VEH EXT 2																	
VEH RECALL																	
MAX RECALL																	
MAX 2																	
MAX 3																	
CS INHIBIT																	
PHASE OMIT																	
SPEC FUNCTION																(1-8)	
AUX FUNCTION				(1-3)													
		1	2	3	4	5	6	7	8	9	10						
LP 1-10																	
LP 11-20																	
LP 21-30																	
LP 31-40																	
LP 41-50																	
LP 51-60																	
LP 61-70																	
LP 71-80																	
LP 81-90																	
LP 91-100																	

ACTION PLAN		2		SYSTEM OVERRIDE													
VEHICLE DETECTOR PLAN				DETECTOR LOG													
FLASH																	
RED REST				VEHICLE DET DIAGNOSTIC PLAN													
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN													
TIMING PLAN				DIMMING ENABLE													
PHASE		1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
PED RECALL																	
WALK 2																	
VEH EXT 2																	
VEH RECALL																	
MAX RECALL																	
MAX 2																	
MAX 3																	
CS INHIBIT																	
PHASE OMIT																	
SPEC FUNCTION																(1-8)	
AUX FUNCTION				(1-3)													
		1	2	3	4	5	6	7	8	9	10						
LP 1-10																	
LP 11-20																	
LP 21-30																	
LP 31-40																	
LP 41-50																	
LP 51-60																	
LP 61-70																	
LP 71-80																	
LP 81-90																	
LP 91-100																	

ACTION PLAN		4		SYSTEM OVERRIDE													
VEHICLE DETECTOR PLAN				DETECTOR LOG													
FLASH																	
RED REST				VEHICLE DET DIAGNOSTIC PLAN													
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN													
TIMING PLAN				DIMMING ENABLE													
PHASE		1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
PED RECALL																	
WALK 2																	
VEH EXT 2																	
VEH RECALL																	
MAX RECALL																	
MAX 2																	
MAX 3																	
CS INHIBIT																	
PHASE OMIT																	
SPEC FUNCTION																(1-8)	
AUX FUNCTION				(1-3)													
		1	2	3	4	5	6	7	8	9	10						
LP 1-10																	
LP 11-20																	
LP 21-30																	
LP 31-40																	
LP 41-50																	
LP 51-60																	
LP 61-70																	
LP 71-80																	
LP 81-90																	
LP 91-100																	

ACTION PLAN																					
PATTERN		5					SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN							DETECTOR LOG														
FLASH																					
RED REST							VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE							PED DET DIAGNOSTIC PLAN														
TIMING PLAN							DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	1
PED RECALL																					
WALK 2																					
VEH EXT 2																					
VEH RECALL																					
MAX RECALL																					
MAX 2																					
MAX 3																					
CS INHIBIT																					
PHASE OMIT																					
SPEC FUNCTION																					(1-8)
AUX FUNCTION																					(1-3)
		1	2	3	4	5	6	7	8	9	10										
LP 1-10																					
LP 11-20																					
LP 21-30																					
LP 31-40																					
LP 41-50																					
LP 51-60																					
LP 61-70																					
LP 71-80																					
LP 81-90																					
LP 91-100																					

ACTION PLAN																					
PATTERN							SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN							DETECTOR LOG														
FLASH																					
RED REST							VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE							PED DET DIAGNOSTIC PLAN														
TIMING PLAN							DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	1
PED RECALL																					
WALK 2																					
VEH EXT 2																					
VEH RECALL																					
MAX RECALL																					
MAX 2																					
MAX 3																					
CS INHIBIT																					
PHASE OMIT																					
SPEC FUNCTION																					(1-8)
AUX FUNCTION																					(1-3)
		1	2	3	4	5	6	7	8	9	10										
LP 1-10																					
LP 11-20																					
LP 21-30																					
LP 31-40																					
LP 41-50																					
LP 51-60																					
LP 61-70																					
LP 71-80																					
LP 81-90																					
LP 91-100																					

ACTION PLAN																					
PATTERN							SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN							DETECTOR LOG														
FLASH																					
RED REST							VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE							PED DET DIAGNOSTIC PLAN														
TIMING PLAN							DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	1
PED RECALL																					
WALK 2																					
VEH EXT 2																					
VEH RECALL																					
MAX RECALL																					
MAX 2																					
MAX 3																					
CS INHIBIT																					
PHASE OMIT																					
SPEC FUNCTION																					(1-8)
AUX FUNCTION																					(1-3)
		1	2	3	4	5	6	7	8	9	10										
LP 1-10																					
LP 11-20																					
LP 21-30																					
LP 31-40																					
LP 41-50																					
LP 51-60																					
LP 61-70																					
LP 71-80																					
LP 81-90																					
LP 91-100																					

ACTION PLAN																					
PATTERN							SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN							DETECTOR LOG														
FLASH																					
RED REST							VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE							PED DET DIAGNOSTIC PLAN														
TIMING PLAN							DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	1
PED RECALL																					
WALK 2																					
VEH EXT 2																					
VEH RECALL																					
MAX RECALL																					
MAX 2																					
MAX 3																					
CS INHIBIT																					
PHASE OMIT																					
SPEC FUNCTION																					(1-8)
AUX FUNCTION																					(1-3)
		1	2	3	4	5	6	7	8	9	10										
LP 1-10																					
LP 11-20																					
LP 21-30																					
LP 31-40																					
LP 41-50																					
LP 51-60																					
LP 61-70																					
LP 71-80																					
LP 81-90																					
LP 91-100																					

# 5-5 EXCEPTION DAY PROGRAM

EXCEPTION DAY	FLOAT / FIXED	MON / MON	DOW / DOM	WOM / YEAR	DAY PLAN
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					



# DETECTORS

## 6-1. DETECTOR TYPE AND TS SELECT

DET	TYPE	TS1 DETECTOR
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		

DET	TYPE	TS1 DETECTOR
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
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62		
63		
64		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

## 6-2 VEHICLE DETECTOR SETUP

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1 1 1	
CALLED		

### 6-3 PHASE DETECTOR OPTIONS

PHASE DETECTOR OPTION PLAN NUMBER										1						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										2						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										3						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										4						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

### 6-4 PEDESTRIAN AND SYSTEM DETECTOR OPTIONS

PHASE PEDESTRIAN DETECTOR								
	1	2	3	4	5	6	7	8
PED DET INPUT								
	9	10	11	12	13	14	15	16
PED DET INPUT								
LOCAL SYSTEM DETECTOR								
	1	2	3	4	5	6	7	8
VEH DET INPUT								
	9	10	11	12	13	14	15	16
VEH DET INPUT								

### 6-5 LOG – SPEED DETECTOR SET UP

NTCIP LOG PERIOD								
ECPI LOG PERIOD								
LENGTH UNIT								
SPEED DETECTOR	1	2	3	4	5	6	7	8
LOCAL DETECTOR								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								
SPEED DETECTOR	9	10	11	12	13	14	15	16
LOCAL DETECTOR								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								

# 6-6 VEHICLE DETECTOR DIAGNOSTICS

VEHICLE DIAGNOSTIC PLAN NUMBER					1
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

VEHICLE DIAGNOSTIC PLAN NUMBER					2
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

**6-6 VEHICLE DETECTOR DIAGNOSTICS  
(CONTINUED)**

VEHICLE DIAGNOSTIC PLAN NUMBER					3
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

VEHICLE DIAGNOSTIC PLAN NUMBER					4
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

### 6-7 PEDESTRIAN DETECTOR DIAGNOSTICS

PED DIAGNOSTIC PLAN NUMBER 1					PED DIAGNOSTIC PLAN NUMBER 2				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
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				
16					16				

PED DIAGNOSTIC PLAN NUMBER 3					PED DIAGNOSTIC PLAN NUMBER 4				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
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				
16					16				

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# 18. APPENDIX D: PROGRAM REFERENCE CARD

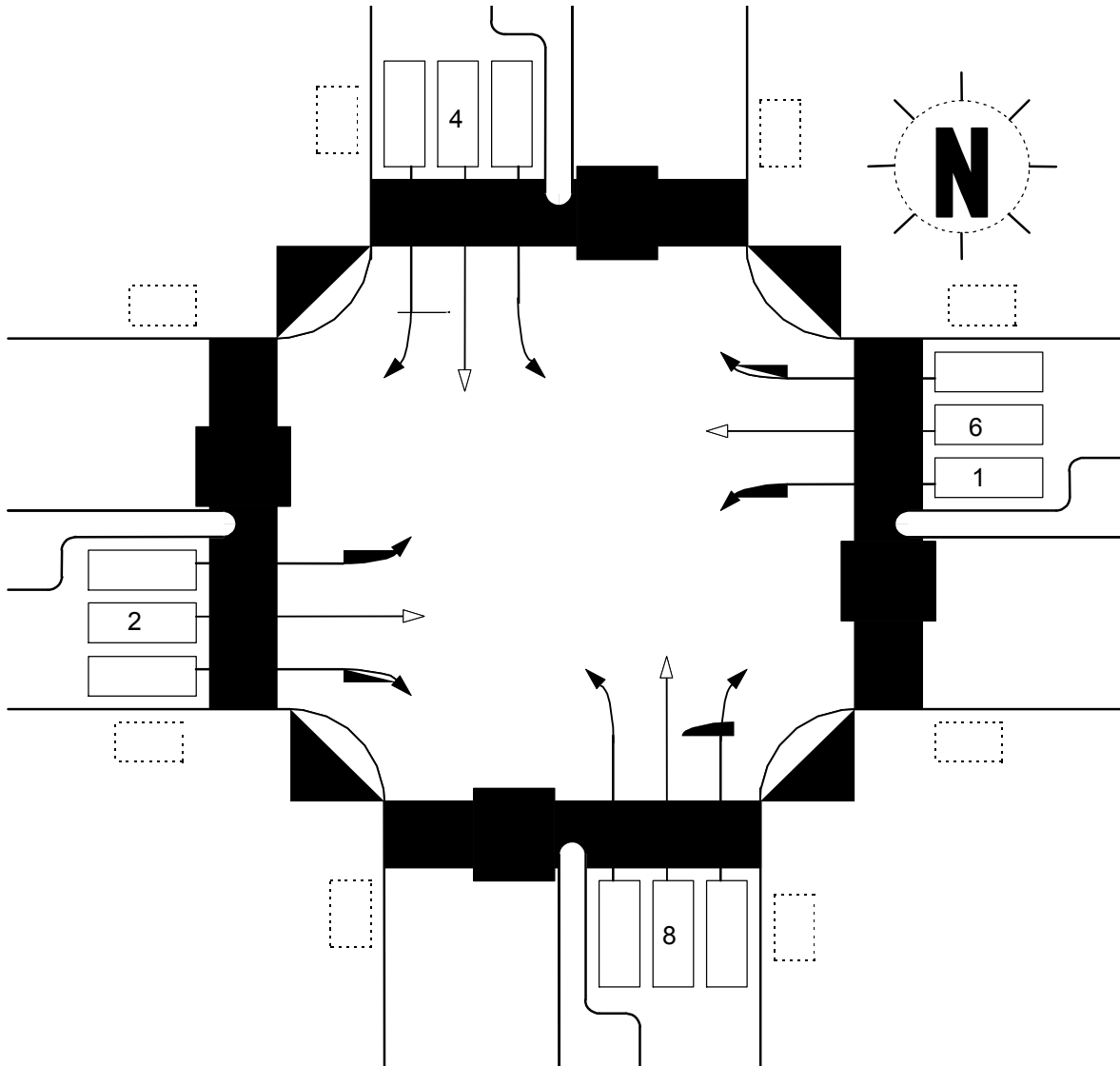
## ASC/3

### PROGRAM REFERENCE CARD

INTERSECTION Dundas Street & Meadowridge Drive

CONTROLLER NUMBER \_\_\_\_\_ ENTERED BY: \_\_\_\_\_ DATE 03/27/17

BOOT: \_\_\_\_\_ MAIN: \_\_\_\_\_ HELP: \_\_\_\_\_ DATA BASE \_\_\_\_\_





## CONFIGURATION SUBMENU

### 1-1-1. PHASE RING ASSIGNMENT

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

### 1-1-2. PHASE COMPATIBILITY

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

### 1-2. PHASES IN USE / EXCLUSIVE PED

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASES IN USE																
EXCLUSIVE PED																

### 1-1-4. BACKUP PREVENT PHASES

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

### 1-1-5 SIMULTANEOUS GAP

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

### 1-1-3. PHASE RING SEQUENCE

CONTROLLER 1			SEQUENCE 1																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 2																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 3																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 4																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 5																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 6																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 7																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 8																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				

### 1-1-3. PHASE RING SEQUENCE (CONT)

CONTROLLER 1		SEQUENCE 9																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 10																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 11																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 12																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 13																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 14																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 15																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 16																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			

### 1-3. PHASE TO LOAD SWITCH (MMU) ASSIGNMENT

LOAD SWITCH	PHASE / OVERLAP	TYPE	DIMMING				AUTO FLASH	
			RED	YELLOW	GREEN	PHASE	COLOR	TOGGLE - THER
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

### 1-4-2. MMU PROGRAM

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

### 1-4-1. SDLC OPTIONS

TERM & FACIL	BIU NUMBER							
	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
DETECTOR RACK	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
MMU ENABLE								
MMU STOP TIME								
DIAGNOSTIC ENABLE (TEST FIXTURE)								
CONTROLLER PEER TO PEER ENABLE								
DISABLE 3 CRITICAL RFEs LOCKUP								

### 1-4-3. COLOR CHECK DISABLE

DISABLE ALL COLOR CHECKS																
MMU CHANNEL	1	2	3	4	5	6	7	8								
GREEN / WALK																
YELLOW / PC																
RED / DW																
MMU CHANNEL	9	10	11	12	13	14	15	16								
GREEN / WALK																
YELLOW / PC																
RED / DW																

### 1-5-1 GLOBAL PORT PARAMETERS

NTCIP BACKUP TIME (SECONDS)	
PORT 2 PRIORITY	
PORT 3A PRIORITY	
PORT 3B PRIORITY	
ETHERNET PRIORITY	

### 1-5-1 PORT 2 (TERMINAL)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-5-3 PORT 3A (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
ELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-7-1 ADMINISTRATION

SUPERVISOR ACCESS CODE	
ENABLE CRC CHECK OF DATA BASE	
CRC OF PROGRAM DATA BASE	
REQUEST DOWNLOAD OF PROGRAMMED DATA	

### 1-7-2 DISPLAY OPTIONS

KEY CLICK ENABLE	
BACKLIGHT ENABLE	

### 1-5-4. PORT 3B (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-5-5 ETHERNET PORT CONFIGURATION

IP ADDRESS					
ADDRESS MASK					
FTP SERVER ADDRESS					
DEFAULT GATEWAY ADDRESS					

### 1-6-1 ENABLE EVENT LOGS

CRITICAL RFE'S (MMU/TE)	
3 CRITICAL RFE ERRORS IN 24 HOURS	
NON-CRITICAL RFE'S (DET/TEST)	
DETECTOR ERRORS	
COORDINATION ERRORS	
MMU FLASH FAULTS	
LOCAL FLASH FAULTS	
PREEMPT	
POWER ON/OFF	
LOW BATTERY	
ACCESS	
DATA CHANGE	
CONTROLLER DOWNLOAD	
ALARM 1	
ALARM 2	
ALARM 3	
ALARM 4	
ALARM 5	
ALARM 6	
ALARM 7	
ALARM 8	
ALARM 9	
ALARM 10	
ALARM 11	
ALARM 12	
ALARM 13	
ALARM 14	
ALARM 15	
ALARM 16	



1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				

IF				
THEN				
ELSE				

THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
IF				

LOGIC GATE NUMBER				
IF				



THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

## CONTROLLER SUBMENU

### 2-1. CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN	7	20	7	10	7	20	7	10								
BICYCLE MINIMUM GREEN																
CONDITIONAL SERVICE MINIMUM GREEN																
DELAYED GREEN																
WALK		7		7		7		7								
WALK 2																
WALK MAX																
PEDESTRIAN CLEARANCE		23		30		23		30								
PEDESTRIAN CLEARANCE 2																
PEDESTRIAN CLEARANCE MAX																
PEDESTRIAN CARRY OVER																
VEHICLE EXTENSION	3.5	5.5	3.5	3.5	3.5	5.5	3.5	3.5								
VEHICLE EXTENSION 2																
MAX1	20	55		30		55		30								
MAX2	20	60		30		60		30								
MAX3																
DYNAMIC MAX																
DYNAMIC MAX STEP																
YELLOW CHANGE	3.0	4.2		3.3		4.2		3.3								
RED CLRANCE	1.0	2.5		3.6		2.5		3.6								
RED MAX																
RED REVERT																
ACTUATIONS BEFORE GAP REDUCTION																
SECONDS PER ACTIONS ADDED TO INITIAL																
MAXIMUM ADDED INITIAL GREEN																
TIME BEFORE GAP REDUCTION																
CARS WAITING BEFORE GAP REDUCTION																
STEP TO REDUCE																
TIME TO REDUCE TO MINIMUM																
MINIMUM GAP																

## 2-2 VEHICLE OVERLAP

OVERLAP A PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP C PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP B PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP D PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP E PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP G PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP F PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP H PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP I PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP K PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP J PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP L PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP M PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECTED																
MODIFIER																
PEDESTRIAN PROTECT NOT OVERLAP																
TRAILING GREEN																
TRAILING YELLOW																
TRAILING RED																
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TRAILING LEADING																
ADVANCE GREEN																
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FLASH GREEN																

OVERLAP O PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECTED																
MODIFIER																
PEDESTRIAN PROTECT NOT OVERLAP																
TRAILING GREEN																
TRAILING YELLOW																
TRAILING RED																
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TRAILING LEADING																
ADVANCE GREEN																
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FLASH GREEN																

OVERLAP N PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECTED																
MODIFIER																
PEDESTRIAN PROTECT NOT OVERLAP																
TRAILING GREEN																
TRAILING YELLOW																
TRAILING RED																
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TRAILING LEADING																
ADVANCE GREEN																
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FLASH GREEN																

OVERLAP P PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INCLUDED																
PROTECTED																
MODIFIER																
PEDESTRIAN PROTECT NOT OVERLAP																
TRAILING GREEN																
TRAILING YELLOW																
TRAILING RED																
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TRAILING LEADING																
ADVANCE GREEN																
PHASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FLASH GREEN																

## 2-3 PEDESTRIAN OVERLAP

PEDESTRIAN OVERLAP CONSISTS OF PHASES																
PEDESTRIAN OVERLAP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																

## 2-4 GUARANTEED MINIMUM TIMES

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN																
WALK																
PEDESTRIAN CLEARANCE																
YELLOW CHANGE																
RED CLEARANCE																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
MINIMUM GREEN																

### 2-5 START / FLASH DATA

POWER START																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
OVERLAP																
POWER START RED									FLASH TIME							
REMOTE (AUTOMATIC) FLASH																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ENTRY																
EXIT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
EXIT																
EXIT REMOTE FLASH									MINIMUM AUTOMATIC FLASH							
MINIMUM RECALL									CYCLE THROUGH PHASES							

### 2-6-1 CONTROLLER OPTIONS

PEDESTRIAN CLEARANCE PROTECT																
UNIT RED REVERT																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
GUARANTEE D PASSAGE																
NON-ACT I																
NON ACT II																
DUAL ENTRY																
PED RESERVICE																
REST IN WALK																
FLASHING WALK																
PED CLEAR > YELLOW																
PED CLEAR > ALL RED																
INIT GREEN + VEHICLE EXIT																

### 2-7 ACTUATED / PRE-TIMED MODE PHASES

ENABLE PRE-TIMED OPERATION																
FREE INPUT DISABLED PRE-TIMED																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
PRE - TIMED																





### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN	4		
CYCLE LENGTH (SECONDS)	100	SPLIT PATTERN	
OFFSET VALUE	8		
SPLITS IN	Per	OFFSETS IN	Per
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	4
ACTUATED COORDINATION	Yes	TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)		3	4
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
			5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN	5		
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	5
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)		3	4
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
			5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)		3	4
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
			5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)		3	4
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
			5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

Per  
Per

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
		1	5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
		1	5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
		1	5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
		1	5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN																								
CYCLE LENGTH (SECONDS)		SPLIT PATTERN																						
OFFSET VALUE		SEQUENCE																						
SPLITS IN		OFFSETS IN																						
CROSSING ARTERY PATTERN																								
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																						
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN																						
ACTUATED COORDINATION		TIMING PLAN																						
ACTUATED REST IN WALK		PHASE RESERVICE																						
RING SPLIT EXTENSION (SECONDS)		1				2				3				4										
SPLIT DEMAND PATTERN																								
RING DISPLACEMENT																								
		1	2	3	4	5			8	9	1	1			1	1			1	1			1	1
PREFERENCE 1 PHASES										0	1				3								5	
PREFERENCE 2 PHASES																								

COORDINATOR PATTERN																								
CYCLE LENGTH (SECONDS)		SPLIT PATTERN																						
OFFSET VALUE		SEQUENCE																						
SPLITS IN		OFFSETS IN																						
CROSSING ARTERY PATTERN																								
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																						
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN																						
ACTUATED COORDINATION		TIMING PLAN																						
ACTUATED REST IN WALK		PHASE RESERVICE																						
RING SPLIT EXTENSION (SECONDS)		1				2				3				4										
SPLIT DEMAND PATTERN																								
RING DISPLACEMENT																								
		1	2	3	4	5			8	9	1	1			1	1			1	1			1	1
PREFERENCE 1 PHASES										0	1				3								5	
PREFERENCE 2 PHASES																								

COORDINATOR PATTERN																								
CYCLE LENGTH (SECONDS)		SPLIT PATTERN																						
OFFSET VALUE		SEQUENCE																						
SPLITS IN		OFFSETS IN																						
CROSSING ARTERY PATTERN																								
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																						
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN																						
ACTUATED COORDINATION		TIMING PLAN																						
ACTUATED REST IN WALK		PHASE RESERVICE																						
RING SPLIT EXTENSION (SECONDS)		1				2				3				4										
SPLIT DEMAND PATTERN																								
RING DISPLACEMENT																								
		1	2	3	4	5			8	9	1	1			1	1			1	1			1	1
PREFERENCE 1 PHASES										0	1				3								5	
PREFERENCE 2 PHASES																								

COORDINATOR PATTERN																								
CYCLE LENGTH (SECONDS)		SPLIT PATTERN																						
OFFSET VALUE		SEQUENCE																						
SPLITS IN		OFFSETS IN																						
CROSSING ARTERY PATTERN																								
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																						
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN																						
ACTUATED COORDINATION		TIMING PLAN																						
ACTUATED REST IN WALK		PHASE RESERVICE																						
RING SPLIT EXTENSION (SECONDS)		1				2				3				4										
SPLIT DEMAND PATTERN																								
RING DISPLACEMENT																								
		1	2	3	4	5			8	9	1	1			1	1			1	1			1	1
PREFERENCE 1 PHASES										0	1				3								5	
PREFERENCE 2 PHASES																								



### 3-3 SPLIT PATTERN

SPLIT PATTERN NUMBER		1																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		11	54	0	35	0	65	0	35											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		2																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		10	52	0	38	0	62	0	38											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		3																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		16	49	0	35	0	65	0	35											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		4																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		11	44	0	45	0	55	0	45											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

### 3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

### 3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

### 3-4 AUTO PERMISSIVE MINIMUM GREEN TIME

PHASE	1	2	3	4	5	6	7	8
MINIMUM GREEN								
PHASE	9	10	11	12	13	14	15	16
MINIMUM GREEN								

### 3-5 SPLIT DEMAND

PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
DEMAND 1																	
DEMAND 2																	
DEMAND	1		2														
DETECTOR																	
CALL TIME (SECONDS)																	
CYCLE COUNT																	



# PREEMPTOR SUBMENU

## 4-1 PREEMPTOR

PREEMPTOR NUMBER	1																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/ EXIT YELLOW /RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION									EXIT TIMING PLAN											
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT									PREEMPTOR ACTIVE OUT IN DWELL											
OTHER PRIORITY PREEMPTOR OUT									NON-PRIORITY PREEMPTOR OUT											
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

PREEMPTOR NUMBER	2																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/EXIT YELLOW/RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION									EXIT TIMING PLAN											
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT									PREEMPTOR ACTIVE OUT IN DWELL											
OTHER PRIORITY PREEMPTOR OUT									NON-PRIORITY PREEMPTOR OUT											
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

## 4-2 LOW PRIORITY PREEMPTOR SELECTION

FILTERED INPUT	SOLID	PULSING
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		3															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		4															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		5															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH																	
FLASH EXIT COLOR																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION					EXIT TIMING PLAN												
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL												
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT												
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		6															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH																	
FLASH EXIT COLOR																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION					EXIT TIMING PLAN												
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL												
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT												
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		7															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		8															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		9															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		10															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

# TIME BASE SUBMENU

## 5-1 CLOCK/CALENDAR DATA

DATE SET:	
TIME SET:	
MANUAL ACTION PLAN	
SYNC REFERENCE TIME	
SYNC REFERENCE	
DAYLIGHT SAVINGS	
TIME RESET INPUT TIME SET	
STANDARD TIME FROM GMT	

## 5-2 SCHEDULE

SCHEDULE NUMBER	1
DAY PLAN NUMBER	1

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
		x	x	x	x	x				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	1
DAY PLAN NUMBER	2

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
	x						x			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER													
DAY PLAN NUMBER													
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE							
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER							
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT						
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10			
	11	12	13	14	15	16	17	18	19	20			
	21	22	23	24	25	26	27	28	29	30			
	31												

SCHEDULE NUMBER													
DAY PLAN NUMBER													
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE							
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER							
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT						
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10			
	11	12	13	14	15	16	17	18	19	20			
	21	22	23	24	25	26	27	28	29	30			
	31												

SCHEDULE NUMBER													
DAY PLAN NUMBER													
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE							
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER							
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT						
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10			
	11	12	13	14	15	16	17	18	19	20			
	21	22	23	24	25	26	27	28	29	30			
	31												

SCHEDULE NUMBER													
DAY PLAN NUMBER													
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE							
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER							
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT						
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10			
	11	12	13	14	15	16	17	18	19	20			
	21	22	23	24	25	26	27	28	29	30			
	31												

SCHEDULE NUMBER													
DAY PLAN NUMBER													
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE							
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER							
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT						
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10			
	11	12	13	14	15	16	17	18	19	20			
	21	22	23	24	25	26	27	28	29	30			
	31												

SCHEDULE NUMBER													
DAY PLAN NUMBER													
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE							
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER							
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT						
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10			
	11	12	13	14	15	16	17	18	19	20			
	21	22	23	24	25	26	27	28	29	30			
	31												

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											





PATTERN		1		SYSTEM OVERRIDE												
VEHICLE DETECTOR PLAN				DETECTOR LOG												
FLASH				VEHICLE DET DIAGNOSTIC PLAN												
RED REST				PED DET DIAGNOSTIC PLAN												
CONTROLLER SEQUENCE				DIMMING ENABLE												
TIMING PLAN																
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
PED RECALL																
WALK 2																
VEH EXT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION															(1-8)	
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10						
LP 1-10																
LP 11-20																
LP 21-30																
LP 31-40																
LP 41-50																
LP 51-60																
LP 61-70																
LP 71-80																
LP 81-90																
LP 91-100																

ACTION PLAN		3		SYSTEM OVERRIDE												
VEHICLE DETECTOR PLAN				DETECTOR LOG												
FLASH				VEHICLE DET DIAGNOSTIC PLAN												
RED REST				PED DET DIAGNOSTIC PLAN												
CONTROLLER SEQUENCE				DIMMING ENABLE												
TIMING PLAN																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
PED RECALL																
WALK 2																
VEH EXT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION															(1-8)	
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10						
LP 1-10																
LP 11-20																
LP 21-30																
LP 31-40																
LP 41-50																
LP 51-60																
LP 61-70																
LP 71-80																
LP 81-90																
LP 91-100																

ACTION PLAN		2		SYSTEM OVERRIDE												
VEHICLE DETECTOR PLAN				DETECTOR LOG												
FLASH				VEHICLE DET DIAGNOSTIC PLAN												
RED REST				PED DET DIAGNOSTIC PLAN												
CONTROLLER SEQUENCE				DIMMING ENABLE												
TIMING PLAN																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
PED RECALL																
WALK 2																
VEH EXT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION															(1-8)	
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10						
LP 1-10																
LP 11-20																
LP 21-30																
LP 31-40																
LP 41-50																
LP 51-60																
LP 61-70																
LP 71-80																
LP 81-90																
LP 91-100																

ACTION PLAN		4		SYSTEM OVERRIDE												
VEHICLE DETECTOR PLAN				DETECTOR LOG												
FLASH				VEHICLE DET DIAGNOSTIC PLAN												
RED REST				PED DET DIAGNOSTIC PLAN												
CONTROLLER SEQUENCE				DIMMING ENABLE												
TIMING PLAN																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
PED RECALL																
WALK 2																
VEH EXT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION															(1-8)	
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10						
LP 1-10																
LP 11-20																
LP 21-30																
LP 31-40																
LP 41-50																
LP 51-60																
LP 61-70																
LP 71-80																
LP 81-90																
LP 91-100																

ACTION PLAN		5															
PATTERN	5										SYSTEM OVERRIDE						
VEHICLE DETECTOR PLAN											DETECTOR LOG						
FLASH																	
RED REST											VEHICLE DET DIAGNOSTIC PLAN						
CONTROLLER SEQUENCE											PED DET DIAGNOSTIC PLAN						
TIMING PLAN											DIMMING ENABLE						
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
PED RECALL																	
WALK 2																	
VEH EXT 2																	
VEH RECALL																	
MAX RECALL																	
MAX 2																	
MAX 3																	
CS INHIBIT																	
PHASE OMIT																	
SPEC FUNCTION											(1-8)						
AUX FUNCTION											(1-3)						
	1	2	3	4	5	6	7	8	9	10							
LP 1-10																	
LP 11-20																	
LP 21-30																	
LP 31-40																	
LP 41-50																	
LP 51-60																	
LP 61-70																	
LP 71-80																	
LP 81-90																	
LP 91-100																	

ACTION PLAN																	
PATTERN											SYSTEM OVERRIDE						
VEHICLE DETECTOR PLAN											DETECTOR LOG						
FLASH																	
RED REST											VEHICLE DET DIAGNOSTIC PLAN						
CONTROLLER SEQUENCE											PED DET DIAGNOSTIC PLAN						
TIMING PLAN											DIMMING ENABLE						
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
PED RECALL																	
WALK 2																	
VEH EXT 2																	
VEH RECALL																	
MAX RECALL																	
MAX 2																	
MAX 3																	
CS INHIBIT																	
PHASE OMIT																	
SPEC FUNCTION											(1-8)						
AUX FUNCTION											(1-3)						
	1	2	3	4	5	6	7	8	9	10							
LP 1-10																	
LP 11-20																	
LP 21-30																	
LP 31-40																	
LP 41-50																	
LP 51-60																	
LP 61-70																	
LP 71-80																	
LP 81-90																	
LP 91-100																	

ACTION PLAN																	
PATTERN											SYSTEM OVERRIDE						
VEHICLE DETECTOR PLAN											DETECTOR LOG						
FLASH																	
RED REST											VEHICLE DET DIAGNOSTIC PLAN						
CONTROLLER SEQUENCE											PED DET DIAGNOSTIC PLAN						
TIMING PLAN											DIMMING ENABLE						
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
PED RECALL																	
WALK 2																	
VEH EXT 2																	
VEH RECALL																	
MAX RECALL																	
MAX 2																	
MAX 3																	
CS INHIBIT																	
PHASE OMIT																	
SPEC FUNCTION											(1-8)						
AUX FUNCTION											(1-3)						
	1	2	3	4	5	6	7	8	9	10							
LP 1-10																	
LP 11-20																	
LP 21-30																	
LP 31-40																	
LP 41-50																	
LP 51-60																	
LP 61-70																	
LP 71-80																	
LP 81-90																	
LP 91-100																	

ACTION PLAN																	
PATTERN											SYSTEM OVERRIDE						
VEHICLE DETECTOR PLAN											DETECTOR LOG						
FLASH																	
RED REST											VEHICLE DET DIAGNOSTIC PLAN						
CONTROLLER SEQUENCE											PED DET DIAGNOSTIC PLAN						
TIMING PLAN											DIMMING ENABLE						
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
PED RECALL																	
WALK 2																	
VEH EXT 2																	
VEH RECALL																	
MAX RECALL																	
MAX 2																	
MAX 3																	
CS INHIBIT																	
PHASE OMIT																	
SPEC FUNCTION											(1-8)						
AUX FUNCTION											(1-3)						
	1	2	3	4	5	6	7	8	9	10							
LP 1-10																	
LP 11-20																	
LP 21-30																	
LP 31-40																	
LP 41-50																	
LP 51-60																	
LP 61-70																	
LP 71-80																	
LP 81-90																	
LP 91-100																	

# 5-5 EXCEPTION DAY PROGRAM

EXCEPTION DAY	FLOAT / FIXED	MON / MON	DOW / DOM	WOM / YEAR	DAY PLAN
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

# DETECTORS

## 6-1. DETECTOR TYPE AND TS SELECT

DET	TYPE	TS1 DETECTOR
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		

DET	TYPE	TS1 DETECTOR
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
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59		
60		
61		
62		
63		
64		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

## 6-2 VEHICLE DETECTOR SETUP

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

### 6-3 PHASE DETECTOR OPTIONS

PHASE DETECTOR OPTION PLAN NUMBER										1						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										2						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										3						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										4						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

### 6-4 PEDESTRIAN AND SYSTEM DETECTOR OPTIONS

PHASE PEDESTRIAN DETECTOR								
	1	2	3	4	5	6	7	8
PED DET INPUT								
	9	10	11	12	13	14	15	16
PED DET INPUT								
LOCAL SYSTEM DETECTOR								
	1	2	3	4	5	6	7	8
VEH DET INPUT								
	9	10	11	12	13	14	15	16
VEH DET INPUT								

### 6-5 LOG – SPEED DETECTOR SET UP

NTCIP LOG PERIOD								
ECPI LOG PERIOD								
LENGTH UNIT								
SPEED DETECTOR	1	2	3	4	5	6	7	8
LOCAL DETECTOR								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								
SPEED DETECTOR	9	10	11	12	13	14	15	16
LOCAL DETECTOR								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								

# 6-6 VEHICLE DETECTOR DIAGNOSTICS

VEHICLE DIAGNOSTIC PLAN NUMBER					1				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
1					33				
2					34				
3					35				
4					36				
5					37				
6					38				
7					39				
8					40				
9					41				
10					42				
11					43				
12					44				
13					45				
14					46				
15					47				
16					48				
17					49				
18					50				
19					51				
20					52				
21					53				
22					54				
23					55				
24					56				
25					57				
26					58				
27					59				
28					60				
29					61				
30					62				
31					63				
32					64				

VEHICLE DIAGNOSTIC PLAN NUMBER					2				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
1					33				
2					34				
3					35				
4					36				
5					37				
6					38				
7					39				
8					40				
9					41				
10					42				
11					43				
12					44				
13					45				
14					46				
15					47				
16					48				
17					49				
18					50				
19					51				
20					52				
21					53				
22					54				
23					55				
24					56				
25					57				
26					58				
27					59				
28					60				
29					61				
30					62				
31					63				
32					64				



**6-6 VEHICLE DETECTOR DIAGNOSTICS  
(CONTINUED)**

VEHICLE DIAGNOSTIC PLAN NUMBER					3
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

VEHICLE DIAGNOSTIC PLAN NUMBER					4
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

### 6-7 PEDESTRIAN DETECTOR DIAGNOSTICS

PED DIAGNOSTIC PLAN NUMBER 1					PED DIAGNOSTIC PLAN NUMBER 2				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
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				
16					16				

PED DIAGNOSTIC PLAN NUMBER 3					PED DIAGNOSTIC PLAN NUMBER 4				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
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				
16					16				

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# 18. APPENDIX D: PROGRAM REFERENCE CARD

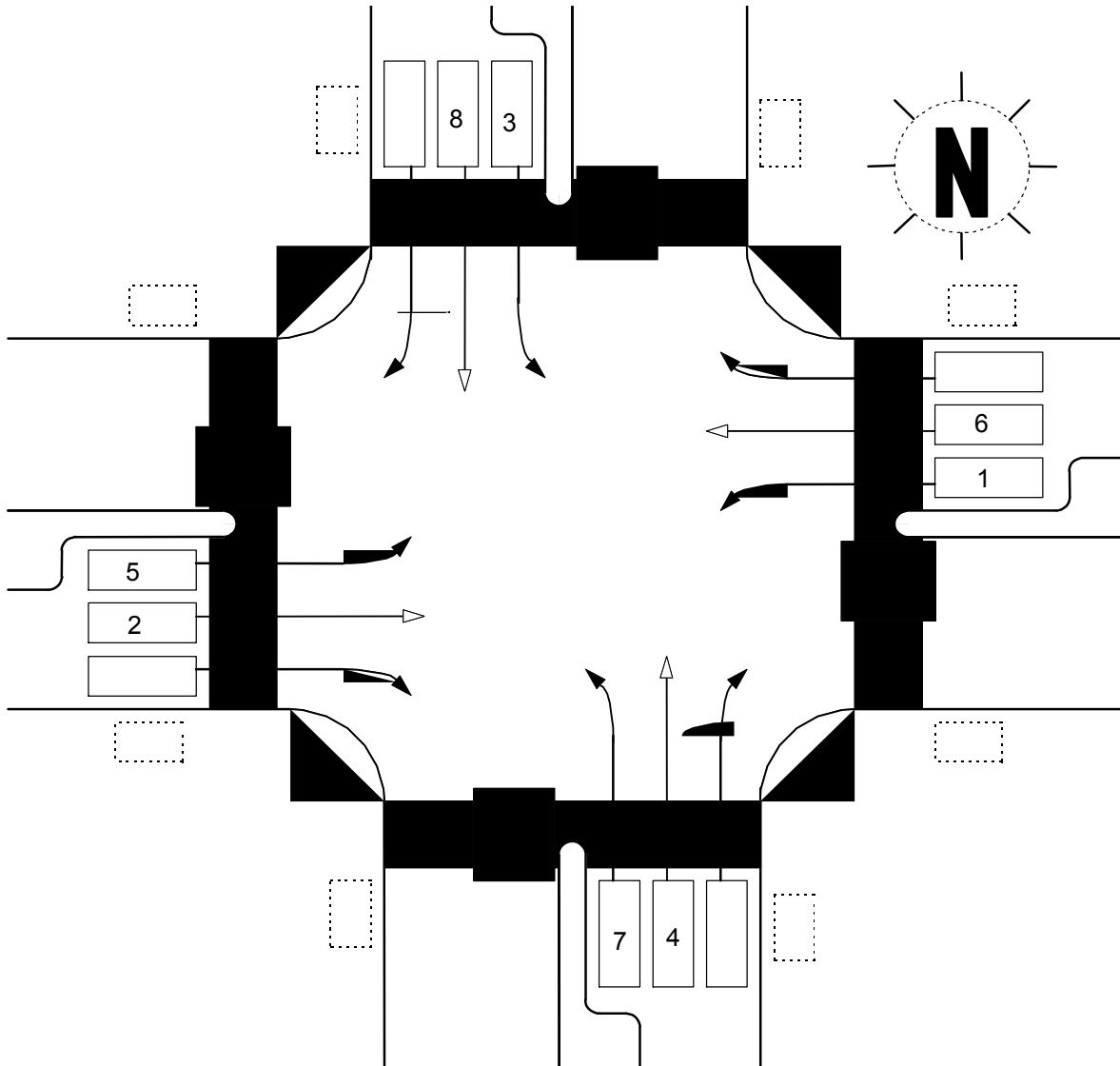
## ASC/3

### PROGRAM REFERENCE CARD

INTERSECTION Dundas Street & Ninth Line

CONTROLLER NUMBER \_\_\_\_\_ ENTERED BY: \_\_\_\_\_ DATE 03 / 13 / 17

BOOT: \_\_\_\_\_ MAIN: \_\_\_\_\_ HELP: \_\_\_\_\_ DATA BASE \_\_\_\_\_



## CONFIGURATION SUBMENU

### 1-1-1. PHASE RING ASSIGNMENT

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

### 1-1-2. PHASE COMPATIBILITY

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

### 1-2. PHASES IN USE / EXCLUSIVE PED

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASES IN USE																
EXCLUSIVE PED																

### 1-1-4. BACKUP PREVENT PHASES

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

### 1-1-5 SIMULTANEOUS GAP

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

### 1-1-3. PHASE RING SEQUENCE

CONTROLLER 1			SEQUENCE 1																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 2																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 3																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 4																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 5																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 6																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 7																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 8																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				

1-1-3. PHASE RING SEQUENCE (CONT)

CONTROLLER 1		SEQUENCE 9																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 10																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 11																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 12																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 13																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 14																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 15																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			
CONTROLLER 1		SEQUENCE 16																	
RING 1																			
RING 2																			
RING 3																			
RING 4																			

### 1-3. PHASE TO LOAD SWITCH (MMU) ASSIGNMENT

LOAD SWITCH	PHASE / OVERLAP	TYPE	DIMMING				AUTO FLASH	
			RED	YELLOW	GREEN	PHASE	COLOR	TOGGLE - THER
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

### 1-4-2. MMU PROGRAM

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

### 1-4-1. SDLC OPTIONS

TERM & FACIL	BIU NUMBER							
	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
DETECTOR RACK	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
MMU ENABLE								
MMU STOP TIME								
DIAGNOSTIC ENABLE (TEST FIXTURE)								
CONTROLLER PEER TO PEER ENABLE								
DISABLE 3 CRITICAL RFEs LOCKUP								

### 1-4-3. COLOR CHECK DISABLE

DISABLE ALL COLOR CHECKS																
MMU CHANNEL	1	2	3	4	5	6	7	8								
GREEN / WALK																
YELLOW / PC																
RED / DW																
MMU CHANNEL	9	10	11	12	13	14	15	16								
GREEN / WALK																
YELLOW / PC																
RED / DW																



### 1-5-1 GLOBAL PORT PARAMETERS

NTCIP BACKUP TIME (SECONDS)	
PORT 2 PRIORITY	
PORT 3A PRIORITY	
PORT 3B PRIORITY	
ETHERNET PRIORITY	

### 1-5-1 PORT 2 (TERMINAL)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-5-3 PORT 3A (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
ELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-7-1 ADMINISTRATION

SUPERVISOR ACCESS CODE	
ENABLE CRC CHECK OF DATA BASE	
CRC OF PROGRAM DATA BASE	
REQUEST DOWNLOAD OF PROGRAMMED DATA	

### 1-7-2 DISPLAY OPTIONS

KEY CLICK ENABLE	
BACKLIGHT ENABLE	

### 1-5-4. PORT 3B (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-5-5 ETHERNET PORT CONFIGURATION

IP ADDRESS					
ADDRESS MASK					
FTP SERVER ADDRESS					
DEFAULT GATEWAY ADDRESS					

### 1-6-1 ENABLE EVENT LOGS

CRITICAL RFE'S (MMU/TE)	
3 CRITICAL RFE ERRORS IN 24 HOURS	
NON-CRITICAL RFE'S (DET/TEST)	
DETECTOR ERRORS	
COORDINATION ERRORS	
MMU FLASH FAULTS	
LOCAL FLASH FAULTS	
PREEMPT	
POWER ON/OFF	
LOW BATTERY	
ACCESS	
DATA CHANGE	
CONTROLLER DOWNLOAD	
ALARM 1	
ALARM 2	
ALARM 3	
ALARM 4	
ALARM 5	
ALARM 6	
ALARM 7	
ALARM 8	
ALARM 9	
ALARM 10	
ALARM 11	
ALARM 12	
ALARM 13	
ALARM 14	
ALARM 15	
ALARM 16	





IF				
THEN				
ELSE				

THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
IF				

LOGIC GATE NUMBER				
IF				

THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

## CONTROLLER SUBMENU

### 2-1. CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN	7	20	7	10	7	20	7	10								
BICYCLE MINIMUM GREEN																
CONDITIONAL SERVICE MINIMUM GREEN																
DELAYED GREEN																
WALK		7		7		7		7								
WALK 2																
WALK MAX																
PEDESTRIAN CLEARANCE		32		34		32		34								
PEDESTRIAN CLEARANCE 2																
PEDESTRIAN CLEARANCE MAX																
PEDESTRIAN CARRY OVER																
VEHICLE EXTENSION	3.5	5.5	3.5	3.5	3.5	5.5	3.5	3.5								
VEHICLE EXTENSION 2																
MAX1	20	55	20	35	20	55	20	35								
MAX2	20	60	20	40	20	60	20	40								
MAX3																
DYNAMIC MAX																
DYNAMIC MAX STEP																
YELLOW CHANGE	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7								
RED CLRANCE	1.0	2.6	1.0	2.8	2.0	2.6	1.0	2.8								
RED MAX																
RED REVERT																
ACTUATIONS BEFORE GAP REDUCTION																
SECONDS PER ACTIONS ADDED TO INITIAL																
MAXIMUM ADDED INITIAL GREEN																
TIME BEFORE GAP REDUCTION																
CARS WAITING BEFORE GAP REDUCTION																
STEP TO REDUCE																
TIME TO REDUCE TO MINIMUM																
MINIMUM GAP																

## 2-2 VEHICLE OVERLAP

OVERLAP A PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP C PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP B PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP D PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP E PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP G PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP F PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP H PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	



## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP I PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP K PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP J PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP L PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP M PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP O PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP N PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP P PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-3 PEDESTRIAN OVERLAP

PEDESTRIAN OVERLAP CONSISTS OF PHASES																
PEDESTRIAN OVERLAP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																

## 2-4 GUARANTEED MINIMUM TIMES

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN																
WALK																
PEDESTRIAN CLEARANCE																
YELLOW CHANGE																
RED CLEARANCE																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
MINIMUM GREEN																

### 2-5 START / FLASH DATA

POWER START																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
OVERLAP																
POWER START RED									FLASH TIME							
REMOTE (AUTOMATIC) FLASH																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ENTRY																
EXIT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
EXIT																
EXIT REMOTE FLASH									MINIMUM AUTOMATIC FLASH							
MINIMUM RECALL									CYCLE THROUGH PHASES							

### 2-6-1 CONTROLLER OPTIONS

PEDESTRIAN CLEARANCE PROTECT																
UNIT RED REVERT																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
GUARANTEE D PASSAGE																
NON-ACT I																
NON ACT II																
DUAL ENTRY																
PED RESERVICE																
REST IN WALK																
FLASHING WALK																
PED CLEAR > YELLOW																
PED CLEAR > ALL RED																
INIT GREEN + VEHICLE EXIT																

### 2-7 ACTUATED / PRE-TIMED MODE PHASES

ENABLE PRE-TIMED OPERATION																
FREE INPUT DISABLED PRE-TIMED																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
PRE-TIMED																



### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN	4		
CYCLE LENGTH (SECONDS)	100	SPLIT PATTERN	
OFFSET VALUE	59		
SPLITS IN	Per	OFFSETS IN	Per
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	4
ACTUATED COORDINATION	Yes	TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	1	2	3
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

COORDINATOR PATTERN	5		
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	5
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	1	2	3
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	1	2	3
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	1	2	3
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

Per  
Per

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN				SPLIT PATTERN							
CYCLE LENGTH (SECONDS)				SEQUENCE							
OFFSET VALUE				OFFSETS IN							
SPLITS IN				VEHICLE PERMISSIVE 2 LENGTH							
CROSSING ARTERY PATTERN				ACTION PLAN							
VEHICLE PERMISSIVE 1 LENGTH				TIMING PLAN							
VEHICLE PERMISSIVE 2 DISPLACEMENT				PHASE RESERVICE							
ACTUATED COORDINATION											
ACTUATED REST IN WALK											
RING SPLIT EXTENSION (SECONDS)				1		2		3		4	
SPLIT DEMAND PATTERN											
RING DISPLACEMENT											
PREFERENCE 1 PHASES											
PREFERENCE 2 PHASES											

COORDINATOR PATTERN				SPLIT PATTERN							
CYCLE LENGTH (SECONDS)				SEQUENCE							
OFFSET VALUE				OFFSETS IN							
SPLITS IN				VEHICLE PERMISSIVE 2 LENGTH							
CROSSING ARTERY PATTERN				ACTION PLAN							
VEHICLE PERMISSIVE 1 LENGTH				TIMING PLAN							
VEHICLE PERMISSIVE 2 DISPLACEMENT				PHASE RESERVICE							
ACTUATED COORDINATION											
ACTUATED REST IN WALK											
RING SPLIT EXTENSION (SECONDS)				1		2		3		4	
SPLIT DEMAND PATTERN											
RING DISPLACEMENT											
PREFERENCE 1 PHASES											
PREFERENCE 2 PHASES											

COORDINATOR PATTERN				SPLIT PATTERN							
CYCLE LENGTH (SECONDS)				SEQUENCE							
OFFSET VALUE				OFFSETS IN							
SPLITS IN				VEHICLE PERMISSIVE 2 LENGTH							
CROSSING ARTERY PATTERN				ACTION PLAN							
VEHICLE PERMISSIVE 1 LENGTH				TIMING PLAN							
VEHICLE PERMISSIVE 2 DISPLACEMENT				PHASE RESERVICE							
ACTUATED COORDINATION											
ACTUATED REST IN WALK											
RING SPLIT EXTENSION (SECONDS)				1		2		3		4	
SPLIT DEMAND PATTERN											
RING DISPLACEMENT											
PREFERENCE 1 PHASES											
PREFERENCE 2 PHASES											

COORDINATOR PATTERN				SPLIT PATTERN							
CYCLE LENGTH (SECONDS)				SEQUENCE							
OFFSET VALUE				OFFSETS IN							
SPLITS IN				VEHICLE PERMISSIVE 2 LENGTH							
CROSSING ARTERY PATTERN				ACTION PLAN							
VEHICLE PERMISSIVE 1 LENGTH				TIMING PLAN							
VEHICLE PERMISSIVE 2 DISPLACEMENT				PHASE RESERVICE							
ACTUATED COORDINATION											
ACTUATED REST IN WALK											
RING SPLIT EXTENSION (SECONDS)				1		2		3		4	
SPLIT DEMAND PATTERN											
RING DISPLACEMENT											
PREFERENCE 1 PHASES											
PREFERENCE 2 PHASES											

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9 1 1	1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9 1 1	1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9 1 1	1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9 1 1	1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			



COORDINATOR PATTERN																		
CYCLE LENGTH (SECONDS)		SPLIT PATTERN																
OFFSET VALUE		SEQUENCE																
SPLITS IN		OFFSETS IN																
CROSSING ARTERY PATTERN																		
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN																
ACTUATED COORDINATION		TIMING PLAN																
ACTUATED REST IN WALK		PHASE RESERVICE																
RING SPLIT EXTENSION (SECONDS)		1	2	3	4													
SPLIT DEMAND PATTERN																		
RING DISPLACEMENT																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
PREFERENCE 1 PHASES																		
PREFERENCE 2 PHASES																		

COORDINATOR PATTERN																		
CYCLE LENGTH (SECONDS)		SPLIT PATTERN																
OFFSET VALUE		SEQUENCE																
SPLITS IN		OFFSETS IN																
CROSSING ARTERY PATTERN																		
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN																
ACTUATED COORDINATION		TIMING PLAN																
ACTUATED REST IN WALK		PHASE RESERVICE																
RING SPLIT EXTENSION (SECONDS)		1	2	3	4													
SPLIT DEMAND PATTERN																		
RING DISPLACEMENT																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
PREFERENCE 1 PHASES																		
PREFERENCE 2 PHASES																		

### 3-3 SPLIT PATTERN

SPLIT PATTERN NUMBER		1																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		9	53	11	27	15	47	11	27											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		2																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		12	51	12	25	12	51	12	25											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		3																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		10	53	17	20	10	53	10	27											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		4																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		12	48	12	28	12	48	12	28											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

### 3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

### 3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

### 3-4 AUTO PERMISSIVE MINIMUM GREEN TIME

PHASE	1	2	3	4	5	6	7	8								
MINIMUM GREEN																
PHASE	9	10	11	12	13	14	15	16								
MINIMUM GREEN																

### 3-5 SPLIT DEMAND

PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
DEMAND 1																	
DEMAND 2																	
DEMAND	1		2														
DETECTOR																	
CALL TIME (SECONDS)																	
CYCLE COUNT																	

# PREEMPTOR SUBMENU

## 4-1 PREEMPTOR

PREEMPTOR NUMBER	1																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/ EXIT YELLOW /RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION									EXIT TIMING PLAN											
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT									PREEMPTOR ACTIVE OUT IN DWELL											
OTHER PRIORITY PREEMPTOR OUT									NON-PRIORITY PREEMPTOR OUT											
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

PREEMPTOR NUMBER	2																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/EXIT YELLOW/RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION									EXIT TIMING PLAN											
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT									PREEMPTOR ACTIVE OUT IN DWELL											
OTHER PRIORITY PREEMPTOR OUT									NON-PRIORITY PREEMPTOR OUT											
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

## 4-2 LOW PRIORITY PREEMPTOR SELECTION

FILTERED INPUT	SOLID	PULSING
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		3															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		4															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		5															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH																	
FLASH EXIT COLOR																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION					EXIT TIMING PLAN												
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL												
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT												
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		6															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH																	
FLASH EXIT COLOR																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION					EXIT TIMING PLAN												
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL												
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT												
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		7																
ACTIVE		NON-LOCK INPUT																
PREEMPTION OVERRIDE		INTERLOCK ENABLE																
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE																
PED DARK		RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW																
RING		1	2	3	4													
FREE DURING PREEMPTION																		
		WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

PREEMPTOR NUMBER		8																
ACTIVE		NON-LOCK INPUT																
PREEMPTION OVERRIDE		INTERLOCK ENABLE																
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE																
PED DARK		RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW																
RING		1	2	3	4													
FREE DURING PREEMPTION																		
		WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		



### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		9																			
ACTIVE		NON-LOCK INPUT																			
PREEMPTION OVERRIDE		INTERLOCK ENABLE																			
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE																			
PED DARK		RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW																			
RING		1				2				3				4							
FREE DURING PREEMPTION																					
		WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																					
TRACK CLEARANCE TIME																					
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																					
DWELL FLASH		FLASH EXIT COLOR																			
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1		
TRACK CLEAR PHASE																					
DWELL PHASE																					
DWELL PEDESTRIAN																					
CYCLING PHASE																					
CYCLING PEDESTRIAN																					
EXIT PHASE																					
EXIT CALLS																					
SPECIAL FUNCTION																					
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																			
LINKED PREEMPTOR																					
PREEMPTOR ACTIVE OUTPUTS																					
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																			
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																			
OVERLAP		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																					
DWELL OVERLAP																					
CYCLING OVERLAP																					

PREEMPTOR NUMBER		10																			
ACTIVE		NON-LOCK INPUT																			
PREEMPTION OVERRIDE		INTERLOCK ENABLE																			
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE																			
PED DARK		RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW																			
RING		1				2				3				4							
FREE DURING PREEMPTION																					
		WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																					
TRACK CLEARANCE TIME																					
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																					
DWELL FLASH		FLASH EXIT COLOR																			
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1		
TRACK CLEAR PHASE																					
DWELL PHASE																					
DWELL PEDESTRIAN																					
CYCLING PHASE																					
CYCLING PEDESTRIAN																					
EXIT PHASE																					
EXIT CALLS																					
SPECIAL FUNCTION																					
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																			
LINKED PREEMPTOR																					
PREEMPTOR ACTIVE OUTPUTS																					
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																			
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																			
OVERLAP		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																					
DWELL OVERLAP																					
CYCLING OVERLAP																					

# TIME BASE SUBMENU

## 5-1 CLOCK/CALENDAR DATA

DATE SET:	
TIME SET:	
MANUAL ACTION PLAN	
SYNC REFERENCE TIME	
SYNC REFERENCE	
DAYLIGHT SAVINGS	
TIME RESET INPUT TIME SET	
STANDARD TIME FROM GMT	

## 5-2 SCHEDULE

SCHEDULE NUMBER	1
DAY PLAN NUMBER	1

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
		x	x	x	x	x				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	1
DAY PLAN NUMBER	2

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
	x						x			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											

SCHEDULE NUMBER												
DAY PLAN NUMBER												
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE						
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER						
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17	18	19	20		
	21	22	23	24	25	26	27	28	29	30		
	31											



PATTERN		1		SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN				DETECTOR LOG														
FLASH																		
RED REST				VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN														
TIMING PLAN				DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	10	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION					(1-3)													
		1	2	3	4	5	6	7	8	9	10							
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN		3		SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN				DETECTOR LOG														
FLASH																		
RED REST				VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN														
TIMING PLAN				DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	10	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION					(1-3)													
		1	2	3	4	5	6	7	8	9	10							
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN		2		SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN				DETECTOR LOG														
FLASH																		
RED REST				VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN														
TIMING PLAN				DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	10	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION					(1-3)													
		1	2	3	4	5	6	7	8	9	10							
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN		4		SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN				DETECTOR LOG														
FLASH																		
RED REST				VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN														
TIMING PLAN				DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	10	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION					(1-3)													
		1	2	3	4	5	6	7	8	9	10							
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN													5																		
PATTERN												5	SYSTEM OVERRIDE																		
VEHICLE DETECTOR PLAN													DETECTOR LOG																		
FLASH																															
RED REST													VEHICLE DET DIAGNOSTIC PLAN																		
CONTROLLER SEQUENCE													PED DET DIAGNOSTIC PLAN																		
TIMING PLAN													DIMMING ENABLE																		
PHASE													1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	
PED RECALL																															
WALK 2																															
VEH EXT 2																															
VEH RECALL																															
MAX RECALL																															
MAX 2																															
MAX 3																															
CS INHIBIT																															
PHASE OMIT																															
SPEC FUNCTION																														(1-8)	
AUX FUNCTION																(1-3)															
												1	2	3	4	5	6	7	8	9	10										
LP 1-10																															
LP 11-20																															
LP 21-30																															
LP 31-40																															
LP 41-50																															
LP 51-60																															
LP 61-70																															
LP 71-80																															
LP 81-90																															
LP 91-100																															

ACTION PLAN																															
PATTERN													SYSTEM OVERRIDE																		
VEHICLE DETECTOR PLAN													DETECTOR LOG																		
FLASH																															
RED REST													VEHICLE DET DIAGNOSTIC PLAN																		
CONTROLLER SEQUENCE													PED DET DIAGNOSTIC PLAN																		
TIMING PLAN													DIMMING ENABLE																		
PHASE													1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	
PED RECALL																															
WALK 2																															
VEH EXT 2																															
VEH RECALL																															
MAX RECALL																															
MAX 2																															
MAX 3																															
CS INHIBIT																															
PHASE OMIT																															
SPEC FUNCTION																														(1-8)	
AUX FUNCTION																(1-3)															
												1	2	3	4	5	6	7	8	9	10										
LP 1-10																															
LP 11-20																															
LP 21-30																															
LP 31-40																															
LP 41-50																															
LP 51-60																															
LP 61-70																															
LP 71-80																															
LP 81-90																															
LP 91-100																															

ACTION PLAN																															
PATTERN													SYSTEM OVERRIDE																		
VEHICLE DETECTOR PLAN													DETECTOR LOG																		
FLASH																															
RED REST													VEHICLE DET DIAGNOSTIC PLAN																		
CONTROLLER SEQUENCE													PED DET DIAGNOSTIC PLAN																		
TIMING PLAN													DIMMING ENABLE																		
PHASE													1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	
PED RECALL																															
WALK 2																															
VEH EXT 2																															
VEH RECALL																															
MAX RECALL																															
MAX 2																															
MAX 3																															
CS INHIBIT																															
PHASE OMIT																															
SPEC FUNCTION																														(1-8)	
AUX FUNCTION																(1-3)															
												1	2	3	4	5	6	7	8	9	10										
LP 1-10																															
LP 11-20																															
LP 21-30																															
LP 31-40																															
LP 41-50																															
LP 51-60																															
LP 61-70																															
LP 71-80																															
LP 81-90																															
LP 91-100																															

ACTION PLAN																															
PATTERN													SYSTEM OVERRIDE																		
VEHICLE DETECTOR PLAN													DETECTOR LOG																		
FLASH																															
RED REST													VEHICLE DET DIAGNOSTIC PLAN																		
CONTROLLER SEQUENCE													PED DET DIAGNOSTIC PLAN																		
TIMING PLAN													DIMMING ENABLE																		
PHASE													1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	
PED RECALL																															
WALK 2																															
VEH EXT 2																															
VEH RECALL																															
MAX RECALL																															
MAX 2																															
MAX 3																															
CS INHIBIT																															
PHASE OMIT																															
SPEC FUNCTION																														(1-8)	
AUX FUNCTION																(1-3)															
												1	2	3	4	5	6	7	8	9	10										
LP 1-10																															
LP 11-20																															
LP 21-30																															
LP 31-40																															
LP 41-50																															
LP 51-60																															
LP 61-70																															
LP 71-80																															
LP 81-90																															
LP 91-100																															

# 5-5 EXCEPTION DAY PROGRAM

EXCEPTION DAY	FLOAT / FIXED	MON / MON	DOW / DOM	WOM / YEAR	DAY PLAN
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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27					
28					
29					
30					
31					
32					
33					
34					
35					
36					



# DETECTORS

## 6-1. DETECTOR TYPE AND TS SELECT

DET	TYPE	TS1 DETECTOR
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		

DET	TYPE	TS1 DETECTOR
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
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53		
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56		
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58		
59		
60		
61		
62		
63		
64		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

## 6-2 VEHICLE DETECTOR SETUP

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

### 6-3 PHASE DETECTOR OPTIONS

PHASE DETECTOR OPTION PLAN NUMBER										1						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										2						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										3						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										4						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

### 6-4 PEDESTRIAN AND SYSTEM DETECTOR OPTIONS

PHASE PEDESTRIAN DETECTOR								
	1	2	3	4	5	6	7	8
PED DET INPUT								
	9	10	11	12	13	14	15	16
PED DET INPUT								
LOCAL SYSTEM DETECTOR								
	1	2	3	4	5	6	7	8
VEH DET INPUT								
	9	10	11	12	13	14	15	16
VEH DET INPUT								

### 6-5 LOG – SPEED DETECTOR SET UP

NTCIP LOG PERIOD									
ECPI LOG PERIOD									
LENGTH UNIT									
SPEED DETECTOR	1	2	3	4	5	6	7	8	
LOCAL DETECTOR									
ONE / TWO DET									
VEH LENGTH									
TRAP LENGTH									
ENABLE LOG									
SPEED DETECTOR	9	10	11	12	13	14	15	16	
LOCAL DETECTOR									
ONE / TWO DET									
VEH LENGTH									
TRAP LENGTH									
ENABLE LOG									

# 6-6 VEHICLE DETECTOR DIAGNOSTICS

VEHICLE DIAGNOSTIC PLAN NUMBER					1
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

VEHICLE DIAGNOSTIC PLAN NUMBER					2
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

**6-6 VEHICLE DETECTOR DIAGNOSTICS  
(CONTINUED)**

VEHICLE DIAGNOSTIC PLAN NUMBER					3
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

VEHICLE DIAGNOSTIC PLAN NUMBER					4
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

### 6-7 PEDESTRIAN DETECTOR DIAGNOSTICS

PED DIAGNOSTIC PLAN NUMBER 1					PED DIAGNOSTIC PLAN NUMBER 2				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
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				
16					16				

PED DIAGNOSTIC PLAN NUMBER 3					PED DIAGNOSTIC PLAN NUMBER 4				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
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				
16					16				

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# 18. APPENDIX D: PROGRAM REFERENCE CARD

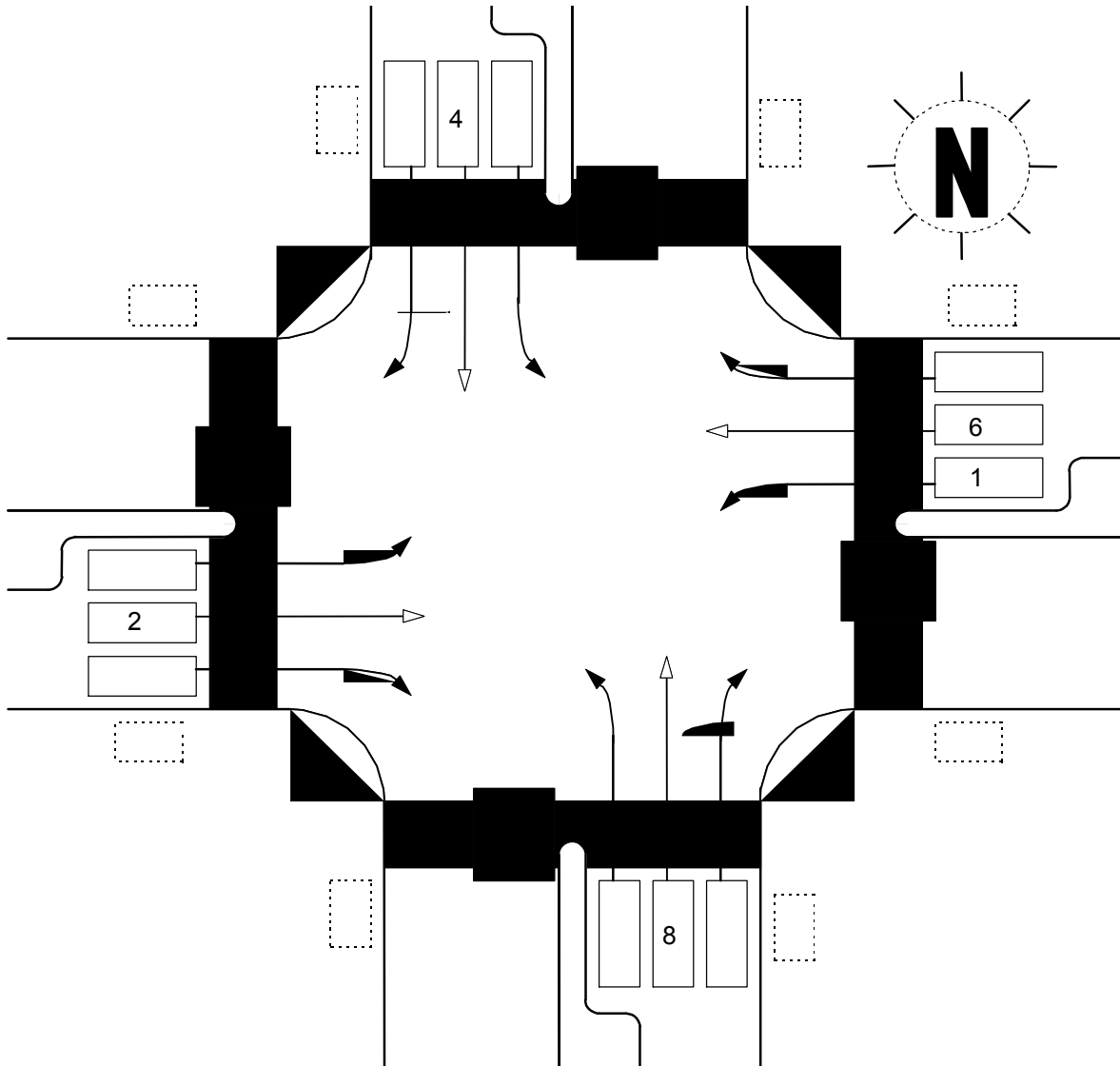
## ASC/3

### PROGRAM REFERENCE CARD

INTERSECTION Dundas Street & Prince Michael Drive

CONTROLLER NUMBER \_\_\_\_\_ ENTERED BY: \_\_\_\_\_ DATE 03 / 13 / 17

BOOT: \_\_\_\_\_ MAIN: \_\_\_\_\_ HELP: \_\_\_\_\_ DATA BASE \_\_\_\_\_





## CONFIGURATION SUBMENU

### 1-1-1. PHASE RING ASSIGNMENT

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

### 1-1-2. PHASE COMPATIBILITY

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

### 1-2. PHASES IN USE / EXCLUSIVE PED

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASES IN USE																
EXCLUSIVE PED																

### 1-1-4. BACKUP PREVENT PHASES

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

### 1-1-5 SIMULTANEOUS GAP

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

### 1-1-3. PHASE RING SEQUENCE

CONTROLLER 1			SEQUENCE 1																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 2																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 3																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 4																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 5																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 6																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 7																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 8																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				

### 1-1-3. PHASE RING SEQUENCE (CONT)

CONTROLLER 1		SEQUENCE 9																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 10																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 11																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 12																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 13																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 14																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 15																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 16																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				

### 1-3. PHASE TO LOAD SWITCH (MMU) ASSIGNMENT

LOAD SWITCH	PHASE / OVERLAP	TYPE	DIMMING				AUTO FLASH	
			RED	YELLOW	GREEN	PHASE	COLOR	TOGETHER
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

### 1-4-2. MMU PROGRAM

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

### 1-4-1. SDLC OPTIONS

TERM & FACIL	BIU NUMBER							
	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
DETECTOR RACK	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
MMU ENABLE								
MMU STOP TIME								
DIAGNOSTIC ENABLE (TEST FIXTURE)								
CONTROLLER PEER TO PEER ENABLE								
DISABLE 3 CRITICAL RFEs LOCKUP								

### 1-4-3. COLOR CHECK DISABLE

DISABLE ALL COLOR CHECKS																
MMU CHANNEL	1	2	3	4	5	6	7	8								
GREEN / WALK																
YELLOW / PC																
RED / DW																
MMU CHANNEL	9	10	11	12	13	14	15	16								
GREEN / WALK																
YELLOW / PC																
RED / DW																

### 1-5-1 GLOBAL PORT PARAMETERS

NTCIP BACKUP TIME (SECONDS)	
PORT 2 PRIORITY	
PORT 3A PRIORITY	
PORT 3B PRIORITY	
ETHERNET PRIORITY	

### 1-5-1 PORT 2 (TERMINAL)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-5-3 PORT 3A (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
ELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-7-1 ADMINISTRATION

SUPERVISOR ACCESS CODE	
ENABLE CRC CHECK OF DATA BASE	
CRC OF PROGRAM DATA BASE	
REQUEST DOWNLOAD OF PROGRAMMED DATA	

### 1-7-2 DISPLAY OPTIONS

KEY CLICK ENABLE	
BACKLIGHT ENABLE	

### 1-5-4. PORT 3B (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

### 1-5-5 ETHERNET PORT CONFIGURATION

IP ADDRESS					
ADDRESS MASK					
FTP SERVER ADDRESS					
DEFAULT GATEWAY ADDRESS					

### 1-6-1 ENABLE EVENT LOGS

CRITICAL RFE'S (MMU/TE)	
3 CRITICAL RFE ERRORS IN 24 HOURS	
NON-CRITICAL RFE'S (DET/TEST)	
DETECTOR ERRORS	
COORDINATION ERRORS	
MMU FLASH FAULTS	
LOCAL FLASH FAULTS	
PREEMPT	
POWER ON/OFF	
LOW BATTERY	
ACCESS	
DATA CHANGE	
CONTROLLER DOWNLOAD	
ALARM 1	
ALARM 2	
ALARM 3	
ALARM 4	
ALARM 5	
ALARM 6	
ALARM 7	
ALARM 8	
ALARM 9	
ALARM 10	
ALARM 11	
ALARM 12	
ALARM 13	
ALARM 14	
ALARM 15	
ALARM 16	



1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				

IF				
THEN				
ELSE				

THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
IF				

LOGIC GATE NUMBER				
IF				



THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

## CONTROLLER SUBMENU

### 2-1. CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN	7	20	7	10	7	20	7	10								
BICYCLE MINIMUM GREEN																
CONDITIONAL SERVICE MINIMUM GREEN																
DELAYED GREEN																
WALK		7		7		7		7								
WALK 2																
WALK MAX																
PEDESTRIAN CLEARANCE		25		30		25		30								
PEDESTRIAN CLEARANCE 2																
PEDESTRIAN CLEARANCE MAX																
PEDESTRIAN CARRY OVER																
VEHICLE EXTENSION	3.5	5.5	3.5	3.5	3.5	5.5	3.5	3.5								
VEHICLE EXTENSION 2																
MAX1	20	55		35		55		35								
MAX2	20	60		40		60		40								
MAX3																
DYNAMIC MAX																
DYNAMIC MAX STEP																
YELLOW CHANGE	3.0	4.2		3.3		4.2		3.3								
RED CLRANCE	1.0	2.6		3.4		2.6		3.4								
RED MAX																
RED REVERT																
ACTUATIONS BEFORE GAP REDUCTION																
SECONDS PER ACTIONS ADDED TO INITIAL																
MAXIMUM ADDED INITIAL GREEN																
TIME BEFORE GAP REDUCTION																
CARS WAITING BEFORE GAP REDUCTION																
STEP TO REDUCE																
TIME TO REDUCE TO MINIMUM																
MINIMUM GAP																

## 2-2 VEHICLE OVERLAP

OVERLAP A PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP C PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP B PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP D PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP E PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP G PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP F PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP H PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP I																
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
INCLUDED																
PROTECTED																
MODIFIER																
PEDESTRIAN PROTECT NOT OVERLAP																
TRAILING GREEN				TRAILING YELLOW									TRAILING RED			
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
TRAILING LEADING																
ADVANCE GREEN																
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
FLASH GREEN																

OVERLAP K																
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
INCLUDED																
PROTECTED																
MODIFIER																
PEDESTRIAN PROTECT NOT OVERLAP																
TRAILING GREEN				TRAILING YELLOW									TRAILING RED			
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
TRAILING LEADING																
ADVANCE GREEN																
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
FLASH GREEN																

OVERLAP J																
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
INCLUDED																
PROTECTED																
MODIFIER																
PEDESTRIAN PROTECT NOT OVERLAP																
TRAILING GREEN				TRAILING YELLOW									TRAILING RED			
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
TRAILING LEADING																
ADVANCE GREEN																
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
FLASH GREEN																

OVERLAP L																
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
INCLUDED																
PROTECTED																
MODIFIER																
PEDESTRIAN PROTECT NOT OVERLAP																
TRAILING GREEN				TRAILING YELLOW									TRAILING RED			
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
TRAILING LEADING																
ADVANCE GREEN																
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
FLASH GREEN																

## 2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP M PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP O PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP N PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP P PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

## 2-3 PEDESTRIAN OVERLAP

PEDESTRIAN OVERLAP CONSISTS OF PHASES																
PEDESTRIAN OVERLAP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																

## 2-4 GUARANTEED MINIMUM TIMES

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN																
WALK																
PEDESTRIAN CLEARANCE																
YELLOW CHANGE																
RED CLEARANCE																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
MINIMUM GREEN																

### 2-5 START / FLASH DATA

POWER START																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
OVERLAP																
POWER START RED									FLASH TIME							
REMOTE (AUTOMATIC) FLASH																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ENTRY																
EXIT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
EXIT																
EXIT REMOTE FLASH									MINIMUM AUTOMATIC FLASH							
MINIMUM RECALL									CYCLE THROUGH PHASES							

### 2-6-1 CONTROLLER OPTIONS

PEDESTRIAN CLEARANCE PROTECT																
UNIT RED REVERT																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
GUARANTEE D PASSAGE																
NON-ACT I																
NON ACT II																
DUAL ENTRY																
PED RESERVICE																
REST IN WALK																
FLASHING WALK																
PED CLEAR > YELLOW																
PED CLEAR > ALL RED																
INIT GREEN + VEHICLE EXIT																

### 2-7 ACTUATED / PRE-TIMED MODE PHASES

ENABLE PRE-TIMED OPERATION																
FREE INPUT DISABLED PRE-TIMED																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
PRE-TIMED																



## COORDINATOR SUBMENU

### 3-1 COORDINATOR OPTIONS

MANUAL PATTERN	Auto		
INTERCONNECT SOURCE	TBC	INTERCONNECT FORMAT	
TRANSITION	Smooth	ECPI COORDINATION	Yes
OFFSET REFERENCE	Lead	DWELL / ADD TIME	
DELAY COORD WALK TO LOCAL ZERO	No	FORCE OFF	Float
FORCE OFF ADDED INITIAL GREEN	No	USE PED TIME FOR SMOOTH TRANSITION	No
PEDESTRIAN RECALL	No	PEDESTRIAN RESERVICE	Yes
ENABLE MANUAL SYNC INPUT		LOCAL ZERO OVERRIDE	No
RE-SYNC COUNT	No	MAX SELECT	MaxInh
MULTISYNC	No		

### 3-2 COORDINATOR PATTERN

COORDINATOR PATTERN	1		
CYCLE LENGTH (SECONDS)	130	SPLIT PATTERN	
OFFSET VALUE	60	SEQUENCE	
SPLITS IN	Per	OFFSETS IN . . .	Per
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	1
ACTUATED COORDINATION	Yes	TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	8
	9	1	1
	0	1	3
	1	3	5
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			
SPECIAL FUNCTION		1	2
		3	4
		5	8

COORDINATOR PATTERN	2		
CYCLE LENGTH (SECONDS)	120	SPLIT PATTERN	
OFFSET VALUE	66	SEQUENCE	
SPLITS IN	Per	OFFSETS IN	Per
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	2
ACTUATED COORDINATION	Yes	TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	8
	9	1	1
	0	1	3
	1	3	5
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

COORDINATOR PATTERN	3		
CYCLE LENGTH (SECONDS)	130	SPLIT PATTERN	
OFFSET VALUE	75	SEQUENCE	
SPLITS IN	Per	OFFSETS IN	Per
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	3
ACTUATED COORDINATION	Yes	TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	4	5	8
	9	1	1
	0	1	3
	1	3	5
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN	4		
CYCLE LENGTH (SECONDS)	100	SPLIT PATTERN	
OFFSET VALUE	79		
SPLITS IN	Per	OFFSETS IN	Per
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	4
ACTUATED COORDINATION	Yes	TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN	5		
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	5
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

Per  
Per

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
		1	5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
		1	5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
		1	5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1	2	3
	4	5	
		8	9
		1	1
		0	1
		1	3
		1	5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

### 3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN	
CYCLE LENGTH (SECONDS)	SPLIT PATTERN
OFFSET VALUE	SEQUENCE
SPLITS IN	OFFSETS IN
CROSSING ARTERY PATTERN	
VEHICLE PERMISSIVE 1 LENGTH	VEHICLE PERMISSIVE 2 LENGTH
VEHICLE PERMISSIVE 2 DISPLACEMENT	ACTION PLAN
ACTUATED COORDINATION	TIMING PLAN
ACTUATED REST IN WALK	PHASE RESERVICE
RING SPLIT EXTENSION (SECONDS)	1 2 3 4
SPLIT DEMAND PATTERN	
RING DISPLACEMENT	
	1 2 3 4 5 8 9 1 1 1 1
	0 1 3 5
PREFERENCE 1 PHASES	
PREFERENCE 2 PHASES	

COORDINATOR PATTERN	
CYCLE LENGTH (SECONDS)	SPLIT PATTERN
OFFSET VALUE	SEQUENCE
SPLITS IN	OFFSETS IN
CROSSING ARTERY PATTERN	
VEHICLE PERMISSIVE 1 LENGTH	VEHICLE PERMISSIVE 2 LENGTH
VEHICLE PERMISSIVE 2 DISPLACEMENT	ACTION PLAN
ACTUATED COORDINATION	TIMING PLAN
ACTUATED REST IN WALK	PHASE RESERVICE
RING SPLIT EXTENSION (SECONDS)	1 2 3 4
SPLIT DEMAND PATTERN	
RING DISPLACEMENT	
	1 2 3 4 5 6 7 8 9 1 1 1 1 1 1 1
	0 1 2 3 4 5 6
PREFERENCE 1 PHASES	
PREFERENCE 2 PHASES	

### 3-3 SPLIT PATTERN

SPLIT PATTERN NUMBER		1															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)		X				X											
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE	9	56	0	35	0	65	0	35									
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER		2															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)		X				X											
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE	10	52	0	38	0	62	0	38									
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER		3															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)		X				X											
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE	12	53	0	35	0	65	0	35									
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER		4															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)		X				X											
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE	11	44	0	45	0	44	0	45									
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

### 3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

### 3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

### 3-4 AUTO PERMISSIVE MINIMUM GREEN TIME

PHASE	1	2	3	4	5	6	7	8								
MINIMUM GREEN																
PHASE	9	10	11	12	13	14	15	16								
MINIMUM GREEN																

### 3-5 SPLIT DEMAND

PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
DEMAND 1																	
DEMAND 2																	
DEMAND	1		2														
DETECTOR																	
CALL TIME (SECONDS)																	
CYCLE COUNT																	



# PREEMPTOR SUBMENU

## 4-1 PREEMPTOR

PREEMPTOR NUMBER	1																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/ EXIT YELLOW /RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1			
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION									EXIT TIMING PLAN											
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT									PREEMPTOR ACTIVE OUT IN DWELL											
OTHER PRIORITY PREEMPTOR OUT									NON-PRIORITY PREEMPTOR OUT											
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

PREEMPTOR NUMBER	2																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/EXIT YELLOW/RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1			
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION									EXIT TIMING PLAN											
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT									PREEMPTOR ACTIVE OUT IN DWELL											
OTHER PRIORITY PREEMPTOR OUT									NON-PRIORITY PREEMPTOR OUT											
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

## 4-2 LOW PRIORITY PREEMPTOR SELECTION

FILTERED INPUT	SOLID	PULSING
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		3																
ACTIVE	NON-LOCK INPUT																	
PREEMPTION OVERRIDE	INTERLOCK ENABLE																	
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																	
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																	
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																	
PED DARK	RESERVICE TIME																	
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																	
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																	
RING	1	2	3	4														
FREE DURING PREEMPTION																		
	WALK	PED CLEAR	GREEN	YELLOW	RED													
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

PREEMPTOR NUMBER		4																
ACTIVE	NON-LOCK INPUT																	
PREEMPTION OVERRIDE	INTERLOCK ENABLE																	
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																	
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																	
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																	
PED DARK	RESERVICE TIME																	
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																	
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																	
RING	1	2	3	4														
FREE DURING PREEMPTION																		
	WALK	PED CLEAR	GREEN	YELLOW	RED													
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		5															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH																	
FLASH EXIT COLOR																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION					EXIT TIMING PLAN												
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL												
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT												
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		6															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH																	
FLASH EXIT COLOR																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION					EXIT TIMING PLAN												
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL												
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT												
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		7																
ACTIVE		NON-LOCK INPUT																
PREEMPTION OVERRIDE		INTERLOCK ENABLE																
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE																
PED DARK		RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW																
RING	1	2	3	4														
FREE DURING PREEMPTION																		
	WALK	PED CLEAR	GREEN	YELLOW	RED													
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

PREEMPTOR NUMBER		8																
ACTIVE		NON-LOCK INPUT																
PREEMPTION OVERRIDE		INTERLOCK ENABLE																
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE																
PED DARK		RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW																
RING	1	2	3	4														
FREE DURING PREEMPTION																		
	WALK	PED CLEAR	GREEN	YELLOW	RED													
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

### 4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		9																
ACTIVE	NON-LOCK INPUT																	
PREEMPTION OVERRIDE	INTERLOCK ENABLE																	
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																	
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																	
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																	
PED DARK	RESERVICE TIME																	
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																	
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																	
RING	1	2	3	4														
FREE DURING PREEMPTION																		
	WALK	PED CLEAR	GREEN	YELLOW	RED													
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH																		
FLASH EXIT COLOR																		
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION					EXIT TIMING PLAN													
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL													
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT													
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

PREEMPTOR NUMBER		10																
ACTIVE	NON-LOCK INPUT																	
PREEMPTION OVERRIDE	INTERLOCK ENABLE																	
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																	
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																	
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																	
PED DARK	RESERVICE TIME																	
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																	
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																	
RING	1	2	3	4														
FREE DURING PREEMPTION																		
	WALK	PED CLEAR	GREEN	YELLOW	RED													
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH																		
FLASH EXIT COLOR																		
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION					EXIT TIMING PLAN													
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT					PREEMPTOR ACTIVE OUT IN DWELL													
OTHER PRIORITY PREEMPTOR OUT					NON-PRIORITY PREEMPTOR OUT													
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

# TIME BASE SUBMENU

## 5-1 CLOCK/CALENDAR DATA

DATE SET:	
TIME SET:	
MANUAL ACTION PLAN	
SYNC REFERENCE TIME	
SYNC REFERENCE	
DAYLIGHT SAVINGS	
TIME RESET INPUT TIME SET	
STANDARD TIME FROM GMT	

## 5-2 SCHEDULE

SCHEDULE NUMBER	1
DAY PLAN NUMBER	1

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
		x	x	x	x	x				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	1
DAY PLAN NUMBER	2

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
	x						x			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										





PATTERN		1		SYSTEM OVERRIDE												
VEHICLE DETECTOR PLAN				DETECTOR LOG												
FLASH				VEHICLE DET DIAGNOSTIC PLAN												
RED REST				PED DET DIAGNOSTIC PLAN												
CONTROLLER SEQUENCE				DIMMING ENABLE												
TIMING PLAN																
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
PED RECALL																
WALK 2																
VEH EXT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION																(1-8)
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10						
LP 1-10																
LP 11-20																
LP 21-30																
LP 31-40																
LP 41-50																
LP 51-60																
LP 61-70																
LP 71-80																
LP 81-90																
LP 91-100																

ACTION PLAN		3		SYSTEM OVERRIDE												
VEHICLE DETECTOR PLAN				DETECTOR LOG												
FLASH				VEHICLE DET DIAGNOSTIC PLAN												
RED REST				PED DET DIAGNOSTIC PLAN												
CONTROLLER SEQUENCE				DIMMING ENABLE												
TIMING PLAN																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
PED RECALL																
WALK 2																
VEH EXT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION																(1-8)
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10						
LP 1-10																
LP 11-20																
LP 21-30																
LP 31-40																
LP 41-50																
LP 51-60																
LP 61-70																
LP 71-80																
LP 81-90																
LP 91-100																

ACTION PLAN		2		SYSTEM OVERRIDE												
VEHICLE DETECTOR PLAN				DETECTOR LOG												
FLASH				VEHICLE DET DIAGNOSTIC PLAN												
RED REST				PED DET DIAGNOSTIC PLAN												
CONTROLLER SEQUENCE				DIMMING ENABLE												
TIMING PLAN																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
PED RECALL																
WALK 2																
VEH EXT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION																(1-8)
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10						
LP 1-10																
LP 11-20																
LP 21-30																
LP 31-40																
LP 41-50																
LP 51-60																
LP 61-70																
LP 71-80																
LP 81-90																
LP 91-100																

ACTION PLAN		4		SYSTEM OVERRIDE												
VEHICLE DETECTOR PLAN				DETECTOR LOG												
FLASH				VEHICLE DET DIAGNOSTIC PLAN												
RED REST				PED DET DIAGNOSTIC PLAN												
CONTROLLER SEQUENCE				DIMMING ENABLE												
TIMING PLAN																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
PED RECALL																
WALK 2																
VEH EXT 2																
VEH RECALL																
MAX RECALL																
MAX 2																
MAX 3																
CS INHIBIT																
PHASE OMIT																
SPEC FUNCTION																(1-8)
AUX FUNCTION				(1-3)												
	1	2	3	4	5	6	7	8	9	10						
LP 1-10																
LP 11-20																
LP 21-30																
LP 31-40																
LP 41-50																
LP 51-60																
LP 61-70																
LP 71-80																
LP 81-90																
LP 91-100																

ACTION PLAN																				
PATTERN	5	SYSTEM OVERRIDE																		
VEHICLE DETECTOR PLAN		DETECTOR LOG																		
FLASH		VEHICLE DET DIAGNOSTIC PLAN																		
RED REST		PED DET DIAGNOSTIC PLAN																		
CONTROLLER SEQUENCE		DIMMING ENABLE																		
TIMING PLAN																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
PED RECALL																				
WALK 2																				
VEH EXT 2																				
VEH RECALL																				
MAX RECALL																				
MAX 2																				
MAX 3																				
CS INHIBIT																				
PHASE OMIT																				
SPEC FUNCTION																				(1-8)
AUX FUNCTION					(1-3)															
		1	2	3	4	5	6	7	8	9	10									
LP 1-10																				
LP 11-20																				
LP 21-30																				
LP 31-40																				
LP 41-50																				
LP 51-60																				
LP 61-70																				
LP 71-80																				
LP 81-90																				
LP 91-100																				

ACTION PLAN																				
PATTERN		SYSTEM OVERRIDE																		
VEHICLE DETECTOR PLAN		DETECTOR LOG																		
FLASH		VEHICLE DET DIAGNOSTIC PLAN																		
RED REST		PED DET DIAGNOSTIC PLAN																		
CONTROLLER SEQUENCE		DIMMING ENABLE																		
TIMING PLAN																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
PED RECALL																				
WALK 2																				
VEH EXT 2																				
VEH RECALL																				
MAX RECALL																				
MAX 2																				
MAX 3																				
CS INHIBIT																				
PHASE OMIT																				
SPEC FUNCTION																				(1-8)
AUX FUNCTION					(1-3)															
		1	2	3	4	5	6	7	8	9	10									
LP 1-10																				
LP 11-20																				
LP 21-30																				
LP 31-40																				
LP 41-50																				
LP 51-60																				
LP 61-70																				
LP 71-80																				
LP 81-90																				
LP 91-100																				

ACTION PLAN																				
PATTERN		SYSTEM OVERRIDE																		
VEHICLE DETECTOR PLAN		DETECTOR LOG																		
FLASH		VEHICLE DET DIAGNOSTIC PLAN																		
RED REST		PED DET DIAGNOSTIC PLAN																		
CONTROLLER SEQUENCE		DIMMING ENABLE																		
TIMING PLAN																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
PED RECALL																				
WALK 2																				
VEH EXT 2																				
VEH RECALL																				
MAX RECALL																				
MAX 2																				
MAX 3																				
CS INHIBIT																				
PHASE OMIT																				
SPEC FUNCTION																				(1-8)
AUX FUNCTION					(1-3)															
		1	2	3	4	5	6	7	8	9	10									
LP 1-10																				
LP 11-20																				
LP 21-30																				
LP 31-40																				
LP 41-50																				
LP 51-60																				
LP 61-70																				
LP 71-80																				
LP 81-90																				
LP 91-100																				

ACTION PLAN																				
PATTERN		SYSTEM OVERRIDE																		
VEHICLE DETECTOR PLAN		DETECTOR LOG																		
FLASH		VEHICLE DET DIAGNOSTIC PLAN																		
RED REST		PED DET DIAGNOSTIC PLAN																		
CONTROLLER SEQUENCE		DIMMING ENABLE																		
TIMING PLAN																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
PED RECALL																				
WALK 2																				
VEH EXT 2																				
VEH RECALL																				
MAX RECALL																				
MAX 2																				
MAX 3																				
CS INHIBIT																				
PHASE OMIT																				
SPEC FUNCTION																				(1-8)
AUX FUNCTION					(1-3)															
		1	2	3	4	5	6	7	8	9	10									
LP 1-10																				
LP 11-20																				
LP 21-30																				
LP 31-40																				
LP 41-50																				
LP 51-60																				
LP 61-70																				
LP 71-80																				
LP 81-90																				
LP 91-100																				

# 5-5 EXCEPTION DAY PROGRAM

EXCEPTION DAY	FLOAT / FIXED	MON / MON	DOW / DOM	WOM / YEAR	DAY PLAN
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

# DETECTORS

## 6-1. DETECTOR TYPE AND TS SELECT

DET	TYPE	TS1 DETECTOR
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		

DET	TYPE	TS1 DETECTOR
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
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56		
57		
58		
59		
60		
61		
62		
63		
64		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

## 6-2 VEHICLE DETECTOR SETUP

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

### 6-3 PHASE DETECTOR OPTIONS

PHASE DETECTOR OPTION PLAN NUMBER										1						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										2						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										3						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										4						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

### 6-4 PEDESTRIAN AND SYSTEM DETECTOR OPTIONS

PHASE PEDESTRIAN DETECTOR								
	1	2	3	4	5	6	7	8
PED DET INPUT								
	9	10	11	12	13	14	15	16
PED DET INPUT								
LOCAL SYSTEM DETECTOR								
	1	2	3	4	5	6	7	8
VEH DET INPUT								
	9	10	11	12	13	14	15	16
VEH DET INPUT								

### 6-5 LOG – SPEED DETECTOR SET UP

NTCIP LOG PERIOD								
ECPI LOG PERIOD								
LENGTH UNIT								
SPEED DETECTOR	1	2	3	4	5	6	7	8
LOCAL DETECTOR								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								
SPEED DETECTOR	9	10	11	12	13	14	15	16
LOCAL DETECTOR								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								

# 6-6 VEHICLE DETECTOR DIAGNOSTICS

VEHICLE DIAGNOSTIC PLAN NUMBER					1				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
1					33				
2					34				
3					35				
4					36				
5					37				
6					38				
7					39				
8					40				
9					41				
10					42				
11					43				
12					44				
13					45				
14					46				
15					47				
16					48				
17					49				
18					50				
19					51				
20					52				
21					53				
22					54				
23					55				
24					56				
25					57				
26					58				
27					59				
28					60				
29					61				
30					62				
31					63				
32					64				

VEHICLE DIAGNOSTIC PLAN NUMBER					2				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
1					33				
2					34				
3					35				
4					36				
5					37				
6					38				
7					39				
8					40				
9					41				
10					42				
11					43				
12					44				
13					45				
14					46				
15					47				
16					48				
17					49				
18					50				
19					51				
20					52				
21					53				
22					54				
23					55				
24					56				
25					57				
26					58				
27					59				
28					60				
29					61				
30					62				
31					63				
32					64				



**6-6 VEHICLE DETECTOR DIAGNOSTICS  
(CONTINUED)**

VEHICLE DIAGNOSTIC PLAN NUMBER					3
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

VEHICLE DIAGNOSTIC PLAN NUMBER					4
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

### 6-7 PEDESTRIAN DETECTOR DIAGNOSTICS

PED DIAGNOSTIC PLAN NUMBER 1					PED DIAGNOSTIC PLAN NUMBER 2				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
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				
16					16				

PED DIAGNOSTIC PLAN NUMBER 3					PED DIAGNOSTIC PLAN NUMBER 4				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
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				
16					16				

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**Appendix C**  
**Background Developement**

**Dunoak and Bressa Draft Plans  
Proposed Residential Developments**

**Traffic Impact Study**

**AM PEAK HOUR**  
**Minto Communités**

**Minto Site Trips**

												Donn Ave															Prince Michael Dr															Meadowridge Dr															Street A															Ninth Line																																																								
												Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd																																																	
												0			0													0			0													0			0													0			0													0			0													3			11																																	
												R	T	L													R	T	L													R	T	L													R	T	L													R	T	L													R	T	L																																							
												0	0	0													0	0	0													0	0	0													0	0	0													0	0	0													0	0	0													3	0	0																								
Dundas Street E	Wbd	30	L	0													0	R	30	Wbd	30	L	0													0	R	30	Wbd	30	L	0													0	R	30	Wbd	30	L	0													0	R	30	Wbd	30	L	0													0	R	30	Wbd	30	L	0													0	R	23	Wbd	0												
	T	132															30	T															30	T															30	T															30	T															30	T	106															23	T																													
	Ebd	132	R	0													0	L	132	Ebd	132	R	0													0	L	132	Ebd	132	R	0													0	L	132	Ebd	132	R	0													0	L	132	Ebd	132	R	0													0	L	132	Ebd	132	R	0													0	L	106	Ebd	0												
												0	0	0													0	0	0													0	0	0													0	0	0													0	0	0													5	0	0																																							
												L	T	R													L	T	R													L	T	R													L	T	R													L	T	R													L	T	R																																							
												0			0													0			0													0			0													0			0													0			0													16			5																																	
												Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd																																	
												Eight Line															Prince Michael Dr															Meadowridge Dr															Ninth Line																																																																							

**PM PEAK HOUR**  
**Minto Communités**

												Donn Ave															Prince Michael Dr															Meadowridge Dr															Street A															Ninth Line																																																								
												Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd																																	
												0			0													0			0													0			0													0			0													0			0													7			5																																	
												R	T	L													R	T	L													R	T	L													R	T	L													R	T	L													R	T	L													R	T	L																								
												0	0	0													0	0	0													0	0	0													0	0	0													0	0	0													0	0	0													7	0	0																								
Dundas Street E	Wbd	108	L	0													0	R	108	Wbd	108	L	0													0	R	108	Wbd	108	L	0													0	R	108	Wbd	108	L	0													0	R	108	Wbd	108	L	0													0	R	108	Wbd	108	L	0													0	R	89	Wbd	0												
	T	56															108	T															108	T															108	T															108	T															108	T	45															89	T																													
	Ebd	56	R	0													0	L	56	Ebd	56	R	0													0	L	56	Ebd	56	R	0													0	L	56	Ebd	56	R	0													0	L	56	Ebd	56	R	0													0	L	45	Ebd	0																															
												0	0	0													0	0	0													0	0	0													0	0	0													0	0	0													12	0	0																																							
												L	T	R													L	T	R													L	T	R													L	T	R													L	T	R													L	T	R																																							
												0			0													0			0													0			0													0			0													0			0													6			12																																	
												Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd																																	
												Eight Line															Prince Michael Dr															Meadowridge Dr															Ninth Line																																																																							

AM PEAK HOUR

Redoak

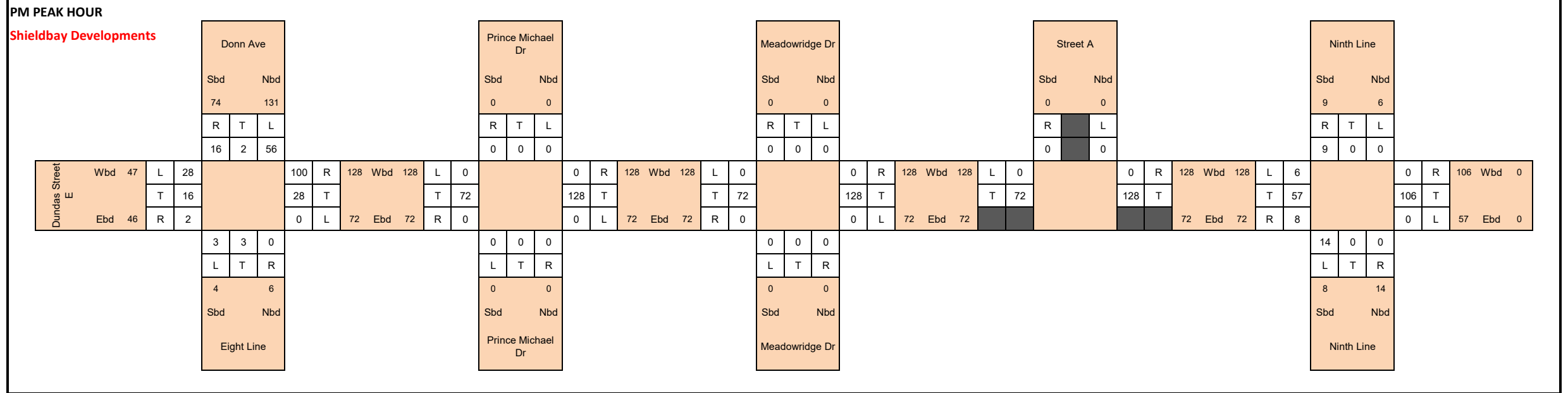
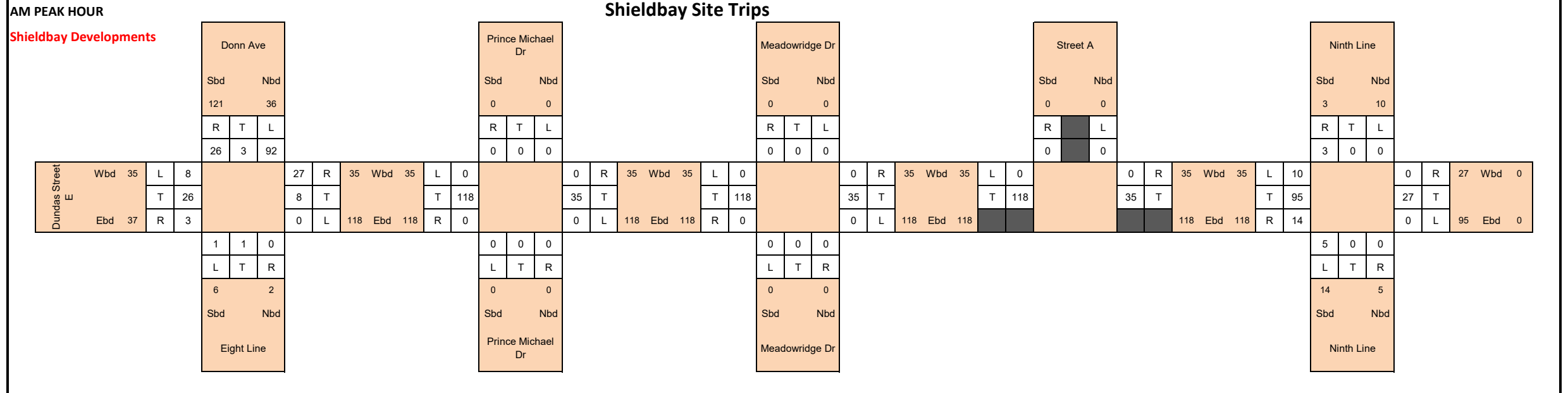
Redoak Site Trips

										Donn Ave													Prince Michael Dr													Meadowridge Dr													Street A													Ninth Line																															
										Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd																																
										62			31													143			1													0			0													0			0																																
										R			T			L													R			T			L													R			T			L													R			T			L																				
										0			8			54													0			16			127													0			0			0													0			0																							
Dundas Street E	Wbd		80	L	19											9	R	105		Wbd	46	L	0											0	R	43		Wbd	43	L	0											0	R	43		Wbd	43	L	0											0	R	43		Wbd	43	L	4											0	R	33		Wbd	0
	Ebd		19	R	0											80	T	54		Ebd	54	T	54											43	T	54		Ebd	54	T	54											43	T	43		Ebd	54	T	43											33	T	43		Ebd	0																		
	L		0	R	0											16	L	54		Ebd	54	R	0											0	L	181		Ebd	54	R	0											0	L	54		Ebd	54	R	0											0	L	43		Ebd	0																		
										0			3			0													3			1			0													0			0			0													7			0			0																				
										L			T			R													L			T			R													L			T			R													L			T			R																				
										24			3													16			4													0			0													6			7													0			0																
										Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd																
										Eight Line			Prince Michael Dr													Meadowridge Dr			Meadowridge Dr													Street A			Ninth Line																																																

PM PEAK HOUR

Redoak

										Donn Ave													Prince Michael Dr													Meadowridge Dr													Street A													Ninth Line																															
										Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd																																
										32			133													73			4													0			0													0			0																																
										R			T			L													R			T			L													R			T			L													R			T			L																				
										0			4			28													0			8			65													0			0			0													0			0																							
Dundas Street E	Wbd		42	L	80											39	R	89		Wbd	194	L	0											0	R	180		Wbd	180	L	0											0	R	180		Wbd	180	L	0											0	R	180		Wbd	180	L	2											0	R	149		Wbd	0
	Ebd		80	R	0											42	T	28		Ebd	28	T	28											180	T	28		Ebd	28	T	28											180	T	22		Ebd	28	T	22											149	T	22		Ebd	0																		
	L		0	R	0											8	L	28		Ebd	28	R	0											0	L	93		Ebd	28	R	0											0	L	28		Ebd	28	R	0											0	L	180		Ebd	28																		
										0			14			0													14			4			0													0			0			0													19			0			0																				
										L			T			R													L			T			R													L			T			R													L			T			R																				
										12			14													8			18													0			0													3			19													0			0																
										Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd													Sbd			Nbd																
										Eight Line			Prince Michael Dr													Meadowridge Dr			Meadowridge Dr													Street A			Ninth Line																																																





**AM PEAK HOUR**

**Bressa Site Trips**

**BASE FIGURE**

		Donn Ave				Prince Michael Dr				Meadowridge Dr				Street A				Ninth Line															
		Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd														
		0	0			0	0			0	0			231	81			0	0														
		R	T	L			R	T	L			R	T	L			R	T	L														
		0	0	0			0	0	0			0	0	0			99.3		132														
Dundas Street E	Wbd	99	L	0	0	R	99	Wbd	99	L	0	0	R	99	Wbd	99	L	34.8	0	R	99	Wbd	99	L	0	0	R	30	Wbd	0			
			T	34.8																													
	Ebd	35	R	0	0	L	35	Ebd	35	R	0	0	L	35	Ebd	35	R	0	99.3	T		0			0	T		85.5	0	L	85	Ebd	0
			L	T	R			L	T	R			L	T	R			L	T	R			L	T	R			L	T	R			
			0	0	0			0	0	0			0	0	0			0	0	0			0	0	0			0	0	0			
			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd					
			Eight Line			Prince Michael Dr			Meadowridge Dr			Ninth Line																					

**PM PEAK HOUR**

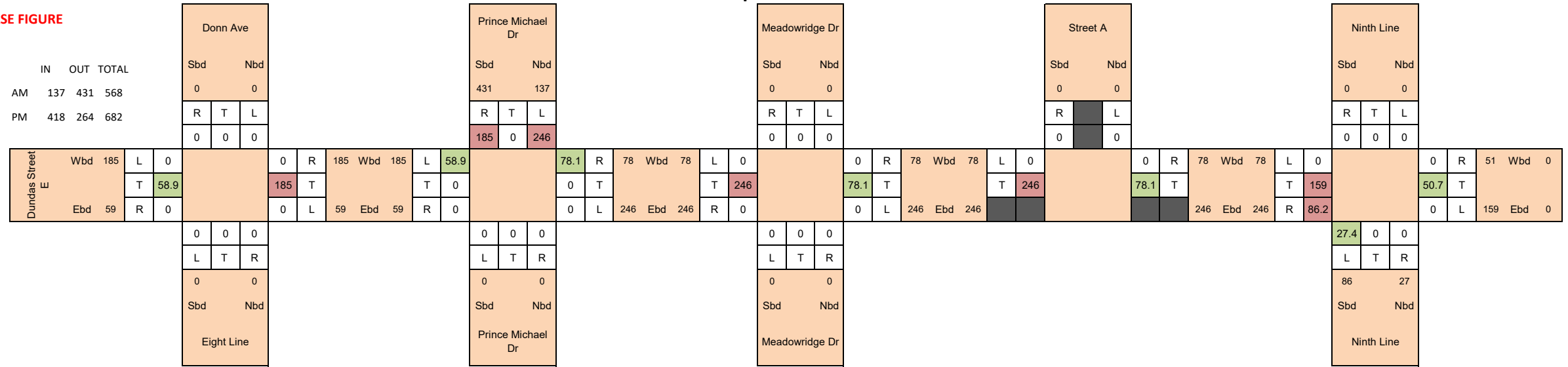
**BASE FIGURE**

		Donn Ave				Prince Michael Dr				Meadowridge Dr				Street A				Ninth Line															
		Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd														
		0	0			0	0			0	0			173	249			0	0														
		R	T	L			R	T	L			R	T	L			R	T	L														
		0	0	0			0	0	0			0	0	0			74.4		98.6														
Dundas Street E	Wbd	74	L	0	0	R	74	Wbd	74	L	0	0	R	74	Wbd	74	L	107	0	R	74	Wbd	74	L	0	0	R	92	Wbd	0			
			T	107																													
	Ebd	107	R	0	0	L	107	Ebd	107	R	0	0	L	107	Ebd	107	R	0	74.4	T		0			0	T		64	0	L	64	Ebd	0
			L	T	R			L	T	R			L	T	R			L	T	R			L	T	R			L	T	R			
			0	0	0			0	0	0			0	0	0			0	0	0			0	0	0			0	0	0			
			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd			Sbd	Nbd					
			Eight Line			Prince Michael Dr			Meadowridge Dr			Ninth Line																					

AM PEAK HOUR

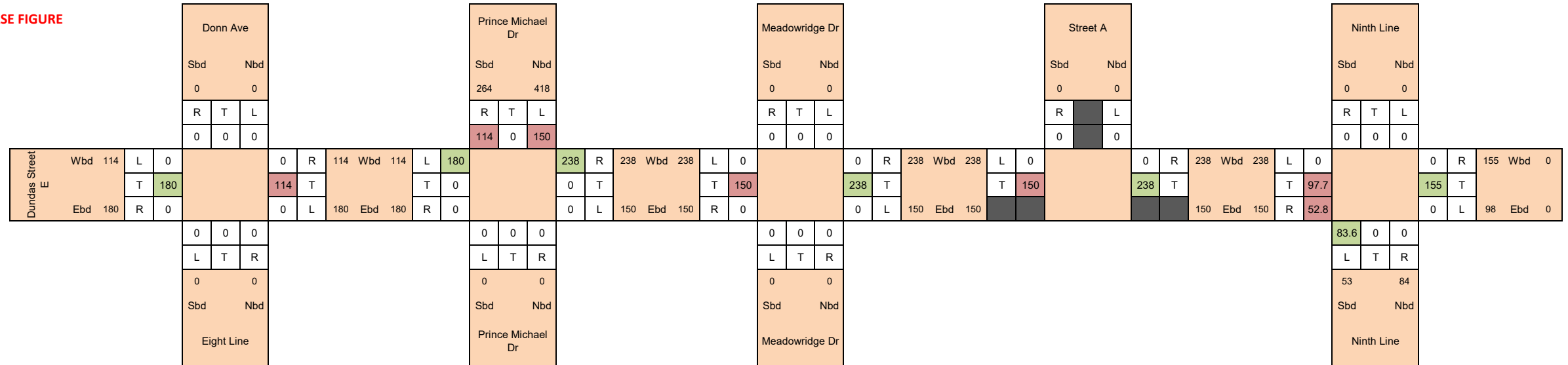
Dunoak Site Trips

BASE FIGURE



PM PEAK HOUR

BASE FIGURE



### Dunoak and Bressa Proposed Residential Dev TIS

Future Total 2020

**AM PEAK HOUR**  
**BASE FIGURE**

												Donn Ave															Prince Michael Dr															Meadowridge Dr															Street A															Ninth Line												
												Sbd			Nbd															Sbd			Nbd															Sbd			Nbd															Sbd			Nbd															
												0			0															431			137															231			81															0			0															
												R			T			L															R			T			L															R			T			L																								
												0			0			0															185			0			246															99			132															0			0									
Dundas Street E	Wbd		285		L		0				0		R		285		Wbd		285		L		59				78		R		177		Wbd		177		L		0				0		R		177		Wbd		177		L		35				46		R		124		Wbd		124		L		0				0		R		81		Wbd		0	
			T		94						285		T				99		T				281				177		T				246				78		T				245				81		T				245		Ebd		0																											
	Ebd		94		R		0				0		L		94		Ebd		94		R		0				0		L		281		Ebd		281		R		0				0		L		281		Ebd		281		R		0																													
												0			0															0			0															0			0															44			0			0												
												L			T			R															L			T			R															L			T			R																								
												0			0															0			0															0			0															132			44															
												Sbd			Nbd															Sbd			Nbd															Sbd			Nbd															Sbd			Nbd															
												Eight Line																		Prince Michael Dr																		Meadowridge Dr																		Ninth Line																		

**PM PEAK HOUR**  
**BASE FIGURE**





























												Donn Ave															Prince Michael Dr															Meadowridge Dr															Street A															Ninth Line												
												Sbd			Nbd															Sbd			Nbd															Sbd			Nbd															Sbd			Nbd															
												0			0															264			418															173			249															0			0															
												R			T			L															R			T			L															R			T			L																								
												0			0			0															114			0			150															74			99															0			0									
Dundas Street E	Wbd		188		L		0				0		R		188		Wbd		188		L		180				238		R		313		Wbd		313		L		0				0		R		313		Wbd		313		L		107				142		R		380		Wbd		380		L		0				0		R		247		Wbd		0	
			T		287						188		T				107		T				258				313		T				150				238		T				162				247		T				162		Ebd		0																											
	Ebd		287		R		0				0		L		287		Ebd		287		R		0				0		L		313		Ebd		258		R		0				0		L		258		Ebd		258		R		0																													
												0			0															0			0															0			0															133			0			0												
												L			T			R															L			T			R															L			T			R																								
												0			0															0			0															0			0															87			133															
												Sbd			Nbd															Sbd			Nbd															Sbd			Nbd															Sbd			Nbd															
												Eight Line																		Prince Michael Dr																		Meadowridge Dr																		Ninth Line																		

# **Appendix D**

## **Capacity Analysis**

Lanes, Volumes, Timings  
1: Eighth Line & Dundas St E

Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	11	2089	113	60	1017	20	152	19	151	92	58	25
Future Volume (vph)	11	2089	113	60	1017	20	152	19	151	92	58	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.0		52.0	150.0		75.0	26.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		1	1		1
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	1.00	1.00
Ped Bike Factor			0.99						0.99	1.00		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1674	5193	1585	1825	4812	1633	1825	1830	1601	1825	1883	1633
Flt Permitted	0.204			0.063			0.717			0.744		
Satd. Flow (perm)	360	5193	1564	121	4812	1633	1377	1830	1580	1428	1883	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			67			120			65
Link Speed (k/h)		70			70			50				50
Link Distance (m)		651.2			600.6			206.2				419.2
Travel Time (s)		33.5			30.9			14.8				30.2
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Adj. Flow (vph)	12	2222	120	64	1082	21	162	20	161	98	62	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	2222	120	64	1082	21	162	20	161	98	62	27
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
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  
1: Eighth Line & Dundas St E

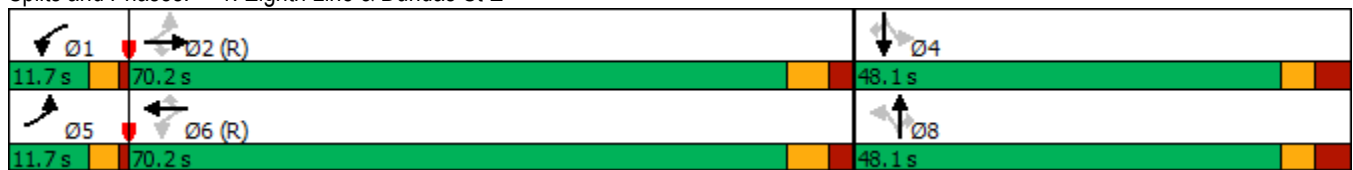
Morning Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
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	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	37.7	37.7	11.0	37.7	37.7	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (s)	11.7	70.2	70.2	11.7	70.2	70.2	48.1	48.1	48.1	48.1	48.1	48.1
Total Split (%)	9.0%	54.0%	54.0%	9.0%	54.0%	54.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	7.7	63.5	63.5	7.7	63.5	63.5	41.1	41.1	41.1	41.1	41.1	41.1
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5	2.5	3.7	3.7	3.7	3.7	3.7	3.7
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	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	Max	C-Min	C-Min	Max	C-Min	C-Min	Min	Min	Min	Min	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	93.7	63.5	63.5	93.7	63.5	63.5	21.3	21.3	21.3	21.3	21.3	21.3
Actuated g/C Ratio	0.72	0.49	0.49	0.72	0.49	0.49	0.16	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.02	0.88	0.15	0.14	0.46	0.03	0.72	0.07	0.45	0.42	0.20	0.08
Control Delay	5.7	34.7	9.0	5.3	26.6	4.0	68.2	42.9	17.6	52.6	46.1	0.5
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	5.7	34.7	9.0	5.3	26.6	4.0	68.2	42.9	17.6	52.6	46.1	0.5
LOS	A	C	A	A	C	A	E	D	B	D	D	A
Approach Delay		33.3			25.1			43.0			42.9	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 23 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 32.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 76.6%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 1: Eighth Line & Dundas St E



# Queues

## 1: Eighth Line & Dundas St E

Morning Peak Hour
































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	12	2222	120	64	1082	21	162	20	161	98	62	27
v/c Ratio	0.02	0.88	0.15	0.14	0.46	0.03	0.72	0.07	0.45	0.42	0.20	0.08
Control Delay	5.7	34.7	9.0	5.3	26.6	4.0	68.2	42.9	17.6	52.6	46.1	0.5
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	5.7	34.7	9.0	5.3	26.6	4.0	68.2	42.9	17.6	52.6	46.1	0.5
Queue Length 50th (m)	0.7	181.8	7.0	1.9	77.7	0.1	39.9	4.4	9.1	22.9	13.9	0.0
Queue Length 95th (m)	2.9	203.4	17.7	9.7	90.2	3.3	59.1	10.8	27.3	37.2	24.7	0.0
Internal Link Dist (m)		627.2			576.6			182.2			395.2	
Turn Bay Length (m)	97.0		52.0	150.0		75.0	26.0			15.0		15.0
Base Capacity (vph)	537	2536	798	447	2350	831	435	578	581	451	595	560
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	0.02	0.88	0.15	0.14	0.46	0.03	0.37	0.03	0.28	0.22	0.10	0.05

### Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 1: Eighth Line & Dundas St E

Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (vph)	11	2089	113	60	1017	20	152	19	151	92	58	25
Future Volume (vph)	11	2089	113	60	1017	20	152	19	151	92	58	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00
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)	1674	5193	1564	1825	4812	1633	1825	1830	1580	1823	1883	1633
Flt Permitted	0.20	1.00	1.00	0.06	1.00	1.00	0.72	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	359	5193	1564	121	4812	1633	1377	1830	1580	1429	1883	1633
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	12	2222	120	64	1082	21	162	20	161	98	62	27
RTOR Reduction (vph)	0	0	34	0	0	11	0	0	100	0	0	23
Lane Group Flow (vph)	12	2222	86	64	1082	10	162	20	61	98	62	4
Confl. Peds. (#/hr)			1	1					1	1		
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	91.0	63.5	63.5	91.0	63.5	63.5	21.3	21.3	21.3	21.3	21.3	21.3
Effective Green, g (s)	91.0	63.5	63.5	91.0	63.5	63.5	21.3	21.3	21.3	21.3	21.3	21.3
Actuated g/C Ratio	0.70	0.49	0.49	0.70	0.49	0.49	0.16	0.16	0.16	0.16	0.16	0.16
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
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)	529	2536	763	445	2350	797	225	299	258	234	308	267
v/s Ratio Prot	0.00	c0.43		c0.03	0.22			0.01			0.03	
v/s Ratio Perm	0.01		0.05	0.07		0.01	c0.12		0.04	0.07		0.00
v/c Ratio	0.02	0.88	0.11	0.14	0.46	0.01	0.72	0.07	0.24	0.42	0.20	0.02
Uniform Delay, d1	6.5	29.7	18.0	16.3	21.9	17.1	51.5	45.9	47.3	48.8	47.0	45.6
Progression Factor	1.00	1.00	1.00	0.74	1.18	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	4.6	0.3	0.7	0.6	0.0	10.9	0.1	0.6	1.4	0.4	0.0
Delay (s)	6.5	34.4	18.3	12.7	26.5	17.1	62.4	46.1	47.8	50.2	47.4	45.6
Level of Service	A	C	B	B	C	B	E	D	D	D	D	D
Approach Delay (s)		33.4			25.5			54.6			48.6	
Approach LOS		C			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			33.6	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				17.7				
Intersection Capacity Utilization			76.6%	ICU Level of Service				D				
Analysis Period (min)			15									

c Critical Lane Group



Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↘	↑↑↑	↘	↗
Traffic Volume (vph)	2244	107	59	961	107	171
Future Volume (vph)	2244	107	59	961	107	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		55.0	125.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Ped Bike Factor		0.98			1.00	0.99
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5193	1570	1825	4725	1807	1617
Flt Permitted			0.044		0.950	
Satd. Flow (perm)	5193	1536	85	4725	1803	1594
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		60				115
Link Speed (k/h)	70			70	50	
Link Distance (m)	600.6			587.4	203.4	
Travel Time (s)	30.9			30.2	14.6	
Confl. Peds. (#/hr)		1	1		2	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	0%	11%	1%	1%
Adj. Flow (vph)	2338	111	61	1001	111	178
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2338	111	61	1001	111	178
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	38.8	38.8	11.5	43.8	43.7	43.7
Total Split (s)	72.8	72.8	11.7	84.5	45.5	45.5
Total Split (%)	56.0%	56.0%	9.0%	65.0%	35.0%	35.0%
Maximum Green (s)	66.0	66.0	7.7	77.7	38.8	38.8
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.6	2.6	1.0	2.6	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	4.0	6.8	6.7	6.7
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	None	C-Max	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	25.0	25.0		25.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	93.1	93.1	105.1	102.3	14.2	14.2
Actuated g/C Ratio	0.72	0.72	0.81	0.79	0.11	0.11
v/c Ratio	0.63	0.10	0.36	0.27	0.57	0.64
Control Delay	2.2	0.3	28.7	2.9	65.7	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	0.3	28.7	2.9	65.7	31.6
LOS	A	A	C	A	E	C
Approach Delay	2.1			4.4	44.7	
Approach LOS	A			A	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 60 (46%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.64  
 Intersection Signal Delay: 6.0  
 Intersection LOS: A  
 Intersection Capacity Utilization 70.1%  
 ICU Level of Service C  
 Analysis Period (min) 15

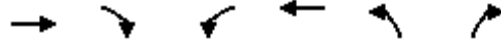
Splits and Phases: 2: Prince Michael Dr & Dundas St E



## Queues

### 2: Prince Michael Dr & Dundas St E

Morning Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2338	111	61	1001	111	178
v/c Ratio	0.63	0.10	0.36	0.27	0.57	0.64
Control Delay	2.2	0.3	28.7	2.9	65.7	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	0.3	28.7	2.9	65.7	31.6
Queue Length 50th (m)	12.3	0.3	4.9	13.9	27.5	15.3
Queue Length 95th (m)	18.2	m0.2	19.9	21.8	44.7	37.8
Internal Link Dist (m)	576.6			563.4	179.4	
Turn Bay Length (m)		55.0	125.0		50.0	
Base Capacity (vph)	3719	1117	175	3719	538	556
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	0.63	0.10	0.35	0.27	0.21	0.32

#### Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 2: Prince Michael Dr & Dundas St E

Morning Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	2244	107	59	961	107	171
Future Volume (vph)	2244	107	59	961	107	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8	4.0	6.8	6.7	6.7
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5193	1536	1825	4725	1803	1594
Flt Permitted	1.00	1.00	0.04	1.00	0.95	1.00
Satd. Flow (perm)	5193	1536	85	4725	1803	1594
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2338	111	61	1001	111	178
RTOR Reduction (vph)	0	17	0	0	0	102
Lane Group Flow (vph)	2338	94	61	1001	111	76
Confl. Peds. (#/hr)		1	1		2	2
Heavy Vehicles (%)	1%	4%	0%	11%	1%	1%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	92.3	92.3	102.3	102.3	14.2	14.2
Effective Green, g (s)	92.3	92.3	102.3	102.3	14.2	14.2
Actuated g/C Ratio	0.71	0.71	0.79	0.79	0.11	0.11
Clearance Time (s)	6.8	6.8	4.0	6.8	6.7	6.7
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	3687	1090	147	3718	196	174
v/s Ratio Prot	c0.45		c0.02	0.21		
v/s Ratio Perm		0.06	0.31		c0.06	0.05
v/c Ratio	0.63	0.09	0.41	0.27	0.57	0.43
Uniform Delay, d1	9.9	5.8	10.4	3.7	55.0	54.1
Progression Factor	0.17	0.05	2.81	0.69	1.00	1.00
Incremental Delay, d2	0.5	0.1	2.2	0.2	4.0	2.0
Delay (s)	2.1	0.4	31.5	2.8	59.0	56.2
Level of Service	A	A	C	A	E	E
Approach Delay (s)	2.0			4.4	57.3	
Approach LOS	A			A	E	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			6.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	17.5
Intersection Capacity Utilization			70.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

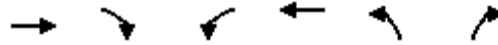
Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↘	↑↑↑	↘	↗
Traffic Volume (vph)	2379	49	89	1029	50	265
Future Volume (vph)	2379	49	89	1029	50	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	135.0		25.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5193	1601	1807	4812	1789	1633
Flt Permitted			0.059		0.950	
Satd. Flow (perm)	5193	1601	112	4812	1789	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		27				153
Link Speed (k/h)	70			70	50	
Link Distance (m)	587.4			856.4	240.3	
Travel Time (s)	30.2			44.0	17.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Adj. Flow (vph)	2478	51	93	1072	52	276
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2478	51	93	1072	52	276
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	36.7	36.7	11.0	36.7	43.9	43.9
Total Split (s)	70.2	70.2	14.3	84.5	45.5	45.5
Total Split (%)	54.0%	54.0%	11.0%	65.0%	35.0%	35.0%
Maximum Green (s)	63.5	63.5	10.3	77.8	38.6	38.6
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.5	2.5	1.0	2.5	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	Max	C-Max	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	63.5	63.5	101.8	99.1	17.3	17.3
Actuated g/C Ratio	0.49	0.49	0.78	0.76	0.13	0.13
v/c Ratio	0.98	0.06	0.19	0.29	0.22	0.79
Control Delay	25.6	5.1	16.2	1.5	49.8	39.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	5.1	16.2	1.5	49.8	39.6
LOS	C	A	B	A	D	D
Approach Delay	25.2			2.7	41.2	
Approach LOS	C			A	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 70 (54%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay: 20.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 74.8%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 3: Meadowridge Dr & Dundas St E



## Queues

### 3: Meadowridge Dr & Dundas St E

Morning Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2478	51	93	1072	52	276
v/c Ratio	0.98	0.06	0.19	0.29	0.22	0.79
Control Delay	25.6	5.1	16.2	1.5	49.8	39.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	5.1	16.2	1.5	49.8	39.6
Queue Length 50th (m)	55.8	0.4	1.2	6.0	12.2	31.2
Queue Length 95th (m)	#257.1	m2.2	m13.6	m10.0	22.5	57.8
Internal Link Dist (m)	563.4			832.4	216.3	
Turn Bay Length (m)		60.0	135.0		25.0	
Base Capacity (vph)	2536	795	500	3669	531	592
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	0.98	0.06	0.19	0.29	0.10	0.47

#### 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

## 3: Meadowridge Dr & Dundas St E
































Morning Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	2379	49	89	1029	50	265
Future Volume (vph)	2379	49	89	1029	50	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5193	1601	1807	4812	1789	1633
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	5193	1601	113	4812	1789	1633
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2478	51	93	1072	52	276
RTOR Reduction (vph)	0	14	0	0	0	133
Lane Group Flow (vph)	2478	37	93	1072	52	143
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	63.5	63.5	99.1	99.1	17.3	17.3
Effective Green, g (s)	63.5	63.5	99.1	99.1	17.3	17.3
Actuated g/C Ratio	0.49	0.49	0.76	0.76	0.13	0.13
Clearance Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	2536	782	497	3668	238	217
v/s Ratio Prot	c0.48		0.05	c0.22		
v/s Ratio Perm		0.02	0.10		0.03	c0.09
v/c Ratio	0.98	0.05	0.19	0.29	0.22	0.66
Uniform Delay, d1	32.5	17.4	20.2	4.7	50.3	53.6
Progression Factor	0.40	0.50	1.75	0.25	1.00	1.00
Incremental Delay, d2	11.5	0.1	0.7	0.2	0.5	7.6
Delay (s)	24.5	8.8	36.1	1.4	50.9	61.2
Level of Service	C	A	D	A	D	E
Approach Delay (s)	24.2			4.1	59.6	
Approach LOS	C			A	E	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			21.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.74			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	17.6
Intersection Capacity Utilization			74.8%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						



Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 		 	 	
Traffic Volume (vph)	217	2134	313	120	860	122	173	313	153	182	520	98
Future Volume (vph)	217	2134	313	120	860	122	173	313	153	182	520	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
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	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5193	1633	1789	4812	1633	1630	3579	1585	1825	3650	1633
Flt Permitted	0.231			0.067			0.207			0.448		
Satd. Flow (perm)	444	5193	1633	126	4812	1633	355	3579	1585	861	3650	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			176			138			152			137
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		856.4			295.5			522.7			348.2	
Travel Time (s)		44.0			15.2			37.6			25.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	2%	9%	0%	12%	2%	3%	0%	0%	0%
Adj. Flow (vph)	231	2270	333	128	915	130	184	333	163	194	553	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	2270	333	128	915	130	184	333	163	194	553	104
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
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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	45.3	45.3	11.0	45.3	45.3	11.0	47.5	47.5	11.0	47.5	47.5
Total Split (s)	19.5	68.9	68.9	11.7	61.1	61.1	14.3	35.1	35.1	14.3	35.1	35.1
Total Split (%)	15.0%	53.0%	53.0%	9.0%	47.0%	47.0%	11.0%	27.0%	27.0%	11.0%	27.0%	27.0%
Maximum Green (s)	14.5	62.6	62.6	7.7	54.8	54.8	10.3	28.6	28.6	10.3	28.6	28.6
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	2.6	2.6	1.0	2.6	2.6	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	6.3	6.3	4.0	6.3	6.3	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
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	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)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	77.8	64.9	64.9	70.4	59.6	59.6	38.3	25.5	25.5	38.3	25.5	25.5
Actuated g/C Ratio	0.60	0.50	0.50	0.54	0.46	0.46	0.29	0.20	0.20	0.29	0.20	0.20
v/c Ratio	0.58	0.88	0.37	0.73	0.41	0.16	0.90	0.47	0.38	0.59	0.77	0.24
Control Delay	6.2	18.1	3.5	48.8	25.0	3.6	76.8	48.2	10.4	41.2	57.1	4.1
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	6.2	18.1	3.5	48.8	25.0	3.6	76.8	48.2	10.4	41.2	57.1	4.1
LOS	A	B	A	D	C	A	E	D	B	D	E	A
Approach Delay		15.4			25.2			46.8			47.0	
Approach LOS		B			C			D			D	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	12 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	130
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	26.2
Intersection LOS:	C
Intersection Capacity Utilization:	89.2%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 5: Ninth Line & Dundas St E



# Queues

## 5: Ninth Line & Dundas St E

Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	231	2270	333	128	915	130	184	333	163	194	553	104
v/c Ratio	0.58	0.88	0.37	0.73	0.41	0.16	0.90	0.47	0.38	0.59	0.77	0.24
Control Delay	6.2	18.1	3.5	48.8	25.0	3.6	76.8	48.2	10.4	41.2	57.1	4.1
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	6.2	18.1	3.5	48.8	25.0	3.6	76.8	48.2	10.4	41.2	57.1	4.1
Queue Length 50th (m)	3.6	216.5	19.2	16.2	58.2	0.0	35.2	39.6	2.3	36.8	70.3	0.0
Queue Length 95th (m)	m7.2	m224.7	m20.4	#50.3	72.6	10.4	#63.9	53.4	20.4	55.9	88.7	7.4
Internal Link Dist (m)	832.4			271.5			498.7			324.2		
Turn Bay Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	422	2592	903	176	2207	824	205	787	467	330	803	466
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	0.55	0.88	0.37	0.73	0.41	0.16	0.90	0.42	0.35	0.59	0.69	0.22

### 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

## 5: Ninth Line & Dundas St E

Morning Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	2134	313	120	860	122	173	313	153	182	520	98
Future Volume (vph)	217	2134	313	120	860	122	173	313	153	182	520	98
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.5	6.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	5193	1633	1789	4812	1633	1630	3579	1585	1825	3650	1633
Flt Permitted	0.23	1.00	1.00	0.07	1.00	1.00	0.21	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	444	5193	1633	126	4812	1633	355	3579	1585	860	3650	1633
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	231	2270	333	128	915	130	184	333	163	194	553	104
RTOR Reduction (vph)	0	0	88	0	0	70	0	0	122	0	0	84
Lane Group Flow (vph)	231	2270	245	128	915	60	184	333	41	194	553	20
Heavy Vehicles (%)	0%	1%	0%	2%	9%	0%	12%	2%	3%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	77.4	64.9	64.9	68.2	59.7	59.7	35.8	25.5	25.5	35.8	25.5	25.5
Effective Green, g (s)	77.4	64.9	64.9	68.2	59.7	59.7	35.8	25.5	25.5	35.8	25.5	25.5
Actuated g/C Ratio	0.60	0.50	0.50	0.52	0.46	0.46	0.28	0.20	0.20	0.28	0.20	0.20
Clearance Time (s)	5.0	6.3	6.3	4.0	6.3	6.3	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)	399	2592	815	174	2209	749	198	702	310	313	715	320
v/s Ratio Prot	0.06	c0.44		c0.05	0.19		c0.07	0.09		0.05	0.15	
v/s Ratio Perm	0.29		0.15	0.34		0.04	c0.18		0.03	0.12		0.01
v/c Ratio	0.58	0.88	0.30	0.74	0.41	0.08	0.93	0.47	0.13	0.62	0.77	0.06
Uniform Delay, d1	13.6	29.0	19.2	26.5	23.5	19.7	41.4	46.3	43.1	38.7	49.5	42.5
Progression Factor	0.30	0.53	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	2.0	0.4	15.3	0.6	0.2	44.3	0.6	0.2	3.8	5.4	0.1
Delay (s)	5.0	17.4	6.6	41.8	24.0	19.9	85.7	46.9	43.3	42.5	54.9	42.6
Level of Service	A	B	A	D	C	B	F	D	D	D	D	D
Approach Delay (s)		15.1			25.5			56.6			50.6	
Approach LOS		B			C			E			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			27.9									C
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			130.0							21.8		
Intersection Capacity Utilization			89.2%									E
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
1: Eighth Line & Dundas St E

GHD  
04/17/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Future Volume (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.0		52.0	150.0		75.0	26.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		1	1		1
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	1.00	1.00
Ped Bike Factor			0.99						0.99	1.00		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1674	4565	1585	1825	4230	1633	1825	1830	1601	1825	1883	1633
Flt Permitted	0.075			0.063			0.694			0.742		
Satd. Flow (perm)	132	4565	1564	121	4230	1633	1333	1830	1580	1424	1883	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			67			119			65
Link Speed (k/h)		70			70			50				50
Link Distance (m)		651.2			600.6			206.2				419.2
Travel Time (s)		33.5			30.9			14.8				30.2
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour 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
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Adj. Flow (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
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
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  
1: Eighth Line & Dundas St E

GHD  
04/17/2020



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	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	37.7	37.7	11.0	37.7	37.7	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (s)	11.7	70.2	70.2	11.7	70.2	70.2	48.1	48.1	48.1	48.1	48.1	48.1
Total Split (%)	9.0%	54.0%	54.0%	9.0%	54.0%	54.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	7.7	63.5	63.5	7.7	63.5	63.5	41.1	41.1	41.1	41.1	41.1	41.1
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5	2.5	3.7	3.7	3.7	3.7	3.7	3.7
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	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	Max	C-Min	C-Min	Max	C-Min	C-Min	Min	Min	Min	Min	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	93.2	63.5	63.5	93.2	63.5	63.5	21.8	21.8	21.8	21.8	21.8	21.8
Actuated g/C Ratio	0.72	0.49	0.49	0.72	0.49	0.49	0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.10	1.10	0.15	0.18	0.72	0.07	0.72	0.08	0.44	0.66	0.31	0.08
Control Delay	6.1	83.4	9.1	9.1	35.7	6.7	68.4	42.8	17.6	62.9	48.2	0.5
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	6.1	83.4	9.1	9.1	35.7	6.7	68.4	42.8	17.6	62.9	48.2	0.5
LOS	A	F	A	A	D	A	E	D	B	E	D	A
Approach Delay		78.8			33.4			43.0			51.8	
Approach LOS		E			C			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 23 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 135  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.10  
 Intersection Signal Delay: 59.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 84.0%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 1: Eighth Line & Dundas St E



Queues  
1: Eighth Line & Dundas St E

GHD  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
v/c Ratio	0.10	1.10	0.15	0.18	0.72	0.07	0.72	0.08	0.44	0.66	0.31	0.08
Control Delay	6.1	83.4	9.1	9.1	35.7	6.7	68.4	42.8	17.6	62.9	48.2	0.5
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	6.1	83.4	9.1	9.1	35.7	6.7	68.4	42.8	17.6	62.9	48.2	0.5
Queue Length 50th (m)	2.3	~294.5	7.2	4.7	137.7	2.5	39.6	5.3	9.3	38.2	22.1	0.0
Queue Length 95th (m)	6.9	#325.7	17.7	16.3	158.2	11.0	58.8	12.0	27.3	56.6	35.3	0.0
Internal Link Dist (m)		627.2			576.6			182.2			395.2	
Turn Bay Length (m)	97.0		52.0	150.0		75.0	26.0			15.0		15.0
Base Capacity (vph)	415	2229	798	441	2066	831	421	578	580	450	595	560
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	0.10	1.10	0.15	0.18	0.72	0.07	0.38	0.04	0.28	0.35	0.16	0.05

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  
1: Eighth Line & Dundas St E

GHD  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Future Volume (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00
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)	1674	4565	1564	1825	4230	1633	1825	1830	1580	1823	1883	1633
Flt Permitted	0.07	1.00	1.00	0.06	1.00	1.00	0.69	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	132	4565	1564	121	4230	1633	1334	1830	1580	1423	1883	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
RTOR Reduction (vph)	0	0	34	0	0	30	0	0	99	0	0	22
Lane Group Flow (vph)	40	2443	87	79	1478	28	161	24	62	157	97	5
Confl. Peds. (#/hr)			1	1					1	1		
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	90.5	63.5	63.5	90.5	63.5	63.5	21.8	21.8	21.8	21.8	21.8	21.8
Effective Green, g (s)	90.5	63.5	63.5	90.5	63.5	63.5	21.8	21.8	21.8	21.8	21.8	21.8
Actuated g/C Ratio	0.70	0.49	0.49	0.70	0.49	0.49	0.17	0.17	0.17	0.17	0.17	0.17
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
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)	412	2229	763	438	2066	797	223	306	264	238	315	273
v/s Ratio Prot	0.02	c0.54		c0.04	0.35			0.01			0.05	
v/s Ratio Perm	0.05		0.06	0.09		0.02	c0.12		0.04	0.11		0.00
v/c Ratio	0.10	1.10	0.11	0.18	0.72	0.04	0.72	0.08	0.23	0.66	0.31	0.02
Uniform Delay, d1	9.8	33.2	18.0	20.5	26.1	17.3	51.2	45.6	46.9	50.6	47.5	45.2
Progression Factor	1.00	1.00	1.00	0.96	1.28	2.02	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	51.0	0.3	0.8	2.0	0.1	11.3	0.1	0.5	6.7	0.7	0.0
Delay (s)	10.2	84.3	18.3	20.4	35.3	35.1	62.5	45.8	47.4	57.4	48.1	45.2
Level of Service	B	F	B	C	D	D	E	D	D	E	D	D
Approach Delay (s)		80.1			34.6			54.3			53.0	
Approach LOS		F			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			61.5									E
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0							17.7		
Intersection Capacity Utilization			84.0%									E
Analysis Period (min)			15									
c Critical Lane Group												



Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

GHD  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	2696	111	61	1218	81	117	1	181	388	17	193
Future Volume (vph)	61	2696	111	61	1218	81	117	1	181	388	17	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		55.0	125.0		70.0	50.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		0	1		1
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	1.00	1.00
Ped Bike Factor			0.98				1.00	0.99				
Fr <sub>t</sub>			0.850			0.850		0.851				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	4565	1570	1825	4154	1601	1807	1596	0	1789	1883	1601
Fl <sub>t</sub> Permitted	0.149			0.052			0.746			0.589		
Satd. Flow (perm)	281	4565	1536	100	4154	1601	1413	1596	0	1109	1883	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			54			81		2				68
Link Speed (k/h)		70			70			50				48
Link Distance (m)		600.6			587.4			203.4				95.0
Travel Time (s)		30.9			30.2			14.6				7.1
Confl. Peds. (#/hr)			1	1			2		2			
Peak Hour 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
Heavy Vehicles (%)	2%	1%	4%	0%	11%	2%	1%	2%	1%	2%	2%	2%
Adj. Flow (vph)	61	2696	111	61	1218	81	117	1	181	388	17	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	2696	111	61	1218	81	117	182	0	388	17	193
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
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

GHD  
04/17/2020

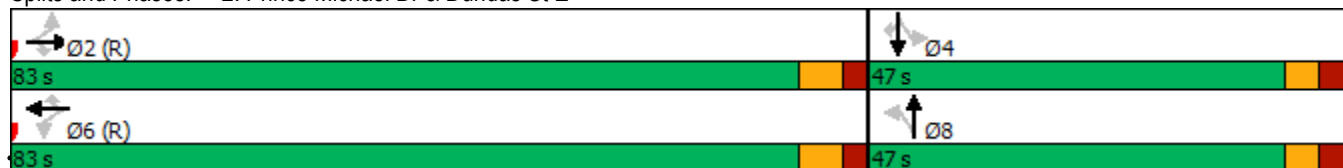


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	2	2	2	6	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0		5.0	5.0	5.0
Minimum Split (s)	38.8	38.8	38.8	43.8	43.8	43.8	43.7	43.7		25.0	25.0	25.0
Total Split (s)	83.0	83.0	83.0	83.0	83.0	83.0	47.0	47.0		47.0	47.0	47.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.2%	36.2%		36.2%	36.2%	36.2%
Maximum Green (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6	2.6	3.4	3.4		3.4	3.4	3.4
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)	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Min	Min		None	None	None
Walk Time (s)	7.0	7.0	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	25.0	30.0	30.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31		0.31	0.31	0.31
v/c Ratio	0.37	1.01	0.12	1.05	0.50	0.08	0.27	0.37		1.13	0.03	0.36
Control Delay	6.1	20.8	0.6	158.8	9.9	0.7	35.8	37.2		130.2	31.6	24.2
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	6.1	20.8	0.6	158.8	9.9	0.7	35.8	37.2		130.2	31.6	24.2
LOS	A	C	A	F	A	A	D	D		F	C	C
Approach Delay		19.7			16.1			36.6			93.2	
Approach LOS		B			B			D			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 48.5 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 28.3      Intersection LOS: C  
 Intersection Capacity Utilization 103.1%      ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 2: Prince Michael Dr & Dundas St E


































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	61	2696	111	61	1218	81	117	182	388	17	193
v/c Ratio	0.37	1.01	0.12	1.05	0.50	0.08	0.27	0.37	1.13	0.03	0.36
Control Delay	6.1	20.8	0.6	158.8	9.9	0.7	35.8	37.2	130.2	31.6	24.2
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	6.1	20.8	0.6	158.8	9.9	0.7	35.8	37.2	130.2	31.6	24.2
Queue Length 50th (m)	1.6	~308.8	0.5	~8.9	35.4	0.2	22.5	35.9	~115.0	3.0	24.1
Queue Length 95th (m)	m1.9	m31.2	m0.2	#46.8	38.6	1.0	38.8	56.7	#176.2	8.7	44.8
Internal Link Dist (m)		576.6			563.4			179.4		71.0	
Turn Bay Length (m)	115.0		55.0	125.0		70.0	50.0		15.0		15.0
Base Capacity (vph)	164	2675	922	58	2434	971	438	496	343	583	543
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	1.01	0.12	1.05	0.50	0.08	0.27	0.37	1.13	0.03	0.36

**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  
2: Prince Michael Dr & Dundas St E

GHD  
04/17/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	61	2696	111	61	1218	81	117	1	181	388	17	193
Future Volume (vph)	61	2696	111	61	1218	81	117	1	181	388	17	193
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00
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	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	4565	1536	1825	4154	1601	1799	1596		1789	1883	1601
Flt Permitted	0.15	1.00	1.00	0.05	1.00	1.00	0.75	1.00		0.59	1.00	1.00
Satd. Flow (perm)	280	4565	1536	101	4154	1601	1414	1596		1109	1883	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	2696	111	61	1218	81	117	1	181	388	17	193
RTOR Reduction (vph)	0	0	22	0	0	34	0	1	0	0	0	47
Lane Group Flow (vph)	61	2696	89	61	1218	47	117	181	0	388	17	146
Confl. Peds. (#/hr)			1	1			2		2			
Heavy Vehicles (%)	2%	1%	4%	0%	11%	2%	1%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Effective Green, g (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31		0.31	0.31	0.31
Clearance Time (s)	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5		3.0	3.0	3.0
Lane Grp Cap (vph)	164	2675	900	59	2434	938	438	494		343	583	496
v/s Ratio Prot		0.59			0.29			0.11			0.01	
v/s Ratio Perm	0.22		0.06	c0.60		0.03	0.08			c0.35		0.09
v/c Ratio	0.37	1.01	0.10	1.03	0.50	0.05	0.27	0.37		1.13	0.03	0.29
Uniform Delay, d1	14.2	26.9	11.8	26.9	15.8	11.5	33.7	34.9		44.9	31.2	34.1
Progression Factor	0.26	0.29	0.09	0.85	0.58	0.22	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.9	11.3	0.1	122.6	0.7	0.1	0.4	0.5		89.0	0.0	0.3
Delay (s)	5.6	19.0	1.1	145.4	9.8	2.6	34.1	35.4		133.9	31.2	34.4
Level of Service	A	B	A	F	A	A	C	D		F	C	C
Approach Delay (s)		18.0			15.5			34.9			98.9	
Approach LOS		B			B			C			F	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			27.8									C
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			130.0							13.5		
Intersection Capacity Utilization			103.1%									G
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

GHD  
04/17/2020

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↘	↑↑↑	↘	↗
Traffic Volume (vph)	3090	51	93	1370	53	281
Future Volume (vph)	3090	51	93	1370	53	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	135.0		25.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4565	1601	1807	4230	1789	1633
Flt Permitted			0.059		0.950	
Satd. Flow (perm)	4565	1601	112	4230	1789	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		19				152
Link Speed (k/h)	70			70	50	
Link Distance (m)	587.4			354.8	240.3	
Travel Time (s)	30.2			18.2	17.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Adj. Flow (vph)	3090	51	93	1370	53	281
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3090	51	93	1370	53	281
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	36.7	36.7	11.0	36.7	43.9	43.9
Total Split (s)	70.2	70.2	14.3	84.5	45.5	45.5
Total Split (%)	54.0%	54.0%	11.0%	65.0%	35.0%	35.0%
Maximum Green (s)	63.5	63.5	10.3	77.8	38.6	38.6
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.5	2.5	1.0	2.5	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	Max	C-Max	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	63.5	63.5	101.4	98.7	17.7	17.7
Actuated g/C Ratio	0.49	0.49	0.78	0.76	0.14	0.14
v/c Ratio	1.39	0.06	0.19	0.43	0.22	0.80
Control Delay	199.7	11.5	18.3	1.7	49.3	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	199.7	11.5	18.3	1.7	49.3	40.4
LOS	F	B	B	A	D	D
Approach Delay	196.7			2.8	41.8	
Approach LOS	F			A	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 70 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.39  
 Intersection Signal Delay: 128.8  
 Intersection LOS: F  
 Intersection Capacity Utilization 88.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 3: Meadowridge Dr & Dundas St E



Queues  
3: Meadowridge Dr & Dundas St E



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	3090	51	93	1370	53	281
v/c Ratio	1.39	0.06	0.19	0.43	0.22	0.80
Control Delay	199.7	11.5	18.3	1.7	49.3	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	199.7	11.5	18.3	1.7	49.3	40.4
Queue Length 50th (m)	~437.0	2.9	2.7	7.6	12.3	32.8
Queue Length 95th (m)	m#424.7	m3.1	17.2	23.0	22.6	59.3
Internal Link Dist (m)	563.4			330.8	216.3	
Turn Bay Length (m)		60.0	135.0		25.0	
Base Capacity (vph)	2229	791	494	3210	531	591
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.39	0.06	0.19	0.43	0.10	0.48

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

## 3: Meadowridge Dr & Dundas St E

GHD  
04/17/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	3090	51	93	1370	53	281
Future Volume (vph)	3090	51	93	1370	53	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4565	1601	1807	4230	1789	1633
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	4565	1601	113	4230	1789	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3090	51	93	1370	53	281
RTOR Reduction (vph)	0	10	0	0	0	131
Lane Group Flow (vph)	3090	41	93	1370	53	150
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	63.5	63.5	98.7	98.7	17.7	17.7
Effective Green, g (s)	63.5	63.5	98.7	98.7	17.7	17.7
Actuated g/C Ratio	0.49	0.49	0.76	0.76	0.14	0.14
Clearance Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	2229	782	492	3211	243	222
v/s Ratio Prot	c0.68		0.05	c0.32		
v/s Ratio Perm		0.03	0.10		0.03	c0.09
v/c Ratio	1.39	0.05	0.19	0.43	0.22	0.67
Uniform Delay, d1	33.2	17.5	20.3	5.6	50.0	53.4
Progression Factor	0.76	0.94	1.94	0.21	1.00	1.00
Incremental Delay, d2	174.5	0.0	0.8	0.4	0.5	8.1
Delay (s)	199.8	16.5	40.2	1.6	50.5	61.6
Level of Service	F	B	D	A	D	E
Approach Delay (s)	196.8			4.0	59.8	
Approach LOS	F			A	E	

### Intersection Summary

HCM 2000 Control Delay	130.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

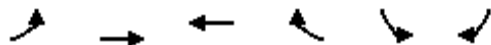


Lanes, Volumes, Timings  
4: Dundas St E & Street A

GHD  
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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↑↑↑	↑↑↑	↷	↶	↷
Traffic Volume (vph)	35	3331	1374	46	132	99
Future Volume (vph)	35	3331	1374	46	132	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0			75.0	0.0	15.0
Storage Lanes	1			1	1	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.141				0.950	
Satd. Flow (perm)	266	4520	4520	1601	1789	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				46		72
Link Speed (k/h)		70	70		48	
Link Distance (m)		354.8	501.7		96.4	
Travel Time (s)		18.2	25.8		7.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	3331	1374	46	132	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	3331	1374	46	132	99
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Perm	Perm
Protected Phases		4	8			
Permitted Phases	4			8	6	6

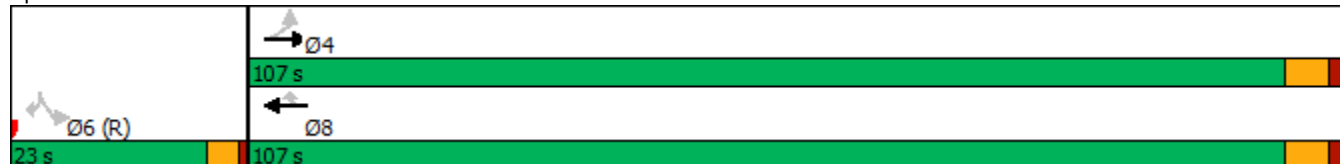


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	4	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.7	24.7	24.7	24.7	22.5	22.5
Total Split (s)	107.0	107.0	107.0	107.0	23.0	23.0
Total Split (%)	82.3%	82.3%	82.3%	82.3%	17.7%	17.7%
Maximum Green (s)	100.3	100.3	100.3	100.3	19.0	19.0
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	3.0
All-Red Time (s)	2.5	2.5	2.5	2.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	100.3	100.3	100.3	100.3	19.0	19.0
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.15	0.15
v/c Ratio	0.17	0.96	0.39	0.04	0.51	0.34
Control Delay	9.1	32.5	1.4	0.0	58.7	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	32.5	1.4	0.0	58.7	20.6
LOS	A	C	A	A	E	C
Approach Delay		32.3	1.3		42.4	
Approach LOS		C	A		D	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.96
Intersection Signal Delay:	24.0
Intersection LOS:	C
Intersection Capacity Utilization:	80.6%
ICU Level of Service:	D
Analysis Period (min):	15
* User Entered Value	

Splits and Phases: 4: Dundas St E & Street A



Queues  
4: Dundas St E & Street A



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	35	3331	1374	46	132	99
v/c Ratio	0.17	0.96	0.39	0.04	0.51	0.34
Control Delay	9.1	32.5	1.4	0.0	58.7	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	32.5	1.4	0.0	58.7	20.6
Queue Length 50th (m)	4.1	240.0	9.2	0.0	31.6	6.1
Queue Length 95th (m)	m3.3	m142.5	m10.3	m0.0	52.2	22.5
Internal Link Dist (m)		330.8	477.7		72.4	
Turn Bay Length (m)	110.0			75.0		15.0
Base Capacity (vph)	205	3487	3487	1245	261	295
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	0.17	0.96	0.39	0.04	0.51	0.34

Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 4: Dundas St E & Street A

GHD  
04/17/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑↑	↑↑↑	↗	↖	↗
Traffic Volume (vph)	35	3331	1374	46	132	99
Future Volume (vph)	35	3331	1374	46	132	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	4.0	4.0
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.14	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	265	4520	4520	1601	1789	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	3331	1374	46	132	99
RTOR Reduction (vph)	0	0	0	11	0	61
Lane Group Flow (vph)	35	3331	1374	35	132	38
Turn Type	Perm	NA	NA	Perm	Perm	Perm
Protected Phases		4	8			
Permitted Phases	4			8	6	6
Actuated Green, G (s)	100.3	100.3	100.3	100.3	19.0	19.0
Effective Green, g (s)	100.3	100.3	100.3	100.3	19.0	19.0
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.15	0.15
Clearance Time (s)	6.7	6.7	6.7	6.7	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	204	3487	3487	1235	261	233
v/s Ratio Prot		c0.74	0.30			
v/s Ratio Perm	0.13			0.02	c0.07	0.02
v/c Ratio	0.17	0.96	0.39	0.03	0.51	0.16
Uniform Delay, d1	3.9	12.9	4.9	3.5	51.2	48.5
Progression Factor	2.09	2.42	0.23	0.00	1.00	1.00
Incremental Delay, d2	0.0	0.9	0.1	0.0	6.8	1.5
Delay (s)	8.2	32.1	1.2	0.0	58.0	50.0
Level of Service	A	C	A	A	E	D
Approach Delay (s)		31.9	1.1		54.6	
Approach LOS		C	A		D	

### Intersection Summary

HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

GHD  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	249	2735	496	124	1067	126	240	328	158	188	544	111
Future Volume (vph)	249	2735	496	124	1067	126	240	328	158	188	544	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
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	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4565	1633	1789	4230	1633	1630	3579	1585	1825	3650	1633
Flt Permitted	0.144			0.068			0.214			0.453		
Satd. Flow (perm)	277	4565	1633	128	4230	1633	367	3579	1585	870	3650	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			138			153			137
Link Speed (k/h)		70			70			50				50
Link Distance (m)		501.7			295.5			522.7				348.2
Travel Time (s)		25.8			15.2			37.6				25.1
Peak Hour 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
Heavy Vehicles (%)	0%	1%	0%	2%	9%	0%	12%	2%	3%	0%	0%	0%
Adj. Flow (vph)	249	2735	496	124	1067	126	240	328	158	188	544	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	2735	496	124	1067	126	240	328	158	188	544	111
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
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3		8

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

GHD  
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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	45.3	45.3	11.0	45.3	45.3	11.0	47.5	47.5	11.0	47.5	47.5
Total Split (s)	19.5	68.9	68.9	11.7	61.1	61.1	14.3	35.1	35.1	14.3	35.1	35.1
Total Split (%)	15.0%	53.0%	53.0%	9.0%	47.0%	47.0%	11.0%	27.0%	27.0%	11.0%	27.0%	27.0%
Maximum Green (s)	14.5	62.6	62.6	7.7	54.8	54.8	10.3	28.6	28.6	10.3	28.6	28.6
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	2.6	2.6	1.0	2.6	2.6	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	6.3	6.3	4.0	6.3	6.3	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
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	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)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	78.5	65.1	65.1	69.8	59.1	59.1	38.2	25.4	25.4	38.2	25.4	25.4
Actuated g/C Ratio	0.60	0.50	0.50	0.54	0.45	0.45	0.29	0.20	0.20	0.29	0.20	0.20
v/c Ratio	0.76	1.20	0.54	0.70	0.55	0.15	1.16	0.47	0.37	0.57	0.76	0.26
Control Delay	26.5	125.8	21.1	46.3	28.0	3.4	146.5	48.2	9.5	40.5	56.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	125.8	21.1	46.3	28.0	3.4	146.5	48.2	9.5	40.5	56.8	5.0
LOS	C	F	C	D	C	A	F	D	A	D	E	A
Approach Delay		103.8			27.4			72.3			46.4	
Approach LOS		F			C			E			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 12 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.20  
 Intersection Signal Delay: 76.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 105.4%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Ninth Line & Dundas St E





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	249	2735	496	124	1067	126	240	328	158	188	544	111
v/c Ratio	0.76	1.20	0.54	0.70	0.55	0.15	1.16	0.47	0.37	0.57	0.76	0.26
Control Delay	26.5	125.8	21.1	46.3	28.0	3.4	146.5	48.2	9.5	40.5	56.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	125.8	21.1	46.3	28.0	3.4	146.5	48.2	9.5	40.5	56.8	5.0
Queue Length 50th (m)	37.3	~361.8	79.1	14.9	84.8	0.0	~49.1	39.1	1.0	35.7	69.2	0.0
Queue Length 95th (m)	m43.7	m#391.5	m62.7	#47.1	103.8	9.6	#97.1	52.7	18.6	54.0	87.2	9.3
Internal Link Dist (m)		477.7			271.5			498.7			324.2	
Turn Bay Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	341	2286	913	176	1923	817	207	787	468	331	803	466
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	1.20	0.54	0.70	0.55	0.15	1.16	0.42	0.34	0.57	0.68	0.24

**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  
5: Ninth Line & Dundas St E





























GHD  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	249	2735	496	124	1067	126	240	328	158	188	544	111
Future Volume (vph)	249	2735	496	124	1067	126	240	328	158	188	544	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.5	6.5
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	4565	1633	1789	4230	1633	1630	3579	1585	1825	3650	1633
Flt Permitted	0.14	1.00	1.00	0.07	1.00	1.00	0.21	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	277	4565	1633	127	4230	1633	367	3579	1585	871	3650	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	249	2735	496	124	1067	126	240	328	158	188	544	111
RTOR Reduction (vph)	0	0	95	0	0	69	0	0	123	0	0	89
Lane Group Flow (vph)	249	2735	401	124	1067	57	240	328	35	188	544	22
Heavy Vehicles (%)	0%	1%	0%	2%	9%	0%	12%	2%	3%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	77.5	65.1	65.1	67.5	59.1	59.1	35.7	25.4	25.4	35.7	25.4	25.4
Effective Green, g (s)	77.5	65.1	65.1	67.5	59.1	59.1	35.7	25.4	25.4	35.7	25.4	25.4
Actuated g/C Ratio	0.60	0.50	0.50	0.52	0.45	0.45	0.27	0.20	0.20	0.27	0.20	0.20
Clearance Time (s)	5.0	6.3	6.3	4.0	6.3	6.3	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)	324	2286	817	173	1923	742	200	699	309	314	713	319
v/s Ratio Prot	c0.08	c0.60		0.05	0.25		c0.09	0.09		0.05	0.15	
v/s Ratio Perm	0.38		0.25	0.32		0.04	c0.23		0.02	0.12		0.01
v/c Ratio	0.77	1.20	0.49	0.72	0.55	0.08	1.20	0.47	0.11	0.60	0.76	0.07
Uniform Delay, d1	16.8	32.5	21.5	28.6	25.9	20.0	43.1	46.3	43.0	38.4	49.5	42.6
Progression Factor	1.32	1.22	1.49	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	90.1	0.7	13.7	1.2	0.2	128.0	0.6	0.2	3.2	5.0	0.1
Delay (s)	26.3	129.7	32.7	42.3	27.0	20.2	171.1	46.9	43.2	41.7	54.5	42.8
Level of Service	C	F	C	D	C	C	F	D	D	D	D	D
Approach Delay (s)		108.5			27.8			87.2			50.1	
Approach LOS		F			C			F			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			81.6		HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio			1.18									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)			21.8				
Intersection Capacity Utilization			105.4%		ICU Level of Service			G				
Analysis Period (min)			15									
c Critical Lane Group												



Lanes, Volumes, Timings  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Future Volume (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.0		52.0	150.0		75.0	26.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		1	1		1
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	1.00	1.00
Ped Bike Factor			0.99						0.99	1.00		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1674	4565	1585	1825	4230	1633	1825	1830	1601	1825	1883	1633
Flt Permitted	0.080			0.060			0.694			0.742		
Satd. Flow (perm)	141	4565	1564	115	4230	1633	1333	1830	1580	1424	1883	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			67			105			65
Link Speed (k/h)		70			70			50				50
Link Distance (m)		651.2			600.6			206.2				419.2
Travel Time (s)		33.5			30.9			14.8				30.2
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour 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
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Adj. Flow (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
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
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  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020



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	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	37.7	37.7	11.0	37.7	37.7	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (s)	11.0	73.0	73.0	11.0	73.0	73.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	8.5%	56.2%	56.2%	8.5%	56.2%	56.2%	35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	7.0	66.3	66.3	7.0	66.3	66.3	39.0	39.0	39.0	39.0	39.0	39.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5	2.5	3.7	3.7	3.7	3.7	3.7	3.7
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	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	Max	C-Min	C-Min	Max	C-Min	C-Min	Min	Min	Min	Min	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	93.3	66.3	66.3	93.3	66.3	66.3	21.7	21.7	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.72	0.51	0.51	0.72	0.51	0.51	0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.10	1.05	0.15	0.20	0.69	0.07	0.73	0.08	0.46	0.66	0.31	0.08
Control Delay	6.2	64.8	8.3	9.2	29.4	6.7	68.7	42.8	21.3	63.1	48.2	0.5
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	6.2	64.8	8.3	9.2	29.4	6.7	68.7	42.8	21.3	63.1	48.2	0.5
LOS	A	E	A	A	C	A	E	D	C	E	D	A
Approach Delay		61.3			27.6			44.8			51.9	
Approach LOS		E			C			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 23 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 135  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.05  
 Intersection Signal Delay: 48.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 84.0%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 1: Eighth Line & Dundas St E



Queues  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
v/c Ratio	0.10	1.05	0.15	0.20	0.69	0.07	0.73	0.08	0.46	0.66	0.31	0.08
Control Delay	6.2	64.8	8.3	9.2	29.4	6.7	68.7	42.8	21.3	63.1	48.2	0.5
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	6.2	64.8	8.3	9.2	29.4	6.7	68.7	42.8	21.3	63.1	48.2	0.5
Queue Length 50th (m)	2.3	~283.6	6.8	5.2	127.0	2.5	39.6	5.3	12.6	38.2	22.1	0.0
Queue Length 95th (m)	6.9	#314.8	16.9	16.5	148.3	11.6	58.9	12.0	30.8	56.6	35.4	0.0
Internal Link Dist (m)		627.2			576.6			182.2			395.2	
Turn Bay Length (m)	97.0		52.0	150.0		75.0	26.0			15.0		15.0
Base Capacity (vph)	387	2328	830	401	2157	865	399	549	547	427	564	535
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	0.10	1.05	0.15	0.20	0.69	0.07	0.40	0.04	0.29	0.37	0.17	0.05

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  
1: Eighth Line & Dundas St E







Morning Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Future Volume (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00
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)	1674	4565	1564	1825	4230	1633	1825	1830	1580	1823	1883	1633
Flt Permitted	0.08	1.00	1.00	0.06	1.00	1.00	0.69	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	142	4565	1564	116	4230	1633	1334	1830	1580	1423	1883	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	2443	121	79	1478	58	161	24	161	157	97	27
RTOR Reduction (vph)	0	0	33	0	0	28	0	0	87	0	0	22
Lane Group Flow (vph)	40	2443	88	79	1478	30	161	24	74	157	97	5
Confl. Peds. (#/hr)			1	1					1	1		
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	90.6	66.3	66.3	90.6	66.3	66.3	21.7	21.7	21.7	21.7	21.7	21.7
Effective Green, g (s)	90.6	66.3	66.3	90.6	66.3	66.3	21.7	21.7	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.70	0.51	0.51	0.70	0.51	0.51	0.17	0.17	0.17	0.17	0.17	0.17
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
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)	385	2328	797	400	2157	832	222	305	263	237	314	272
v/s Ratio Prot	0.02	c0.54		c0.04	0.35			0.01			0.05	
v/s Ratio Perm	0.05		0.06	0.10		0.02	c0.12		0.05	0.11		0.00
v/c Ratio	0.10	1.05	0.11	0.20	0.69	0.04	0.73	0.08	0.28	0.66	0.31	0.02
Uniform Delay, d1	9.4	31.9	16.5	21.8	24.0	15.9	51.3	45.7	47.3	50.7	47.6	45.2
Progression Factor	1.00	1.00	1.00	0.86	1.14	2.22	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	33.2	0.3	1.0	1.6	0.1	11.5	0.1	0.7	7.1	0.7	0.0
Delay (s)	9.9	65.1	16.8	19.9	29.1	35.3	62.8	45.8	48.0	57.8	48.2	45.3
Level of Service	A	E	B	B	C	D	E	D	D	E	D	D
Approach Delay (s)		62.0			28.8			54.8			53.3	
Approach LOS		E			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			49.9			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			17.7			
Intersection Capacity Utilization			84.0%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	3090	51	93	1370	53	281
Future Volume (vph)	3090	51	93	1370	53	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	135.0		25.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4565	1601	1807	4230	1789	1633
Flt Permitted			0.055		0.950	
Satd. Flow (perm)	4565	1601	105	4230	1789	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				101
Link Speed (k/h)	70			70	50	
Link Distance (m)	587.4			354.8	240.3	
Travel Time (s)	30.2			18.2	17.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Adj. Flow (vph)	3090	51	93	1370	53	281
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3090	51	93	1370	53	281
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	36.7	36.7	11.0	36.7	43.9	43.9
Total Split (s)	75.1	75.1	11.0	86.1	43.9	43.9
Total Split (%)	57.8%	57.8%	8.5%	66.2%	33.8%	33.8%
Maximum Green (s)	68.4	68.4	7.0	79.4	37.0	37.0
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.5	2.5	1.0	2.5	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	Max	C-Max	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	68.4	68.4	98.0	95.3	21.1	21.1
Actuated g/C Ratio	0.53	0.53	0.75	0.73	0.16	0.16
v/c Ratio	1.29	0.06	0.25	0.44	0.18	0.81
Control Delay	152.7	8.3	21.6	2.0	45.5	50.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	152.7	8.3	21.6	2.0	45.5	50.1
LOS	F	A	C	A	D	D
Approach Delay	150.4			3.2	49.3	
Approach LOS	F			A	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 70 (54%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.29  
 Intersection Signal Delay: 100.0  
 Intersection LOS: F  
 Intersection Capacity Utilization 88.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 3: Meadowridge Dr & Dundas St E



Queues  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020



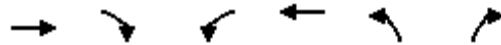
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	3090	51	93	1370	53	281
v/c Ratio	1.29	0.06	0.25	0.44	0.18	0.81
Control Delay	152.7	8.3	21.6	2.0	45.5	50.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	152.7	8.3	21.6	2.0	45.5	50.1
Queue Length 50th (m)	~417.2	2.1	2.8	5.9	11.9	45.7
Queue Length 95th (m)	m#405.0	m2.3	18.7	20.7	21.8	71.1
Internal Link Dist (m)	563.4			330.8	216.3	
Turn Bay Length (m)		60.0	135.0		25.0	
Base Capacity (vph)	2401	852	379	3102	509	537
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.06	0.25	0.44	0.10	0.52

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  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	3090	51	93	1370	53	281
Future Volume (vph)	3090	51	93	1370	53	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4565	1601	1807	4230	1789	1633
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	4565	1601	105	4230	1789	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3090	51	93	1370	53	281
RTOR Reduction (vph)	0	10	0	0	0	85
Lane Group Flow (vph)	3090	41	93	1370	53	196
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	68.4	68.4	95.3	95.3	21.1	21.1
Effective Green, g (s)	68.4	68.4	95.3	95.3	21.1	21.1
Actuated g/C Ratio	0.53	0.53	0.73	0.73	0.16	0.16
Clearance Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	2401	842	376	3100	290	265
v/s Ratio Prot	c0.68		0.04	c0.32		
v/s Ratio Perm		0.03	0.14		0.03	c0.12
v/c Ratio	1.29	0.05	0.25	0.44	0.18	0.74
Uniform Delay, d1	30.8	15.0	23.8	6.9	47.0	51.8
Progression Factor	0.66	0.83	1.66	0.21	1.00	1.00
Incremental Delay, d2	130.0	0.0	1.5	0.4	0.4	10.9
Delay (s)	150.5	12.4	40.9	1.8	47.4	62.8
Level of Service	F	B	D	A	D	E
Approach Delay (s)	148.2			4.3	60.3	
Approach LOS	F			A	E	































Intersection Summary

HCM 2000 Control Delay	99.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						  	
Traffic Volume (vph)	40	2453	121	79	1509	58	161	24	161	157	97	27
Future Volume (vph)	40	2453	121	79	1509	58	161	24	161	157	97	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.0		52.0	150.0		75.0	26.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		1	1		1
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	1.00	1.00
Ped Bike Factor			0.99						0.99	1.00		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1674	4565	1585	1825	4230	1633	1825	1830	1601	1825	1883	1633
Flt Permitted	0.075			0.060			0.694			0.742		
Satd. Flow (perm)	132	4565	1564	115	4230	1633	1333	1830	1580	1424	1883	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			67			105			65
Link Speed (k/h)		70			70			50				50
Link Distance (m)		651.2			600.6			206.2				419.2
Travel Time (s)		33.5			30.9			14.8				30.2
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour 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
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Adj. Flow (vph)	40	2453	121	79	1509	58	161	24	161	157	97	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	2453	121	79	1509	58	161	24	161	157	97	27
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
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  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020



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	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	37.7	37.7	11.0	37.7	37.7	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (s)	11.0	73.0	73.0	11.0	73.0	73.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	8.5%	56.2%	56.2%	8.5%	56.2%	56.2%	35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	7.0	66.3	66.3	7.0	66.3	66.3	39.0	39.0	39.0	39.0	39.0	39.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5	2.5	3.7	3.7	3.7	3.7	3.7	3.7
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	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	Max	C-Min	C-Min	Max	C-Min	C-Min	Min	Min	Min	Min	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	93.3	66.3	66.3	93.3	66.3	66.3	21.7	21.7	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.72	0.51	0.51	0.72	0.51	0.51	0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.10	1.05	0.15	0.20	0.70	0.07	0.73	0.08	0.46	0.66	0.31	0.08
Control Delay	6.2	66.3	8.3	9.2	30.1	6.7	68.7	42.8	21.3	63.1	48.2	0.5
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	6.2	66.3	8.3	9.2	30.1	6.7	68.7	42.8	21.3	63.1	48.2	0.5
LOS	A	E	A	A	C	A	E	D	C	E	D	A
Approach Delay		62.7			28.3			44.8			51.9	
Approach LOS		E			C			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 23 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 135  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.05  
 Intersection Signal Delay: 49.2  
 Intersection LOS: D  
 Intersection Capacity Utilization 84.2%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 1: Eighth Line & Dundas St E



Queues  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	40	2453	121	79	1509	58	161	24	161	157	97	27
v/c Ratio	0.10	1.05	0.15	0.20	0.70	0.07	0.73	0.08	0.46	0.66	0.31	0.08
Control Delay	6.2	66.3	8.3	9.2	30.1	6.7	68.7	42.8	21.3	63.1	48.2	0.5
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	6.2	66.3	8.3	9.2	30.1	6.7	68.7	42.8	21.3	63.1	48.2	0.5
Queue Length 50th (m)	2.3	~285.8	6.8	5.4	130.8	2.4	39.6	5.3	12.6	38.2	22.1	0.0
Queue Length 95th (m)	6.9	#317.0	16.9	15.8	152.2	11.8	58.9	12.0	30.8	56.6	35.4	0.0
Internal Link Dist (m)		627.2			576.6			182.2			395.2	
Turn Bay Length (m)	97.0		52.0	150.0		75.0	26.0			15.0		15.0
Base Capacity (vph)	382	2328	830	401	2157	865	399	549	547	427	564	535
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	0.10	1.05	0.15	0.20	0.70	0.07	0.40	0.04	0.29	0.37	0.17	0.05

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  
1: Eighth Line & Dundas St E






























Morning Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	2453	121	79	1509	58	161	24	161	157	97	27
Future Volume (vph)	40	2453	121	79	1509	58	161	24	161	157	97	27
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00
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)	1674	4565	1564	1825	4230	1633	1825	1830	1580	1823	1883	1633
Flt Permitted	0.08	1.00	1.00	0.06	1.00	1.00	0.69	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	133	4565	1564	116	4230	1633	1334	1830	1580	1423	1883	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	2453	121	79	1509	58	161	24	161	157	97	27
RTOR Reduction (vph)	0	0	33	0	0	28	0	0	87	0	0	22
Lane Group Flow (vph)	40	2453	88	79	1509	30	161	24	74	157	97	5
Confl. Peds. (#/hr)			1	1					1	1		
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	90.6	66.3	66.3	90.6	66.3	66.3	21.7	21.7	21.7	21.7	21.7	21.7
Effective Green, g (s)	90.6	66.3	66.3	90.6	66.3	66.3	21.7	21.7	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.70	0.51	0.51	0.70	0.51	0.51	0.17	0.17	0.17	0.17	0.17	0.17
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
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)	380	2328	797	400	2157	832	222	305	263	237	314	272
v/s Ratio Prot	0.02	c0.54		c0.04	0.36			0.01			0.05	
v/s Ratio Perm	0.05		0.06	0.10		0.02	c0.12		0.05	0.11		0.00
v/c Ratio	0.11	1.05	0.11	0.20	0.70	0.04	0.73	0.08	0.28	0.66	0.31	0.02
Uniform Delay, d1	9.6	31.9	16.5	21.8	24.3	15.9	51.3	45.7	47.3	50.7	47.6	45.2
Progression Factor	1.00	1.00	1.00	0.86	1.16	2.21	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	34.7	0.3	1.0	1.7	0.1	11.5	0.1	0.7	7.1	0.7	0.0
Delay (s)	10.2	66.6	16.8	19.9	29.8	35.2	62.8	45.8	48.0	57.8	48.2	45.3
Level of Service	B	E	B	B	C	D	E	D	D	E	D	D
Approach Delay (s)		63.4			29.5			54.8			53.3	
Approach LOS		E			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			50.8			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			17.7			
Intersection Capacity Utilization			84.2%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	61	2706	111	61	1249	81	117	1	181	388	17	193
Future Volume (vph)	61	2706	111	61	1249	81	117	1	181	388	17	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		55.0	125.0		70.0	50.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		0	1		1
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	1.00	1.00
Ped Bike Factor			0.98				1.00	0.99				
Frt			0.850			0.850		0.851				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	4565	1570	1825	4154	1601	1807	1596	0	1789	1883	1601
Flt Permitted	0.141			0.052			0.746			0.589		
Satd. Flow (perm)	266	4565	1536	100	4154	1601	1413	1596	0	1109	1883	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			54			81		2				63
Link Speed (k/h)		70			70			50				48
Link Distance (m)		600.6			587.4			203.4				95.0
Travel Time (s)		30.9			30.2			14.6				7.1
Confl. Peds. (#/hr)			1	1			2		2			
Peak Hour 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
Heavy Vehicles (%)	2%	1%	4%	0%	11%	2%	1%	2%	1%	2%	2%	2%
Adj. Flow (vph)	61	2706	111	61	1249	81	117	1	181	388	17	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	2706	111	61	1249	81	117	182	0	388	17	193
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
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	2	2	2	6	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0		5.0	5.0	5.0
Minimum Split (s)	38.8	38.8	38.8	43.8	43.8	43.8	43.7	43.7		25.0	25.0	25.0
Total Split (s)	83.0	83.0	83.0	83.0	83.0	83.0	47.0	47.0		47.0	47.0	47.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.2%	36.2%		36.2%	36.2%	36.2%
Maximum Green (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6	2.6	3.4	3.4		3.4	3.4	3.4
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)	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Min	Min		None	None	None
Walk Time (s)	7.0	7.0	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	25.0	30.0	30.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31		0.31	0.31	0.31
v/c Ratio	0.39	1.01	0.12	1.05	0.51	0.08	0.27	0.37		1.13	0.03	0.36
Control Delay	7.1	22.5	0.8	158.8	10.0	0.7	35.8	37.2		130.2	31.6	25.2
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	7.1	22.5	0.8	158.8	10.0	0.7	35.8	37.2		130.2	31.6	25.2
LOS	A	C	A	F	A	A	D	D		F	C	C
Approach Delay		21.4			16.0			36.6			93.5	
Approach LOS		C			B			D			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 48.5 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 29.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 103.3%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 2: Prince Michael Dr & Dundas St E



Queues  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	61	2706	111	61	1249	81	117	182	388	17	193
v/c Ratio	0.39	1.01	0.12	1.05	0.51	0.08	0.27	0.37	1.13	0.03	0.36
Control Delay	7.1	22.5	0.8	158.8	10.0	0.7	35.8	37.2	130.2	31.6	25.2
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	7.1	22.5	0.8	158.8	10.0	0.7	35.8	37.2	130.2	31.6	25.2
Queue Length 50th (m)	1.7	~312.4	0.7	~12.7	37.4	0.2	22.5	35.9	~115.0	3.0	25.2
Queue Length 95th (m)	m2.0	m33.7	m0.3	#46.8	41.4	0.9	38.8	56.7	#176.2	8.7	46.0
Internal Link Dist (m)		576.6			563.4			179.4		71.0	
Turn Bay Length (m)	115.0		55.0	125.0		70.0	50.0		15.0		15.0
Base Capacity (vph)	155	2675	922	58	2434	971	438	496	343	583	539
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	0.39	1.01	0.12	1.05	0.51	0.08	0.27	0.37	1.13	0.03	0.36

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  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	2706	111	61	1249	81	117	1	181	388	17	193
Future Volume (vph)	61	2706	111	61	1249	81	117	1	181	388	17	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00
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	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	4565	1536	1825	4154	1601	1799	1596		1789	1883	1601
Flt Permitted	0.14	1.00	1.00	0.05	1.00	1.00	0.75	1.00		0.59	1.00	1.00
Satd. Flow (perm)	266	4565	1536	101	4154	1601	1414	1596		1109	1883	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	2706	111	61	1249	81	117	1	181	388	17	193
RTOR Reduction (vph)	0	0	22	0	0	34	0	1	0	0	0	43
Lane Group Flow (vph)	61	2706	89	61	1249	47	117	181	0	388	17	150
Confl. Peds. (#/hr)			1	1			2		2			
Heavy Vehicles (%)	2%	1%	4%	0%	11%	2%	1%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Effective Green, g (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31		0.31	0.31	0.31
Clearance Time (s)	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5		3.0	3.0	3.0
Lane Grp Cap (vph)	155	2675	900	59	2434	938	438	494		343	583	496
v/s Ratio Prot		0.59			0.30			0.11			0.01	
v/s Ratio Perm	0.23		0.06	c0.60		0.03	0.08			c0.35		0.09
v/c Ratio	0.39	1.01	0.10	1.03	0.51	0.05	0.27	0.37		1.13	0.03	0.30
Uniform Delay, d1	14.5	26.9	11.8	26.9	15.9	11.5	33.7	34.9		44.9	31.2	34.1
Progression Factor	0.27	0.27	0.11	0.89	0.58	0.22	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.6	13.3	0.1	121.8	0.7	0.1	0.4	0.5		89.0	0.0	0.3
Delay (s)	6.5	20.6	1.3	145.7	9.9	2.6	34.1	35.4		133.9	31.2	34.5
Level of Service	A	C	A	F	A	A	C	D		F	C	C
Approach Delay (s)		19.6			15.4			34.9			98.9	
Approach LOS		B			B			C			F	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			28.5				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			103.3%			ICU Level of Service			G			
Analysis Period (min)			15									

c Critical Lane Group



Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↘	↑↑↑	↘	↗
Traffic Volume (vph)	3100	51	93	1401	53	281
Future Volume (vph)	3100	51	93	1401	53	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	135.0		25.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4565	1601	1807	4230	1789	1633
Flt Permitted			0.055		0.950	
Satd. Flow (perm)	4565	1601	105	4230	1789	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				101
Link Speed (k/h)	70			70	50	
Link Distance (m)	587.4			354.8	240.3	
Travel Time (s)	30.2			18.2	17.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Adj. Flow (vph)	3100	51	93	1401	53	281
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3100	51	93	1401	53	281
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	36.7	36.7	11.0	36.7	43.9	43.9
Total Split (s)	75.1	75.1	11.0	86.1	43.9	43.9
Total Split (%)	57.8%	57.8%	8.5%	66.2%	33.8%	33.8%
Maximum Green (s)	68.4	68.4	7.0	79.4	37.0	37.0
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.5	2.5	1.0	2.5	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	Max	C-Max	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	68.4	68.4	98.0	95.3	21.1	21.1
Actuated g/C Ratio	0.53	0.53	0.75	0.73	0.16	0.16
v/c Ratio	1.29	0.06	0.25	0.45	0.18	0.81
Control Delay	154.6	8.3	21.3	2.6	45.5	50.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	154.6	8.3	21.3	2.6	45.5	50.1
LOS	F	A	C	A	D	D
Approach Delay	152.3			3.7	49.3	
Approach LOS	F			A	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 70 (54%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.29  
 Intersection Signal Delay: 100.8  
 Intersection LOS: F  
 Intersection Capacity Utilization 88.7%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 3: Meadowridge Dr & Dundas St E



Queues  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	3100	51	93	1401	53	281
v/c Ratio	1.29	0.06	0.25	0.45	0.18	0.81
Control Delay	154.6	8.3	21.3	2.6	45.5	50.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	154.6	8.3	21.3	2.6	45.5	50.1
Queue Length 50th (m)	~419.6	2.1	2.8	9.2	11.9	45.7
Queue Length 95th (m)	m#405.2	m2.3	18.9	24.3	21.8	71.1
Internal Link Dist (m)	563.4			330.8	216.3	
Turn Bay Length (m)		60.0	135.0		25.0	
Base Capacity (vph)	2401	852	379	3102	509	537
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.06	0.25	0.45	0.10	0.52

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  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	3100	51	93	1401	53	281
Future Volume (vph)	3100	51	93	1401	53	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4565	1601	1807	4230	1789	1633
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	4565	1601	105	4230	1789	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3100	51	93	1401	53	281
RTOR Reduction (vph)	0	10	0	0	0	85
Lane Group Flow (vph)	3100	41	93	1401	53	196
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	68.4	68.4	95.3	95.3	21.1	21.1
Effective Green, g (s)	68.4	68.4	95.3	95.3	21.1	21.1
Actuated g/C Ratio	0.53	0.53	0.73	0.73	0.16	0.16
Clearance Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	2401	842	376	3100	290	265
v/s Ratio Prot	c0.68		0.04	c0.33		
v/s Ratio Perm		0.03	0.14		0.03	c0.12
v/c Ratio	1.29	0.05	0.25	0.45	0.18	0.74
Uniform Delay, d1	30.8	15.0	23.8	6.9	47.0	51.8
Progression Factor	0.67	0.83	1.64	0.28	1.00	1.00
Incremental Delay, d2	131.8	0.0	1.5	0.4	0.4	10.9
Delay (s)	152.4	12.4	40.4	2.4	47.4	62.8
Level of Service	F	B	D	A	D	E
Approach Delay (s)	150.1			4.7	60.3	
Approach LOS	F			A	E	

Intersection Summary

HCM 2000 Control Delay	100.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
4: Dundas St E & Street A

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗↗	↖↖↖	↗	↖	↗
Traffic Volume (vph)	45	3331	1374	60	173	130
Future Volume (vph)	45	3331	1374	60	173	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0			75.0	0.0	15.0
Storage Lanes	1			1	1	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.141				0.950	
Satd. Flow (perm)	266	4520	4520	1601	1789	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				60		72
Link Speed (k/h)		70	70		48	
Link Distance (m)		354.8	501.7		96.4	
Travel Time (s)		18.2	25.8		7.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	3331	1374	60	173	130
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	3331	1374	60	173	130
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Perm	Perm
Protected Phases		4	8			
Permitted Phases	4			8	6	6

Lanes, Volumes, Timings  
4: Dundas St E & Street A

Morning Peak Hour  
04/17/2020

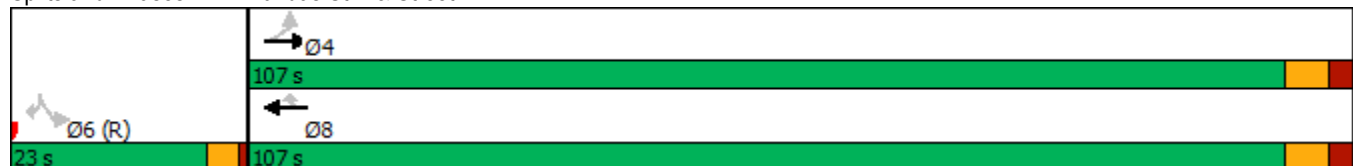


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	4	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.7	24.7	24.7	24.7	22.5	22.5
Total Split (s)	107.0	107.0	107.0	107.0	23.0	23.0
Total Split (%)	82.3%	82.3%	82.3%	82.3%	17.7%	17.7%
Maximum Green (s)	100.3	100.3	100.3	100.3	19.0	19.0
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	3.0
All-Red Time (s)	2.5	2.5	2.5	2.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	100.3	100.3	100.3	100.3	19.0	19.0
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.15	0.15
v/c Ratio	0.22	0.96	0.39	0.05	0.66	0.44
Control Delay	9.6	29.8	1.4	0.1	65.7	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	29.8	1.4	0.1	65.7	28.8
LOS	A	C	A	A	E	C
Approach Delay		29.5	1.3		49.9	
Approach LOS		C	A		D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 22.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 82.9%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 4: Dundas St E & Street A



Queues  
4: Dundas St E & Street A

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	45	3331	1374	60	173	130
v/c Ratio	0.22	0.96	0.39	0.05	0.66	0.44
Control Delay	9.6	29.8	1.4	0.1	65.7	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	29.8	1.4	0.1	65.7	28.8
Queue Length 50th (m)	5.6	240.6	9.2	0.0	42.5	13.4
Queue Length 95th (m)	m4.7	m161.5	m10.3	m0.0	66.9	33.0
Internal Link Dist (m)		330.8	477.7		72.4	
Turn Bay Length (m)	110.0			75.0		15.0
Base Capacity (vph)	205	3487	3487	1248	261	295
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	0.22	0.96	0.39	0.05	0.66	0.44

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
4: Dundas St E & Street A

Morning Peak Hour  
04/17/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗	↑↑↑	↑↑↑	↖	↗	↖
Traffic Volume (vph)	45	3331	1374	60	173	130
Future Volume (vph)	45	3331	1374	60	173	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	4.0	4.0
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.14	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	265	4520	4520	1601	1789	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	3331	1374	60	173	130
RTOR Reduction (vph)	0	0	0	14	0	61
Lane Group Flow (vph)	45	3331	1374	46	173	69
Turn Type	Perm	NA	NA	Perm	Perm	Perm
Protected Phases		4	8			
Permitted Phases	4			8	6	6
Actuated Green, G (s)	100.3	100.3	100.3	100.3	19.0	19.0
Effective Green, g (s)	100.3	100.3	100.3	100.3	19.0	19.0
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.15	0.15
Clearance Time (s)	6.7	6.7	6.7	6.7	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	204	3487	3487	1235	261	233
v/s Ratio Prot		c0.74	0.30			
v/s Ratio Perm	0.17			0.03	c0.10	0.04
v/c Ratio	0.22	0.96	0.39	0.04	0.66	0.29
Uniform Delay, d1	4.1	12.9	4.9	3.5	52.5	49.5
Progression Factor	2.05	2.21	0.23	0.00	1.00	1.00
Incremental Delay, d2	0.0	0.9	0.1	0.0	12.5	3.2
Delay (s)	8.4	29.4	1.2	0.0	65.0	52.7
Level of Service	A	C	A	A	E	D
Approach Delay (s)		29.1	1.1		59.7	
Approach LOS		C	A		E	

Intersection Summary

HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Morning Peak Hour  
04/17/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	249	2762	510	124	1076	126	245	328	158	188	544	111
Future Volume (vph)	249	2762	510	124	1076	126	245	328	158	188	544	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
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	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4565	1633	1789	4230	1633	1630	3579	1585	1825	3650	1633
Flt Permitted	0.142			0.068			0.214			0.453		
Satd. Flow (perm)	273	4565	1633	128	4230	1633	367	3579	1585	870	3650	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			138			153			137
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		501.7			295.5			522.7			348.2	
Travel Time (s)		25.8			15.2			37.6			25.1	
Peak Hour 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
Heavy Vehicles (%)	0%	1%	0%	2%	9%	0%	12%	2%	3%	0%	0%	0%
Adj. Flow (vph)	249	2762	510	124	1076	126	245	328	158	188	544	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	2762	510	124	1076	126	245	328	158	188	544	111
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
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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	45.3	45.3	11.0	45.3	45.3	11.0	47.5	47.5	11.0	47.5	47.5
Total Split (s)	19.5	68.9	68.9	11.7	61.1	61.1	14.3	35.1	35.1	14.3	35.1	35.1
Total Split (%)	15.0%	53.0%	53.0%	9.0%	47.0%	47.0%	11.0%	27.0%	27.0%	11.0%	27.0%	27.0%
Maximum Green (s)	14.5	62.6	62.6	7.7	54.8	54.8	10.3	28.6	28.6	10.3	28.6	28.6
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	2.6	2.6	1.0	2.6	2.6	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	6.3	6.3	4.0	6.3	6.3	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
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	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)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	78.5	65.1	65.1	69.8	59.0	59.0	38.2	25.4	25.4	38.2	25.4	25.4
Actuated g/C Ratio	0.60	0.50	0.50	0.54	0.45	0.45	0.29	0.20	0.20	0.29	0.20	0.20
v/c Ratio	0.77	1.21	0.56	0.70	0.56	0.15	1.18	0.47	0.37	0.57	0.76	0.26
Control Delay	26.2	130.5	21.0	46.3	28.1	3.4	154.8	48.2	9.5	40.5	56.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	130.5	21.0	46.3	28.1	3.4	154.8	48.2	9.5	40.5	56.8	5.0
LOS	C	F	C	D	C	A	F	D	A	D	E	A
Approach Delay		107.3			27.5			75.5			46.4	
Approach LOS		F			C			E			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 12 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.21  
 Intersection Signal Delay: 79.2  
 Intersection LOS: E  
 Intersection Capacity Utilization 106.2%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Ninth Line & Dundas St E



Queues  
5: Ninth Line & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	249	2762	510	124	1076	126	245	328	158	188	544	111
v/c Ratio	0.77	1.21	0.56	0.70	0.56	0.15	1.18	0.47	0.37	0.57	0.76	0.26
Control Delay	26.2	130.5	21.0	46.3	28.1	3.4	154.8	48.2	9.5	40.5	56.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	130.5	21.0	46.3	28.1	3.4	154.8	48.2	9.5	40.5	56.8	5.0
Queue Length 50th (m)	36.8	~368.2	80.2	14.9	86.0	0.0	~51.7	39.1	1.0	35.7	69.2	0.0
Queue Length 95th (m)	m43.6	m#397.9	m64.5	#47.1	104.9	9.6	#99.8	52.7	18.6	54.0	87.2	9.3
Internal Link Dist (m)		477.7			271.5			498.7			324.2	
Turn Bay Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	339	2286	915	176	1921	817	207	787	468	331	803	466
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	1.21	0.56	0.70	0.56	0.15	1.18	0.42	0.34	0.57	0.68	0.24

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  
5: Ninth Line & Dundas St E

Morning Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	249	2762	510	124	1076	126	245	328	158	188	544	111
Future Volume (vph)	249	2762	510	124	1076	126	245	328	158	188	544	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.5	6.5
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	4565	1633	1789	4230	1633	1630	3579	1585	1825	3650	1633
Flt Permitted	0.14	1.00	1.00	0.07	1.00	1.00	0.21	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	272	4565	1633	128	4230	1633	367	3579	1585	871	3650	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	249	2762	510	124	1076	126	245	328	158	188	544	111
RTOR Reduction (vph)	0	0	97	0	0	69	0	0	123	0	0	89
Lane Group Flow (vph)	249	2762	413	124	1076	57	245	328	35	188	544	22
Heavy Vehicles (%)	0%	1%	0%	2%	9%	0%	12%	2%	3%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	77.5	65.1	65.1	67.4	59.0	59.0	35.7	25.4	25.4	35.7	25.4	25.4
Effective Green, g (s)	77.5	65.1	65.1	67.4	59.0	59.0	35.7	25.4	25.4	35.7	25.4	25.4
Actuated g/C Ratio	0.60	0.50	0.50	0.52	0.45	0.45	0.27	0.20	0.20	0.27	0.20	0.20
Clearance Time (s)	5.0	6.3	6.3	4.0	6.3	6.3	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)	323	2286	817	173	1919	741	200	699	309	314	713	319
v/s Ratio Prot	c0.08	c0.61		0.05	0.25		c0.10	0.09		0.05	0.15	
v/s Ratio Perm	0.38		0.25	0.32		0.04	c0.24		0.02	0.12		0.01
v/c Ratio	0.77	1.21	0.51	0.72	0.56	0.08	1.23	0.47	0.11	0.60	0.76	0.07
Uniform Delay, d1	17.0	32.5	21.7	28.6	26.0	20.1	43.1	46.3	43.0	38.4	49.5	42.6
Progression Factor	1.27	1.21	1.45	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.1	95.3	0.8	13.7	1.2	0.2	137.4	0.6	0.2	3.2	5.0	0.1
Delay (s)	25.8	134.4	32.3	42.3	27.2	20.3	180.5	46.9	43.2	41.7	54.5	42.8
Level of Service	C	F	C	D	C	C	F	D	D	D	D	D
Approach Delay (s)		111.9			28.0			90.9			50.1	
Approach LOS		F			C			F			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			84.1			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				21.8				
Intersection Capacity Utilization			106.2%	ICU Level of Service			G					
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	44	2642	133	87	1623	64	178	26	178	173	107	30
Future Volume (vph)	44	2642	133	87	1623	64	178	26	178	173	107	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.0		52.0	150.0		75.0	26.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		1	1		1
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	1.00	1.00
Ped Bike Factor			0.99						0.99	1.00		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1674	4565	1585	1825	4230	1633	1825	1830	1601	1825	1883	1633
Flt Permitted	0.060			0.060			0.688			0.740		
Satd. Flow (perm)	106	4565	1564	115	4230	1633	1322	1830	1580	1420	1883	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			67			105			65
Link Speed (k/h)		70			70			50				50
Link Distance (m)		651.2			600.6			206.2				419.2
Travel Time (s)		33.5			30.9			14.8				30.2
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour 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
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Adj. Flow (vph)	44	2642	133	87	1623	64	178	26	178	173	107	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	2642	133	87	1623	64	178	26	178	173	107	30
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
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  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020

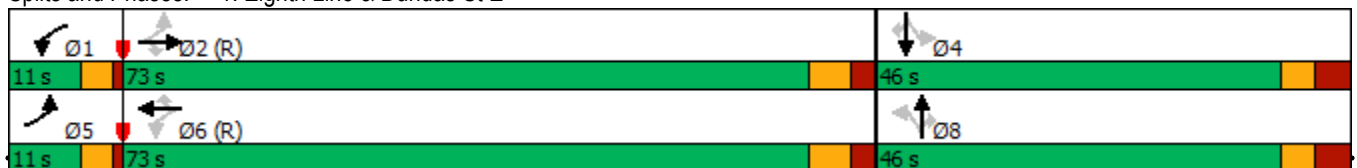


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	37.7	37.7	11.0	37.7	37.7	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (s)	11.0	73.0	73.0	11.0	73.0	73.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	8.5%	56.2%	56.2%	8.5%	56.2%	56.2%	35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	7.0	66.3	66.3	7.0	66.3	66.3	39.0	39.0	39.0	39.0	39.0	39.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5	2.5	3.7	3.7	3.7	3.7	3.7	3.7
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	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	Max	C-Min	C-Min	Max	C-Min	C-Min	Min	Min	Min	Min	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	91.2	66.3	66.3	91.2	66.3	66.3	23.8	23.8	23.8	23.8	23.8	23.8
Actuated g/C Ratio	0.70	0.51	0.51	0.70	0.51	0.51	0.18	0.18	0.18	0.18	0.18	0.18
v/c Ratio	0.13	1.13	0.16	0.23	0.75	0.07	0.74	0.08	0.47	0.67	0.31	0.09
Control Delay	7.3	97.6	9.0	11.2	31.3	6.5	67.1	40.8	22.7	60.9	46.4	0.9
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	7.3	97.6	9.0	11.2	31.3	6.5	67.1	40.8	22.7	60.9	46.4	0.9
LOS	A	F	A	B	C	A	E	D	C	E	D	A
Approach Delay		92.0			29.4			44.6			50.1	
Approach LOS		F			C			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 23 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 65.1  
 Intersection LOS: E  
 Intersection Capacity Utilization 89.7%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 1: Eighth Line & Dundas St E



Queues  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	44	2642	133	87	1623	64	178	26	178	173	107	30
v/c Ratio	0.13	1.13	0.16	0.23	0.75	0.07	0.74	0.08	0.47	0.67	0.31	0.09
Control Delay	7.3	97.6	9.0	11.2	31.3	6.5	67.1	40.8	22.7	60.9	46.4	0.9
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	7.3	97.6	9.0	11.2	31.3	6.5	67.1	40.8	22.7	60.9	46.4	0.9
Queue Length 50th (m)	2.7	~327.7	8.4	6.2	144.9	3.2	43.7	5.6	16.3	41.9	24.1	0.0
Queue Length 95th (m)	7.9	#357.9	19.2	18.4	166.5	m10.3	63.0	12.5	34.9	60.2	37.3	0.8
Internal Link Dist (m)		627.2			576.6			182.2			395.2	
Turn Bay Length (m)	97.0		52.0	150.0		75.0	26.0			15.0		15.0
Base Capacity (vph)	341	2328	830	372	2157	865	396	549	547	426	564	535
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	0.13	1.13	0.16	0.23	0.75	0.07	0.45	0.05	0.33	0.41	0.19	0.06

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  
1: Eighth Line & Dundas St E

Morning Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	2642	133	87	1623	64	178	26	178	173	107	30
Future Volume (vph)	44	2642	133	87	1623	64	178	26	178	173	107	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00
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)	1674	4565	1564	1825	4230	1633	1825	1830	1580	1823	1883	1633
Flt Permitted	0.06	1.00	1.00	0.06	1.00	1.00	0.69	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	106	4565	1564	116	4230	1633	1322	1830	1580	1421	1883	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	2642	133	87	1623	64	178	26	178	173	107	30
RTOR Reduction (vph)	0	0	33	0	0	31	0	0	86	0	0	25
Lane Group Flow (vph)	44	2642	100	87	1623	33	178	26	92	173	107	5
Confl. Peds. (#/hr)			1	1					1	1		
Heavy Vehicles (%)	9%	1%	3%	0%	9%	0%	0%	5%	2%	0%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	88.5	66.3	66.3	88.5	66.3	66.3	23.8	23.8	23.8	23.8	23.8	23.8
Effective Green, g (s)	88.5	66.3	66.3	88.5	66.3	66.3	23.8	23.8	23.8	23.8	23.8	23.8
Actuated g/C Ratio	0.68	0.51	0.51	0.68	0.51	0.51	0.18	0.18	0.18	0.18	0.18	0.18
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
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)	339	2328	797	370	2157	832	242	335	289	260	344	298
v/s Ratio Prot	0.02	c0.58		c0.04	0.38			0.01			0.06	
v/s Ratio Perm	0.07		0.06	0.12		0.02	c0.13		0.06	0.12		0.00
v/c Ratio	0.13	1.13	0.13	0.24	0.75	0.04	0.74	0.08	0.32	0.67	0.31	0.02
Uniform Delay, d1	11.7	31.9	16.7	22.6	25.3	15.9	50.1	44.0	46.1	49.4	46.0	43.5
Progression Factor	1.00	1.00	1.00	0.84	1.13	1.82	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	66.6	0.3	1.3	2.2	0.1	11.4	0.1	0.8	6.5	0.6	0.0
Delay (s)	12.5	98.5	17.0	20.3	30.9	29.0	61.5	44.1	46.8	55.9	46.6	43.6
Level of Service	B	F	B	C	C	C	E	D	D	E	D	D
Approach Delay (s)		93.3			30.3			53.5			51.5	
Approach LOS		F			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			66.8			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			17.7			
Intersection Capacity Utilization			89.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												



Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour  
04/17/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	2914	123	68	1343	90	129	1	200	428	18	213
Future Volume (vph)	68	2914	123	68	1343	90	129	1	200	428	18	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		55.0	125.0		70.0	50.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		0	1		1
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	1.00	1.00
Ped Bike Factor			0.98				1.00	0.99				
Fr <sub>t</sub>			0.850			0.850		0.851				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	4565	1570	1825	4154	1601	1807	1596	0	1789	1883	1601
Fl <sub>t</sub> Permitted	0.121			0.052			0.746			0.560		
Satd. Flow (perm)	228	4565	1536	100	4154	1601	1413	1596	0	1055	1883	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			56			90		1				50
Link Speed (k/h)		70			70			50				48
Link Distance (m)		600.6			587.4			203.4				95.0
Travel Time (s)		30.9			30.2			14.6				7.1
Confl. Peds. (#/hr)			1	1			2		2			
Peak Hour 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
Heavy Vehicles (%)	2%	1%	4%	0%	11%	2%	1%	2%	1%	2%	2%	2%
Adj. Flow (vph)	68	2914	123	68	1343	90	129	1	200	428	18	213
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	2914	123	68	1343	90	129	201	0	428	18	213
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
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	2	2	2	6	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0		5.0	5.0	5.0
Minimum Split (s)	38.8	38.8	38.8	43.8	43.8	43.8	43.7	43.7		25.0	25.0	25.0
Total Split (s)	83.0	83.0	83.0	83.0	83.0	83.0	47.0	47.0		47.0	47.0	47.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.2%	36.2%		36.2%	36.2%	36.2%
Maximum Green (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6	2.6	3.4	3.4		3.4	3.4	3.4
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)	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Min	Min		None	None	None
Walk Time (s)	7.0	7.0	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	25.0	30.0	30.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	0
Act Effct Green (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31		0.31	0.31	0.31
v/c Ratio	0.51	1.09	0.13	1.17	0.55	0.09	0.29	0.41		1.31	0.03	0.40
Control Delay	6.2	52.3	0.8	195.2	10.8	1.3	36.4	38.3		196.3	31.6	29.3
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	6.2	52.3	0.8	195.2	10.8	1.3	36.4	38.3		196.3	31.6	29.3
LOS	A	D	A	F	B	A	D	D		F	C	C
Approach Delay		49.2			18.6			37.5			137.8	
Approach LOS		D			B			D			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 48.5 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.31  
 Intersection Signal Delay: 50.8  
 Intersection LOS: D  
 Intersection Capacity Utilization 110.9%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 2: Prince Michael Dr & Dundas St E



Queues  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	68	2914	123	68	1343	90	129	201	428	18	213
v/c Ratio	0.51	1.09	0.13	1.17	0.55	0.09	0.29	0.41	1.31	0.03	0.40
Control Delay	6.2	52.3	0.8	195.2	10.8	1.3	36.4	38.3	196.3	31.6	29.3
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	6.2	52.3	0.8	195.2	10.8	1.3	36.4	38.3	196.3	31.6	29.3
Queue Length 50th (m)	1.9	~359.8	0.9	~20.9	40.5	0.3	25.1	40.5	~140.8	3.2	32.5
Queue Length 95th (m)	m2.3	m35.0	m0.3	#50.2	51.1	2.1	42.2	63.0	#203.6	9.1	54.9
Internal Link Dist (m)		576.6			563.4			179.4		71.0	
Turn Bay Length (m)	115.0		55.0	125.0		70.0	50.0		15.0		15.0
Base Capacity (vph)	133	2675	923	58	2434	975	438	495	327	583	530
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	0.51	1.09	0.13	1.17	0.55	0.09	0.29	0.41	1.31	0.03	0.40

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  
2: Prince Michael Dr & Dundas St E

Morning Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	2914	123	68	1343	90	129	1	200	428	18	213
Future Volume (vph)	68	2914	123	68	1343	90	129	1	200	428	18	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00
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	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	4565	1536	1825	4154	1601	1799	1595		1789	1883	1601
Flt Permitted	0.12	1.00	1.00	0.05	1.00	1.00	0.75	1.00		0.56	1.00	1.00
Satd. Flow (perm)	229	4565	1536	101	4154	1601	1412	1595		1055	1883	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	2914	123	68	1343	90	129	1	200	428	18	213
RTOR Reduction (vph)	0	0	23	0	0	37	0	1	0	0	0	35
Lane Group Flow (vph)	68	2914	100	68	1343	53	129	200	0	428	18	179
Confl. Peds. (#/hr)			1	1			2		2			
Heavy Vehicles (%)	2%	1%	4%	0%	11%	2%	1%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Effective Green, g (s)	76.2	76.2	76.2	76.2	76.2	76.2	40.3	40.3		40.3	40.3	40.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31		0.31	0.31	0.31
Clearance Time (s)	6.8	6.8	6.8	6.8	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	5.5	5.5	5.5	5.5	5.5	5.5	3.5	3.5		3.0	3.0	3.0
Lane Grp Cap (vph)	134	2675	900	59	2434	938	437	494		327	583	496
v/s Ratio Prot		0.64			0.32			0.13			0.01	
v/s Ratio Perm	0.30		0.07	c0.67		0.03	0.09			c0.41		0.11
v/c Ratio	0.51	1.09	0.11	1.15	0.55	0.06	0.30	0.41		1.31	0.03	0.36
Uniform Delay, d1	15.8	26.9	11.9	26.9	16.5	11.5	34.1	35.4		44.9	31.2	34.8
Progression Factor	0.26	0.29	0.12	0.94	0.60	0.49	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	40.9	0.0	157.8	0.8	0.1	0.4	0.6		159.3	0.0	0.4
Delay (s)	5.3	48.6	1.4	183.1	10.7	5.8	34.5	36.0		204.2	31.3	35.3
Level of Service	A	D	A	F	B	A	C	D		F	C	D
Approach Delay (s)		45.8			18.2			35.4			144.9	
Approach LOS		D			B			D			F	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			49.5									D
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			130.0							13.5		
Intersection Capacity Utilization			110.9%									H
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↘	↑↑↑	↘	↗
Traffic Volume (vph)	3339	56	102	1506	59	310
Future Volume (vph)	3339	56	102	1506	59	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	135.0		25.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4565	1601	1807	4230	1789	1633
Flt Permitted			0.055		0.950	
Satd. Flow (perm)	4565	1601	105	4230	1789	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				101
Link Speed (k/h)	70			70	50	
Link Distance (m)	587.4			354.8	240.3	
Travel Time (s)	30.2			18.2	17.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Adj. Flow (vph)	3339	56	102	1506	59	310
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3339	56	102	1506	59	310
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	36.7	36.7	11.0	36.7	43.9	43.9
Total Split (s)	75.1	75.1	11.0	86.1	43.9	43.9
Total Split (%)	57.8%	57.8%	8.5%	66.2%	33.8%	33.8%
Maximum Green (s)	68.4	68.4	7.0	79.4	37.0	37.0
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.5	2.5	1.0	2.5	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	Max	C-Max	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	68.4	68.4	95.6	92.9	23.5	23.5
Actuated g/C Ratio	0.53	0.53	0.74	0.71	0.18	0.18
v/c Ratio	1.39	0.07	0.30	0.50	0.18	0.82
Control Delay	199.6	8.8	26.7	3.2	43.5	51.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	199.6	8.8	26.7	3.2	43.5	51.1
LOS	F	A	C	A	D	D
Approach Delay	196.5			4.7	49.9	
Approach LOS	F			A	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 70 (54%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.39  
 Intersection Signal Delay: 129.0  
 Intersection LOS: F  
 Intersection Capacity Utilization 95.0%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 3: Meadowridge Dr & Dundas St E



Queues  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	3339	56	102	1506	59	310
v/c Ratio	1.39	0.07	0.30	0.50	0.18	0.82
Control Delay	199.6	8.8	26.7	3.2	43.5	51.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	199.6	8.8	26.7	3.2	43.5	51.1
Queue Length 50th (m)	~473.0	2.6	4.7	19.3	12.9	53.1
Queue Length 95th (m)	m#403.0	m2.3	22.2	24.8	23.1	79.3
Internal Link Dist (m)	563.4			330.8	216.3	
Turn Bay Length (m)		60.0	135.0		25.0	
Base Capacity (vph)	2401	852	345	3022	509	537
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.39	0.07	0.30	0.50	0.12	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  
3: Meadowridge Dr & Dundas St E

Morning Peak Hour  
04/17/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	3339	56	102	1506	59	310
Future Volume (vph)	3339	56	102	1506	59	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4565	1601	1807	4230	1789	1633
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	4565	1601	105	4230	1789	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3339	56	102	1506	59	310
RTOR Reduction (vph)	0	10	0	0	0	83
Lane Group Flow (vph)	3339	46	102	1506	59	227
Heavy Vehicles (%)	1%	2%	1%	9%	2%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	68.4	68.4	92.9	92.9	23.5	23.5
Effective Green, g (s)	68.4	68.4	92.9	92.9	23.5	23.5
Actuated g/C Ratio	0.53	0.53	0.71	0.71	0.18	0.18
Clearance Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	2401	842	343	3022	323	295
v/s Ratio Prot	c0.73		0.05	c0.36		
v/s Ratio Perm		0.03	0.17		0.03	c0.14
v/c Ratio	1.39	0.05	0.30	0.50	0.18	0.77
Uniform Delay, d1	30.8	15.0	24.6	8.2	45.1	50.7
Progression Factor	0.72	0.85	1.68	0.29	1.00	1.00
Incremental Delay, d2	176.0	0.0	2.0	0.5	0.3	12.1
Delay (s)	198.2	12.8	43.3	3.0	45.4	62.7
Level of Service	F	B	D	A	D	E
Approach Delay (s)	195.1			5.5	60.0	
Approach LOS	F			A	E	

Intersection Summary

HCM 2000 Control Delay	129.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
4: Dundas St E & Street A

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗↗	↖↖↖	↗	↘	↘
Traffic Volume (vph)	45	3589	1481	60	173	130
Future Volume (vph)	45	3589	1481	60	173	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0			75.0	0.0	15.0
Storage Lanes	1			1	1	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.121				0.950	
Satd. Flow (perm)	228	4520	4520	1601	1789	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				60		72
Link Speed (k/h)		70	70		48	
Link Distance (m)		354.8	501.7		96.4	
Travel Time (s)		18.2	25.8		7.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	3589	1481	60	173	130
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	3589	1481	60	173	130
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Perm	Perm
Protected Phases		4	8			
Permitted Phases	4			8	6	6

Lanes, Volumes, Timings  
4: Dundas St E & Street A

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	4	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.7	24.7	24.7	24.7	22.5	22.5
Total Split (s)	107.0	107.0	107.0	107.0	23.0	23.0
Total Split (%)	82.3%	82.3%	82.3%	82.3%	17.7%	17.7%
Maximum Green (s)	100.3	100.3	100.3	100.3	19.0	19.0
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	3.0
All-Red Time (s)	2.5	2.5	2.5	2.5	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	100.3	100.3	100.3	100.3	19.0	19.0
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.15	0.15
v/c Ratio	0.26	1.03	0.42	0.05	0.66	0.44
Control Delay	10.3	45.5	1.3	0.1	65.7	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	45.5	1.3	0.1	65.7	28.8
LOS	B	D	A	A	E	C
Approach Delay		45.1	1.3		49.9	
Approach LOS		D	A		D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 33.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 87.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 4: Dundas St E & Street A



Queues  
4: Dundas St E & Street A

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	45	3589	1481	60	173	130
v/c Ratio	0.26	1.03	0.42	0.05	0.66	0.44
Control Delay	10.3	45.5	1.3	0.1	65.7	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	45.5	1.3	0.1	65.7	28.8
Queue Length 50th (m)	5.6	~282.6	9.8	0.0	42.5	13.4
Queue Length 95th (m)	m4.6	m163.0	m10.2	m0.0	66.9	33.0
Internal Link Dist (m)		330.8	477.7		72.4	
Turn Bay Length (m)	110.0			75.0		15.0
Base Capacity (vph)	175	3487	3487	1248	261	295
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	0.26	1.03	0.42	0.05	0.66	0.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis  
4: Dundas St E & Street A

Morning Peak Hour  
04/17/2020



































Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↑↑↑	↑↑↑	↵	↵	↵
Traffic Volume (vph)	45	3589	1481	60	173	130
Future Volume (vph)	45	3589	1481	60	173	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	4.0	4.0
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.12	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	229	4520	4520	1601	1789	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	3589	1481	60	173	130
RTOR Reduction (vph)	0	0	0	14	0	61
Lane Group Flow (vph)	45	3589	1481	46	173	69
Turn Type	Perm	NA	NA	Perm	Perm	Perm
Protected Phases		4	8			
Permitted Phases	4			8	6	6
Actuated Green, G (s)	100.3	100.3	100.3	100.3	19.0	19.0
Effective Green, g (s)	100.3	100.3	100.3	100.3	19.0	19.0
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.15	0.15
Clearance Time (s)	6.7	6.7	6.7	6.7	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	176	3487	3487	1235	261	233
v/s Ratio Prot		c0.79	0.33			
v/s Ratio Perm	0.20			0.03	c0.10	0.04
v/c Ratio	0.26	1.03	0.42	0.04	0.66	0.29
Uniform Delay, d1	4.2	14.9	5.0	3.5	52.5	49.5
Progression Factor	2.05	2.16	0.21	0.00	1.00	1.00
Incremental Delay, d2	0.1	14.6	0.1	0.0	12.5	3.2
Delay (s)	8.7	46.7	1.1	0.0	65.0	52.7
Level of Service	A	D	A	A	E	D
Approach Delay (s)		46.3	1.1		59.7	
Approach LOS		D	A		E	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Morning Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			  			  	
Traffic Volume (vph)	268	2973	548	133	1159	135	264	353	170	202	586	119
Future Volume (vph)	268	2973	548	133	1159	135	264	353	170	202	586	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
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	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4565	1633	1789	4230	1633	1630	3579	1585	1825	3650	1633
Flt Permitted	0.115			0.070			0.189			0.430		
Satd. Flow (perm)	221	4565	1633	132	4230	1633	324	3579	1585	826	3650	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			138			148			137
Link Speed (k/h)		70			70			50			50	
Link Distance (m)		501.7			295.5			522.7			348.2	
Travel Time (s)		25.8			15.2			37.6			25.1	
Peak Hour 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
Heavy Vehicles (%)	0%	1%	0%	2%	9%	0%	12%	2%	3%	0%	0%	0%
Adj. Flow (vph)	268	2973	548	133	1159	135	264	353	170	202	586	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	2973	548	133	1159	135	264	353	170	202	586	119
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
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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	45.3	45.3	11.0	45.3	45.3	11.0	47.5	47.5	11.0	47.5	47.5
Total Split (s)	19.5	68.9	68.9	11.7	61.1	61.1	14.3	35.1	35.1	14.3	35.1	35.1
Total Split (%)	15.0%	53.0%	53.0%	9.0%	47.0%	47.0%	11.0%	27.0%	27.0%	11.0%	27.0%	27.0%
Maximum Green (s)	14.5	62.6	62.6	7.7	54.8	54.8	10.3	28.6	28.6	10.3	28.6	28.6
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	2.6	2.6	1.0	2.6	2.6	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	6.3	6.3	4.0	6.3	6.3	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
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	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)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	77.7	63.9	63.9	67.6	56.8	56.8	39.3	26.5	26.5	39.3	26.5	26.5
Actuated g/C Ratio	0.60	0.49	0.49	0.52	0.44	0.44	0.30	0.20	0.20	0.30	0.20	0.20
v/c Ratio	0.86	1.32	0.61	0.76	0.63	0.17	1.31	0.48	0.39	0.62	0.79	0.27
Control Delay	27.5	180.4	22.5	52.5	30.7	4.0	203.4	47.8	11.9	41.9	57.3	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	180.4	22.5	52.5	30.7	4.0	203.4	47.8	11.9	41.9	57.3	6.2
LOS	C	F	C	D	C	A	F	D	B	D	E	A
Approach Delay		146.7			30.2			92.2			47.1	
Approach LOS		F			C			F			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 12 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.32  
 Intersection Signal Delay: 103.4  
 Intersection LOS: F  
 Intersection Capacity Utilization 113.0%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Ninth Line & Dundas St E



Queues  
5: Ninth Line & Dundas St E

Morning Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	268	2973	548	133	1159	135	264	353	170	202	586	119
v/c Ratio	0.86	1.32	0.61	0.76	0.63	0.17	1.31	0.48	0.39	0.62	0.79	0.27
Control Delay	27.5	180.4	22.5	52.5	30.7	4.0	203.4	47.8	11.9	41.9	57.3	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	180.4	22.5	52.5	30.7	4.0	203.4	47.8	11.9	41.9	57.3	6.2
Queue Length 50th (m)	46.3	~416.0	67.3	17.9	97.2	0.0	~65.0	41.7	4.5	38.0	74.5	0.0
Queue Length 95th (m)	m46.5	m#399.7	m65.2	#52.6	115.4	11.3	#119.3	56.5	23.5	57.9	94.4	11.5
Internal Link Dist (m)		477.7			271.5			498.7			324.2	
Turn Bay Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	316	2245	902	176	1849	791	201	787	464	328	803	466
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	0.85	1.32	0.61	0.76	0.63	0.17	1.31	0.45	0.37	0.62	0.73	0.26

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
5: Ninth Line & Dundas St E

Morning Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	268	2973	548	133	1159	135	264	353	170	202	586	119
Future Volume (vph)	268	2973	548	133	1159	135	264	353	170	202	586	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.5	6.5
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	4565	1633	1789	4230	1633	1630	3579	1585	1825	3650	1633
Flt Permitted	0.12	1.00	1.00	0.07	1.00	1.00	0.19	1.00	1.00	0.43	1.00	1.00
Satd. Flow (perm)	222	4565	1633	133	4230	1633	324	3579	1585	826	3650	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	268	2973	548	133	1159	135	264	353	170	202	586	119
RTOR Reduction (vph)	0	0	99	0	0	76	0	0	118	0	0	95
Lane Group Flow (vph)	268	2973	449	133	1159	59	264	353	52	202	586	24
Heavy Vehicles (%)	0%	1%	0%	2%	9%	0%	12%	2%	3%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	76.4	63.9	63.9	65.3	56.8	56.8	36.8	26.5	26.5	36.8	26.5	26.5
Effective Green, g (s)	76.4	63.9	63.9	65.3	56.8	56.8	36.8	26.5	26.5	36.8	26.5	26.5
Actuated g/C Ratio	0.59	0.49	0.49	0.50	0.44	0.44	0.28	0.20	0.20	0.28	0.20	0.20
Clearance Time (s)	5.0	6.3	6.3	4.0	6.3	6.3	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)	310	2243	802	175	1848	713	195	729	323	312	744	332
v/s Ratio Prot	c0.10	c0.65		0.05	0.27		c0.11	0.10		0.05	0.16	
v/s Ratio Perm	0.41		0.27	0.33		0.04	c0.28		0.03	0.13		0.01
v/c Ratio	0.86	1.33	0.56	0.76	0.63	0.08	1.35	0.48	0.16	0.65	0.79	0.07
Uniform Delay, d1	25.8	33.0	23.2	29.0	28.4	21.4	42.1	45.7	42.6	38.3	49.1	41.8
Progression Factor	1.08	1.22	1.46	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	146.7	0.3	18.0	1.6	0.2	189.0	0.6	0.3	4.8	5.7	0.1
Delay (s)	30.4	187.2	34.1	47.0	30.0	21.6	231.1	46.3	42.9	43.1	54.8	41.9
Level of Service	C	F	C	D	C	C	F	D	D	D	D	D
Approach Delay (s)		153.9			30.8			107.5			50.5	
Approach LOS		F			C			F			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			109.7	HCM 2000 Level of Service				F				
HCM 2000 Volume to Capacity ratio			1.32									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				21.8				
Intersection Capacity Utilization			113.0%	ICU Level of Service				H				
Analysis Period (min)			15									
c Critical Lane Group												



Lanes, Volumes, Timings  
3: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑	↗	↘	↑	↗
Traffic Volume (vph)	9	1240	181	180	2393	69	164	29	112	33	13	10
Future Volume (vph)	9	1240	181	180	2393	69	164	29	112	33	13	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.0		52.0	150.0		75.0	26.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		1	1		1
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	1.00	1.00
Ped Bike Factor							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)	1825	5092	1601	1825	5193	1633	1807	1865	1633	1825	1921	1633
Flt Permitted	0.050			0.172			0.749			0.738		
Satd. Flow (perm)	96	5092	1601	330	5193	1633	1423	1865	1610	1415	1921	1612
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			160			67			114			65
Link Speed (k/h)		70			70			50				50
Link Distance (m)		651.2			600.6			206.2				419.2
Travel Time (s)		33.5			30.9			14.8				30.2
Confl. Peds. (#/hr)							1		2	2		1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	3%	2%	0%	1%	0%	1%	3%	0%	0%	0%	0%
Adj. Flow (vph)	9	1265	185	184	2442	70	167	30	114	34	13	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	1265	185	184	2442	70	167	30	114	34	13	10
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
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  
3: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

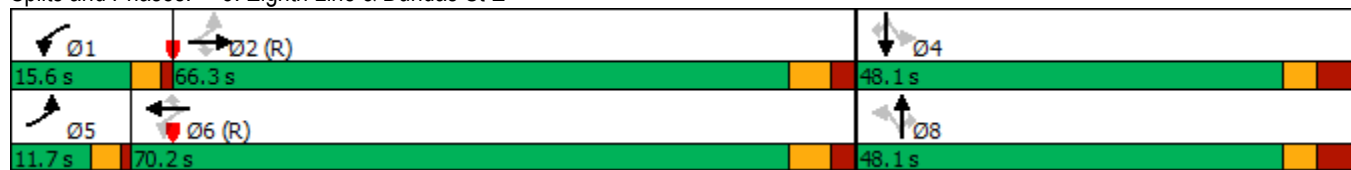


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	37.7	37.7	11.5	37.7	37.7	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (s)	11.7	66.3	66.3	15.6	70.2	70.2	48.1	48.1	48.1	48.1	48.1	48.1
Total Split (%)	9.0%	51.0%	51.0%	12.0%	54.0%	54.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	7.7	59.6	59.6	11.6	63.5	63.5	41.1	41.1	41.1	41.1	41.1	41.1
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5	2.5	3.7	3.7	3.7	3.7	3.7	3.7
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	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	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	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	90.2	80.5	80.5	97.7	92.8	92.8	21.3	21.3	21.3	21.3	21.3	21.3
Actuated g/C Ratio	0.69	0.62	0.62	0.75	0.71	0.71	0.16	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.06	0.40	0.18	0.50	0.66	0.06	0.72	0.10	0.32	0.15	0.04	0.03
Control Delay	6.8	14.1	3.5	13.9	5.3	1.8	67.6	43.8	9.7	45.1	42.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	14.1	3.5	13.9	5.3	1.8	67.6	43.8	9.7	45.1	42.2	0.2
LOS	A	B	A	B	A	A	E	D	A	D	D	A
Approach Delay		12.7			5.8			44.1			36.5	
Approach LOS		B			A			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 3 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 11.0      Intersection LOS: B  
 Intersection Capacity Utilization 83.7%      ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 3: Eighth Line & Dundas St E



Queues  
3: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	9	1265	185	184	2442	70	167	30	114	34	13	10
v/c Ratio	0.06	0.40	0.18	0.50	0.66	0.06	0.72	0.10	0.32	0.15	0.04	0.03
Control Delay	6.8	14.1	3.5	13.9	5.3	1.8	67.6	43.8	9.7	45.1	42.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	14.1	3.5	13.9	5.3	1.8	67.6	43.8	9.7	45.1	42.2	0.2
Queue Length 50th (m)	0.5	55.3	2.3	4.8	29.7	0.2	41.1	6.6	0.0	7.6	2.9	0.0
Queue Length 95th (m)	2.4	86.4	14.6	32.4	85.0	m1.5	60.6	14.2	14.8	16.0	8.1	0.0
Internal Link Dist (m)		627.2			576.6			182.2			395.2	
Turn Bay Length (m)	97.0		52.0	150.0		75.0	26.0			15.0		15.0
Base Capacity (vph)	169	3153	1052	390	3706	1184	449	589	586	447	607	554
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	0.05	0.40	0.18	0.47	0.66	0.06	0.37	0.05	0.19	0.08	0.02	0.02

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
3: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	1240	181	180	2393	69	164	29	112	33	13	10
Future Volume (vph)	9	1240	181	180	2393	69	164	29	112	33	13	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	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)	1825	5092	1601	1825	5193	1633	1805	1865	1610	1822	1921	1612
Flt Permitted	0.05	1.00	1.00	0.17	1.00	1.00	0.75	1.00	1.00	0.74	1.00	1.00
Satd. Flow (perm)	95	5092	1601	331	5193	1633	1423	1865	1610	1414	1921	1612
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	9	1265	185	184	2442	70	167	30	114	34	13	10
RTOR Reduction (vph)	0	0	61	0	0	21	0	0	95	0	0	8
Lane Group Flow (vph)	9	1265	124	184	2442	49	167	30	19	34	13	2
Confl. Peds. (#/hr)							1		2	2		1
Heavy Vehicles (%)	0%	3%	2%	0%	1%	0%	1%	3%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	81.9	80.5	80.5	95.0	89.6	89.6	21.3	21.3	21.3	21.3	21.3	21.3
Effective Green, g (s)	81.9	80.5	80.5	95.0	89.6	89.6	21.3	21.3	21.3	21.3	21.3	21.3
Actuated g/C Ratio	0.63	0.62	0.62	0.73	0.69	0.69	0.16	0.16	0.16	0.16	0.16	0.16
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
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)	78	3153	991	362	3579	1125	233	305	263	231	314	264
v/s Ratio Prot	0.00	0.25		c0.04	c0.47			0.02			0.01	
v/s Ratio Perm	0.07		0.08	0.33		0.03	c0.12		0.01	0.02		0.00
v/c Ratio	0.12	0.40	0.13	0.51	0.68	0.04	0.72	0.10	0.07	0.15	0.04	0.01
Uniform Delay, d1	11.3	12.5	10.2	6.7	11.9	6.5	51.5	46.2	46.0	46.6	45.8	45.5
Progression Factor	1.00	1.00	1.00	1.92	0.38	0.70	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.4	0.3	1.0	0.8	0.1	10.4	0.2	0.1	0.3	0.1	0.0
Delay (s)	12.1	12.9	10.5	13.9	5.4	4.6	61.9	46.4	46.1	46.9	45.8	45.5
Level of Service	B	B	B	B	A	A	E	D	D	D	D	D
Approach Delay (s)		12.6			6.0			54.6			46.4	
Approach LOS		B			A			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			12.0	HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				17.7				
Intersection Capacity Utilization			83.7%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
6: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1247	150	227	2492	152	85
Future Volume (vph)	1247	150	227	2492	152	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		55.0	125.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Ped Bike Factor		0.97	1.00			
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5092	1601	1825	5193	1825	1633
Flt Permitted			0.175		0.950	
Satd. Flow (perm)	5092	1553	336	5193	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		143				87
Link Speed (k/h)	70			70	50	
Link Distance (m)	600.6			587.4	203.4	
Travel Time (s)	30.9			30.2	14.6	
Confl. Peds. (#/hr)		5	5			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	3%	2%	0%	1%	0%	0%
Adj. Flow (vph)	1272	153	232	2543	155	87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1272	153	232	2543	155	87
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

Lanes, Volumes, Timings  
6: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	38.8	38.8	11.5	38.8	43.9	43.9
Total Split (s)	68.9	68.9	15.6	84.5	45.5	45.5
Total Split (%)	53.0%	53.0%	12.0%	65.0%	35.0%	35.0%
Maximum Green (s)	62.1	62.1	11.6	77.7	38.8	38.8
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.6	2.6	1.0	2.6	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	4.0	6.8	6.7	6.7
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	25.0	25.0		25.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	83.9	83.9	102.4	99.6	16.9	16.9
Actuated g/C Ratio	0.65	0.65	0.79	0.77	0.13	0.13
v/c Ratio	0.39	0.15	0.58	0.64	0.65	0.30
Control Delay	7.3	0.8	10.2	13.6	66.3	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	0.8	10.2	13.6	66.3	12.2
LOS	A	A	B	B	E	B
Approach Delay	6.6			13.3	46.8	
Approach LOS	A			B	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 11.8 (9%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 95  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 13.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 67.8%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 6: Prince Michael Dr & Dundas St E



Queues  
6: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020

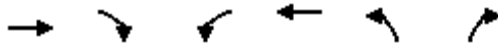


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1272	153	232	2543	155	87
v/c Ratio	0.39	0.15	0.58	0.64	0.65	0.30
Control Delay	7.3	0.8	10.2	13.6	66.3	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	0.8	10.2	13.6	66.3	12.2
Queue Length 50th (m)	24.1	0.2	14.0	213.0	38.3	0.0
Queue Length 95th (m)	30.7	2.4	29.8	232.2	58.1	14.2
Internal Link Dist (m)	576.6			563.4	179.4	
Turn Bay Length (m)		55.0	125.0		50.0	
Base Capacity (vph)	3285	1052	413	3978	544	548
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	0.39	0.15	0.56	0.64	0.28	0.16

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
6: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑	↑
Traffic Volume (vph)	1247	150	227	2492	152	85
Future Volume (vph)	1247	150	227	2492	152	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8	4.0	6.8	6.7	6.7
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5092	1553	1825	5193	1825	1633
Flt Permitted	1.00	1.00	0.18	1.00	0.95	1.00
Satd. Flow (perm)	5092	1553	336	5193	1825	1633
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1272	153	232	2543	155	87
RTOR Reduction (vph)	0	51	0	0	0	76
Lane Group Flow (vph)	1272	102	232	2543	155	11
Confl. Peds. (#/hr)		5	5			
Heavy Vehicles (%)	3%	2%	0%	1%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	83.9	83.9	99.6	99.6	16.9	16.9
Effective Green, g (s)	83.9	83.9	99.6	99.6	16.9	16.9
Actuated g/C Ratio	0.65	0.65	0.77	0.77	0.13	0.13
Clearance Time (s)	6.8	6.8	4.0	6.8	6.7	6.7
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	3286	1002	391	3978	237	212
v/s Ratio Prot	0.25		0.05	c0.49		
v/s Ratio Perm		0.07	0.40		c0.08	0.01
v/c Ratio	0.39	0.10	0.59	0.64	0.65	0.05
Uniform Delay, d1	10.9	8.8	5.7	7.0	53.8	49.5
Progression Factor	0.59	0.21	1.44	1.72	1.00	1.00
Incremental Delay, d2	0.3	0.2	2.0	0.6	6.6	0.1
Delay (s)	6.7	2.1	10.2	12.6	60.4	49.7
Level of Service	A	A	B	B	E	D
Approach Delay (s)	6.2			12.4	56.5	
Approach LOS	A			B	E	

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lanes, Volumes, Timings  
8: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	1295	71	220	2671	40	139
Future Volume (vph)	1295	71	220	2671	40	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	135.0		25.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5092	1633	1825	5193	1825	1633
Flt Permitted			0.167		0.950	
Satd. Flow (perm)	5092	1633	321	5193	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		65				143
Link Speed (k/h)	70			70	50	
Link Distance (m)	587.4			856.4	240.3	
Travel Time (s)	30.2			44.0	17.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	1%	0%	0%
Adj. Flow (vph)	1335	73	227	2754	41	143
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1335	73	227	2754	41	143
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		

Lanes, Volumes, Timings  
8: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



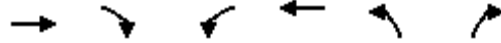
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	36.7	36.7	11.5	36.7	43.9	43.9
Total Split (s)	63.7	63.7	20.8	84.5	45.5	45.5
Total Split (%)	49.0%	49.0%	16.0%	65.0%	35.0%	35.0%
Maximum Green (s)	57.0	57.0	16.8	77.8	38.6	38.6
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.5	2.5	1.0	2.5	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	89.3	89.3	108.5	105.8	10.6	10.6
Actuated g/C Ratio	0.69	0.69	0.83	0.81	0.08	0.08
v/c Ratio	0.38	0.06	0.55	0.65	0.28	0.54
Control Delay	7.4	2.2	15.8	1.8	60.8	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	2.2	15.8	1.8	60.8	16.7
LOS	A	A	B	A	E	B
Approach Delay	7.2			2.9	26.5	
Approach LOS	A			A	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 75 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 5.1  
 Intersection Capacity Utilization 71.3%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service C

Splits and Phases: 8: Meadowridge Dr & Dundas St E





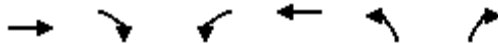
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1335	73	227	2754	41	143
v/c Ratio	0.38	0.06	0.55	0.65	0.28	0.54
Control Delay	7.4	2.2	15.8	1.8	60.8	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	2.2	15.8	1.8	60.8	16.7
Queue Length 50th (m)	52.3	0.1	10.4	23.0	10.1	0.0
Queue Length 95th (m)	34.5	2.3	m12.8	m26.9	21.2	19.5
Internal Link Dist (m)	563.4			832.4	216.3	
Turn Bay Length (m)		60.0	135.0		25.0	
Base Capacity (vph)	3499	1142	466	4227	541	585
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	0.06	0.49	0.65	0.08	0.24

#### Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
8: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	1295	71	220	2671	40	139
Future Volume (vph)	1295	71	220	2671	40	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5092	1633	1825	5193	1825	1633
Flt Permitted	1.00	1.00	0.17	1.00	0.95	1.00
Satd. Flow (perm)	5092	1633	321	5193	1825	1633
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1335	73	227	2754	41	143
RTOR Reduction (vph)	0	20	0	0	0	131
Lane Group Flow (vph)	1335	53	227	2754	41	12
Heavy Vehicles (%)	3%	0%	0%	1%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	89.3	89.3	105.8	105.8	10.6	10.6
Effective Green, g (s)	89.3	89.3	105.8	105.8	10.6	10.6
Actuated g/C Ratio	0.69	0.69	0.81	0.81	0.08	0.08
Clearance Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	3497	1121	405	4226	148	133
v/s Ratio Prot	0.26		0.05	c0.53		
v/s Ratio Perm		0.03	0.40		c0.02	0.01
v/c Ratio	0.38	0.05	0.56	0.65	0.28	0.09
Uniform Delay, d1	8.6	6.6	4.1	4.8	56.1	55.2
Progression Factor	0.78	0.82	5.53	0.30	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.8	0.3	1.2	0.3
Delay (s)	7.0	5.4	23.6	1.8	57.3	55.6
Level of Service	A	A	C	A	E	E
Approach Delay (s)	6.9			3.4	56.0	
Approach LOS	A			A	E	

Intersection Summary

HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
10: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	1155	163	141	2413	133	313	698	530	104	299	195
Future Volume (vph)	129	1155	163	141	2413	133	313	698	530	104	299	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
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	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			*0.950			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	5092	1601	1789	5193	1633	1789	3614	1738	1789	3614	1633
Flt Permitted	0.064			0.180			0.550			0.140		
Satd. Flow (perm)	123	5092	1601	339	5193	1633	1036	3614	1738	264	3614	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			163			138			126			121
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		856.4			295.5			522.7			348.2	
Travel Time (s)		44.0			15.2			31.4			20.9	
Peak Hour 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
Heavy Vehicles (%)	0%	3%	2%	2%	1%	0%	2%	1%	5%	2%	1%	0%
Adj. Flow (vph)	129	1155	163	141	2413	133	313	698	530	104	299	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	1155	163	141	2413	133	313	698	530	104	299	195
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
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3		8

Lanes, Volumes, Timings  
10: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

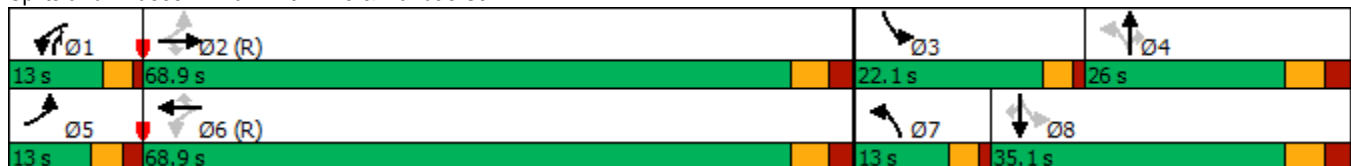


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	12.0	45.3	45.3	11.0	45.3	45.3	11.0	47.5	11.0	14.5	47.5	47.5
Total Split (s)	13.0	68.9	68.9	13.0	68.9	68.9	13.0	26.0	13.0	22.1	35.1	35.1
Total Split (%)	10.0%	53.0%	53.0%	10.0%	53.0%	53.0%	10.0%	20.0%	10.0%	17.0%	27.0%	27.0%
Maximum Green (s)	8.0	62.6	62.6	9.0	62.6	62.6	9.0	19.5	9.0	18.1	28.6	28.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	2.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	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	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	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
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	71.9	62.6	62.6	73.9	62.6	62.6	37.8	26.3	41.8	42.0	28.6	28.6
Actuated g/C Ratio	0.55	0.48	0.48	0.57	0.48	0.48	0.29	0.20	0.32	0.32	0.22	0.22
v/c Ratio	0.75	0.47	0.19	0.48	0.97	0.16	0.89	0.96	0.82	0.48	0.38	0.43
Control Delay	53.1	45.0	20.8	17.2	44.4	3.1	67.1	75.6	43.1	37.8	44.7	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	45.0	20.8	17.2	44.4	3.1	67.1	75.6	43.1	37.8	44.7	20.2
LOS	D	D	C	B	D	A	E	E	D	D	D	C
Approach Delay		43.0			40.9			62.7				35.5
Approach LOS		D			D			E				D

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 12 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 46.2      Intersection LOS: D  
 Intersection Capacity Utilization 97.6%      ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 10: Ninth Line & Dundas St E



Queues  
10: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	129	1155	163	141	2413	133	313	698	530	104	299	195
v/c Ratio	0.75	0.47	0.19	0.48	0.97	0.16	0.89	0.96	0.82	0.48	0.38	0.43
Control Delay	53.1	45.0	20.8	17.2	44.4	3.1	67.1	75.6	43.1	37.8	44.7	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	45.0	20.8	17.2	44.4	3.1	67.1	75.6	43.1	37.8	44.7	20.2
Queue Length 50th (m)	28.4	111.7	20.4	14.9	214.1	0.0	64.0	93.9	98.6	18.6	34.5	15.6
Queue Length 95th (m)	#46.7	123.5	44.5	24.5	#254.1	9.8	#124.2	#146.0	#166.2	32.3	48.2	37.9
Internal Link Dist (m)		832.4			271.5			498.7			324.2	
Turn Bay Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	172	2451	855	293	2500	857	353	730	643	301	795	453
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	0.75	0.47	0.19	0.48	0.97	0.16	0.89	0.96	0.82	0.35	0.38	0.43

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
10: Ninth Line & Dundas St E





























Afternoon Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	1155	163	141	2413	133	313	698	530	104	299	195
Future Volume (vph)	129	1155	163	141	2413	133	313	698	530	104	299	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	4.0	6.5	6.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.95	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)	1825	5092	1601	1789	5193	1633	1789	3614	1738	1789	3614	1633
Flt Permitted	0.06	1.00	1.00	0.18	1.00	1.00	0.55	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	123	5092	1601	338	5193	1633	1035	3614	1738	263	3614	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	129	1155	163	141	2413	133	313	698	530	104	299	195
RTOR Reduction (vph)	0	0	85	0	0	69	0	0	92	0	0	94
Lane Group Flow (vph)	129	1155	78	141	2413	64	313	698	438	104	299	101
Heavy Vehicles (%)	0%	3%	2%	2%	1%	0%	2%	1%	5%	2%	1%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	70.6	62.6	62.6	71.6	62.6	62.6	35.3	26.3	35.3	39.9	28.6	28.6
Effective Green, g (s)	70.6	62.6	62.6	71.6	62.6	62.6	35.3	26.3	35.3	39.9	28.6	28.6
Actuated g/C Ratio	0.54	0.48	0.48	0.55	0.48	0.48	0.27	0.20	0.27	0.31	0.22	0.22
Clearance Time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	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)	171	2451	770	286	2500	786	333	731	471	213	795	359
v/s Ratio Prot	0.05	0.23		0.03	c0.46		c0.07	c0.19	c0.06	c0.04	0.08	
v/s Ratio Perm	0.36		0.05	0.24		0.04	0.19		0.19	0.11		0.06
v/c Ratio	0.75	0.47	0.10	0.49	0.97	0.08	0.94	0.95	0.93	0.49	0.38	0.28
Uniform Delay, d1	30.3	22.6	18.4	15.4	32.6	18.2	44.4	51.3	46.2	35.3	43.1	42.1
Progression Factor	1.21	1.95	7.45	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.7	0.6	0.3	1.6	11.5	0.2	33.9	22.8	25.4	2.1	0.4	0.5
Delay (s)	53.4	44.7	137.1	17.0	44.2	18.4	78.3	74.1	71.6	37.3	43.5	42.7
Level of Service	D	D	F	B	D	B	E	E	E	D	D	D
Approach Delay (s)		55.9			41.5			74.1			42.1	
Approach LOS		E			D			E			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			52.9									D
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			130.0						21.8			
Intersection Capacity Utilization			97.6%									F
Analysis Period (min)			15									
c Critical Lane Group												



Lanes, Volumes, Timings  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	122	1667	190	196	2879	216	174	49	122	67	34	10
Future Volume (vph)	122	1667	190	196	2879	216	174	49	122	67	34	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.0		52.0	150.0		75.0	26.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		1	1		1
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	1.00	1.00
Ped Bike Factor							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)	1825	4476	1601	1825	4565	1633	1807	1865	1633	1825	1921	1633
Flt Permitted	0.054			0.061			0.735			0.725		
Satd. Flow (perm)	104	4476	1601	117	4565	1633	1397	1865	1610	1390	1921	1612
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110			106			122			65
Link Speed (k/h)		70			70			50				50
Link Distance (m)		651.2			600.6			206.2				419.2
Travel Time (s)		33.5			30.9			14.8				30.2
Confl. Peds. (#/hr)							1		2	2		1
Peak Hour 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
Heavy Vehicles (%)	0%	3%	2%	0%	1%	0%	1%	3%	0%	0%	0%	0%
Adj. Flow (vph)	122	1667	190	196	2879	216	174	49	122	67	34	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	1667	190	196	2879	216	174	49	122	67	34	10
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
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  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



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	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	37.7	37.7	11.5	37.7	37.7	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (s)	11.7	66.3	66.3	15.6	70.2	70.2	48.1	48.1	48.1	48.1	48.1	48.1
Total Split (%)	9.0%	51.0%	51.0%	12.0%	54.0%	54.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	7.7	59.6	59.6	11.6	63.5	63.5	41.1	41.1	41.1	41.1	41.1	41.1
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5	2.5	3.7	3.7	3.7	3.7	3.7	3.7
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	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	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	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	86.7	73.7	73.7	96.6	79.7	79.7	22.3	22.3	22.3	22.3	22.3	22.3
Actuated g/C Ratio	0.67	0.57	0.57	0.74	0.61	0.61	0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.59	0.66	0.20	0.65	1.03	0.21	0.73	0.15	0.32	0.28	0.10	0.03
Control Delay	36.1	22.8	7.9	37.2	40.1	10.5	67.6	44.2	9.3	47.7	43.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	22.8	7.9	37.2	40.1	10.5	67.6	44.2	9.3	47.7	43.0	0.2
LOS	D	C	A	D	D	B	E	D	A	D	D	A
Approach Delay		22.2			38.0			43.7			42.0	
Approach LOS		C			D			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 3 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 32.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 94.5%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 1: Eighth Line & Dundas St E



Queues  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	122	1667	190	196	2879	216	174	49	122	67	34	10
v/c Ratio	0.59	0.66	0.20	0.65	1.03	0.21	0.73	0.15	0.32	0.28	0.10	0.03
Control Delay	36.1	22.8	7.9	37.2	40.1	10.5	67.6	44.2	9.3	47.7	43.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	22.8	7.9	37.2	40.1	10.5	67.6	44.2	9.3	47.7	43.0	0.2
Queue Length 50th (m)	13.7	118.5	9.0	40.6	~163.7	13.9	42.8	10.8	0.0	15.2	7.5	0.0
Queue Length 95th (m)	35.1	172.9	25.9	m32.4	m111.3	m10.0	62.3	20.5	15.2	26.7	15.5	0.0
Internal Link Dist (m)		627.2			576.6			182.2			395.2	
Turn Bay Length (m)	97.0		52.0	150.0		75.0	26.0			15.0		15.0
Base Capacity (vph)	207	2535	954	305	2798	1042	441	589	592	439	607	554
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	0.59	0.66	0.20	0.64	1.03	0.21	0.39	0.08	0.21	0.15	0.06	0.02

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
 1: Eighth Line & Dundas St E

























Afternoon Peak Hour  
 04/17/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	122	1667	190	196	2879	216	174	49	122	67	34	10
Future Volume (vph)	122	1667	190	196	2879	216	174	49	122	67	34	10
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	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)	1825	4476	1601	1825	4565	1633	1805	1865	1610	1822	1921	1612
Flt Permitted	0.05	1.00	1.00	0.06	1.00	1.00	0.73	1.00	1.00	0.73	1.00	1.00
Satd. Flow (perm)	104	4476	1601	118	4565	1633	1397	1865	1610	1390	1921	1612
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	122	1667	190	196	2879	216	174	49	122	67	34	10
RTOR Reduction (vph)	0	0	48	0	0	41	0	0	101	0	0	8
Lane Group Flow (vph)	122	1667	142	196	2879	175	174	49	21	67	34	2
Confl. Peds. (#/hr)							1		2	2		1
Heavy Vehicles (%)	0%	3%	2%	0%	1%	0%	1%	3%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	83.9	73.6	73.6	94.0	79.7	79.7	22.3	22.3	22.3	22.3	22.3	22.3
Effective Green, g (s)	83.9	73.6	73.6	94.0	79.7	79.7	22.3	22.3	22.3	22.3	22.3	22.3
Actuated g/C Ratio	0.65	0.57	0.57	0.72	0.61	0.61	0.17	0.17	0.17	0.17	0.17	0.17
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
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)	203	2534	906	300	2798	1001	239	319	276	238	329	276
v/s Ratio Prot	0.05	0.37		c0.08	c0.63			0.03			0.02	
v/s Ratio Perm	0.34		0.09	0.39		0.11	c0.12		0.01	0.05		0.00
v/c Ratio	0.60	0.66	0.16	0.65	1.03	0.17	0.73	0.15	0.08	0.28	0.10	0.01
Uniform Delay, d1	32.7	19.5	13.4	30.8	25.1	10.9	51.0	45.8	45.2	46.9	45.4	44.7
Progression Factor	1.00	1.00	1.00	1.44	0.97	1.51	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.2	1.4	0.4	0.5	14.8	0.0	10.9	0.3	0.1	0.8	0.2	0.0
Delay (s)	37.9	20.8	13.8	44.9	39.3	16.5	61.9	46.1	45.3	47.6	45.6	44.7
Level of Service	D	C	B	D	D	B	E	D	D	D	D	D
Approach Delay (s)		21.2			38.1			53.8			46.7	
Approach LOS		C			D			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			33.4	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				17.7				
Intersection Capacity Utilization			94.5%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	1575	156	236	3111	248	176	4	91	224	8	118
Future Volume (vph)	187	1575	156	236	3111	248	176	4	91	224	8	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		55.0	125.0		70.0	50.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		0	1		1
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	1.00	1.00
Ped Bike Factor			0.97									
Frt			0.850			0.850		0.856				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	4476	1601	1825	4565	1601	1825	1643	0	1789	1883	1601
Flt Permitted	0.059			0.067			0.752			0.695		
Satd. Flow (perm)	111	4476	1553	129	4565	1601	1445	1643	0	1309	1883	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107			114		91				107
Link Speed (k/h)		70			70			50				48
Link Distance (m)		600.6			587.4			203.4				98.7
Travel Time (s)		30.9			30.2			14.6				7.4
Confl. Peds. (#/hr)			5	5								
Peak Hour 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
Heavy Vehicles (%)	2%	3%	2%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	187	1575	156	236	3111	248	176	4	91	224	8	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	187	1575	156	236	3111	248	176	95	0	224	8	118
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
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



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	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0		5.0	5.0	5.0
Minimum Split (s)	9.5	38.8	38.8	9.5	38.8	38.8	43.9	43.9		24.7	24.7	24.7
Total Split (s)	11.0	64.3	64.3	21.8	75.1	75.1	43.9	43.9		43.9	43.9	43.9
Total Split (%)	8.5%	49.5%	49.5%	16.8%	57.8%	57.8%	33.8%	33.8%		33.8%	33.8%	33.8%
Maximum Green (s)	6.5	57.5	57.5	17.3	68.3	68.3	37.2	37.2		37.2	37.2	37.2
Yellow Time (s)	3.5	4.2	4.2	3.5	4.2	4.2	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	3.4	3.4		3.4	3.4	3.4
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)	4.5	6.8	6.8	4.5	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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
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	7.0
Flash Dont Walk (s)		25.0	25.0		25.0	25.0	30.0	30.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effct Green (s)	83.4	67.5	67.5	84.8	68.3	68.3	28.0	28.0		28.0	28.0	28.0
Actuated g/C Ratio	0.64	0.52	0.52	0.65	0.53	0.53	0.22	0.22		0.22	0.22	0.22
v/c Ratio	0.68	0.68	0.18	0.79	1.30	0.28	0.57	0.22		0.80	0.02	0.28
Control Delay	52.5	23.8	10.8	38.5	168.6	12.2	51.6	9.1		67.7	35.6	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	52.5	23.8	10.8	38.5	168.6	12.2	51.6	9.1		67.7	35.6	9.9
LOS	D	C	B	D	F	B	D	A		E	D	A
Approach Delay		25.6			149.3			36.7			47.5	
Approach LOS		C			F			D			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: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.30  
 Intersection Signal Delay: 99.8 Intersection LOS: F  
 Intersection Capacity Utilization 104.5% ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 2: Prince Michael Dr & Dundas St E



Queues  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020






























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	187	1575	156	236	3111	248	176	95	224	8	118
v/c Ratio	0.68	0.68	0.18	0.79	1.30	0.28	0.57	0.22	0.80	0.02	0.28
Control Delay	52.5	23.8	10.8	38.5	168.6	12.2	51.6	9.1	67.7	35.6	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	23.8	10.8	38.5	168.6	12.2	51.6	9.1	67.7	35.6	9.9
Queue Length 50th (m)	39.5	59.4	2.9	36.5	~431.5	23.3	40.6	0.8	54.8	1.6	2.2
Queue Length 95th (m)	#98.2	121.5	m26.1	m43.0	#465.7	m28.5	58.7	13.4	77.4	5.4	16.3
Internal Link Dist (m)		576.6			563.4			179.4		74.7	
Turn Bay Length (m)	115.0		55.0	125.0		70.0	50.0		15.0		15.0
Base Capacity (vph)	273	2322	857	323	2399	895	413	535	374	538	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.68	0.18	0.73	1.30	0.28	0.43	0.18	0.60	0.01	0.22

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  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	187	1575	156	236	3111	248	176	4	91	224	8	118
Future Volume (vph)	187	1575	156	236	3111	248	176	4	91	224	8	118
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.8	6.8	4.5	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
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	0.86		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)	1789	4476	1553	1825	4565	1601	1825	1644		1789	1883	1601
Flt Permitted	0.06	1.00	1.00	0.07	1.00	1.00	0.75	1.00		0.70	1.00	1.00
Satd. Flow (perm)	112	4476	1553	128	4565	1601	1446	1644		1310	1883	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	187	1575	156	236	3111	248	176	4	91	224	8	118
RTOR Reduction (vph)	0	0	51	0	0	54	0	71	0	0	0	84
Lane Group Flow (vph)	187	1575	105	236	3111	194	176	24	0	224	8	34
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	3%	2%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	83.2	67.5	67.5	84.8	68.3	68.3	28.0	28.0		28.0	28.0	28.0
Effective Green, g (s)	83.2	67.5	67.5	84.8	68.3	68.3	28.0	28.0		28.0	28.0	28.0
Actuated g/C Ratio	0.64	0.52	0.52	0.65	0.53	0.53	0.22	0.22		0.22	0.22	0.22
Clearance Time (s)	4.5	6.8	6.8	4.5	6.8	6.8	6.7	6.7		6.7	6.7	6.7
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
Lane Grp Cap (vph)	274	2324	806	298	2398	841	311	354		282	405	344
v/s Ratio Prot	0.08	0.35		c0.10	c0.68			0.01			0.00	
v/s Ratio Perm	0.36		0.07	0.41		0.12	0.12			c0.17		0.02
v/c Ratio	0.68	0.68	0.13	0.79	1.30	0.23	0.57	0.07		0.79	0.02	0.10
Uniform Delay, d1	37.6	23.2	16.1	34.5	30.9	16.7	45.6	40.6		48.3	40.2	40.9
Progression Factor	1.41	0.89	1.42	0.99	1.28	1.33	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.8	1.3	0.3	5.1	134.9	0.2	2.6	0.1		14.6	0.0	0.1
Delay (s)	58.7	22.0	23.2	39.3	174.4	22.4	48.1	40.7		62.9	40.2	41.0
Level of Service	E	C	C	D	F	C	D	D		E	D	D
Approach Delay (s)		25.7			155.0			45.5			55.0	
Approach LOS		C			F			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			104.0									F
HCM 2000 Volume to Capacity ratio			1.11									
Actuated Cycle Length (s)			130.0							18.0		
Intersection Capacity Utilization			104.5%									G
Analysis Period (min)			15									

c Critical Lane Group



Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	1780	74	229	3544	43	148
Future Volume (vph)	1780	74	229	3544	43	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	135.0		25.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4476	1633	1825	4565	1825	1633
Flt Permitted			0.063		0.950	
Satd. Flow (perm)	4476	1633	121	4565	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		44				148
Link Speed (k/h)	70			70	50	
Link Distance (m)	587.4			353.8	240.3	
Travel Time (s)	30.2			18.2	17.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	0%	0%	1%	0%	0%
Adj. Flow (vph)	1780	74	229	3544	43	148
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1780	74	229	3544	43	148
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020

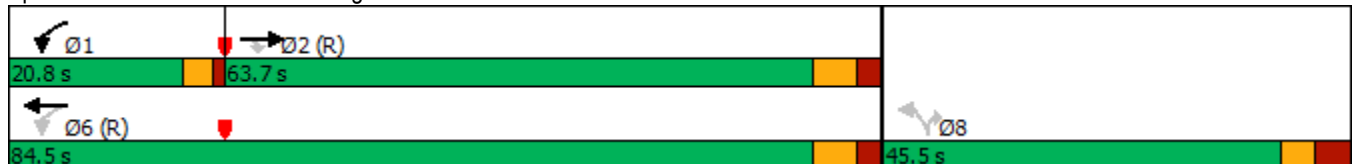


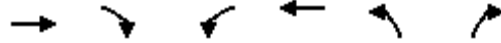
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	36.7	36.7	11.5	36.7	43.9	43.9
Total Split (s)	63.7	63.7	20.8	84.5	45.5	45.5
Total Split (%)	49.0%	49.0%	16.0%	65.0%	35.0%	35.0%
Maximum Green (s)	57.0	57.0	16.8	77.8	38.6	38.6
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.5	2.5	1.0	2.5	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	85.1	85.1	108.5	105.8	10.6	10.6
Actuated g/C Ratio	0.65	0.65	0.83	0.81	0.08	0.08
v/c Ratio	0.61	0.07	0.72	0.95	0.29	0.55
Control Delay	16.1	3.9	43.5	10.0	61.0	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	3.9	43.5	10.0	61.0	16.6
LOS	B	A	D	A	E	B
Approach Delay	15.6			12.0	26.6	
Approach LOS	B			B	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 75 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 13.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 88.1%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 3: Meadowridge Dr & Dundas St E





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1780	74	229	3544	43	148
v/c Ratio	0.61	0.07	0.72	0.95	0.29	0.55
Control Delay	16.1	3.9	43.5	10.0	61.0	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	3.9	43.5	10.0	61.0	16.6
Queue Length 50th (m)	167.9	2.9	41.2	76.4	10.6	0.0
Queue Length 95th (m)	196.0	m8.6	m31.9	m39.2	22.2	19.7
Internal Link Dist (m)	563.4			329.8	216.3	
Turn Bay Length (m)		60.0	135.0		25.0	
Base Capacity (vph)	2931	1084	344	3713	541	588
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	0.61	0.07	0.67	0.95	0.08	0.25

#### Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



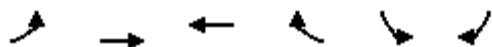
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1780	74	229	3544	43	148
Future Volume (vph)	1780	74	229	3544	43	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4476	1633	1825	4565	1825	1633
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	4476	1633	120	4565	1825	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1780	74	229	3544	43	148
RTOR Reduction (vph)	0	15	0	0	0	136
Lane Group Flow (vph)	1780	59	229	3544	43	12
Heavy Vehicles (%)	3%	0%	0%	1%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	85.2	85.2	105.8	105.8	10.6	10.6
Effective Green, g (s)	85.2	85.2	105.8	105.8	10.6	10.6
Actuated g/C Ratio	0.66	0.66	0.81	0.81	0.08	0.08
Clearance Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	2933	1070	315	3715	148	133
v/s Ratio Prot	0.40		0.09	c0.78		
v/s Ratio Perm		0.04	0.50		c0.02	0.01
v/c Ratio	0.61	0.05	0.73	0.95	0.29	0.09
Uniform Delay, d1	12.8	8.0	32.3	10.1	56.2	55.2
Progression Factor	1.11	0.78	1.62	0.81	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.8	0.9	1.3	0.4
Delay (s)	15.0	6.3	53.2	9.1	57.5	55.6
Level of Service	B	A	D	A	E	E
Approach Delay (s)	14.7			11.7	56.0	
Approach LOS	B			B	E	

Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑↑	↑↑↑	↗	↙	↘
Traffic Volume (vph)	107	1829	3729	142	99	74
Future Volume (vph)	107	1829	3729	142	99	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0			75.0	0.0	15.0
Storage Lanes	1			1	1	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.042				0.950	
Satd. Flow (perm)	79	4520	4520	1601	1789	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				92		63
Link Speed (k/h)		70	70		48	
Link Distance (m)		353.8	502.7		146.3	
Travel Time (s)		18.2	25.9		11.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	107	1829	3729	142	99	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	1829	3729	142	99	74
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6

Lanes, Volumes, Timings  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	24.7	24.7	24.7	22.5	22.5
Total Split (s)	9.5	107.5	98.0	98.0	22.5	22.5
Total Split (%)	7.3%	82.7%	75.4%	75.4%	17.3%	17.3%
Maximum Green (s)	5.5	100.8	91.3	91.3	18.5	18.5
Yellow Time (s)	3.0	4.2	4.2	4.2	3.0	3.0
All-Red Time (s)	1.0	2.5	2.5	2.5	1.0	1.0
Lost Time Adjust (s)	-3.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	6.7	6.7	6.7	4.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	106.5	100.8	91.3	91.3	18.5	18.5
Actuated g/C Ratio	0.82	0.78	0.70	0.70	0.14	0.14
v/c Ratio	0.61	0.52	1.17	0.12	0.39	0.26
Control Delay	49.7	2.8	95.5	0.3	55.7	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	2.8	95.5	0.3	55.7	17.7
LOS	D	A	F	A	E	B
Approach Delay		5.4	92.0		39.4	
Approach LOS		A	F		D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.17  
 Intersection Signal Delay: 62.4  
 Intersection LOS: E  
 Intersection Capacity Utilization 95.7%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 4: Dundas St E & Street A



Queues  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	107	1829	3729	142	99	74
v/c Ratio	0.61	0.52	1.17	0.12	0.39	0.26
Control Delay	49.7	2.8	95.5	0.3	55.7	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	2.8	95.5	0.3	55.7	17.7
Queue Length 50th (m)	17.8	17.4	~483.9	0.2	23.4	2.5
Queue Length 95th (m)	m#37.5	39.3	m36.3	m0.0	41.0	16.3
Internal Link Dist (m)		329.8	478.7		122.3	
Turn Bay Length (m)	110.0			75.0		15.0
Base Capacity (vph)	176	3504	3174	1151	254	281
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	0.61	0.52	1.17	0.12	0.39	0.26

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↑↑↑	↑↑↑	↵	↵	↵
Traffic Volume (vph)	107	1829	3729	142	99	74
Future Volume (vph)	107	1829	3729	142	99	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	6.7	6.7	6.7	4.0	4.0
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.04	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	79	4520	4520	1601	1789	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	107	1829	3729	142	99	74
RTOR Reduction (vph)	0	0	0	27	0	54
Lane Group Flow (vph)	107	1829	3729	115	99	20
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6
Actuated Green, G (s)	100.8	100.8	91.3	91.3	18.5	18.5
Effective Green, g (s)	103.8	100.8	91.3	91.3	18.5	18.5
Actuated g/C Ratio	0.80	0.78	0.70	0.70	0.14	0.14
Clearance Time (s)	4.0	6.7	6.7	6.7	4.0	4.0
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	174	3504	3174	1124	254	227
v/s Ratio Prot	c0.04	0.40	c0.82			
v/s Ratio Perm	0.45			0.07	c0.06	0.01
v/c Ratio	0.61	0.52	1.17	0.10	0.39	0.09
Uniform Delay, d1	42.1	5.5	19.4	6.2	50.6	48.4
Progression Factor	1.70	0.42	0.63	0.11	1.00	1.00
Incremental Delay, d2	5.5	0.1	79.0	0.0	4.5	0.8
Delay (s)	77.2	2.4	91.3	0.7	55.1	49.2
Level of Service	E	A	F	A	E	D
Approach Delay (s)		6.6	87.9		52.6	
Approach LOS		A	F		D	

Intersection Summary			
HCM 2000 Control Delay	60.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	1502	276	145	3131	137	506	729	546	107	312	230
Future Volume (vph)	147	1502	276	145	3131	137	506	729	546	107	312	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
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	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4476	1601	1789	4565	1633	1789	3614	1555	1789	3614	1633
Flt Permitted	0.064			0.068			0.537			0.140		
Satd. Flow (perm)	123	4476	1601	128	4565	1633	1011	3614	1555	264	3614	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			194			138			101			112
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		502.7			295.5			522.7			348.2	
Travel Time (s)		25.9			15.2			31.4			20.9	
Peak Hour 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
Heavy Vehicles (%)	0%	3%	2%	2%	1%	0%	2%	1%	5%	2%	1%	0%
Adj. Flow (vph)	147	1502	276	145	3131	137	506	729	546	107	312	230
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	1502	276	145	3131	137	506	729	546	107	312	230
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
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	12.0	45.3	45.3	11.0	45.3	45.3	11.0	47.5	11.0	14.5	47.5	47.5
Total Split (s)	13.0	68.9	68.9	13.0	68.9	68.9	13.0	26.0	13.0	22.1	35.1	35.1
Total Split (%)	10.0%	53.0%	53.0%	10.0%	53.0%	53.0%	10.0%	20.0%	10.0%	17.0%	27.0%	27.0%
Maximum Green (s)	8.0	62.6	62.6	9.0	62.6	62.6	9.0	19.5	9.0	18.1	28.6	28.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	2.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	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	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	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
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	71.9	62.6	62.6	73.9	62.6	62.6	37.6	26.1	41.6	42.1	28.6	28.6
Actuated g/C Ratio	0.55	0.48	0.48	0.57	0.48	0.48	0.29	0.20	0.32	0.32	0.22	0.22
v/c Ratio	0.85	0.70	0.32	0.78	1.42	0.16	1.46	1.01	0.96	0.49	0.39	0.52
Control Delay	57.8	40.3	18.1	51.1	222.9	3.3	256.2	86.3	66.1	38.1	45.0	26.9
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	57.8	40.3	18.1	51.1	222.9	3.3	256.2	86.3	66.1	38.1	45.0	26.9
LOS	E	D	B	D	F	A	F	F	E	D	D	C
Approach Delay		38.4			206.8			128.3			37.5	
Approach LOS		D			F			F			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 12 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.46  
 Intersection Signal Delay: 132.9      Intersection LOS: F  
 Intersection Capacity Utilization 123.5%      ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Ninth Line & Dundas St E



Queues  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	147	1502	276	145	3131	137	506	729	546	107	312	230
v/c Ratio	0.85	0.70	0.32	0.78	1.42	0.16	1.46	1.01	0.96	0.49	0.39	0.52
Control Delay	57.8	40.3	18.1	51.1	222.9	3.3	256.2	86.3	66.1	38.1	45.0	26.9
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	57.8	40.3	18.1	51.1	222.9	3.3	256.2	86.3	66.1	38.1	45.0	26.9
Queue Length 50th (m)	28.5	155.7	42.7	19.3	~450.5	0.0	~177.0	~99.4	117.3	19.2	36.1	26.0
Queue Length 95th (m)	#57.1	151.4	59.4	#52.0	#477.8	10.3	#251.8	#156.4	#200.7	33.2	50.2	51.8
Internal Link Dist (m)		478.7			271.5			498.7			324.2	
Turn Bay Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	172	2155	871	187	2198	857	346	725	566	301	795	446
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	0.85	0.70	0.32	0.78	1.42	0.16	1.46	1.01	0.96	0.36	0.39	0.52

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  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	147	1502	276	145	3131	137	506	729	546	107	312	230		
Future Volume (vph)	147	1502	276	145	3131	137	506	729	546	107	312	230		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	4.0	6.5	6.5		
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	1825	4476	1601	1789	4565	1633	1789	3614	1555	1789	3614	1633		
Flt Permitted	0.06	1.00	1.00	0.07	1.00	1.00	0.54	1.00	1.00	0.14	1.00	1.00		
Satd. Flow (perm)	123	4476	1601	129	4565	1633	1011	3614	1555	263	3614	1633		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Adj. Flow (vph)	147	1502	276	145	3131	137	506	729	546	107	312	230		
RTOR Reduction (vph)	0	0	101	0	0	71	0	0	74	0	0	87		
Lane Group Flow (vph)	147	1502	175	145	3131	66	506	729	472	107	312	143		
Heavy Vehicles (%)	0%	3%	2%	2%	1%	0%	2%	1%	5%	2%	1%	0%		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm		
Protected Phases	5	2		1	6		7	4	1	3	8			
Permitted Phases	2		2	6		6	4		4	8		8		
Actuated Green, G (s)	70.6	62.6	62.6	71.6	62.6	62.6	35.1	26.1	35.1	40.1	28.6	28.6		
Effective Green, g (s)	70.6	62.6	62.6	71.6	62.6	62.6	35.1	26.1	35.1	40.1	28.6	28.6		
Actuated g/C Ratio	0.54	0.48	0.48	0.55	0.48	0.48	0.27	0.20	0.27	0.31	0.22	0.22		
Clearance Time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	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)	171	2155	770	185	2198	786	326	725	419	216	795	359		
v/s Ratio Prot	0.05	0.34		0.05	c0.69		c0.11	0.20	c0.08	c0.04	0.09			
v/s Ratio Perm	0.41		0.11	0.38		0.04	c0.31		0.23	0.11		0.09		
v/c Ratio	0.86	0.70	0.23	0.78	1.42	0.08	1.55	1.01	1.13	0.50	0.39	0.40		
Uniform Delay, d1	34.2	26.3	19.6	25.7	33.7	18.2	45.6	52.0	47.5	35.5	43.3	43.3		
Progression Factor	0.82	1.45	2.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	29.7	1.6	0.6	19.7	193.7	0.2	263.1	34.8	83.4	2.1	0.4	0.9		
Delay (s)	57.6	39.9	55.4	45.5	227.4	18.4	308.7	86.7	130.8	37.6	43.7	44.2		
Level of Service	E	D	E	D	F	B	F	F	F	D	D	D		
Approach Delay (s)		43.4			211.3			163.3			42.8			
Approach LOS		D			F			F			D			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			144.6									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			1.42											
Actuated Cycle Length (s)			130.0								21.8			
Intersection Capacity Utilization			123.5%										ICU Level of Service	H
Analysis Period (min)			15											
c Critical Lane Group														

Lanes, Volumes, Timings  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1702	190	196	2900	216	174	49	122	67	34	10
Future Volume (vph)	122	1702	190	196	2900	216	174	49	122	67	34	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.0		52.0	150.0		75.0	26.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		1	1		1
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	1.00	1.00
Ped Bike Factor							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)	1825	4476	1601	1825	4565	1633	1807	1865	1633	1825	1921	1633
Flt Permitted	0.054			0.057			0.735			0.725		
Satd. Flow (perm)	104	4476	1601	110	4565	1633	1397	1865	1610	1390	1921	1612
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107			105			122			65
Link Speed (k/h)		70			70			50				50
Link Distance (m)		651.2			600.6			206.2				419.2
Travel Time (s)		33.5			30.9			14.8				30.2
Confl. Peds. (#/hr)							1		2	2		1
Peak Hour 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
Heavy Vehicles (%)	0%	3%	2%	0%	1%	0%	1%	3%	0%	0%	0%	0%
Adj. Flow (vph)	122	1702	190	196	2900	216	174	49	122	67	34	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	1702	190	196	2900	216	174	49	122	67	34	10
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
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  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

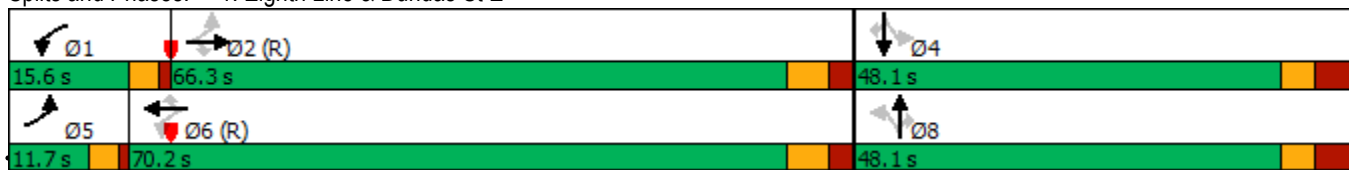


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	37.7	37.7	11.5	37.7	37.7	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (s)	11.7	66.3	66.3	15.6	70.2	70.2	48.1	48.1	48.1	48.1	48.1	48.1
Total Split (%)	9.0%	51.0%	51.0%	12.0%	54.0%	54.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	7.7	59.6	59.6	11.6	63.5	63.5	41.1	41.1	41.1	41.1	41.1	41.1
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5	2.5	3.7	3.7	3.7	3.7	3.7	3.7
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	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	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	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	86.7	73.7	73.7	96.6	79.7	79.7	22.3	22.3	22.3	22.3	22.3	22.3
Actuated g/C Ratio	0.67	0.57	0.57	0.74	0.61	0.61	0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.59	0.67	0.20	0.66	1.04	0.21	0.73	0.15	0.32	0.28	0.10	0.03
Control Delay	36.1	23.2	8.1	38.3	43.2	10.6	67.6	44.2	9.3	47.7	43.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	23.2	8.1	38.3	43.2	10.6	67.6	44.2	9.3	47.7	43.0	0.2
LOS	D	C	A	D	D	B	E	D	A	D	D	A
Approach Delay		22.5			40.8			43.7			42.0	
Approach LOS		C			D			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 3 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.04  
 Intersection Signal Delay: 34.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 94.9%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 1: Eighth Line & Dundas St E



Queues  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	122	1702	190	196	2900	216	174	49	122	67	34	10
v/c Ratio	0.59	0.67	0.20	0.66	1.04	0.21	0.73	0.15	0.32	0.28	0.10	0.03
Control Delay	36.1	23.2	8.1	38.3	43.2	10.6	67.6	44.2	9.3	47.7	43.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	23.2	8.1	38.3	43.2	10.6	67.6	44.2	9.3	47.7	43.0	0.2
Queue Length 50th (m)	13.7	122.3	9.4	41.2	~168.4	14.1	42.8	10.8	0.0	15.2	7.5	0.0
Queue Length 95th (m)	35.1	178.5	26.4	m32.6	m111.1	m9.9	62.3	20.5	15.2	26.7	15.5	0.0
Internal Link Dist (m)		627.2			576.6			182.2			395.2	
Turn Bay Length (m)	97.0		52.0	150.0		75.0	26.0			15.0		15.0
Base Capacity (vph)	207	2535	953	300	2798	1041	441	589	592	439	607	554
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	0.59	0.67	0.20	0.65	1.04	0.21	0.39	0.08	0.21	0.15	0.06	0.02

Intersection Summary





























~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	122	1702	190	196	2900	216	174	49	122	67	34	10
Future Volume (vph)	122	1702	190	196	2900	216	174	49	122	67	34	10
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	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)	1825	4476	1601	1825	4565	1633	1805	1865	1610	1822	1921	1612
Flt Permitted	0.05	1.00	1.00	0.06	1.00	1.00	0.73	1.00	1.00	0.73	1.00	1.00
Satd. Flow (perm)	104	4476	1601	110	4565	1633	1397	1865	1610	1390	1921	1612
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	122	1702	190	196	2900	216	174	49	122	67	34	10
RTOR Reduction (vph)	0	0	46	0	0	41	0	0	101	0	0	8
Lane Group Flow (vph)	122	1702	144	196	2900	175	174	49	21	67	34	2
Confl. Peds. (#/hr)							1		2	2		1
Heavy Vehicles (%)	0%	3%	2%	0%	1%	0%	1%	3%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	83.9	73.6	73.6	94.0	79.7	79.7	22.3	22.3	22.3	22.3	22.3	22.3
Effective Green, g (s)	83.9	73.6	73.6	94.0	79.7	79.7	22.3	22.3	22.3	22.3	22.3	22.3
Actuated g/C Ratio	0.65	0.57	0.57	0.72	0.61	0.61	0.17	0.17	0.17	0.17	0.17	0.17
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
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)	203	2534	906	295	2798	1001	239	319	276	238	329	276
v/s Ratio Prot	0.05	0.38		c0.08	c0.64			0.03			0.02	
v/s Ratio Perm	0.34		0.09	0.40		0.11	c0.12		0.01	0.05		0.00
v/c Ratio	0.60	0.67	0.16	0.66	1.04	0.18	0.73	0.15	0.08	0.28	0.10	0.01
Uniform Delay, d1	32.7	19.7	13.4	32.6	25.1	10.9	51.0	45.8	45.2	46.9	45.4	44.7
Progression Factor	1.00	1.00	1.00	1.40	0.97	1.51	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.2	1.4	0.4	0.5	17.9	0.0	10.9	0.3	0.1	0.8	0.2	0.0
Delay (s)	37.9	21.2	13.8	46.3	42.4	16.4	61.9	46.1	45.3	47.6	45.6	44.7
Level of Service	D	C	B	D	D	B	E	D	D	D	D	D
Approach Delay (s)		21.5			41.0			53.8			46.7	
Approach LOS		C			D			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			35.1				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			17.7		
Intersection Capacity Utilization			94.9%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group



Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	1610	156	236	3132	248	176	4	91	224	8	118
Future Volume (vph)	187	1610	156	236	3132	248	176	4	91	224	8	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		55.0	125.0		70.0	50.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		0	1		1
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	1.00	1.00
Ped Bike Factor			0.97									
Flt			0.850			0.850		0.856				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	4476	1601	1825	4565	1601	1825	1643	0	1789	1883	1601
Flt Permitted	0.059			0.062			0.752			0.695		
Satd. Flow (perm)	111	4476	1553	119	4565	1601	1445	1643	0	1309	1883	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107			113		91				107
Link Speed (k/h)		70			70			50				48
Link Distance (m)		600.6			587.4			203.4				98.7
Travel Time (s)		30.9			30.2			14.6				7.4
Confl. Peds. (#/hr)			5	5								
Peak Hour 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
Heavy Vehicles (%)	2%	3%	2%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	187	1610	156	236	3132	248	176	4	91	224	8	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	187	1610	156	236	3132	248	176	95	0	224	8	118
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
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



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	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0		5.0	5.0	5.0
Minimum Split (s)	9.5	38.8	38.8	9.5	38.8	38.8	43.9	43.9		24.7	24.7	24.7
Total Split (s)	11.0	64.3	64.3	21.8	75.1	75.1	43.9	43.9		43.9	43.9	43.9
Total Split (%)	8.5%	49.5%	49.5%	16.8%	57.8%	57.8%	33.8%	33.8%		33.8%	33.8%	33.8%
Maximum Green (s)	6.5	57.5	57.5	17.3	68.3	68.3	37.2	37.2		37.2	37.2	37.2
Yellow Time (s)	3.5	4.2	4.2	3.5	4.2	4.2	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	3.4	3.4		3.4	3.4	3.4
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)	4.5	6.8	6.8	4.5	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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
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	7.0
Flash Dont Walk (s)		25.0	25.0		25.0	25.0	30.0	30.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effct Green (s)	83.4	67.5	67.5	84.8	68.3	68.3	28.0	28.0		28.0	28.0	28.0
Actuated g/C Ratio	0.64	0.52	0.52	0.65	0.53	0.53	0.22	0.22		0.22	0.22	0.22
v/c Ratio	0.68	0.69	0.18	0.80	1.31	0.28	0.57	0.22		0.80	0.02	0.28
Control Delay	52.3	24.3	11.0	40.8	172.4	12.4	51.6	9.1		67.7	35.6	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	52.3	24.3	11.0	40.8	172.4	12.4	51.6	9.1		67.7	35.6	9.9
LOS	D	C	B	D	F	B	D	A		E	D	A
Approach Delay		25.9			152.8			36.7			47.5	
Approach LOS		C			F			D			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: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.31  
 Intersection Signal Delay: 101.7  
 Intersection LOS: F  
 Intersection Capacity Utilization 105.0%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 2: Prince Michael Dr & Dundas St E



Queues  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020


























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	187	1610	156	236	3132	248	176	95	224	8	118
v/c Ratio	0.68	0.69	0.18	0.80	1.31	0.28	0.57	0.22	0.80	0.02	0.28
Control Delay	52.3	24.3	11.0	40.8	172.4	12.4	51.6	9.1	67.7	35.6	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	24.3	11.0	40.8	172.4	12.4	51.6	9.1	67.7	35.6	9.9
Queue Length 50th (m)	39.6	60.6	2.9	38.2	~436.4	23.6	40.6	0.8	54.8	1.6	2.2
Queue Length 95th (m)	#98.4	125.3	m26.0	m44.1	#470.0	m28.5	58.7	13.4	77.4	5.4	16.3
Internal Link Dist (m)		576.6			563.4			179.4		74.7	
Turn Bay Length (m)	115.0		55.0	125.0		70.0	50.0		15.0		15.0
Base Capacity (vph)	273	2322	857	318	2399	895	413	535	374	538	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.69	0.18	0.74	1.31	0.28	0.43	0.18	0.60	0.01	0.22

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  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	1610	156	236	3132	248	176	4	91	224	8	118
Future Volume (vph)	187	1610	156	236	3132	248	176	4	91	224	8	118
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.8	6.8	4.5	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
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	0.86		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)	1789	4476	1553	1825	4565	1601	1825	1644		1789	1883	1601
Flt Permitted	0.06	1.00	1.00	0.06	1.00	1.00	0.75	1.00		0.70	1.00	1.00
Satd. Flow (perm)	112	4476	1553	119	4565	1601	1446	1644		1310	1883	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	187	1610	156	236	3132	248	176	4	91	224	8	118
RTOR Reduction (vph)	0	0	51	0	0	54	0	71	0	0	0	84
Lane Group Flow (vph)	187	1610	105	236	3132	194	176	24	0	224	8	34
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	3%	2%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	83.2	67.5	67.5	84.8	68.3	68.3	28.0	28.0		28.0	28.0	28.0
Effective Green, g (s)	83.2	67.5	67.5	84.8	68.3	68.3	28.0	28.0		28.0	28.0	28.0
Actuated g/C Ratio	0.64	0.52	0.52	0.65	0.53	0.53	0.22	0.22		0.22	0.22	0.22
Clearance Time (s)	4.5	6.8	6.8	4.5	6.8	6.8	6.7	6.7		6.7	6.7	6.7
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
Lane Grp Cap (vph)	274	2324	806	294	2398	841	311	354		282	405	344
v/s Ratio Prot	0.08	0.36		c0.10	c0.69			0.01			0.00	
v/s Ratio Perm	0.36		0.07	0.42		0.12	0.12			c0.17		0.02
v/c Ratio	0.68	0.69	0.13	0.80	1.31	0.23	0.57	0.07		0.79	0.02	0.10
Uniform Delay, d1	37.6	23.5	16.1	36.2	30.9	16.7	45.6	40.6		48.3	40.2	40.9
Progression Factor	1.40	0.90	1.45	0.99	1.28	1.34	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.7	1.4	0.3	5.4	138.8	0.2	2.6	0.1		14.6	0.0	0.1
Delay (s)	58.5	22.4	23.7	41.3	178.4	22.6	48.1	40.7		62.9	40.2	41.0
Level of Service	E	C	C	D	F	C	D	D		E	D	D
Approach Delay (s)		26.0			158.8			45.5			55.0	
Approach LOS		C			F			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			106.0	HCM 2000 Level of Service				F				
HCM 2000 Volume to Capacity ratio			1.11									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)					18.0			
Intersection Capacity Utilization			105.0%	ICU Level of Service				G				
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↗	↖
Traffic Volume (vph)	1815	74	229	3565	43	148
Future Volume (vph)	1815	74	229	3565	43	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	135.0		25.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4476	1633	1825	4565	1825	1633
Flt Permitted			0.059		0.950	
Satd. Flow (perm)	4476	1633	113	4565	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		43				148
Link Speed (k/h)	70			70	50	
Link Distance (m)	587.4			353.8	240.3	
Travel Time (s)	30.2			18.2	17.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	0%	0%	1%	0%	0%
Adj. Flow (vph)	1815	74	229	3565	43	148
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1815	74	229	3565	43	148
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		

Lanes, Volumes, Timings  
 3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
 04/17/2020

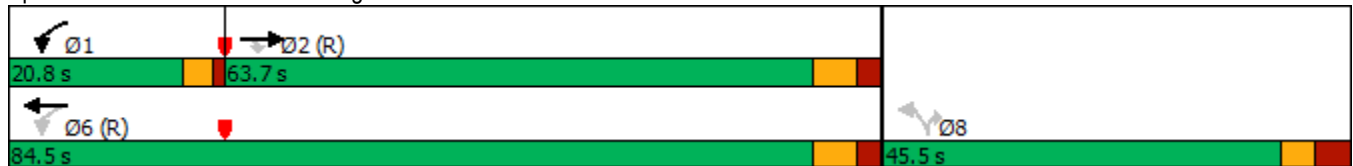


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	36.7	36.7	11.5	36.7	43.9	43.9
Total Split (s)	63.7	63.7	20.8	84.5	45.5	45.5
Total Split (%)	49.0%	49.0%	16.0%	65.0%	35.0%	35.0%
Maximum Green (s)	57.0	57.0	16.8	77.8	38.6	38.6
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.5	2.5	1.0	2.5	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	85.1	85.1	108.5	105.8	10.6	10.6
Actuated g/C Ratio	0.65	0.65	0.83	0.81	0.08	0.08
v/c Ratio	0.62	0.07	0.73	0.96	0.29	0.55
Control Delay	16.5	3.8	45.0	10.2	61.0	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	3.8	45.0	10.2	61.0	16.6
LOS	B	A	D	B	E	B
Approach Delay	16.0			12.3	26.6	
Approach LOS	B			B	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 75 (58%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 13.9  
 Intersection LOS: B  
 Intersection Capacity Utilization 88.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 3: Meadowridge Dr & Dundas St E



## Queues

Afternoon Peak Hour

## 3: Meadowridge Dr &amp; Dundas St E

04/17/2020



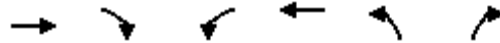
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1815	74	229	3565	43	148
v/c Ratio	0.62	0.07	0.73	0.96	0.29	0.55
Control Delay	16.5	3.8	45.0	10.2	61.0	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	3.8	45.0	10.2	61.0	16.6
Queue Length 50th (m)	176.5	2.9	42.6	78.6	10.6	0.0
Queue Length 95th (m)	201.2	m8.1	m33.6	m41.0	22.2	19.7
Internal Link Dist (m)	563.4			329.8	216.3	
Turn Bay Length (m)		60.0	135.0		25.0	
Base Capacity (vph)	2931	1084	339	3713	541	588
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.07	0.68	0.96	0.08	0.25

## Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	1815	74	229	3565	43	148
Future Volume (vph)	1815	74	229	3565	43	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4476	1633	1825	4565	1825	1633
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	4476	1633	113	4565	1825	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1815	74	229	3565	43	148
RTOR Reduction (vph)	0	15	0	0	0	136
Lane Group Flow (vph)	1815	59	229	3565	43	12
Heavy Vehicles (%)	3%	0%	0%	1%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	85.2	85.2	105.8	105.8	10.6	10.6
Effective Green, g (s)	85.2	85.2	105.8	105.8	10.6	10.6
Actuated g/C Ratio	0.66	0.66	0.81	0.81	0.08	0.08
Clearance Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	2933	1070	310	3715	148	133
v/s Ratio Prot	0.41		0.09	c0.78		
v/s Ratio Perm		0.04	0.51		c0.02	0.01
v/c Ratio	0.62	0.06	0.74	0.96	0.29	0.09
Uniform Delay, d1	13.0	8.0	33.8	10.3	56.2	55.2
Progression Factor	1.13	0.76	1.56	0.80	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.9	1.0	1.3	0.4
Delay (s)	15.4	6.2	53.8	9.3	57.5	55.6
Level of Service	B	A	D	A	E	E
Approach Delay (s)	15.0			11.9	56.0	
Approach LOS	B			B	E	

Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗↗	↖↖↖	↗	↘	↘
Traffic Volume (vph)	142	1829	3729	188	126	95
Future Volume (vph)	142	1829	3729	188	126	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0			75.0	0.0	15.0
Storage Lanes	1			1	1	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.042				0.950	
Satd. Flow (perm)	79	4520	4520	1601	1789	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				122		63
Link Speed (k/h)		70	70		48	
Link Distance (m)		353.8	502.7		146.3	
Travel Time (s)		18.2	25.9		11.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	1829	3729	188	126	95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	1829	3729	188	126	95
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6

Lanes, Volumes, Timings  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	24.7	24.7	24.7	22.5	22.5
Total Split (s)	9.5	107.5	98.0	98.0	22.5	22.5
Total Split (%)	7.3%	82.7%	75.4%	75.4%	17.3%	17.3%
Maximum Green (s)	5.5	100.8	91.3	91.3	18.5	18.5
Yellow Time (s)	3.0	4.2	4.2	4.2	3.0	3.0
All-Red Time (s)	1.0	2.5	2.5	2.5	1.0	1.0
Lost Time Adjust (s)	-3.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	6.7	6.7	6.7	4.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	106.5	100.8	91.3	91.3	18.5	18.5
Actuated g/C Ratio	0.82	0.78	0.70	0.70	0.14	0.14
v/c Ratio	0.81	0.52	1.17	0.16	0.50	0.34
Control Delay	70.2	2.9	95.6	0.3	58.9	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	2.9	95.6	0.3	58.9	23.7
LOS	E	A	F	A	E	C
Approach Delay		7.7	91.0		43.8	
Approach LOS		A	F		D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.17  
 Intersection Signal Delay: 62.4  
 Intersection LOS: E  
 Intersection Capacity Utilization 99.1%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 4: Dundas St E & Street A



Queues  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



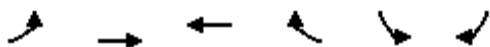
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	142	1829	3729	188	126	95
v/c Ratio	0.81	0.52	1.17	0.16	0.50	0.34
Control Delay	70.2	2.9	95.6	0.3	58.9	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	2.9	95.6	0.3	58.9	23.7
Queue Length 50th (m)	27.5	17.1	~484.1	0.0	30.2	7.3
Queue Length 95th (m)	#55.7	43.0	m36.3	m0.0	50.4	23.4
Internal Link Dist (m)		329.8	478.7		122.3	
Turn Bay Length (m)	110.0			75.0		15.0
Base Capacity (vph)	176	3504	3174	1160	254	281
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	0.81	0.52	1.17	0.16	0.50	0.34

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  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↑↑↑	↑↑↑	↵	↵	↵
Traffic Volume (vph)	142	1829	3729	188	126	95
Future Volume (vph)	142	1829	3729	188	126	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	6.7	6.7	6.7	4.0	4.0
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.04	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	79	4520	4520	1601	1789	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	1829	3729	188	126	95
RTOR Reduction (vph)	0	0	0	36	0	54
Lane Group Flow (vph)	142	1829	3729	152	126	41
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6
Actuated Green, G (s)	100.8	100.8	91.3	91.3	18.5	18.5
Effective Green, g (s)	103.8	100.8	91.3	91.3	18.5	18.5
Actuated g/C Ratio	0.80	0.78	0.70	0.70	0.14	0.14
Clearance Time (s)	4.0	6.7	6.7	6.7	4.0	4.0
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	174	3504	3174	1124	254	227
v/s Ratio Prot	c0.05	0.40	c0.82			
v/s Ratio Perm	0.59			0.09	c0.07	0.03
v/c Ratio	0.82	0.52	1.17	0.13	0.50	0.18
Uniform Delay, d1	46.8	5.5	19.4	6.4	51.4	49.1
Progression Factor	1.55	0.44	0.64	0.10	1.00	1.00
Incremental Delay, d2	21.2	0.1	79.0	0.0	6.8	1.7
Delay (s)	93.9	2.5	91.3	0.6	58.2	50.8
Level of Service	F	A	F	A	E	D
Approach Delay (s)		9.1	87.0		55.0	
Approach LOS		A	F		E	

Intersection Summary

HCM 2000 Control Delay	60.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	1520	286	145	3161	137	522	729	546	107	312	230
Future Volume (vph)	147	1520	286	145	3161	137	522	729	546	107	312	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
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	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4476	1601	1789	4565	1633	1789	3614	1555	1789	3614	1633
Flt Permitted	0.064			0.066			0.537			0.140		
Satd. Flow (perm)	123	4476	1601	124	4565	1633	1011	3614	1555	264	3614	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			199			138			100			111
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		502.7			295.5			522.7			348.2	
Travel Time (s)		25.9			15.2			31.4			20.9	
Peak Hour 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
Heavy Vehicles (%)	0%	3%	2%	2%	1%	0%	2%	1%	5%	2%	1%	0%
Adj. Flow (vph)	147	1520	286	145	3161	137	522	729	546	107	312	230
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	1520	286	145	3161	137	522	729	546	107	312	230
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
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	12.0	45.3	45.3	11.0	45.3	45.3	11.0	47.5	11.0	14.5	47.5	47.5
Total Split (s)	13.0	68.9	68.9	13.0	68.9	68.9	13.0	26.0	13.0	22.1	35.1	35.1
Total Split (%)	10.0%	53.0%	53.0%	10.0%	53.0%	53.0%	10.0%	20.0%	10.0%	17.0%	27.0%	27.0%
Maximum Green (s)	8.0	62.6	62.6	9.0	62.6	62.6	9.0	19.5	9.0	18.1	28.6	28.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	2.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	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	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	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
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	71.9	62.6	62.6	73.9	62.6	62.6	37.6	26.1	41.6	42.1	28.6	28.6
Actuated g/C Ratio	0.55	0.48	0.48	0.57	0.48	0.48	0.29	0.20	0.32	0.32	0.22	0.22
v/c Ratio	0.85	0.71	0.33	0.78	1.44	0.16	1.51	1.01	0.97	0.49	0.39	0.52
Control Delay	57.5	39.7	17.7	53.0	228.8	3.3	275.4	86.3	66.5	38.1	45.0	27.1
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	57.5	39.7	17.7	53.0	228.8	3.3	275.4	86.3	66.5	38.1	45.0	27.1
LOS	E	D	B	D	F	A	F	F	E	D	D	C
Approach Delay		37.8			212.4			135.2			37.5	
Approach LOS		D			F			F			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 12 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.51  
 Intersection Signal Delay: 136.8  
 Intersection LOS: F  
 Intersection Capacity Utilization 124.9%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Ninth Line & Dundas St E



Queues  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	147	1520	286	145	3161	137	522	729	546	107	312	230
v/c Ratio	0.85	0.71	0.33	0.78	1.44	0.16	1.51	1.01	0.97	0.49	0.39	0.52
Control Delay	57.5	39.7	17.7	53.0	228.8	3.3	275.4	86.3	66.5	38.1	45.0	27.1
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	57.5	39.7	17.7	53.0	228.8	3.3	275.4	86.3	66.5	38.1	45.0	27.1
Queue Length 50th (m)	27.5	157.8	43.8	19.8	~457.2	0.0	~185.5	~99.4	117.6	19.2	36.1	26.3
Queue Length 95th (m)	#57.1	151.3	58.8	#53.1	#484.2	10.3	#260.8	#156.4	#201.1	33.2	50.2	52.0
Internal Link Dist (m)		478.7			271.5			498.7			324.2	
Turn Bay Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	172	2155	874	185	2198	857	346	725	565	301	795	445
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	0.85	0.71	0.33	0.78	1.44	0.16	1.51	1.01	0.97	0.36	0.39	0.52

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  
5: Ninth Line & Dundas St E





























Afternoon Peak Hour  
04/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	1520	286	145	3161	137	522	729	546	107	312	230
Future Volume (vph)	147	1520	286	145	3161	137	522	729	546	107	312	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	4.0	6.5	6.5
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	4476	1601	1789	4565	1633	1789	3614	1555	1789	3614	1633
Flt Permitted	0.06	1.00	1.00	0.07	1.00	1.00	0.54	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	123	4476	1601	123	4565	1633	1011	3614	1555	263	3614	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	147	1520	286	145	3161	137	522	729	546	107	312	230
RTOR Reduction (vph)	0	0	103	0	0	71	0	0	73	0	0	87
Lane Group Flow (vph)	147	1520	183	145	3161	66	522	729	473	107	312	143
Heavy Vehicles (%)	0%	3%	2%	2%	1%	0%	2%	1%	5%	2%	1%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	70.6	62.6	62.6	71.6	62.6	62.6	35.1	26.1	35.1	40.1	28.6	28.6
Effective Green, g (s)	70.6	62.6	62.6	71.6	62.6	62.6	35.1	26.1	35.1	40.1	28.6	28.6
Actuated g/C Ratio	0.54	0.48	0.48	0.55	0.48	0.48	0.27	0.20	0.27	0.31	0.22	0.22
Clearance Time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	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)	171	2155	770	183	2198	786	326	725	419	216	795	359
v/s Ratio Prot	0.05	0.34		0.05	c0.69		c0.11	0.20	c0.08	c0.04	0.09	
v/s Ratio Perm	0.41		0.11	0.38		0.04	c0.32		0.23	0.11		0.09
v/c Ratio	0.86	0.71	0.24	0.79	1.44	0.08	1.60	1.01	1.13	0.50	0.39	0.40
Uniform Delay, d1	34.2	26.5	19.7	27.3	33.7	18.2	45.6	52.0	47.5	35.5	43.3	43.4
Progression Factor	0.80	1.42	2.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.6	1.7	0.6	21.0	199.8	0.2	284.5	34.8	84.0	2.1	0.4	0.9
Delay (s)	57.1	39.3	53.2	48.3	233.5	18.4	330.1	86.7	131.4	37.6	43.7	44.2
Level of Service	E	D	D	D	F	B	F	F	F	D	D	D
Approach Delay (s)		42.7			217.2			171.0			42.9	
Approach LOS		D			F			F			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			148.7									F
HCM 2000 Volume to Capacity ratio			1.45									
Actuated Cycle Length (s)			130.0						21.8			
Intersection Capacity Utilization			124.9%									H
Analysis Period (min)			15									
c Critical Lane Group												



Lanes, Volumes, Timings  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	134	1831	210	216	3123	239	192	54	134	74	38	11
Future Volume (vph)	134	1831	210	216	3123	239	192	54	134	74	38	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.0		52.0	150.0		75.0	26.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		1	1		1
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	1.00	1.00
Ped Bike Factor							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)	1825	4476	1601	1825	4565	1633	1807	1865	1633	1825	1921	1633
Flt Permitted	0.057			0.054			0.732			0.722		
Satd. Flow (perm)	110	4476	1601	104	4565	1633	1391	1865	1610	1384	1921	1612
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110			108			129			65
Link Speed (k/h)		70			70			50				50
Link Distance (m)		651.2			600.6			206.2				419.2
Travel Time (s)		33.5			30.9			14.8				30.2
Confl. Peds. (#/hr)							1		2	2		1
Peak Hour 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
Heavy Vehicles (%)	0%	3%	2%	0%	1%	0%	1%	3%	0%	0%	0%	0%
Adj. Flow (vph)	134	1831	210	216	3123	239	192	54	134	74	38	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	1831	210	216	3123	239	192	54	134	74	38	11
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
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  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

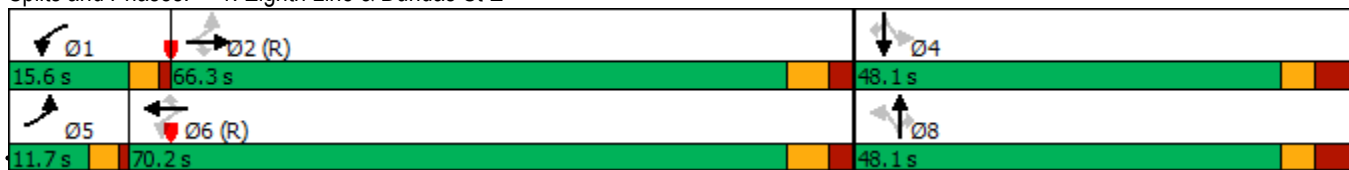


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	37.7	37.7	11.5	37.7	37.7	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (s)	11.7	66.3	66.3	15.6	70.2	70.2	48.1	48.1	48.1	48.1	48.1	48.1
Total Split (%)	9.0%	51.0%	51.0%	12.0%	54.0%	54.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	7.7	59.6	59.6	11.6	63.5	63.5	41.1	41.1	41.1	41.1	41.1	41.1
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5	2.5	3.7	3.7	3.7	3.7	3.7	3.7
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	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	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	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	83.7	69.8	69.8	94.7	76.8	76.8	24.3	24.3	24.3	24.3	24.3	24.3
Actuated g/C Ratio	0.64	0.54	0.54	0.73	0.59	0.59	0.19	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.61	0.76	0.23	0.68	1.16	0.24	0.74	0.16	0.33	0.29	0.11	0.03
Control Delay	37.9	27.8	9.4	42.4	97.7	11.6	65.9	42.4	9.4	46.0	41.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	27.8	9.4	42.4	97.7	11.6	65.9	42.4	9.4	46.0	41.2	0.2
LOS	D	C	A	D	F	B	E	D	A	D	D	A
Approach Delay		26.6			88.6			42.6			40.4	
Approach LOS		C			F			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 3 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.16  
 Intersection Signal Delay: 63.3  
 Intersection LOS: E  
 Intersection Capacity Utilization 100.8%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 1: Eighth Line & Dundas St E



Queues  
1: Eighth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	134	1831	210	216	3123	239	192	54	134	74	38	11
v/c Ratio	0.61	0.76	0.23	0.68	1.16	0.24	0.74	0.16	0.33	0.29	0.11	0.03
Control Delay	37.9	27.8	9.4	42.4	97.7	11.6	65.9	42.4	9.4	46.0	41.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	27.8	9.4	42.4	97.7	11.6	65.9	42.4	9.4	46.0	41.2	0.2
Queue Length 50th (m)	16.5	149.7	12.4	47.6	~384.6	16.2	47.1	11.8	1.1	16.5	8.2	0.0
Queue Length 95th (m)	38.7	201.3	30.5	m34.8	m#259.3	m10.4	67.0	21.3	16.4	28.0	16.3	0.0
Internal Link Dist (m)		627.2			576.6			182.2			395.2	
Turn Bay Length (m)	97.0		52.0	150.0		75.0	26.0			15.0		15.0
Base Capacity (vph)	218	2403	910	316	2697	1009	439	589	597	437	607	554
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	0.61	0.76	0.23	0.68	1.16	0.24	0.44	0.09	0.22	0.17	0.06	0.02

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  
1: Eighth Line & Dundas St E






























Afternoon Peak Hour  
04/17/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	134	1831	210	216	3123	239	192	54	134	74	38	11
Future Volume (vph)	134	1831	210	216	3123	239	192	54	134	74	38	11
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	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)	1825	4476	1601	1825	4565	1633	1805	1865	1610	1822	1921	1612
Flt Permitted	0.06	1.00	1.00	0.05	1.00	1.00	0.73	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	110	4476	1601	104	4565	1633	1392	1865	1610	1384	1921	1612
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	134	1831	210	216	3123	239	192	54	134	74	38	11
RTOR Reduction (vph)	0	0	51	0	0	44	0	0	105	0	0	9
Lane Group Flow (vph)	134	1831	159	216	3123	195	192	54	29	74	38	2
Confl. Peds. (#/hr)							1		2	2		1
Heavy Vehicles (%)	0%	3%	2%	0%	1%	0%	1%	3%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	81.0	69.8	69.8	92.0	76.8	76.8	24.3	24.3	24.3	24.3	24.3	24.3
Effective Green, g (s)	81.0	69.8	69.8	92.0	76.8	76.8	24.3	24.3	24.3	24.3	24.3	24.3
Actuated g/C Ratio	0.62	0.54	0.54	0.71	0.59	0.59	0.19	0.19	0.19	0.19	0.19	0.19
Clearance Time (s)	4.0	6.7	6.7	4.0	6.7	6.7	7.0	7.0	7.0	7.0	7.0	7.0
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)	216	2403	859	314	2696	964	260	348	300	258	359	301
v/s Ratio Prot	0.05	0.41		c0.10	c0.68			0.03			0.02	
v/s Ratio Perm	0.33		0.10	0.39		0.12	c0.14		0.02	0.05		0.00
v/c Ratio	0.62	0.76	0.19	0.69	1.16	0.20	0.74	0.16	0.10	0.29	0.11	0.01
Uniform Delay, d1	32.9	23.6	15.5	36.3	26.6	12.4	49.9	44.3	43.8	45.4	43.8	43.0
Progression Factor	1.00	1.00	1.00	1.35	0.97	1.40	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	2.3	0.5	0.6	71.7	0.0	10.8	0.2	0.2	0.7	0.2	0.0
Delay (s)	38.6	25.9	16.0	49.5	97.5	17.3	60.6	44.5	43.9	46.1	44.0	43.0
Level of Service	D	C	B	D	F	B	E	D	D	D	D	D
Approach Delay (s)		25.8			89.3			52.5			45.2	
Approach LOS		C			F			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			64.1	HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				17.7				
Intersection Capacity Utilization			100.8%	ICU Level of Service				G				
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	206	1732	172	261	3372	274	194	5	100	248	9	130
Future Volume (vph)	206	1732	172	261	3372	274	194	5	100	248	9	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		55.0	125.0		70.0	50.0		0.0	15.0		15.0
Storage Lanes	1		1	1		1	1		0	1		1
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	1.00	1.00
Ped Bike Factor			0.97									
Flt			0.850			0.850		0.857				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	4476	1601	1825	4565	1601	1825	1645	0	1789	1883	1601
Flt Permitted	0.062			0.059			0.752			0.689		
Satd. Flow (perm)	117	4476	1553	113	4565	1601	1445	1645	0	1298	1883	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107			116			100			107
Link Speed (k/h)		70			70			50				48
Link Distance (m)		600.6			587.4			203.4				98.7
Travel Time (s)		30.9			30.2			14.6				7.4
Confl. Peds. (#/hr)			5	5								
Peak Hour 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
Heavy Vehicles (%)	2%	3%	2%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	206	1732	172	261	3372	274	194	5	100	248	9	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	1732	172	261	3372	274	194	105	0	248	9	130
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
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



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	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0		5.0	5.0	5.0
Minimum Split (s)	9.5	38.8	38.8	9.5	38.8	38.8	43.9	43.9		24.7	24.7	24.7
Total Split (s)	11.0	64.3	64.3	21.8	75.1	75.1	43.9	43.9		43.9	43.9	43.9
Total Split (%)	8.5%	49.5%	49.5%	16.8%	57.8%	57.8%	33.8%	33.8%		33.8%	33.8%	33.8%
Maximum Green (s)	6.5	57.5	57.5	17.3	68.3	68.3	37.2	37.2		37.2	37.2	37.2
Yellow Time (s)	3.5	4.2	4.2	3.5	4.2	4.2	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	3.4	3.4		3.4	3.4	3.4
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)	4.5	6.8	6.8	4.5	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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
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	7.0
Flash Dont Walk (s)		25.0	25.0		25.0	25.0	30.0	30.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effct Green (s)	79.4	64.5	64.5	85.1	68.3	68.3	29.9	29.9		29.9	29.9	29.9
Actuated g/C Ratio	0.61	0.50	0.50	0.65	0.53	0.53	0.23	0.23		0.23	0.23	0.23
v/c Ratio	0.83	0.78	0.21	0.85	1.41	0.31	0.58	0.23		0.83	0.02	0.29
Control Delay	62.4	29.8	14.5	37.6	216.1	13.6	50.8	8.7		70.0	34.9	11.4
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	62.4	29.8	14.5	37.6	216.1	13.6	50.8	8.7		70.0	34.9	11.4
LOS	E	C	B	D	F	B	D	A		E	C	B
Approach Delay		31.7			189.9			36.0			49.5	
Approach LOS		C			F			D			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: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.41  
 Intersection Signal Delay: 125.2  
 Intersection LOS: F  
 Intersection Capacity Utilization 112.0%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 2: Prince Michael Dr & Dundas St E



Queues  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	206	1732	172	261	3372	274	194	105	248	9	130
v/c Ratio	0.83	0.78	0.21	0.85	1.41	0.31	0.58	0.23	0.83	0.02	0.29
Control Delay	62.4	29.8	14.5	37.6	216.1	13.6	50.8	8.7	70.0	34.9	11.4
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	62.4	29.8	14.5	37.6	216.1	13.6	50.8	8.7	70.0	34.9	11.4
Queue Length 50th (m)	45.6	84.5	8.2	45.6	~491.0	30.0	44.3	1.0	60.6	1.8	4.6
Queue Length 95th (m)	m#96.2	137.9	m26.3	m47.0	m#471.7	m29.2	64.8	14.4	86.5	6.0	19.4
Internal Link Dist (m)		576.6			563.4			179.4		74.7	
Turn Bay Length (m)	115.0		55.0	125.0		70.0	50.0		15.0		15.0
Base Capacity (vph)	249	2219	824	317	2398	896	413	542	371	538	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.78	0.21	0.82	1.41	0.31	0.47	0.19	0.67	0.02	0.24

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  
2: Prince Michael Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020

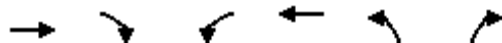
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	1732	172	261	3372	274	194	5	100	248	9	130
Future Volume (vph)	206	1732	172	261	3372	274	194	5	100	248	9	130
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.8	6.8	4.5	6.8	6.8	6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
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	0.86		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)	1789	4476	1553	1825	4565	1601	1825	1645		1789	1883	1601
Flt Permitted	0.06	1.00	1.00	0.06	1.00	1.00	0.75	1.00		0.69	1.00	1.00
Satd. Flow (perm)	117	4476	1553	113	4565	1601	1444	1645		1298	1883	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	206	1732	172	261	3372	274	194	5	100	248	9	130
RTOR Reduction (vph)	0	0	54	0	0	55	0	77	0	0	0	82
Lane Group Flow (vph)	206	1732	118	261	3372	219	194	28	0	248	9	48
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	3%	2%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Actuated Green, G (s)	78.3	64.5	64.5	85.9	68.3	68.3	29.9	29.9		29.9	29.9	29.9
Effective Green, g (s)	78.3	64.5	64.5	85.9	68.3	68.3	29.9	29.9		29.9	29.9	29.9
Actuated g/C Ratio	0.60	0.50	0.50	0.66	0.53	0.53	0.23	0.23		0.23	0.23	0.23
Clearance Time (s)	4.5	6.8	6.8	4.5	6.8	6.8	6.7	6.7		6.7	6.7	6.7
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
Lane Grp Cap (vph)	247	2220	770	306	2398	841	332	378		298	433	368
v/s Ratio Prot	0.09	0.39		c0.12	c0.74			0.02			0.00	
v/s Ratio Perm	0.41		0.08	0.45		0.14	0.13			c0.19		0.03
v/c Ratio	0.83	0.78	0.15	0.85	1.41	0.26	0.58	0.07		0.83	0.02	0.13
Uniform Delay, d1	40.0	26.9	17.9	39.9	30.9	17.0	44.5	39.2		47.7	38.7	39.7
Progression Factor	1.35	0.97	1.65	0.95	1.33	1.39	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.2	2.0	0.3	2.3	183.0	0.1	2.8	0.1		18.1	0.0	0.2
Delay (s)	70.3	28.1	29.8	40.2	224.0	23.7	47.3	39.3		65.7	38.7	39.9
Level of Service	E	C	C	D	F	C	D	D		E	D	D
Approach Delay (s)		32.3			197.7			44.5			56.4	
Approach LOS		C			F			D			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			130.6			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)					18.0			
Intersection Capacity Utilization			112.0%	ICU Level of Service			H					
Analysis Period (min)			15									

c Critical Lane Group



Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	1952	82	253	3838	47	163
Future Volume (vph)	1952	82	253	3838	47	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	135.0		25.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4476	1633	1825	4565	1825	1633
Flt Permitted			0.046		0.950	
Satd. Flow (perm)	4476	1633	88	4565	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		44				163
Link Speed (k/h)	70			70	50	
Link Distance (m)	587.4			353.8	240.3	
Travel Time (s)	30.2			18.2	17.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	0%	0%	1%	0%	0%
Adj. Flow (vph)	1952	82	253	3838	47	163
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1952	82	253	3838	47	163
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
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		

Lanes, Volumes, Timings  
3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6		8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	7.0	20.0	10.0	10.0
Minimum Split (s)	36.7	36.7	11.5	36.7	43.9	43.9
Total Split (s)	63.7	63.7	20.8	84.5	45.5	45.5
Total Split (%)	49.0%	49.0%	16.0%	65.0%	35.0%	35.0%
Maximum Green (s)	57.0	57.0	16.8	77.8	38.6	38.6
Yellow Time (s)	4.2	4.2	3.0	4.2	3.3	3.3
All-Red Time (s)	2.5	2.5	1.0	2.5	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0		23.0	30.0	30.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	82.8	82.8	108.3	105.6	10.8	10.8
Actuated g/C Ratio	0.64	0.64	0.83	0.81	0.08	0.08
v/c Ratio	0.69	0.08	0.78	1.04	0.31	0.57
Control Delay	18.3	4.0	52.5	29.7	61.3	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	4.0	52.5	29.7	61.3	16.4
LOS	B	A	D	C	E	B
Approach Delay	17.7			31.1	26.4	
Approach LOS	B			C	C	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 75 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.04  
 Intersection Signal Delay: 26.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 93.8%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 3: Meadowridge Dr & Dundas St E



Queues  
3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



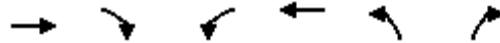
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1952	82	253	3838	47	163
v/c Ratio	0.69	0.08	0.78	1.04	0.31	0.57
Control Delay	18.3	4.0	52.5	29.7	61.3	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	4.0	52.5	29.7	61.3	16.4
Queue Length 50th (m)	193.0	4.9	53.7	~121.9	11.6	0.0
Queue Length 95th (m)	220.2	m8.5	m38.4	m41.0	23.4	20.7
Internal Link Dist (m)	563.4			329.8	216.3	
Turn Bay Length (m)		60.0	135.0		25.0	
Base Capacity (vph)	2849	1055	339	3708	541	599
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	0.69	0.08	0.75	1.04	0.09	0.27

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
3: Meadowridge Dr & Dundas St E

Afternoon Peak Hour  
04/17/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (vph)	1952	82	253	3838	47	163
Future Volume (vph)	1952	82	253	3838	47	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Lane Util. Factor	*0.80	1.00	1.00	*0.80	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4476	1633	1825	4565	1825	1633
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	4476	1633	89	4565	1825	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1952	82	253	3838	47	163
RTOR Reduction (vph)	0	16	0	0	0	149
Lane Group Flow (vph)	1952	66	253	3838	47	14
Heavy Vehicles (%)	3%	0%	0%	1%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Perm	Perm
Protected Phases	2		1	6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	82.8	82.8	105.6	105.6	10.8	10.8
Effective Green, g (s)	82.8	82.8	105.6	105.6	10.8	10.8
Actuated g/C Ratio	0.64	0.64	0.81	0.81	0.08	0.08
Clearance Time (s)	6.7	6.7	4.0	6.7	6.9	6.9
Vehicle Extension (s)	5.5	5.5	3.5	5.5	3.5	3.5
Lane Grp Cap (vph)	2850	1040	323	3708	151	135
v/s Ratio Prot	0.44		0.11	c0.84		
v/s Ratio Perm		0.04	0.53		c0.03	0.01
v/c Ratio	0.68	0.06	0.78	1.04	0.31	0.10
Uniform Delay, d1	15.2	8.9	40.0	12.2	56.1	55.1
Progression Factor	1.07	0.69	1.45	0.92	1.00	1.00
Incremental Delay, d2	0.9	0.1	1.2	17.0	1.4	0.4
Delay (s)	17.1	6.3	59.0	28.2	57.5	55.5
Level of Service	B	A	E	C	E	E
Approach Delay (s)	16.7			30.1	55.9	
Approach LOS	B			C	E	

Intersection Summary

HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑↑	↑↑↑	↗	↙	↘
Traffic Volume (vph)	142	1971	4017	188	126	95
Future Volume (vph)	142	1971	4017	188	126	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0			75.0	0.0	15.0
Storage Lanes	1			1	1	1
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.042				0.950	
Satd. Flow (perm)	79	4520	4520	1601	1789	1601
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				114		62
Link Speed (k/h)		70	70		48	
Link Distance (m)		353.8	502.7		146.3	
Travel Time (s)		18.2	25.9		11.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	1971	4017	188	126	95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	1971	4017	188	126	95
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6

Lanes, Volumes, Timings  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	24.7	24.7	24.7	22.5	22.5
Total Split (s)	9.5	107.5	98.0	98.0	22.5	22.5
Total Split (%)	7.3%	82.7%	75.4%	75.4%	17.3%	17.3%
Maximum Green (s)	5.5	100.8	91.3	91.3	18.5	18.5
Yellow Time (s)	3.0	4.2	4.2	4.2	3.0	3.0
All-Red Time (s)	1.0	2.5	2.5	2.5	1.0	1.0
Lost Time Adjust (s)	-3.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	1.0	6.7	6.7	6.7	4.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	None	None	None	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	106.5	100.8	91.3	91.3	18.5	18.5
Actuated g/C Ratio	0.82	0.78	0.70	0.70	0.14	0.14
v/c Ratio	0.81	0.56	1.27	0.16	0.50	0.34
Control Delay	66.2	3.9	137.4	0.3	58.9	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	3.9	137.4	0.3	58.9	24.2
LOS	E	A	F	A	E	C
Approach Delay		8.1	131.3		44.0	
Approach LOS		A	F		D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.27  
 Intersection Signal Delay: 88.5  
 Intersection LOS: F  
 Intersection Capacity Utilization 104.7%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 4: Dundas St E & Street A



Queues  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	142	1971	4017	188	126	95
v/c Ratio	0.81	0.56	1.27	0.16	0.50	0.34
Control Delay	66.2	3.9	137.4	0.3	58.9	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	3.9	137.4	0.3	58.9	24.2
Queue Length 50th (m)	27.7	20.1	~550.5	0.0	30.2	7.5
Queue Length 95th (m)	m#48.8	72.1	m35.9	m0.0	50.4	23.6
Internal Link Dist (m)		329.8	478.7		122.3	
Turn Bay Length (m)	110.0			75.0		15.0
Base Capacity (vph)	176	3504	3174	1158	254	281
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	0.81	0.56	1.27	0.16	0.50	0.34

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  
4: Dundas St E & Street A

Afternoon Peak Hour  
04/17/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑↑↑	↑↑↑	↘	↙	↘
Traffic Volume (vph)	142	1971	4017	188	126	95
Future Volume (vph)	142	1971	4017	188	126	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	6.7	6.7	6.7	4.0	4.0
Lane Util. Factor	1.00	*0.80	*0.80	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	4520	4520	1601	1789	1601
Flt Permitted	0.04	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	79	4520	4520	1601	1789	1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	1971	4017	188	126	95
RTOR Reduction (vph)	0	0	0	34	0	53
Lane Group Flow (vph)	142	1971	4017	154	126	42
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6
Actuated Green, G (s)	100.8	100.8	91.3	91.3	18.5	18.5
Effective Green, g (s)	103.8	100.8	91.3	91.3	18.5	18.5
Actuated g/C Ratio	0.80	0.78	0.70	0.70	0.14	0.14
Clearance Time (s)	4.0	6.7	6.7	6.7	4.0	4.0
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	174	3504	3174	1124	254	227
v/s Ratio Prot	c0.05	0.44	c0.89			
v/s Ratio Perm	0.59			0.10	c0.07	0.03
v/c Ratio	0.82	0.56	1.27	0.14	0.50	0.18
Uniform Delay, d1	46.8	5.8	19.4	6.4	51.4	49.1
Progression Factor	1.46	0.58	0.64	0.12	1.00	1.00
Incremental Delay, d2	19.9	0.2	119.8	0.0	6.8	1.8
Delay (s)	88.3	3.5	132.1	0.8	58.2	50.9
Level of Service	F	A	F	A	E	D
Approach Delay (s)		9.2	126.2		55.1	
Approach LOS		A	F		E	































Intersection Summary			
HCM 2000 Control Delay	86.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	159	1636	307	156	3403	148	561	786	588	115	336	247
Future Volume (vph)	159	1636	307	156	3403	148	561	786	588	115	336	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
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	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	4476	1601	1789	4565	1633	1789	3614	1555	1789	3614	1633
Flt Permitted	0.064			0.064			0.514			0.140		
Satd. Flow (perm)	123	4476	1601	121	4565	1633	968	3614	1555	264	3614	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			198			138			95			111
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		502.7			295.5			522.7			348.2	
Travel Time (s)		25.9			15.2			31.4			20.9	
Peak Hour 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
Heavy Vehicles (%)	0%	3%	2%	2%	1%	0%	2%	1%	5%	2%	1%	0%
Adj. Flow (vph)	159	1636	307	156	3403	148	561	786	588	115	336	247
Shared Lane Traffic (%)												
Lane Group Flow (vph)	159	1636	307	156	3403	148	561	786	588	115	336	247
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
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3		8

Lanes, Volumes, Timings  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	12.0	45.3	45.3	11.0	45.3	45.3	11.0	47.5	11.0	14.5	47.5	47.5
Total Split (s)	13.0	68.9	68.9	13.0	68.9	68.9	13.0	26.0	13.0	22.1	35.1	35.1
Total Split (%)	10.0%	53.0%	53.0%	10.0%	53.0%	53.0%	10.0%	20.0%	10.0%	17.0%	27.0%	27.0%
Maximum Green (s)	8.0	62.6	62.6	9.0	62.6	62.6	9.0	19.5	9.0	18.1	28.6	28.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	2.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	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	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	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
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	71.9	62.6	62.6	73.9	62.6	62.6	37.2	25.7	41.2	42.3	28.6	28.6
Actuated g/C Ratio	0.55	0.48	0.48	0.57	0.48	0.48	0.29	0.20	0.32	0.33	0.22	0.22
v/c Ratio	0.92	0.76	0.35	0.85	1.55	0.17	1.68	1.10	1.06	0.51	0.42	0.56
Control Delay	69.2	37.7	16.3	63.8	276.8	4.1	349.9	113.1	90.1	38.8	45.5	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	37.7	16.3	63.8	276.8	4.1	349.9	113.1	90.1	38.8	45.5	29.6
LOS	E	D	B	E	F	A	F	F	F	D	D	C
Approach Delay		37.0			256.9			174.8			38.8	
Approach LOS		D			F			F			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 12 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.68  
 Intersection Signal Delay: 165.3  
 Intersection LOS: F  
 Intersection Capacity Utilization 133.1%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Ninth Line & Dundas St E



Queues  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	159	1636	307	156	3403	148	561	786	588	115	336	247
v/c Ratio	0.92	0.76	0.35	0.85	1.55	0.17	1.68	1.10	1.06	0.51	0.42	0.56
Control Delay	69.2	37.7	16.3	63.8	276.8	4.1	349.9	113.1	90.1	38.8	45.5	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	37.7	16.3	63.8	276.8	4.1	349.9	113.1	90.1	38.8	45.5	29.6
Queue Length 50th (m)	25.9	176.4	49.5	23.3	~510.9	1.3	~209.7	~120.1	~147.0	20.7	39.2	30.7
Queue Length 95th (m)	#64.9	145.8	56.2	#61.5	#536.1	12.4	#286.0	#175.2	#229.1	35.2	53.9	58.0
Internal Link Dist (m)		478.7			271.5			498.7			324.2	
Turn Bay Length (m)	222.0		55.0	230.0		65.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	172	2155	873	184	2198	857	333	713	557	301	795	445
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	0.92	0.76	0.35	0.85	1.55	0.17	1.68	1.10	1.06	0.38	0.42	0.56

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  
5: Ninth Line & Dundas St E

Afternoon Peak Hour  
04/17/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 		 	 	
Traffic Volume (vph)	159	1636	307	156	3403	148	561	786	588	115	336	247
Future Volume (vph)	159	1636	307	156	3403	148	561	786	588	115	336	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	4.0	6.5	6.5
Lane Util. Factor	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	4476	1601	1789	4565	1633	1789	3614	1555	1789	3614	1633
Flt Permitted	0.06	1.00	1.00	0.06	1.00	1.00	0.51	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	123	4476	1601	120	4565	1633	968	3614	1555	263	3614	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	159	1636	307	156	3403	148	561	786	588	115	336	247
RTOR Reduction (vph)	0	0	103	0	0	72	0	0	70	0	0	87
Lane Group Flow (vph)	159	1636	204	156	3403	76	561	786	518	115	336	160
Heavy Vehicles (%)	0%	3%	2%	2%	1%	0%	2%	1%	5%	2%	1%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	70.6	62.6	62.6	71.6	62.6	62.6	34.7	25.7	34.7	40.5	28.6	28.6
Effective Green, g (s)	70.6	62.6	62.6	71.6	62.6	62.6	34.7	25.7	34.7	40.5	28.6	28.6
Actuated g/C Ratio	0.54	0.48	0.48	0.55	0.48	0.48	0.27	0.20	0.27	0.31	0.22	0.22
Clearance Time (s)	5.0	6.3	6.3	4.0	6.3	6.3	4.0	6.5	4.0	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)	171	2155	770	181	2198	786	315	714	415	221	795	359
v/s Ratio Prot	0.06	0.37		0.06	c0.75		c0.12	0.22	c0.09	c0.05	0.09	
v/s Ratio Perm	0.45		0.13	0.41		0.05	c0.35		0.25	0.11		0.10
v/c Ratio	0.93	0.76	0.27	0.86	1.55	0.10	1.78	1.10	1.25	0.52	0.42	0.45
Uniform Delay, d1	36.4	27.5	20.0	31.4	33.7	18.3	45.8	52.1	47.6	35.4	43.6	43.9
Progression Factor	0.75	1.28	2.15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	43.6	2.2	0.7	32.5	249.0	0.2	364.0	64.7	130.7	2.5	0.4	1.0
Delay (s)	70.9	37.3	43.7	63.8	282.7	18.6	409.8	116.8	178.4	37.9	44.0	44.9
Level of Service	E	D	D	E	F	B	F	F	F	D	D	D
Approach Delay (s)		40.8			262.9			220.5			43.3	
Approach LOS		D			F			F			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			179.7	HCM 2000 Level of Service				F				
HCM 2000 Volume to Capacity ratio			1.58									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				21.8				
Intersection Capacity Utilization			133.1%	ICU Level of Service				H				
Analysis Period (min)			15									
c Critical Lane Group												

**Appendix E**  
**TTS**

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of household - pd\_hhld

Column: Planning district of employment - pd\_emp

RowG:(39)

ColG:

TblG:

Filters:

No Filters

Trip 2016

Table:

<b>Not employed</b>	<b>152193</b>			
PD 1 of Toronto	29287			
PD 2 of Toronto	2929	East on Dundas	86554	37%
PD 3 of Toronto	1136	South of Ninth	46159	20%
PD 4 of Toronto	2003	West on Dundas	98350	43%
PD 5 of Toronto	851			
PD 6 of Toronto	147			
PD 7 of Toronto	648		231063	
PD 8 of Toronto	3363			
PD 9 of Toronto	1364			
PD 10 of Toronto	1758			
PD 11 of Toronto	1087			
PD 12 of Toronto	382			
PD 13 of Toronto	544			
PD 14 of Toronto	17			
PD 15 of Toronto	70			
PD 16 of Toronto	573			
Pickering	45			
Oshawa	113			
Newmarket	54			
Richmond Hill	318			
Whitchurch-Stouffville	92			
Markham	1235			
Vaughan	2500			
Caledon	123			
Brampton	5246			
Mississauga	50527			
Halton Hills	811			
Milton	3133			
Oakville	94406			
Burlington	14376			
Flamborough	566			
Ancaster	171			
Glanbrook	172			
Stoney Creek	324			

Hamilton	6084
Grimsby	121
Lincoln	367
St. Catharines	313
Niagara Falls	28
Waterloo	517
Kitchener	439
Cambridge	969
Wellesley	30
City of Guelph	565
Puslinch	125
Erin	15
Orangeville	35
New Tecumseth	45
Oxford	49
Brant	407
Brantford	583
No Usual Place	21158
External	1091